

# **Strengthening farm-agribusiness linkages in Africa**

**Summary results of five  
country studies in Ghana,  
Nigeria, Kenya, Uganda and  
South Africa**



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## Preface

Over the past decade, Africa and other developing regions have been in the midst of tremendous changes. Market liberalisation and governmental decentralisation policies have interfaced with globalisation and urbanisation trends to dramatically transform social, political, economic and cultural lives. Agriculture can no longer remain behind—serving only to meet subsistence food needs. Agriculture has to become a dynamic and integral part of the market economy. If African agriculture is by-passed by the economic transformation going on world wide, then large numbers of Africans and perhaps all of Africa will remain poor and food insecure.

The fundamental purpose behind the FAO initiative to strengthening farm-agribusiness linkages is to help transform the agricultural sector in order to accelerate productivity growth, increase income and employment generation, improve food security, and increase competitiveness in regional and international trade.

In 2001 and 2002 five country case studies on farm-agribusiness linkages were undertaken in Ghana, Nigeria, Kenya, Uganda and South Africa. The main purpose of the studies was to get an insight into current farm-agribusiness linking arrangements. This included identifying and analysing successful linkages highlighting different methods and practices as well as exploring key factors that have led to successful partnerships. The country studies also contained a brief agribusiness sector overview.

The work in Africa began with preparation of five case studies which are presented as summary results as well as individually. FAO work on farm-agribusiness linkages emerged from a broader cross-regional study on farm-agribusiness linkages launched in 2000. The first stage was a series of country studies and a regional consultation in Asia. During 2001 and 2002, case studies and a regional workshop on agribusiness linkages were carried out in Latin America. This was followed by a workshop on strategies for improving negotiation and compliance capabilities, held in November 2002 in Peru. An expert consultation on strengthening farm-agribusiness linkages in Africa was held in March 2003 in Nairobi, Kenya.

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## Agribusiness Sector Reviews

In all countries studied with the exception of South Africa, there is insufficient data on the agribusiness sector available.

Agribusiness in Ghana is still rudimentary and artesian with little growth or development over the last three decades. It is difficult to analyse the performance of the agribusiness sector in Ghana due to the lack of comprehensive data on agribusiness enterprises and their activities in Ghana. The sector is not classified into sub-sectors and the last industrial survey was conducted in 1995 but covered only medium and large-scale industries. The extracted data on agro-industries showed a total of 250 companies with about 48,914 employees. In terms of employee numbers, the timber sub-sector dominate (46 percent) followed by the textile sub-sectors with 22 percent.

There is a lack of data on the agribusiness sector in Uganda. It appears that the sector is in its infant stage of development. Agriculture is dominated by smallholder farmers with limited interaction with both product and input markets. Some growth has been experienced in the horticulture and fish export sector but similar to Ghana there is no official statistics available. The traditional cash export sector is losing in international competitiveness.

Kenya has had a successful agricultural sector development since the early 50's. In the early 90s, the agro-processing sector contributed about 10 percent to GDP and 31 percent to total employment. During this period, however, the government introduced far-reaching structural reforms, including removal of price controls, removal of all import licensing, and removal of foreign exchange controls. These measures slowed growth substantially to 1.2 percent in 1997.

Much of the new agribusiness investment over the past decade by foreign companies has been made by firms, which had already been established for a long time. Investments have been geared toward diversifying product lines away from commodities facing adverse market trends. Kenya has witnessed the diversification of foreign owned tea, coffee and sisal companies into horticultural production and trade.

Nigerian agribusiness enterprises include the whole gamut of operations in the agricultural production, processing, distribution, and consumption spectrum. Agribusiness enterprises in Nigeria are classified into four major groups, farming input supply companies, producing farm firms, food processing agribusiness firms, and food marketing and distribution agribusiness organizations. These four groups can be found in the formal and informal sector of the economy.

Agribusiness firms are scattered all over the country but are concentrated in three main industrial clusters in Nigeria; Kano Kaduna Jos in the north; Lagos-Otta-Ibadan in the south west and Port Harcourt-Aba-Nnewi-Onitsha in the southeast. In general, the Lagos-Otta-Ibadan axis accounts for 44 percent of the registered firms and roughly 52 percent of the employment. Based on the average number of employees per firm, the



largest firms are also located in the Lagos area. While most of the sector is made up of small-scale enterprises (about 60 percent of the firms have between 20 and 49 employees), these only account for 12 percent of employment. With a few exceptions, firms with more than 500 employees provide the bulk of sectoral employment and account for 53 percent of total employment.

The South African agro-food complex, which consists of primary production plus the input and agro-processing sectors, accounts for around 14 percent of the GDP. In 2000 the agro food complex exported about R16 billion worth of primary and processed food products, or nearly 10 percent of South Africa's total exports. Almost all the productive and social activities of rural towns and service centres are dependent on primary agriculture and related activities. This includes increasingly popular and economically significant agro-tourism and game farming activities. Taking all of this into account it is true that more than half of the provinces and about 40 percent of the country's total population are primarily dependent on agriculture and its related industries.

Sales in the South African manufacturing sector grew by some 2.5 percent per annum in real terms in the period 1996-2001, a rate close to the overall real rate of growth of the economy. By contrast, sales of the food and beverages industries grew by about half that rate, making it one of the worst performers in this sector. Recent sales growth in this sub-sector has been third highest among the components of the manufacturing sector. Production in the food and beverages group accounted for about 18.5 percent of total manufacturing output for the country in 1996, while employment was 15.9 percent of total manufacturing sector employment and the wage bill 13.5 percent of total manufacturing sector wages.

## Selected Success Cases

Successful farm-agribusiness linkage arrangements were selected in the horticultural, dairy, rice and traditional cash crop sector. Case studies in Kenya include Homegrown, a leading vegetable exporter, Brookside Dairy, a milk processor, Kapapet Tea Factory, a processor and the Mwea Rice Irrigation Scheme. All cases have strong involvement with smallholder farmers. The case studies selected in Ghana comprised two fruit exporters a cashew processor and a rice production, processing and marketing scheme. Uganda took a more sectoral approach but in general linkages found were weak and informal in nature. The coffee, horticultural and dairy sectors were chosen.

Managed, long-term relationships between farmers and processors are also not easily encountered in Nigeria, but a fruit juice maker processing, a sorghum out-grower scheme for Guinness and a rice processing scheme were selected and analysed as case study material. South Africa focused on managed co-operation between large-scale processors and farmers from disadvantaged communities in the sugar, timber and tea sector. The table below gives some key information on the cases chosen.

Table 1: Selected Case Studies

Country and Case	Type of Business	Initial Support	Objective	Size of Operation
<i>Kenya</i>				
Homegrown	Vegetable Exporter	private sector	Fresh vegetable exports to EU	900 small scale, 30 medium scale farmers, exports ca 50 000t pa
Brookside Dairy	Milk Processor	private sector	Processing for domestic market	200 000 l per day with ca 15 000 farmers
Kapapet Tea Factory	Tea Processing	Government	Shareholding arrangement with farmers	5 266 farmers on 4 000 acres
Mwea Rice Irrigation	Rice production and processing	Government	Improve irrigated rice production	3 400 farmers organised in shareholding co-operative
<i>Ghana</i>				
Farmapine	Fresh Pineapple Export	Technoserve, IDA loan	Sea freight pineapple export	166 farmers, exports 7 000t pa
Blue Skies	Fresh Fruit Preparation	private sector	Airfreight export of ready-to-eat fruit	17 farmers, export 7 500t pa airfreight

Country and Case	Type of Business	Initial Support	Objective	Size of Operation
	Exporter		salads	
Sampa Jimini Co-operative	Cashew Processors	Technoserve	Technology transfer to processor plus marketing assistance	55 members in processing society, 15t pa of raw nuts
Afifie Farmers and Marketing Society	Irrigation	Government	Production & organised processing of irrigated rice	800 farmers on 880 ha
<i>South Africa</i>				
Transvaal Sugar	sugar processor	private sector	linking small holders to large-scale production	1 000 small scale vs. 140 medium on 27 000 ha and 4 estates on 8 000 ha; total annual production 300 000t
Sappi Project Grow	wood pulp manufacturing	private sector	linking small holders to large-scale production	1 000 small growers on 4,000ha; 500 000ha estate
Sapekoe Mini-farming project	tea processing	private sector	promotion of small scale farming for ex-employees	330 small farmers on 192 ha 1 800t) vs. estate of 500ha
<i>Uganda</i>				
Bamahalu florist	floriculture	private sector	informal links with small scale farmers	200-300 farmers
Dairy sector	traditional production and processing, limited links	Uganda Dairy Board	promotion of formal dairy sector	20 percent of agricultural. GDP, 900 m I (2001)
Kawacom coffee	organic coffee production and export	NGO / private sector	forward integration of farmers into processing Organic coffee trade	Export of ca. 1 000t
<i>Nigeria</i>				
Fuman Agric	fruit juice maker	private sector	domestic market supply	ca. 10 000t of raw material per year, Project stopped in 1998, size not known
Guinness Sorghum Outgrower Scheme	beer brewing	private sector	secure local raw material after import ban	
Abakiliki Rice Mill Owner Association	rice processing	private sector	processing, quality control, monitoring of standards and measures	not known

Most case studies chosen within the five countries had initial support of the private sector. However, there is more and more evidence of NGO assistance in setting up links between farmers and agribusiness companies.

# Linking Arrangements between Farmers and Agro-Processors

## Service Provision

Most agribusiness companies studied provide a wide range of extension services to farmers. These services include the provision of agricultural inputs such as seeds, fertilizer, agro-chemicals, veterinary drugs, artificial insemination, animal feed etc. as well as field preparation services, supply of irrigation water, produce transport etc. free-of-charge or on credit. The case studies revealed that the private sector is able to take over public extension services to primary producers, provided the agro-business is a profitable enterprise.

### Box 1: Some services offered to farmers by processors

*Homegrown* Company Ltd is success story of production and export of packaged horticulture produce from Kenya. The company has focused in the last two decades on the processing and export of fresh vegetables to the UK market. In order to ensure the desired quality and supply of fresh produce, it was important for Homegrown to enter into partnership with local farmers to complement its own production. Through this partnership the company is able to source about 25 percent of total requirements and in some cases such as French Beans, 100 percent of the total requirement from contracted farmers. By entering into a supply contract, farmers not only enjoy the benefits of an assured market for their farm produce; while at the same time benefiting from the fact that their farming activity risk is minimized by the certainty with which their production decisions are made. Farmers are supplied with the latest farming technology, such as the latest crop varieties and crop husbandry techniques which has ensured that farmers are able to optimize their production in terms of quality and quantity. Homegrown also supplies fertilizers, and agro-chemicals on credit to those farmers who need material credit, so that they can be able to produce the expected quantities and qualities without exerting themselves. This is also in recognition of the fact that the credit market in Kenya is highly biased against agricultural production.

*Brookside* Dairy Ltd has a policy of supporting dairy farmers as a strategic contribution to the development of a vibrant dairy industry in Kenya. The following services are therefore offered to farmers:

- Extension services including regular farmers field days for educational as well as exposure to any new developments in the dairy industry.
- AI: This is an important input service that farmers need so that farmers can be able to increase their milk output. The liberalization of AI services in 1992 has resulted in the increased use of low quality breeding bulls in addition to a large number of AI service providers, offering services whose quality cannot be guaranteed.
- Animal Health Drugs. The provision of quality drugs for animal health drugs is an important role, which is instrumental in milk production. The marketing of these drugs is liberalised, opening farmers to several outlets as well as varieties of drugs whose potency could be suspect.
- Animal Feeds. These are sourced from reliable companies at wholesale prices and resold to dairy farmers through the collection centres.

All services are provided to farmers on credit, to be deducted from their milk proceeds. The prices charged by Brookside Dairy Ltd are generally wholesale prices plus a little margin to cover transportation and other overhead costs.

## Contractual Agreements

Contractual agreements vary from informal -not based on any written document- to formal contracts, which determine prices, quantities, quality standards and services to be provided by the processor. Formal contracts are more common in Kenya and South Africa than in Uganda, Nigeria and Ghana. However, there is no evidence that formal contractual agreements are necessary for sound linkages between farmers and buyers. Especially weak contract enforcement and an inefficient jurisdiction system make contractual agreements obsolete. Mutual trust is more important which can be developed through longer –term “fair play” on both sides, reliable and fast payments, reliable and prompt product deliveries. However, a sound understanding of quality requirement, applied methods of quality control, payment terms and expected delivery schedules.

### Box 2: Example of supplier’s contract in sugar sector in South Africa

The contractual arrangement between out-growers and the Transvaal Sugar Company (TSB) is controlled by a cane delivery agreement. All growers must adhere to the conditions and obligations that are specified in a comprehensive specification contract that binds the respective parties over long periods of time. The price paid to out-growers is determined by the specifications of the South African Sugar Association who determine the grower-miller split from the proceeds of sugar sales. The contracts also include transfers of areas, rights and amendments to the contract as well as the terms of the contract as a result of a *force majeure*. The conditions of termination, default, jurisdiction and arbitration respectively are outlined. Finally, the procedure of notification, cession and miscellaneous issues are outlined in the contracts.

## Price Determination

Prices are normally determined by the processor and not by the farmer. In some cases, prices vary from day to day, according to prevailing market prices, in other cases, like the Mwea rice irrigation scheme and Brookside Dairy Ltd. in Kenya, the processor fixes the price on a seasonal basis which then fluctuate according to market conditions. Blue Skies, a fresh fruit preparations exporter, attracts reliable buyers with prompt payment and above market prices for raw material suppliers.

Traditionally parastatals have fixed prices on a seasonal basis for cash crops especially for export crops in order to buffer farmers from price fluctuations. In this line, the Kapapet tea co-operative operating in Kenya, as well as the Afifie rice and vegetable growing scheme in Ghana both fix prices on an annual basis and may give bonuses to farmers when markets perform better than expected.

## Purchasing Arrangements

Methods and practices of raw material exchange can range between simple ad hoc spot market transactions with or without the inclusion of intermediaries or informal supply arrangements to highly managed co-operation such as farming under contract, asset sharing arrangements between farmers and processors or fully vertical integration of producing and processing activities.

### Box 3: Raw material supplies of Transvaal Sugar Company, South Africa

Transvaal Sugar Limited (TSB) has the capacity to produce 350 000 metric tonnes of sugar annually from its two factories and sugar production in 2000/01 was about 300 000t. The sugarcane supply-processing operation consists of the factory processing operation and a range of growers. The growers include the company estates and a range of contracted large-medium and small-scale suppliers/growers.

TSB has about 18 percent estates, 58 percent private growers on contract and 18 percent of small scale contractors. The differences between the types of growers can largely be categorised on the basis of the differential farm size and the level of capital investment. In the case of the company estates, the milling company farm large tracts of land. This operation is categorised by a modern capital-intensive mono-cropped sugarcane production system with high levels of management input and control.

The second category, contracted medium-large growers, are also characterised by a modern capital-intensive mono-cropped sugar cane production system with high levels of management inputs. These farmers are contracted by way of a long-term specification contract and supply in excess of 64 percent of the total volume of sugarcane delivered to the two TSB mills. Most farms are in excess of 50 hectares and in many cases, sugar cane is one of the farm enterprises together with sub-tropical fruit and vegetables. These farmers are largely autonomous and the growing and delivery of sugarcane is self managed with ad hoc inputs from the agricultural division and the factory cane supply division who co-ordinates the timing of the harvesting and delivery operations.

The third category of grower, namely the contracted small-scale growers, includes in excess of 1000 small-scale farmers belonging to thirty-two different supplier groups. The average farm size of these growers is 6.8 hectares with the smallest farm recorded as around 3.7 hectares and the largest 30

### *Full vertical co-operation*

Full vertical co-operation applies to situations where farming and processing are undertaken by the same business entity. The level of co-operation is highest with direct linkages between farming and processing. Examples are found in traditional export crops such as oil palm, cocoa, coffee, tea etc. as well as high value horticultural crops when processing entities secure their raw material supplies through a variety of arrangements. For example, all three agribusiness entities in South Africa, the Transvaal Sugar Company, the Sappi Saiccor Mills (Sappi Forest Products) and the Tshivase Estates of Sapekoe Tea, own large scale estates: the Transvaal Sugar Company grows 18 percent of the total annual sugarcane requirements (over 8,000ha of a total of 43,000 ha) on own estates, Sappi Saiccor Mills receive about 50 percent of wood for pulp making from their own plantations, while the Tshivase Tea Processor (Sapekoe Company) receives about 75 percent of the total annual throughput from their own plantations. Homegrown, the vegetable and flower exporter in Kenya also secures from 50 percent to up to 100 percent of raw material requirements from its own farms.

### *Asset sharing arrangements*

These are an important means to link agro-business and farming. Commitments vary according to equity held by each party and shareholder representation on supervisory boards and within the management of the agribusiness.

#### Box 4: Asset sharing in smallholder tea production in Kenya

Kenya has had a successful smallholder tea sub-sector with about 344,000 producers in 2001, contributing about 60 percent of total tea production in Kenya. As a result of liberalization policies in agriculture, previously publicly own tea factories were put in the hands of tea farmers whose companies undertake tea collection and processing. There are 46 tea factories operating under the Kenya Tea Development Agency (KTDA) umbrella, some of which are wholly owned by small-holder tea farmers, in accordance with a 1995 policy change that gave farmers total ownership of the factories. By participating in a vertical ownership the processing factories and KTDA, which manages the tea factory and organizes for the marketing of tea, farmers enjoy tremendous benefits associated with vertical integration. Farmers participate in profit sharing, are able to concentrate on farming, confident in the fact that their tea business is in good professional hands. Other benefits include the availability of fertilizer on credit sourced internationally by KTDA.

#### *Contract farming*

Successful agri-businesses have to maintain the volume and regularity of raw material supplies in order to operate at a reasonable proportion of their planned capacity. To achieve this, local companies may enter into formal contracts with wholesale traders, farmers' organizations or the farmers themselves. The contracts involve providing assistance to farmers in return for the crop. A similar approach is adopted by large international processing companies, which may either place staff members in the producing area to negotiate with suppliers or employ a local agent to act on their behalf. This approach originated in the 16<sup>th</sup> century for the supply of spices to European trading companies, and has since been refined and modified to source fruits and vegetables, cocoa, coffee, meat, oilseeds, sugar and cereal crops among many others. Contract farming comes in various forms and includes term purchasing arrangements, out-grower schemes and nucleus estates.<sup>1</sup>

<sup>1</sup> For further reading refer to: Contract Farming, Partnership for Growth, by Charles Eaton and Andrew W. Shepherd, FAO Agricultural Services Bulletin 145, Rome 2001 .



### Box 5: Example of contract farming in the South African sugar industry

The sugarcane supply-processing operation of the Transvaal Sugar Company consists of the factory processing operation and a range of growers which include the company estates and a range of contracted large-medium and small-scale suppliers/growers. In the case of the company estates, the milling company farm large tracts of land. This operation is categorised by a modern capital-intensive mono-cropped sugarcane production system with high levels of management input and control. The second category of grower, namely, contracted medium-large growers, are also characterised by a modern capital-intensive mono-cropped sugar cane production system with high levels of management inputs. These farmers are contracted to the Transvaal Sugar Company by way of a long-term specification contract and supply in excess of 64 percent of the total volume of sugarcane delivered to the two mills. Most of these farmers operate farms that are in excess of fifty hectares and in many cases, sugar cane is one of the farm enterprises together with sub-tropical fruit and vegetables. These farmers are largely autonomous and the growing and delivery of sugarcane is self managed with ad hoc inputs from the agricultural division and the factory cane supply division who co-ordinates the timing of the harvesting and delivery operations. The third category of grower, namely the contracted small-scale growers, includes in excess of 1000 small-scale farmers belonging to thirty-two different supplier groups. The average farm size of these growers is 6.8 hectares with the smallest farm recorded as around 3.7 hectares and the largest 30 hectares.

### Informal linkages and ad hoc arrangements

In many scenarios contracts are not written down but rely on verbal agreements between entrepreneurs and farmers. Informal arrangements are common in markets with less stringent quality requirements for example and when planning skills of producers and processors are limited.

### Box 6: Informal purchasing arrangements in Nigeria

Fuman Agric, a fruit juice manufacturer near Ibadan, Nigeria, purchases about 10,000t of fresh fruit per year on an informal basis. Installed capacity is 5 t/hour but the company presently due to raw material constraints produces only at 10 percent of its installed capacity. Fruits are procured locally by the company's purchasing manager and from independent traders with informal links to the company. No formal contracts are made with suppliers. The company determines the price and usually offers the average between the seasonal and off-seasonal price. The company prefers to buy in the glut season when prices are low since fresh fruit market demand is little. The processor may provide transport and in some cases provides some pre-finance to traders.

Direct links to the farming community are limited to former cooperative groups that had worked with the former government owned Lafia Canning Factory in the western Nigeria. They provide soft loans, planting materials; equipment and other agricultural inputs while the farmer cooperative groups supply their produce to the company. The company reserves the right to discard poor quality products and the average annual prices are paid to farmers for their produce. At times when open market prices are better than company prices, farmers sell their produce in the open market. The company also goes farther to purchase supplies directly from producers and agents at prevailing market prices from eastern and central Nigeria.

## Factors Influencing the Strength of the Link

The type and strength of linkages formed between different players depends in part on their mutual interest in forming and maintaining agreements, but also on other factors including the physical and institutional environment, and the types of products or processes involved. In general, good communications and transport promote stronger linkages between farmers and traders or processors while adequate utility services support the development of agribusinesses near to producers.

### Nature of Product

The nature of the product is an important factor determining the collaboration between producers and processors. Highly perishable, labour intensive crops, which do not have an alternative market, ensure very close collaboration between farmers and agribusiness firms. This is clear from the involvement of the agro-processor in production matters such as the provision of seeds, agro-chemicals, credit, extension services, as well as providing assistance in establishing produce collection centres. Where a product is not highly perishable, sensitivity towards important aspects of the product supply and marketing may not be given the necessary importance.

#### Box 7: Blue Skies, fresh fruit preparations' exporter, Ghana

Blue Skies is an exporter of ready-to-eat fruit preparations near Accra. The company has performed very well since its start in 1998 and exports every week about 35t of chilled fruit salads by air. The company cuts and slices fruits and exports them within 24 hours of delivery to the processing factory.

Within a short period of time the processor managed to establish close links to the farming community. Through intensive training and continuous extension service provision, all suppliers have become able to meet the strict quality requirements. Good agricultural practice certification for the European retailers (Eurep GAP) has been successful for many Blue Skies suppliers.

### Support of Farmers' Organizations

The existence of farmer's organizations such as producers' co-operatives or associations and agricultural lobby groups are beneficial to commercialization of agriculture and agribusiness development. Farmers as individuals especially in small holding systems are at the weak end of the economic exchange system. They therefore have to evolve strategies to enhance their market power. Farmer's associations can be responsible for configuring its members with market requirements including training, extension, technology acquisition, provision of commodity inputs and co-coordinating harvesting-delivery schedules.

On the other hand agribusiness firms can deal more efficiently with farmers association by acquiring representation in the management structure, as well as, allowing the producers' association to be represented in its own management structure. The agribusiness company, moreover, can further influence the efficiency of the farmers association by ensuring this body maintains records, has no political agenda, and is limited in size and that it contains sufficient professional management.

## Role of the Initiator of the Link

Successful farm-agribusiness development depends on the role played by the initiator. In general, linkages are initiated by either a business entity or more traditionally, by a government agency responsible for the development of a particular commodity. Where profit making for the initiating entity is essential, the initiator plays a greater role in developing farm-agribusiness linkages. Private sector enterprises have proven faster in establishing linkages with the agricultural sector than public institutions. However there is a trade off for profit making entities between developing sustainable relationships and the costs associated with providing farmers with necessary incentives to produce.

### Box 8: Less intervention by Kenyan Government in business affairs

Policies need to be clearly indicated, and the respective roles of the major actors well focused. A case study in Kenya<sup>1</sup> indicates that linkages in the horticultural sector have a longer life span of progressive growth, owing to the fact that the role of government in this sub-sector has been more regulatory and indirect, using lobby organizations. Where government involvement was heavy through direct participation as the sponsor of the agribusiness linkage, such as in irrigated rice production, growth has tended to be slow and less dynamic. This is probably due to the very nature of government inclination towards efficiency in production and distribution, as well as the amalgamation of different objectives in a given enterprise. These objectives could be social equity, food self-sufficiency and the generation of income for a given constituency of the population. In the face of liberalization and the changing world economic order, farm-agribusiness linkages with heavy government control are unlikely to fare well. This means that governments have to be sensitive to changing economic climates and reduce their presence to policy and regulatory work.

## Creation of Asset Specificity

Other factors that favour the creation of stronger linkages include greater product specialization by farmers and processors. The creation of mutual asset specificity reduces uncertainty and raises the exit costs of both sets of contracting partners. Asset-specificity is high in tree crops for example due to long production cycle compared to annual crops. Capital intensive processing equipment with a long amortization period creates a high specificity and increase exit costs.

### Box 9: Effect of asset specificity in the South African Sugar Industry

Mutual asset specificity can be pursued by way of farmers associations undertaking the purchase of industry specific capital inputs. The Swaziland sugar farmers associations appear to have increased mutual asset specificity by investing in sugar specific plant and equipment that is too lumpy for the individual farmer. The agribusiness can attempt to act as a facilitator of finance, in this regard, to increase the interlocking nature of the arrangement. Finally, the agribusiness can examine other ways of influencing mutual asset specificity by way of configuring the technology of the grower-processor operations in such a way that only the agribusiness possesses the technology to perform a specific element of the growing operation. Contracted growers, for instance, in the processed tomato sector, require specific harvesting technology that can be owned and operated by the agribusiness.

## NGO Facilitation

Institutional facilitation by international NGOs has assisted mutual beneficial links. With under-funded government extension services and limited knowledge, experience and financial strength of many agribusiness companies, NGOs can play a fundamental role in establishing and maintaining farm agribusiness linkages. This involvement has a large component of providing advisory and extension services to farmers in the absence or inadequacy of public advisory services. However NGOs should be aware of not to create unfair competition by offering subsidized, and hence long-term unsustainable incentives, such as subsidized farm-gate price, credit, inputs etc.

### Box 10: The Farmer-Ownership Model for pineapple exports supported by Technoserve, Ghana

Under a World Bank Loan, pineapple farmers were organized into legal entities such as co-operatives. A limited liability company was formed by the farmers' co-operatives to carry out all post harvest aspects including exports. The co-operatives got financial support to acquire 80 percent of the shares in the company. Two established pineapple exporters acquired 10 percent of shares each. A Board of Directors was formed as well as a management team. One years' working capital was provided to the farmers and the company in the form of a loan from the donor.

Contractual agreements have been made between the company and the co-operatives in regard to pineapple production, input supply, and pineapple sales. The company through the co-operatives provides farming inputs on credit, as well as extension services. Profit sharing is done in form of dividend payments to the farmers' co-operatives.

## Benefits and Constraints

Farmers' benefits include having assured produce markets, minimising production risks, transfer of knowledge on the latest farming technology, supply with crucial agricultural inputs, often on credit. As for farmers, processors benefit from assured raw material supplies without commitment of land and labour resources. Also they exercise control over the production system in order to comply with set standards of relevance to accessing markets. Managed co-ordination facilitates production and marketing planning.

Despite the obvious benefits a number of constraints in farm-agribusiness linkages have been mentioned in the cases studied. Constraints can be classified as internal and external.

### Internal Constraints on Farmers and Agribusiness

#### Lack of Business Management Skills

Poor production planning and marketing skills, especially by small-scale processors, results in a failure to take account of inputs needed to process scheduled amounts of raw materials. Production rates are then insufficient for the amount of crop ordered from the farmer, and processors fail to collect the crop when agreed. Processors also fail to plan for equipment or power failures by ensuring an adequate level of spare parts or backup power generation. This causes production to halt and this has similar knock-on effects on raw material requirements and output marketing. Financial planning skills by agribusiness entities are especially important during the harvest season. Large amounts of working capital are needed to buy seasonal raw materials in adequate quantities, and poor planning may result in delayed or non-payment for crops. This lack of financial awareness, together with low levels of profitability in many small enterprises, also means that processors are unwilling or unable to afford extension advice to farmers, or support them through provision of agricultural inputs or credit. For a large majority of smaller companies, these constraints effectively prevent them from entering into formal contractual arrangements with farmers.

#### Raw Material Procurement

Difficulties in establishing and maintaining reliable and sustainable supply relationships between farmers and processors can lead to poor business planning and management. Off-season supplies are particularly difficult to maintain in rain fed farming systems. Gluts of raw farm produce during harvest time are common and with lacking storage and pre-processing facilities, continuous processing activities are difficult set up.

Socio-economic discrepancies between farmers and agribusiness create difficulties in establishing long-term, business relationships. Many processors see farmers as simply a source of raw materials and have no interest or no financial resources in supporting or

developing them. Others have little respect for farmers and regard them as inferior partners in an agreement. This creates tension and leads to breakdown of agreements, with farmers feeling exploited and reneging on their commitments. Additionally, the lack of trust between farmers and the lack of organizations to work together to meet a processor's requirements, result in insufficient volumes of crops for processors.

### Quality Constraints

Farmers often have little understanding of processors' requirements for specific crop varieties, high quality standards, specified production volumes or timeliness of delivery. Their lack of commercial skills and knowledge of the way in which commercial enterprises operate is a significant constraint on development of effective linkages. Lack of knowledge and skills also cause farmers to harvest crops when they are immature, cause damage to crops from poor post-harvest handling, and not sort crops into different quality grades. Each of these restricts farmers' ability to meet buyers' requirements and again reduces their income.

### Financial Constraints

Lack of resources for farmers ultimately arises from insufficient income from their crops, although there are multiple reasons for this. For example, delayed payments from buyers and lack of access to credit create indebtedness, and high interest charges for informal loans by rural money-lenders or middlemen continue the cycle of poverty. Farmers are unable to afford inputs that would reduce damage and maintain the quality of their crops, or afford post-harvest technologies which would enable them to store crops until prices increase out of season. The need for income as soon as possible during the harvest season and high levels of theft from fields or food stores in many countries, prompts farmers to harvest crops before full maturity and to avoid storage for later sale. Each reduces farmers' potential income and prevents them meeting their side of an agreement with processors.

## External Constraints on Farmers and Agribusiness

Among numerous external constraints that face both farmers and agribusiness, the following have significant effects on the creation of strong linkages.

### Adverse Macroeconomic Conditions

Inconsistent and not transparent business rules and regulations in general hinder business development. In countries with high taxes, a poor tax administration and high levels of corruption, any economic development is stifled. Poor monetary policies are reflected in high interest rates and devaluing exchange rates. Credits from financial institutions are difficult to obtain and loans are unaffordable in high inflation/ high interest rate environments. Devaluation leads to rising costs of imported inputs. Shrinking government expenditures on agriculture are rather the norm than the exception in most agricultural based countries.

## Market Constraints

Limited purchasing power of consumers in developing countries results in low demand for processed goods. This in return limits the profitability of agribusiness. Additionally, small numbers of processing companies are insufficient to support local manufacturers or supply agents of processing equipment, packaging and ingredients, each of which acts as a brake on development of agribusiness. Trade liberalisation policies have increased competition with imported raw materials and processed goods.

## Lack of Institutional Support

Coherent public agricultural, business and industrial development strategies are lacking or there are problems with implementation. Budgetary pressures have led to under-funded education sector. Also educational institutions often have insufficient understanding of the needs of farmers and agribusiness, and lack both the resources and commercial awareness to implement practical programmes of support. Additionally, their organizational structures may be geared to offering staff promotion based on publications in scientific journals rather than successful assistance to target beneficiaries. Government policies to support applied research and development may not be co-ordinated with agricultural and industrial development policies, or may even conflict with them.

Extension services often have inadequately resources. Extension agents may be technically trained, but lack marketing or business skills or skills required for improving farmers' business opportunities and their organizations. In countries where extension services and rural banking are inadequate, traders are the only effective source of agricultural inputs or short term loans, and farmers are unwilling to enter into contracts with processors, or may be prevented by traders from doing so.

## Limited Availability of Inputs

High costs of raw materials in both, farming and processing, lead to a low profitability in the agricultural and business sector. Inputs necessary for adding value to primary products are often imported while local intermediary goods suppliers cannot compete on price and quality of imports.

## Restricted Market Information

Public services are under-funded so that little or no published information on markets, prices, trends, key market players. Commercial market research services are rare and costly.

## Conclusions

Poor political and economic governance are major causes of a lack of agribusiness development in Africa. General political uncertainty combined with poor infrastructure and a lack of institutional support makes the pursuit of economic growth difficult. The vast majority of African smallholders lacks education, has severely limited access to communications or physical infrastructure, may suffer from poor health and nutrition and lacks remunerative markets and access to yield-enhancing inputs. International competition from often distorted world markets is high and threatens to marginalise the majority of African smallholders.

Processors in low-margin sectors with limited skills and assets face constraints to ensure on and off-seasonal raw material suppliers. Spot market transactions on an ad-hoc basis are the norm and the provision of extension services therefore out of reach. With uncertain raw material supplies of adequate quality and quantities, and with high cost of coordination, processors find production planning a crucial constraint that also leads to marketing problems. Low market demand for value-added products increases marketing constraints. Lack of product quality, reliability and commercial orientation are the most commonly criticised features of farmers. Recommended good agricultural practices are often not applied.

However, a number of positive developments in agribusiness can be found across the region. The horticultural and dairy sectors in Kenya and Uganda have recorded upward trends while incorporating smallholders. Horticultural exports from Ghana also have increased over the past decade. The South African farming and processing sectors are undertaking actions to include previously disadvantaged farmers. Negative international price trends of traditional exports have been reverted in some cases by pursuing high quality niche markets.



# Annex: Summary of Individual Case Studies

## Ghana

### The Agribusiness Sector and its Support Institutions

Agribusiness in Ghana is still rudimentary and artisanal with little growth or development over the last three decades. However, over the past decade, efforts have been made to develop the agribusiness sector. These efforts have entailed policies, projects and the establishment of institutions to promote agribusiness. It is difficult to analyse the performance of the agribusiness sector in Ghana due to the lack of comprehensive data on agribusiness enterprises and their activities in Ghana. A study on Ghana Agro-industries Development conducted in 2001, noted the inadequacy of comprehensive data on the classification of agro-industries (MASDAR, June 2001). The inability of the Registrar of Companies to classify agribusinesses into specific sub-sectors makes it difficult to ascertain the performance of specific sub-sectors. The last industrial survey was conducted in 1995 and covered only medium and large-scale industries.

Government's intension for the development of agribusiness is expressed in the President's declaration to make Ghana an Agro-industrial nation in the next ten years. This will require strong linkages between agriculture and industry. The Ghana Poverty Reduction Strategy medium term priorities include the modernization of agriculture through improved access to land; intensification of research and extension services; provision of irrigation facilities; credit to farmers; and support to private sector to add value to agricultural produce. The medium to long term strategies include access to farming inputs and irrigation-based farming technique; development of marketing channels for agricultural produce; encouraging the development of non-traditional exports; and accelerated growth of small and medium scale manufacturing industries through diffusion of appropriate technologies and vibrant training programmes.

In Ghana's Accelerated Agricultural Development Strategy (MOFA, 2001) five elements are considered key to the development of agriculture and thus agribusiness: promotion of selected products through improved access to markets, development and improved access to technology, improved access to agricultural financial services, improved rural infrastructure and enhancement of human resource and institutional capacity. For implementation the Agricultural Services Sub-sector Investment Project is currently being implemented which aims at improving agricultural support services delivery for higher productivity.

Many institutions support the development of agribusiness in Ghana. They include public sector organizations such as departments and agencies of Ministries of Trade and Industry, Food and Agriculture, Manpower and Employment, Private Sector Development

and Environment Science and Technology. Agribusiness development is also supported by Non governmental organizations including associations of producers, exporters, processing enterprises. Several multilateral and bilateral agencies such as the GTZ, CIDA, FAO and the AfDB also promote agribusiness activities in Ghana. The activities of these agencies are however, uncoordinated resulting in duplication of effort and limited impact. An agro-industrial study conducted in 1993, noted that inter-institutional operation and cooperation are exceptions rather than the rule (FAO, 1993).

## Case Studies

Three sub-sectors were selected for study: fruit production-processing and export sub-sector (Farmapine Ghana Ltd and Blue Skies Ltd); cashew production and processing enterprises (Sampa Jimini Cooperative Cashew Processing Society); rice production and processing sub-sector (Afife Rice and Vegetable Irrigation Cooperative).

### Sampa Jimini Cooperative Cashew Processing Society

Sampa Jimini Zongo Cooperative Cashew Processing Society, located in Brong-Ahafo was established in 1994 with the help of Technoserve, an American NGO. There are 18 workers, including 1 factory manager and 2 assistants. Membership of the Sampa Processing Society is 55. The society has elected its executives and operates on the guidelines of a cooperative. In 1994, two processing societies were formed. The Department of Cooperatives provided the requisite training on the operation and management of the societies. In 1995, Technoserve sponsored processing training in Nigeria and helped with the acquisition of equipment. Processing started in the year 2000. Four tonnes of raw nuts were processed into 1.14 tonnes of kernel. Between 2001 and 2002, 15 tonnes of raw nuts were purchased and processed. The kernels are sold to Golden Harvest Company Ltd Accra. In 2002, the buyer started experiencing problems with the marketing of the kernels which has affected prompt payment to the Society. As a result, the Society has looked for other marketing outlets such as the Indian Community in Tamale and other sales outlets in Accra.

### *Linking arrangements*

Vertical and horizontal farm-agribusiness linkages were identified in the cashew case study. These linkages were however informal with no written contracts. Four types of linkages were functional at the time of the study: linkage between farmers and the processing society; linkage between society and Technoserve for business development services and technical advice; linkage between the processing society and Golden Harvest Company limited for final processing and linkage between Golden Harvest Limited and Technoserve for business development services, training and technical advice.

Farmers supply the processing society with raw nuts for processing. The processing society in turn educates the farmers on the best treatment and drying practices to get good nuts that attract a premium price. Technoserve encouraged the formation of the farmers association and the processing society, organised training on cooperative organization and introduced the society to financial institutions.

The linkage between processing society and the marketing company has also been facilitated by Technoserve to ensure ready market for the Society's products. The linkage is strengthened by the fact that the Processing Society own 60 million shares of Golden Harvest which in return provides training and information on the international market developments. There were no contractual agreements.

Technoserve played a significant role in establishing the linkages observed in this case by introducing the concept of value addition by sponsoring training programs. The linkages with the marketing firms and the other government institutions such as the Department of Cooperatives were all initiated by Technoserve.

### *Constraints faced by key players*

Sustained and effective linkages in farm businesses depend on the level of trust and understanding between the players involved particularly regarding their respective constraints. These constraints could be internal to business entity or external. Farmers' constraints include: lack of financial resources to expand farms; limited access to market information; fluctuating price of raw nuts; reluctance of farmers to re-invest their income due to unfavourable macroeconomic conditions.

The processing company needs financial resources to expand capacity to enable it cope with the supplies; high interest rates charged by the banks; lack of storage facilities for both raw nuts and processed kernels. The marketing agents are constrained by a low demand for product, a slump in world market prices, as well as regularly occurring delays in payments by marketing company and retail agents.

## Afife Rice and Vegetable Irrigation Cooperative Farmers and Marketing Society

Afife Rice Irrigation Project is located at Afife, in the Volta Region, about 140 km east of Accra. It was established by Ghana government and managed by Ghana Irrigation Development Authority (GIDA) of the Ministry of Food and Agriculture. The project began in 1982 purposely to produce valley bottom rice using irrigation water. About 880 ha of land are cultivated by 800 farmers organized into five co-operatives. The Co-operative formation was initiated by GIDA who invited the Department of Co-operatives to give the farmers the training on how to organise and operate a Co-operative. ARVICOFAMS was formed in 1996.

### *Linking arrangements*

Five types of linkages were identified in the rice case study: Linkage between farmers and the Ministry of Food and Agriculture (MOFA) and Research institutions facilitated by GIDA; linkages between farmers and Agro -chemical input suppliers; Financial linkages with the Agricultural Development Bank; Linkages between farmers and packaging input Company (Gelina); Linkage with processor/marketing agent (House of Remma). MOFA through GIDA provides irrigation services and technical advice on crop husbandry practices, improved seeds and Integrated Pest Management (IPM). These technical services have contributed to yield increases from about 4mt/ha in 2000 to 5mt/ha in 2001. The Ministry also offers farmers with tractors and power tillers on concessionary terms.

To ensure prompt and bulk supply of inputs the co-operative executives together with GIDA have established linkages with input suppliers. The inputs, comprising fertilizers and herbicides are supplied on credit and the farmers pay after harvesting the produce. Farmers have so far dealt with Wience, an agro-chemical company. The Agricultural Development Bank in some years procures fertilizers for the farmers on credit terms. Recovery rate of loans to farmers was about 75 percent. Unfortunately input supply through the bank has resulted in operational delays, which have affected farm operations for the 2002 cropping season.

In 2001 farmers' marketing problems were addressed when the GIDA facilitated a linkage between the co-operatives and House of Remma, a rice processing and marketing company to buy Farmers' paddy for processing and marketing. In this relationship, farmers who receive loans from ADB, deliver the equivalent of the loan in terms of paddy to House of Remma, whose operations are also financed by the same bank. Farmers after delivering their loan equivalent of paddy to House of Remma have the discretion to sell their extra paddy to the same company or find other outlets. The Price of paddy is agreed upon between the Co-operatives and the processing company at the beginning of the planting season.

Gelina is a packaging company that supplies sacks to the farmers on credit. This affords farmers the opportunity to obtain their packaging material in bulk thus cutting down cost and also provides Gelina a big market outlet. All the linkages established between the rice project and other enterprises were initiated and facilitated by GIDA. The Steering Committee of the Co-operative which is made up of two representatives of each cooperative together with the management of GIDA established the linkages.

### *Factors contributing to success*

Factors identified to have contributed to the successful operation of the cooperative society include:

- Guaranteed market for farmers at the project site.
- Better prices for paddy, which has improved their income status. Evidence of improved income status was given as improved housing and education of their children.
- Farmers' attitude to farming has been changed through awareness creation that farming is a business and not a way of life.
- Service charge is being managed well. There is transparency in the management of financial resources of the cooperative.
- There is wide participation in decision making among members, through regular meetings
- The land on which the rice is being cultivated is well secured and there is no land litigation issue.
- Efficient supply of irrigation water.
- Prompt payment of farmers for their produce.
- Timely delivery of inputs for production.
- Adequate provision of technical and managerial support.
- Credible and transparent payment arrangements.

### *Constraints faced by key players*

Farmers' constraints include: difficulties in accessing tractor services; high tractor service charges; high cost of tractors, with a 4 fold price increase in 2 years; unaffordable deposit requirements on tractors; untimely release of loans to the farmers by ADB; inadequate drying floors; lack of access to funds for infrastructure.

High cost of spare-parts such as rollers and screens; lack of patios and de-stoners, competition from imported rice for large scale millers and inadequate skills and knowledge of processing machine operators are main constraints faced by processors.

### Fruit Production, Processing and Export Sub-Sector - Farmapine, Ghana

Farmapine Ghana Ltd (FGL), located in Nsawam, Ghana's main pineapple growing area, was formed in 1999 to cater for the technical, marketing and financial needs of the members of five pineapple growing cooperatives. Its services have extended to non-members of the cooperative who farm within their coverage area. The cooperatives own 80 percent of the shares of the company and the remaining 20 percent is owned by two former pineapple exporting. The company manages about 160 farmers and supports over 60 out-growers. Within the three years of operation, acreage under cultivation increased from 365 acres to 460 acres. It is projected to increase to 600 acres by end of 2002. In 2003 about 12,000 tonnes of pineapples were exported to France, Germany, Netherlands, Italy, Poland and United Kingdom and the USA. FGL's formation was facilitated by Technoserve and the company employs 81 permanent staff

#### *Linking arrangements*

Farmapine ensures that farmers adopt good agronomic practices to enhance yields and fruit quality. With the assistance of the Directorate of Agricultural Extension Services, Farmapine trains farmers on planting, fertilizer and chemical application, pest and disease control and overall management of the plant to ensure that quality fruits are produced. Field visits are conducted bi-weekly to ensure that farmers are adopting practices taught them. As a result of the training and visits, percentage of exportable fruits from farmers' fields, has increased from 30 percent to 45 percent within two years, and is expected to reach 60 percent by 2003.

The company was established with an IDA loan facility of 1.5 million dollars to be repaid over a 7-year period including a grace period of three years. Under the loan agreement, the five farmer cooperatives organized by Technoserve, together own 80 percent of shares of the Company and 20 percent is owned by two limited liability companies whose assets were converted into shares in Farmapine.

Farmapine started with providing farmers with 100 percent of credit requirements for production. The practice of offering production loans ceased in 2002 when Farmapine started having problems with payment delays from their foreign clients. Cooperative members have ready market. Harvesting is timed and the Company's vehicles go to the community to cart the fruits to the pack house for cleaning and packaging for export. Fruits that do not meet export market requirements, such as weight and colour are left with the farmers to sell in the domestic market. Pricing of produce is done through a consultative process. Farmers receive an average of 30 percent of FOB price of the kg of pineapple. There are no formal contractual agreements between farmers and the export

company. Farmapine arranges for inputs such as fertilizer and other agrochemicals to be supplied to the farmers. The Farmers have acquired a container where they want to procure inputs with their own contributions for sale.

#### *Key factors contributing to success*

- Ready market for farmers' produce;
- Extension services provided by Farmapine and Technoserve;
- Improvement in access roads;
- Use of Company vehicle to transport produce from farms;
- Better prices for produce;
- Provision of production credit by Farmapine even though this has ceased;
- Farmers' participation in decision making through consultations with management at the community level and also their representation on the Board of the Company.

#### *Constraints faced by key players*

Constraints faced by farmers 'cooperative include: ceasing production loans, delays in paying farmers. Farmers are reluctant to obtain loans from formal institutions because of the fear of non-repayment since payment by Farmapine is unreliable; visual assessment of the weights of fruits by the Company; no respect of Board, farmer's views often ignored.

Delay in payment to company by clients; no foreign representative to follow-up on deliveries, inability to ascertain reports by clients on quality of produce, not enough space on exporting ships, lack of storage facilities at the ports and delays in shipment affect quality of produce etc. are all mentioned as constraints of the processor.

#### **Blue Skies Agro-Processing Company Ltd.**

Blue Skies Agro-processing Company Ltd. is located about 25km from Accra It was established in 1998 by a privately funded British National. The company processes fresh fruits for supermarkets in some European markets. Fruits processed include pineapple, mangoes, watermelon, passion fruit and pawpaw. While most fruit is procured in Ghana, supply gaps are filled by imports from South Africa, Egypt, Kenya, Brazil and UK.

The company started with 38 workers and has since increased the workforce to 450, 60 percent of which are permanent staff. The processed products of the company are European Retailer Partnership Good Agricultural Practices (EUREGAP). Some requirements include: availability of appropriate toilets on farm premises; construction of appropriate farm houses; presence of good water supply e.g. bore hole, Polytank with water or pipe borne water; availability of first aid kits; fruit quality inspection system.

In the last four years the company has grown tremendously, expanding its processing facilities. Through good extension services and training to the farmers coupled with higher price offer, the Company rapidly increased its processing capacity from 1t / week to about 35tonnes/ week. Blue Skies is known to pay its farmers promptly and also to offer a higher price per kg of pineapple than all the other Companies dealing with pineapple in the Nsawam area.

At present 18 have been EUREPGAP- certified. The company does not provide credit to farmers nor links them to any financial agents. However with prompt payment

and higher price offer, farmers are encouraged to save and invest in their farms. Blue Skies operates with individual farmers and not cooperatives.

### *Linking arrangements*

Farmers receive free of charge technical training and advice from the processing company to ensure that produce meets their quality standards. Committed and loyal farmers also can hire purchase inputs and equipment free of interest. Only farmers' who are EUREPGAP certified are obliged to sell to the company because of the investment the company makes in getting farmers certified. There is ready market for Blue Skies's products in the EU market. The company is committed to supplying products on time and in the right quantities to the supermarkets.

### *Key factors contributing to success*

- High commitment to work by management and staff of Blue Skies has been the major contributing factor to the success story. There is friendly and conducive working environment for all staff. For instance there is a canteen facility where both management and staff sit and eat together, the same venue is used for meetings and training. There is no room for loitering and laziness as the teamwork spirit is formidable. The employees of the Company enjoy social security benefits.
- The general manager/proprietor is modest and has excellent managerial skills.
- Prompt payment to farmers. Farmers are paid two weeks after fruits are supplied. This has ensured regular supplies to the company.
- Ready market for fruits. In the case of Blue Skies, fruits are not rejected on basis of size but may be rejected on the basis of sugar content.
- Education on EUREPGAP standards and certification of farmers.
- Dedicated farmers receive interest free loans.
- Improvement in road infrastructure to enhance access of farms by company trucks. This reduces the burden on farmers to transport produce to the company premises.

### *Constraints*

Main problems faced by farmers are the rejection of fruits, if sugar level is below or above required range and a lack of loan facilities. Constraints faced by processing company include the lack of incentives such as tax exemptions; high domestic tax regime (e.g. 32 percent on profit); high inflation that erodes benefits of exchange rate gains from exports, frustration with the Ghanaian culture of not doing things according to schedule resulting in economic losses as well as problems with quality of fruits supplied by farmers.

## **Analysis of Constraints**

In farm-agribusiness linkages, various types of constraints emerge some of which are internal to the partners involved and others are external. These constraints invariably weaken the strength of the business relationship. It also requires a mutual understanding of the constraints of the partners involved for the linkages to be effective.

### **Lack of Resources**

Access to financial resources can contribute significantly to farm business profitability, development and linkages with other businesses. The lack of financial resources limits

farmers' ability to purchase inputs and adopt improved technology. This ultimately affects yields and produce quality that reduces profitability and opportunity for expansion and development. In cases where farmers enter into agreements with buyers or agro-processors, the lack of credit can undermine the success of these agreements as farmers will not be able to deliver the desired quantities and quality of produce.

In the Farmapine case for example, although as shareholders of the company they are obliged to sell their produce to it, the provision of credit to cover cost of production was an added incentive to adopt all agronomic practices as planned by the company's agronomist. Farmers have expressed dissatisfaction with the company for ceasing to provide credit in addition to delayed payments for their produce. These according to the farmers, have limited their ability to procure inputs and expand their farms. One of the Cooperatives is planning to use the resources of the Cooperative to procure inputs for distribution to their members.

In the case of the Blue Skies, the processor does not provide credit except for their trusted farmers but the fact that they offer high prices and pay promptly is the motivating factor for the continued linkages between farmers and the company. The credit arrangements between the Rice Farmers at Afiase and the input supplier and the Agricultural Development Bank has contributed significantly to the increased yields of farmers as they are able to adopt the right agronomic practices. In the cashew case study, lack of credit was found to constrain the ability of farmers to expand their farms. For the cashew processors, they lacked credit to expand their storage facilities, which could have enhanced their business operations and increased profits.

### Lack of Production Skills and Information

Skills for production and management of farm and agribusiness enterprises are a pre-requisite to successful businesses. Farmers inability to meet expected yields, quality standards requirements and to diversify their business emanate from lack or absence of sufficient skills. Many farmers operate very small farms of often less than a hectare. They see their farm business as a way of life, something to occupy them because they have no alternative employment. This coupled with low incomes from their small farms which itself is a result of low yields and low farm prices do not encourage farmers to operate as commercial enterprises. As a result of their small nature of operations, there is also lack of information on prices and markets for farmers thus limiting their ability to explore better prices and better markets.

In the three cases studied, lack of production skills was a constraint to all the farmer groups. The training provided by the Companies and both governmental and non-governmental institutions contributed to strengthening the linkages between the farmers and agribusinesses. As a result of the training provided by Farmapine, proportion of farmers' supply of pineapple that meets the export requirements increased from 30 percent to 45 percent within 3 years of operation. The Company expects to achieve 60 percent in the next two years. But with the absence of credit from the company this may not be realised as farmers may not be able to adopt all the agronomic practices and chemical application ensure yields and quality standards.

Training in farm level production and management skills is one way government can intervene to develop effective agribusinesses which can foster strong farm-agribusiness



linkages by ensuring that yields improve and quality standards are met on a sustainable basis.

### Absence of Demand for Produce and Products

This was identified as the key constraint that the linkages with the agribusinesses have been able to address. It has also been the key factor to maintaining the established link as farmers see those enterprises as the only sure way of marketing their produce. The lack of effective and sustained demand for farm produce or products was evident in the Farmapine, Cashew and the Rice cases. It was however not reported in the case of Blue Skies that seem to have an unmet foreign market demand. The demand for cashew has slowed down. This is reflected in the price slump in the world market and has been translated to the Ghanaian market.

Farmapine indicated they had problems with delayed payments from their clients as a result of which their assistance to their farmers in terms of credit has been curtailed. The delay in payment also lowers effective price of produce to farmers causing dissatisfaction which could undermine the linkage between farmers and the Company. In the case of rice, the problem of demand is contributed by consumers attitudes coupled with trade policies adopted by the government. The demand for local rice is low because there is commercial importation of cheaper rice from USA and aid rice from Japan. The low demand is also due to consumers' negative attitude towards locally produced rice with complaints of high breakage and foreign matter content.

### Weaknesses of Farmer Organizations

Strong and effective farmer organizations can contribute to strong farmer-agribusiness linkages. On the part of the farmer groups, it gives them better negotiating position, enables them to procure inputs in bulk, obtain technical services as a group which reduces cost of providing such services if compared to providing the services to individual farmers. On the other hand, the agro-processor benefits from strong groups by obtaining bulk supply of raw material. It is also advantageous in terms of cost if the agro-processor is to provide training.

The cooperatives in the case of the Farmapine do not appear to be very strong in as much as they are unable to negotiate with the company for better prices. They also are unable to get a higher number of representations on the Board of Farmapine. The cooperatives under the rice and cashew cases also showed the same attitude of poor negotiating skills and their in-ability to diversify or initiate business linkages with other partners. It was not appreciated when the rice Cooperatives were made to understand that if they were strong enough they could procure a mill and employ somebody to manage it.

### Government Policy

The main policy concerns expressed were high tax system, high wages and trade policies. To promote agribusinesses, government need to provide more tax incentives to agro-industries as these businesses generate positive multipliers in terms of value addition, revenue to government and employment.

## Factors Influencing the Strength of the Link

### Nature of Product

The nature of product can influence the type of farm-agribusiness linkages that can be formed and the strength of such linkages. Especially with processing, product characteristics such as perish ability, storability and quality at the point of processing have implications for the type of farm-agribusiness linkages. Fruits and vegetable processors for example would establish linkages that involve adequate training of farmers to ensure that raw material supply meets desired specifications. Agro-processors who invest in farmers' training try to maintain the linkage to avoid the problem of having to train different farmers all the time. Strong links tend to be created between farmers and fruit/vegetable processors due to the perishable nature of the produce. The linkage is usually mutually beneficial to both parties as it ensures ready market for the farmer and assured supply of raw material for the processor.

### Training and Skill Development

Training and skill development are keys to successful businesses. Skills, especially of human resources are necessary for developing and sustaining strong linkages. Skill development is required for all players in the agribusiness chain – farmers and their organizations, managers of agribusiness and traders. It is particularly important for farmers to have the necessary training in order to appreciate the concerns of processors, traders and consumers and address them.

Farmers require training to enable them adopt good farm practices to increase their yields and also meet specification required by the market. They also require managerial skills to enable them manage their farm businesses better as an enterprise. Farmers' organizations need to be trained on how to manage their organizations and run them profitably to the benefit of the members by inculcating in them managerial and negotiating skills

In all the cases studied, farmers received training. While some training was targeted at improving yields and meeting quality standards requirements, others were targeted at the development of the farmer organizations. This yielded benefits as it improved the quality of fruits as in the case of FGL and Blue Skies. Training of farmers in cooperative organization and their functioning also paid off in case of the Farmapine, the Arvico and the Cashew Cooperatives.

Skill development for managers of agribusinesses is lacking. There are however many institutions such as Empretec, Technoserve, NBSSI, the Association of Ghanaian Industries, the Association of Small Scale Industries and other private sector service providers and NGOs' who provide training in entrepreneurship. It is important for government to co-ordinate these services effectively and make them more accessible to many small businesses.

### Importance of Farmer Organizations

Farmer organizations are important in promoting linkages between farmers and agribusinesses. In Ghana where majority of farmers are small-scale operators, it is both

beneficial to the farmer and the agribusiness firm if farmers are organized into effective cooperatives. Effective farmers' organizations increase the incomes of their members through services such as supplying agricultural inputs, credit financing, provision of transport and storage facilities and advisory and training services. Other benefits are reduced assembling cost, easier planning of production and delivery schedules.

Among the four cases studied, farmer organizations were important in establishing the linkages observed in three of the cases. These were Farmapine, Arvico and Cashew Processing Association. In the case of Blue Skies, there was no evidence of any formal farmer organization. In Farmapine, the farmer cooperatives were trained in how to improve in product quality and business planning. The Cooperatives have been slow in developing on their own although they have acquired the skills needed to run the cooperatives more efficiently. Benefits of farmer associations were also evident with Arvico Cooperatives. Through the government agency, farmers were able to establish linkages with input suppliers, banks, and a processing company. The cooperatives were transparent in their financial accounting and this created thrust between the executives of the cooperatives and their members and members were willing to contribute to the cooperative for its development.

In the cashew processing case, the existence of the farmer groups was important in creating the processing enterprise. Through the business training provided by Technoserve, farmers found it more profitable to establish a processing plant which could enable them add value to their produce to earn them higher income. The Cooperatives are also able to negotiate for better prices for their produce and market their produce in bulk.

It can be argued that even though farmers groups are not present in the Blue Skies, farmers are happy with their business relationship with the Company. This is possible so long as Blue Skies continues to offer better prices for their produce. While the relationship between Blue Skies and EUREPGAP certified farmers may be strong due to the investment the latter makes in getting farmers certified and the financial assistance that is provided. The other farmers who currently supply Blue Skies are only linked by the existing higher price. Also while farmers who receive some assistance from Blue Skies are happy and do not see the need for an association, other farmers think if they were organized they will fair better.

## Policy Environment and Incentives

Creating an enabling environment for farm and agribusinesses to strive and develop should be one of the key pre-occupations of government. This can be achieved to a large extent through policies and investment in public good system to promote these businesses. Several initiatives have been put in place to promote agribusiness such as the rural electrification policy, special loan facilities such as the Private Enterprise Fund. While many potential entrepreneurs were not aware of such facilities because of the poor publicity, some of the conditions for accessing the loan conditions also deterred access of potential borrowers.

To develop strong and effective farmer groups to promote farm level production and linkages to agribusinesses, a Farmer Based Development (FBO) programme has been designed within the context of a larger programme – The Agricultural Services Sub-sector Investment Programme. The FBO programme involves organization of farmers into

groups, training of these organization and financial support to enable them develop and operate as viable organizations that are self-supporting and meeting the needs of their members and the business partners that would be established. The programme also includes the development of institutions such as a cooperative college to provide training in Cooperative development. The programme began in 2002, and is implemented by the Department of cooperatives in collaboration with the department of Agricultural Extension Services of the Ministry of Food and Agriculture.

## Institutional Support

Institutions can play an effective role in promoting farm-agribusiness linkages. Government, non-governmental organizations and international agencies can all contribute to the development of effective farm-agribusiness linkages. The support provided by government in the farm-agribusiness linkages studies were through the Department of Cooperatives and the Department of Agricultural Extension Services. But these departments provided the services as part of the regular services and not as a special promotion for farm-business linkages. Although one of government's policy objectives is to promote agro-industrial development, there are no specific action plans to do this.

An important role that government could play in strengthening farm-agribusiness linkages is strengthening the institutional and legal framework for private sector agreements. This is currently weak in the Ghana's business environment and need to be addressed to promote healthy and stronger relationships between farmers and agribusinesses.

## Recommendations

Based on the findings of the study and the above conclusions, the following recommendations are made:

- To promote more linkages between farmers and agribusinesses, government should initiate promotional linkage strategies and programmes through a network of public/private sector and non-governmental organizations. The services provided by this network should be publicized to create the awareness among farmers and agribusinesses on what type of assistance they can obtain.
- To increase access to finance for farm level production or the establishment of agribusinesses, special schemes need to be created such as the Small and Micro Enterprise Promotion schemes with reasonable interest rates and repayment periods. Disbursement of such loans however should go with requisite training to ensure proper use of the loan.
- To ensure coordinated and well focused training for farmers and agribusiness entrepreneurs, government need to play a key role by identifying and strengthening key institutions that can provide the requisite training for farmers and agribusinesses. For example the Department of Extension Services should be strengthened to provide quality services to the farmers. Government can support the establishment of farmers' business schools to promote business-oriented farmers.
- The legal and regulatory environment needs to be improved by government to enhance investment in agribusiness and strengthen linkages between partners. A

legal system that does not encourage enforcement of legal agreements results in losses that could be avoided to the mutual benefit of both contractual parties.

- Public, donors or non-governmental agency support for agribusiness should be holistic and integrated. For example, problems with market demand for a product arising from a promotional linkage by a donor or NGO should be adequately addressed or else it undermines the success of the linkage as is seen in the cashew case.

## Kenya

### The Agribusiness Sector and its Support Institutions

Kenya has had a successful agricultural sector development since the early 50's. However it was not until mid 1960's, immediately after independence, that heavy interventions were injected in the agricultural sector. Policies covered every sphere of agriculture such as production, marketing, research, credit extension and price controls. Policies advocated the promotion of cooperatives and farmer based companies as well as promoting agro-industries for processing of agricultural products. In the 1970s an import substitution policy was instrumental in the development of agribusiness firms, especially those that could play an important role of import substitution. In the late 1970s and early 1980s, the government introduced an export diversification and expansion program to broaden the country's export base and enhance the drive towards industrialization. The Industrial and Commercial Development Corporation (ICDC) and the Development Finance Company of Kenya (DFCK) were major sources of loan capital and equity finance. By the 1990's the agro-processing sector employed about 10 percent of Kenya's workforce and contributed about 31 percent to GDP.

Farm-agribusiness linkages in dairy, cereals, traditional cash crops and horticulture have in the past been influenced by government policies towards agriculture. These policies include the general as well as the more sub-sector specific policies that have in the past been targeted towards the development of sub-sectors of special interest to the government, often through commodity specific marketing agencies.

In the dairy sub-sector, the policy effectively prohibited development of private sector based processing companies. This policy was implemented through the Kenya Dairy Board (KDB), whose major function still remains as that of regulating the industry by controlling private sector entry into dairy processing and marketing. Through these policies, the Kenya Cooperative Creameries (KCC) emerged as the main dairy processing and marketing body in Kenya and dairy cooperative societies as focal points for small-holder milk collection were established. A few of these cooperative societies later developed into dairy processing organizations. This policy changed in 1993 when private sector involvement in dairy processing was allowed, while the licensing role in the hands of the KDB was retained. The implementation of this policy also coincided with the collapse of the KCC, thereby providing a viable opportunity for private sector entry and development. By 2000, the number of registered private processing plants in Kenya was about 40, with a total employment of about 4 500.

The development of the small holder tea saw the deliberate support through the Kenya Tea Development Authority (KTDA). The authority was a parastatal apex body under which were a number of tea factories that were jointly owned by tea farmers and the KTDA. The liberalization policies between 1995-8 have resulted in the establishment of a

Kenya Tea Development Agency (KTDaG), which is more farmer-inclined; and the total ownership of the 46 tea factory companies by tea farmers.

Rice is the second major cereal after maize, and has largely developed as an irrigation crop though little amounts are produced under rain-fed conditions. As a way of promoting rice growing under irrigation, a National Irrigation Board (NIB) was established as a parastatal, to develop irrigation schemes, and process paddy into rice; and market the commodity on behalf of farmers. The sub-sector as a whole was heavily protected by the policy of quantitative import controls to restrict imports. By 2000 the Mwea irrigation scheme had a total membership of 3 381 farmers producing about 31 900 tonnes of rice from about 6 052 acres. This is about 40 percent of the total domestic requirements and about 80 percent of domestic rice production in the country. Liberalization in the sub-sector in 1993 has witnessed several changes in both marketing and milling of rice with implications on production of rice in the Mwea irrigation scheme.

Horticultural development in Kenya has been characterized by less presence of government, despite the existence of the Horticultural Crops Development Authority (HCDA), and a department within the Ministry of Agriculture (MoA) in charge of horticulture. The HCDA is mainly a regulatory one, but also provides market information and extension services to the sub-sector. Private sector based institutions such as the Fresh Produce Exporters' Association of Kenya (FPEAK), the Export Promotion Council (EPC) have played a great role in ensuring that the sector grows. However, a cloud of uncertainty surrounds the sub-sector due to a decision by the government to regulate it, and also establish a central auction centre in Nairobi.

A major lobby group in the entire agricultural sector has been the Kenya National Farmers Union (KNFU), whose original mandate was the promotion of large-scale farmers' interests in the country. In the last two decades the role of the union in spearheading farmers' welfare has reduced greatly, due to lack of focus. Its role in a liberalized market environment has become murkier in the last ten years.

## Case Studies

This chapter describes four existing farmer- agribusiness relationships that have shaped the development of the selected sub-sectors in agriculture in Kenya. The nature of the farm-agribusiness linkages range from a heavy presence of the government arm to an extreme lack of government interference. These relationships are discussed below.

### Horticultural Exports- Homegrown Company Ltd.

The horticultural sub-sector in Kenya is perhaps the most rapidly expanding sub-sector in agriculture with export horticulture particularly excelling. The sub-sector was until 1966 a slow growing one, producing for the domestic market, except for only two companies that were involved in horticultural exports. The potential for the development of the sub-sector saw the establishment of the HCDA in 1967 to spearhead this nascent sub-sector. In 1968 fresh horticultural exports were only about 1 476 tonnes, but by 1999, the sub-sector exported 103 260 tonnes, reflecting an average annual growth rate of more than 15 percent.

The total number of small-holder farmers engaged in export horticulture, and hence linked to agribusiness exporters are approximately 20 000.

Unlike other sub-sectors in agriculture, the horticultural sub-sector has developed in an environment of less government interference. The sub-sector is characterized by relatively easy entry conditions for agribusiness enterprises, easy access to production land, a good linkage mechanism for technological transfer and a forward marketing linkage that ties most of the sectors outputs to the European marketing system. Major stakeholders in this sub-sector are the Horticultural Department of the Ministry of Agriculture and Rural Development. This department is responsible for the overall policy direction as well as general oversight of the industry in terms of export quality control, horticultural extension, controls of export and imports of live plants. The Horticultural Crops Development Authority (HCDA) plays the more active role development of the sector including extension on behalf of government, provision of information and technology dissemination. The Kenya Agricultural Research Institute (KARI) undertakes horticultural research and technology development. Other stakeholders in the horticultural sector include the Fresh Produce Exporters' Association of Kenya (FPEAK), Kenya Export Development Support (KEDS) Program, and the Kenya External Trade Authority (KETA).

Homegrown Company Ltd is success story of production and export of packaged horticulture produce from Kenya. The company ventured into Kenya in 1982 and focused on the processing and export of vegetables to the UK market. The business strategy has been the production and packaging of produce at source so that it can be exported ready for the market outlet without further packaging abroad. In order to ensure the desired quality, and supply of fresh produce, it was important for Homegrown to enter into partnership with local farmers to complement its own production. Through this partnership the company is able to source about 25 percent of total requirements and in some cases such as French Beans, 100 percent of the total requirement from contracted farmers.

### *Linking arrangements*

All farmers supplying to the Homegrown Company Ltd must have a supply contract. The contract is explicit in terms of the commodity to be supplied, the period of supply, the desired quality and quantity to be supplied. This implies that farmers on contract are able to work out their production schedules and put in place the necessary inputs to meet the contract quantities and quality. By implication also farmers agree to follow the recommended crop husbandry so as to maintain the required quality.

This contractual arrangement was initiated by the company as a strategy towards achieving optimal resource use in the export of fresh produce from Kenya. Through this strategy the company has its own nucleus of farm production units to meet a certain level of its requirements, and a network of farmers contracted to provide the balance.

Contracts entered with farmers for the supply of various types of fresh farm produce explicitly indicate the price as well as other quality dimensions that are important for delivery of the desired produce. These prices are however market driven and fluctuate from season to season

### *Benefits and constraints*



By entering into a supply contract, farmers enjoy the benefits of an assured market for their farm produce; while at the same time benefiting from the fact that their farming activity risk is minimized by the certainty with which their production decisions are made. Farmers enjoy an assured price for the various grades of farm produce that they deliver to the contracting company.

Due to the relative involvement of the contractor in the production process farmers are supplied with the latest farming technology, such as the latest crop varieties and crop husbandry techniques. This has particularly been notable in the production of garden peas. The provision of technical extension by the contractor has played a key role in ensuring that farmers are able to optimize their production in terms of quality and quantity.

Homegrown Company Ltd also supplies fertilizers, and agro-chemicals on credit to those farmers who need material credit, so that they can be able to produce the expected quantities and qualities without exerting themselves. This is also in recognition of the fact that the credit market in Kenya is highly biased against agricultural production.

Farmers are in the long run able to appreciate the fact that farming on contract basis is a business. This orientation towards treating farming as a business is probably the greatest innovation that could change the structure of agricultural production in the future.

The company is in a business that requires strict adherence to delivery schedules, quality, minimum chemical tolerance limits, non-fluctuations in supply. Contracting puts the company in a situation where it is able to have a fairly good assurance of the above critical production variables and is therefore able to conduct forward planning of her activities with a high degree of certainty. The major market outlet for the company's product is in the European Union. This is a very sensitive market for agricultural products; hence an exporter must have total control of the agricultural production system so as to meet the stringent quality and minimum chemical residue requirements set for the market.

Since farmers are on contract to supply farm produce, any matters of conflict or misunderstanding are usually handled administratively. However should a farmer feel extremely disadvantaged using this process for redress then they have the option of using the district agricultural committee to lodge any complaints. In the very extreme of circumstances farmers are also free to result to legal redress, however this option is hardly utilized. Usually farmers will prefer to minimize chances of misunderstandings during the beginning of the season when new contracts are being signed.

Farmers feel disadvantaged in the business, as they are not quite sure about the relationship between the local price and the price of the export product. Some farmers feel that the market price offered by the company was low compared to the prices for the final product, hence the need for a better framework of price determination.

The major constraint faced by the Homegrown Company is ensuring that farmers follow recommended technical instructions so as to produce the required quality and quantity of the commodity. This is particularly important and critical as well in those commodities for which the company is wholly supplied by contracted farmers.

By contracting for supply of raw materials, the company benefits from not having to commit resources to actual production, but being able to ensure compliance to the necessary production requirements through an effective extension system.

## Mwea Rice Irrigation Scheme

The traditional food crop production sub-sector has for a long time been dominated by parastatal enterprises with wide range of controls over the production and marketing of the commodities. Part of this existential reality could be explained by the desire by policy makers to ensure that food security concerns are taken care of, especially the desire to ensure that the urban population was well supplied with food at politically acceptable prices. The Mwea Irrigation Scheme (MIS) is the largest rice irrigation scheme in Kenya, producing about 80 percent of all rice produced in the country. This scheme was established in 1955 and was replicated from other British irrigation systems elsewhere. To date the irrigation scheme has 3 400 tenant farmers.

### *Linking arrangements*

Irrigated rice production in Kenya has at the apex an agency, the National Irrigation Board (NIB), which is a parastatal organization responsible for coordination of irrigation schemes for rice and other crops in the country. This coordination includes undertaking feasibility studies in conjunction with the relevant departments in the relevant government ministries to establish the economic and social viability of any irrigation scheme in the country, and marketing of rice from the schemes.

The Mwea Irrigation Scheme was established in 1955 as part of the government policy on food self-sufficiency, while at the same time providing the rural population with an economic means of survival. The government, in collaboration with the British government established the MIS along typical irrigation models started by the British government in India. Later on the Japanese Government through JICA, became the main supporter of the scheme, providing irrigation infrastructure development, including construction and maintenance of the irrigation canals, tractors for land preparation, and canal maintenance. JICA also provided the initial rice technology as well as extension personnel. The management of the irrigation scheme was put under the NIB, established in 1966 as a parastatal under the ministry of Agriculture, to coordinate the development of irrigation schemes in the country.

For purposes of rice milling, the Mwea Rice Mill was established as a joint venture between the National Irrigation Board (55 percent) and the Mwea Farmers Multipurpose Cooperative Society Ltd. (45 percent). The latter is a cooperative established by farmers to deal with non-rice farming matters, particularly the granting of development loans to members. Rice farmers, as registered tenants on public land are expected to abide by the rules set by the NIB for rice production. Such rules include that fact that no other crop or animal production activity is allowed on the irrigation plots.

As a public organization mandated to develop and manage irrigation schemes, the NIB is the financing and development arm of government through which donor assistance is provided to the farming communities indirectly. In the case of the Mwea Irrigation Scheme, the NIB has a contractual agreement with farmers for the provision of a number of services and material credit for the smooth production of rice. This relationship is however on of tenant- landlord type since farmers have no rights to the land they farm. The production contract is renewed every year so as to incorporate changing economic conditions.

All contractual agreements are determined by the NIB. Farmers do not contribute to the determination of prices, though cases where this has on few occasions, benefited farmers have been reported, particularly on fertilizers where the NIB price was lower than the local market price. In the case of rice paddy the pricing was determined by the government as an in-factory price. At the consumer level the price of rice was also regulated and administered to eliminate chances of black marketing.

At the beginning of every crop season, farmers sign contracts with the NIB indicating the kind and level of services to be provided to them on credit. These services include, fertilizers, seed rice, tractor services for ploughing of their plots of land. At the beginning of the planting season water is provided, also on credit as well as the required extension services. However, the NIB does not extend direct financial credit to farmers. Instead a cooperative society, the Mwea Farmers Multipurpose Cooperative Society (MFMCS), established and managed by the farmers themselves has played a crucial role of availing credit to member farmers for other uses.

### *Constraints*

The nature of the relationship between farmers as tenants on one hand and the NIB on the other hand has been described as one of receiver and recipient, where the former have minimal role to play in the relationship. Mwea rice farmers under this arrangement have little say regarding the pricing structure adopted by the NIB for water use, material inputs, and the final farm gate prices for paddy rice.

Due to the long delay between delivery of crop and final payment of net proceeds, farmers have always retained a higher than the allowed amount of paddy for sale to the parallel markets so as to meet their immediate needs. The latter has evolved into an elaborate marketing network involving a chain of middlemen with trading linkages to major outlet stores in major towns.

The major constraint rice farmers face gravitates around the inability to play a more decisive role on issues pertaining to rice production and marketing. Farmers content that they should play a bigger role at the decision making level within the NIB, so that they can influence policies pertaining to pricing and marketing. Since farmers own 45 percent of the rice milling enterprise, through their cooperative society; this does not translate to a significant role within the NIB itself.

Despite the existence of a written contract between farmers and the NIB, the latter does not have the full legal mandate to institute any action on a farmer in the case of breach of contract. Any conflicts can only be resolved by arbitration by the ministry in charge of agriculture. Also, the pricing of services cannot be adjusted at short notice to reflect changing economic and international conditions, impairing the Board's ability to adjust to changing environment so as to compete effectively in the market place.

In 1993, price and marketing controls were removed and farmers are now faced with alternative market channels for rice. By 2001 it was estimated that there were 200 rice mills operating within the immediate environs of the MIS. Contractual obligations by farmers to the NIB were likely to be compromised, as farmers diverted rice paddy to private mills. Faced with this non-delivery NIB stood to lose all credit advanced to farmers unless there was a way of enforcing the contractual obligation.

## Brookside Dairies –Milk Processor

The Brookside Dairies Ltd was established in 1993, just around the beginning of the post-liberalization era, with an initial processing capacity of 5000 liters of milk per day. The main plant is located close to Nairobi, surrounded by a number of dairy farms. By 2001 the firm has been able to increase its processing capacity to 200,000 liters per day to become the leading milk processing firm in Kenya, commanding about 40 percent of urban market for processed milk. The milk is supplied by over 15,000 farmers scattered in several areas of central and the rift valley.

### *Linking arrangements*

**Relationship with Farmers:** Milk farmers are organized and registered as suppliers through a formal supply contract, which among other things indicates how much milk a farmer delivers to the company each day. This is important to the processing company as a planning tool as well as a major factor in determining capacity utilization this also helps plan the most optimal utilization of transport fleet. Farmers are normally grouped into collection centres, which play a dual purpose of raw milk collection as well as a service facility where farmers collect their materials from. At the delivery centre raw milk is entered into a farmers account after it has been tested for quality. The firm then collects the raw milk from these centres for transportation to the processing plant.

Since the dairy industry has been liberalized, the forces of supply and demand in the market place essentially determine raw milk prices. However the real determinants of the price are in this case the milk processing companies. Their price determination behavior is normally dictated by the supply conditions as well as the degree of competition for raw milk in the market place since the demand for processed milk is only slightly price elastic. Prices offered to farmers are reviewed at various times and are communicated to the producers.

The following services are offered to farmers on credit and recovered through milk deliveries:

- Extension services including regular farmers field days for educational as well as exposure to any new developments in the dairy industry.
- AI: This is an important input services that farmers need and whose quality should be assured, so that farmers can be able to increase their milk output. The liberalization of AI services in 1992 has resulted in the increased use of low quality breeding bulls in addition to a large number of AI service providers, offering services whose quality cannot be guaranteed.
- Animal Health Drugs. The provision of quality drugs for animal health drugs is an important role, which is instrumental in milk production. The marketing of these drugs is liberalized, opening farmers to several outlets as well as varieties of drugs whose potency could be suspect.
- Animal Feeds. These are sourced from reliable companies at wholesale prices and resold to dairy farmers through the collection centres.

The major constraint faced by the company is one of ensuring the farmers will comply to the contractual agreement especially delivery of milk during the dry season, and what

should be done to farmers in cases of failure to comply. The company has opted for dialogue as its option for resolving problems. However this uncertainty can be critical to operations, when demand for raw mild outstrips supply.

### Smallholder Tea - The Kapkatet tea processing factory

Kapkatet Tea Factory is one of the 46 factory companies operating under the Kenya Tea Development Agency (KTDA) umbrella and is one of the relatively new factories, established in 1992, as part of KTDA's strategy of coping with increased production of green leaf. The factory is wholly owned by small-holder tea farmers. However, the management of all factories is undertaken by the KTDA and aims at harmonizing factory operations, while allowing farmers to spend their energies on tea farming. The factory started with an initial farmer population of 3 000 planting tea on about 1 100 acres. By 2001 the number of farmers had grown to 5 266 and area under tea had increased to 4 000 acres.

#### *Linking arrangements*

Relationship between factory and farmers: A tea farmer is expected to have one share in the processing factory as well as in KTDA. This allows the farmer to deliver tea, participate in elections and to benefit from any services the factory may offer.

Tea is an internationally traded commodity whose prices are determined by world market conditions, but the channel of money flow from auction time to final payments to farmers takes about three months. The mode of payments to farmers therefore includes a monthly average per unit price fixed for the entire year; a half-yearly bonus and a final bonus at the end of the year. The average price ensures that farmers have a monthly payment to meet their regular needs, while the bonus payments are expected to reflect the world price trends net of processing, marketing and other overhead costs.

#### *Benefits and constraints*

By participating in a vertical ownership of both, the factory company that processes green tea, and the KTDA, farmers benefit mainly from profit sharing in tea processing while being able to concentrate on farming activities. Other benefits include the availability of fertilizer on credit. The fertilizer is sourced internationally by the KTDA and sold on credit to the tea farmers through the factory company, on the understanding that it will be used in tea production only. Tea deliveries to the factory also act as security for loans. Farmers are entitled to 2 kg of made tea every month at a reduced price for domestic consumption. Extension services are offered as well as quality control of harvested tea leaves. Tea transportation from the collection centres to the factory for processing is normally offered.

The factory on the other hand has an assured supply of the raw material from member farmers and is able to plan its processing schedules at minimal risk of farmers diverting their produce to other factories. Cases of farmers diverting green tea to other processors occur but are not significant, because the alternative prices offered by these markets are way below what the factory offers.

The dual role as farmers and owners of the factory-company means that farmers are duty bound to support the factory to ensure success. The factory has an elaborate system of farmer representation at all levels. At the tea collection centres, matters pertaining to tea

picking and extension are discussed and resolved. At the factory level, farmers constitute the factory management board where all issues pertaining to tea and farmers are discussed. Any conflicts between farmers and factory management, which cannot be resolved at the factory level, are usually referred to the KTDA.

Tea farmers operate in a business environment where they are not in the know as regards tea prices. They therefore are not in a position to ascertain whether or not the apex body in charge of marketing of tea is unfairly treating them. Farmers feel constrained by the method of a fixed average monthly payment for their tea, and would prefer a situation where payments are more frequent, and also bear direct relationship with auction prices.

The ability of farmers to maintain high quality standards is a major constraint that the factory faces. The factory still faces the challenge of educating farmers on the long procedures associated with international commodity marketing, hence the need for average payments. Fertilizer pilferage still occurs amongst farmers, thereby affecting tea quality and output. The factory remains powerless in the face of these malpractices.

## Factors Contributing to Success

Linkages in farm- agribusiness are a common feature of agricultural production, marketing and processing. This linkage could be vertically linked as in the case of tea and irrigated rice or a loose pure supply contract as in the case of export vegetables or dairy processing. The farm-agribusiness is a chain linkage relationship between producers on one hand and processors on the other hand for mutual business success. Experiences from a number of such linkages in Kenya however indicate different degrees of success among these participants. Some of the critical factors responsible for farm-agribusiness success are described below.

### The Role of the Initiator

In any successful agribusiness, the role played by the initiator of the linkage is important. In the above case studies, all the linkages were initiated by either the agribusiness company itself or the government agency responsible for development of a given commodity. The initiator was usually the organization with the greatest single stake in the economic activity. Where profits to the single initiating entity was essential, then the initiator played a greater role in developing a farm-agribusiness relationship that would be profitable while at the same time providing farmers with the necessary incentives to produce. Where the initiator is a private agribusiness enterprise the development of the linkage is usually faster and more farmer-inclined in terms of service delivery to them in order to tie them to given production, delivery and quality schedules.

### The Role of the Government

A successful agribusiness should operate within a favourable and conducive environment where policies are clearly indicated, and the respective roles of the major actors are well delineated. In the above four cases linkages in the horticultural sector have a longer life

span of progressive growth, owing to the fact that the role of government in this sub-sector has been more regulatory and indirect, using lobby organizations. Where government involvement was heavy through direct participation as the sponsor of the agribusiness linkage, such as in irrigated rice production, growth has tended to be slow and less dynamic. This is probably due to the very nature of government inclination towards efficiency in production and distribution, as well as the amalgamation of different objectives in a given enterprise. These objectives could be social equity, food self-sufficiency and the generation of income for a given constituency of the population. In the face of liberalization and the changing world economic order, farm-agribusiness linkages with heavy government control are unlikely to fare well. This means that governments have to be sensitive to changing economic climates and reduce their presence to policy and regulatory work.

### The Role of Farmers and Farmers' Organizations

Farmer organizations in the four agribusiness cases above have taken the shape of cooperatives, except in tea where farmers are both owners of the agribusiness companies and have a parallel cooperative to serve other functions not handled by the company. This development is a common feature in the Kenyan business enterprises where workers will establish a SACCO to handle their need for credit, which is normally not catered for in the traditional credit market. These farmers' cooperative societies have however played an instrumental role in articulating the need to take farmers' interests and development aspirations into account. For example the farmer cooperative in the Mwea irrigation scheme has been at the forefront in ensuring, that farmers' activities and operational climate change to incorporate global, regional and national policy changes. The same scenario applies to farmers in the tea sub-sector where farmers have systematically argued for total ownership of the tea factories, in tandem with national policies for the management of farmer-based agribusiness enterprises.

### The Nature of the Product

The nature of the product is an important variable in the determination of the farm-agribusiness linkage. Where the product is highly perishable, and therefore requires careful handling, then the farmer and agro-processing firm must work very closely to synchronize production, transportation and processing so as to minimize losses at the different stages, including the production stage. This means that both all actors in the system will collaborate, and evolve mutually beneficial arrangements for the overall success of the business. This is clear from the involvement of the agribusiness firm in production matters such as the provision of material credit, extension services, and the establishment of produce collection centres. Where a product is not highly perishable sensitivity towards important aspects of the product supply and marketing may not given the necessary importance. This is the case in rice production and marketing, where farmers can afford to keep the harvested paddy rice in their stores for some time, should they feel that the contractor is unfairly treating them. The other three commodities are quite sensitive to delays either at the farm, or during transportation, hence the linkage in these commodities must be always aware of the precarious nature of the product.

## The Nature of the Market

The nature of the market influences the farmer- agribusiness linkages to the extent to which the market exerts its influence on product quality. For example the market for fresh vegetables in the European countries is quite sensitive to various quality dimensions. This means that any successful farmer-agribusiness linkage must be equally conscious of quality as well as other requirements dictated by the market. Production for this market type must therefore be a collaborative effort between the two parties. On the other hand where the market is not very sensitive to quality issues such as in rice, farmers are less inclined towards production based on quality, since crop variety, as well as the milling process determines the latter.

The spatial location of the market imposes unique considerations between the farmer, as the source of raw material and the agribusiness firm, as the main processor. These considerations include the ability of farmers to keep to tight production and delivery schedules, quality, and quantities. This implies evolving a farmer relationship mechanism where they see themselves as a constituent part of the agribusiness production chain, playing a critical role. This is the case in the production of tea and fresh vegetables for the export market.

## The Competition

Where competition in the market is stiff, the nature of the farmer-agribusiness linkage will usually evolve to internalize possible market threats from competitors. Competition is usually at both the supply of the raw material and in the sale of the final product. When farmers have a large latitude with regard to who they could sell their raw product to, then the linkage has to be strong and mutually beneficial; and must involve farmers in developing the linkage terms, as specified in the supply contracts, so as to avoid non-compliance. Similarly, where the final product market is very competitive, the agribusiness enterprise has to evolve modalities and strategies for growth and maintenance of its market share. Such a strategy must take due care of the raw material supply source. This is the case with the sale of processed milk, whose competition also implies competition for raw milk from farmers.

## The Role of Lobby Groups

Agricultural sector lobby groups are to be found in some of the sub-sectors where agribusiness presence is central to the success of the sector, and where common interests among the agribusiness firms is such that they need an independent organization to act on their behalf on matters of policy. From the four case studies, sub-sectors where lobby groups exist have shown faster growth and overall stability.

## Conclusions and Recommendations

Farmer- agribusiness linkages have an important role to play both in the development of small-holder commercial agriculture and in the development of domestic capacity for



increased value added for agricultural produce through processing. The linkage of production with processing helps stabilize commodity markets, by minimizing risks associated with prices and market outlets, since farmers are able to have a priori information about producer prices, while agribusiness firms are also able to determine their production schedules based on sure supplies at definite prices. This implies that they can be able to enter into forward delivery contracts with greater certainty.

Farmer-agribusiness linkages have also evolved as alternative sources of agricultural credit to small-holder agricultural producers. The fact that the existing credit markets are biased towards agriculture in general and small-holders in particular, due to their stringent requirements and high interests, offers more reason for the promotion of these linkage mechanisms as alternative ways of assessing credit. The availability of material credit by the agribusiness firm is one of the most attractive incentives farmers consider before entering into any form of linkage.

Farmers operate in a dynamic environment where new technologies are continuously being developed and therefore have to be made available to them at least cost. Farmer-agribusiness linkages have an in-built extension component as part of the relationship. This is an important feature serving both parties positively as it ensures that farmers are producing quality and types required by the market. In the case of internationally traded commodities, this ensures that farmers' production systems comply with international specifications. In situations where the technologies for production are patented, this ensures that there is no illegal transfer of material to non- contracted members.

Vertical integration is an important strategy for agricultural development and expansion of industrial processing capacity. This however works best where the initiator of the linkage is willing to evolve this type of relationship. In situations where the government was the initiator, playing the role of processor, vertical integration involving farmers' part or total ownership in the processing and marketing of final product. The vertical integration must be well crafted to ensure that farmers' limitations in business management do not influence the operations of the firm. This arrangement requires independence within an interdependent system of production.

Within most farmer- agribusiness linkages, a farmer cooperative society, will usually be found. While their original justification has its roots in the social aspects of farmers as individuals, their role is often important in helping farmers. However their ability to develop further is often limited by the policy and rules governing their operations. There is potential to play increasing, but changes will be required concerning their operational modalities as well as their decision making systems. Farmer based associations and lobby groups interested in furthering farm-agribusiness linkages should be strengthened and encouraged to develop a framework of collaboration and coordination of their activities so that they are focused and inclusive. These groups have in some sub-sectors such as horticulture, been instrumental in ensuring that better policy environment is maintained. They also need to be encouraged to be focused and to avoid involvement in non-farm-agribusiness linkage matters.

# Nigeria

## Agribusiness Sector and its Support Institutions

### The Agribusiness Sector

The nature and character of farm agribusiness linkages in Nigeria can best be understood within the context of the Nigerian economy. Obviously, the supply of raw materials to the agro-industrial processing and manufacturing sector is a primary role of agriculture. This role also facilitates the other traditional roles of agriculture as a food supplier, provider of employment opportunities and income generation and a contributor to foreign exchange earnings through exports. In Nigeria, the rate of achievement of the linkage between agriculture and industrial sector has remained very tardy. This is partly because of the frequent changes in policy beginning with the import substitution strategies of the pre-1986 era that discouraged industrialists from patronizing locally produced raw materials.

During the Structural Adjustment years, government encouraged backward integration but inconsistencies in macroeconomic policy initiatives between 1986 and 1995 discouraged farmers from expanding production of suitable agricultural raw materials for local processing and manufacturing. Backward integration and the privatization of state-owned enterprises are currently emphasized as a desirable policy objective by the new democratic government but growth in the manufacturing and agribusiness sector has changed very little in the past decade. Between 1990 and 1999, manufacturing including agro-industrial output in real terms actually dropped to about 92 percent of the level reached in 1990. Whilst the other productive sectors did register modest growth, this was more than offset – in terms of per capita output – by the annual increase in population. The one exception was agriculture. There were no significant changes in the structure of output over the decade in Nigeria. In 1999, agriculture accounted for nearly 40 percent of GDP, virtually the same proportion as in 1990. The average share of output originating from manufacturing declined from eight to nine percent. The crude oil sector share of GDP accounted for 12.7 percent in 1999, virtually the same as nine years ago. Nigeria's continued dependence on the oil sector is dramatically illustrated in the data in table 2 on export earnings. Oil continues to account for over 95 percent of Nigeria's export earnings as well as being a major source of government revenue.

More than 70 percent of all businesses operating in the country are agribusiness concerns primarily in the hands of the private sector. In a recent survey, NISER (1999) observed that 41 percent of agro industries are sole proprietorships, while another 41 percent are private limited liability companies. About 4 percent are government owned, and 5 percent are of partnership nature while 8 percent are public liability companies. These agribusiness enterprises include the whole gamut of operations in the agricultural production, processing, distribution, and consumption spectrum. Agribusiness enterprises in Nigeria can be classified into four major groups, farming input supply companies, producing farm firms, food processing agribusiness firms, and food marketing and distribution agribusiness organizations. Twenty-one types of agribusiness firms can be identified for Nigeria within these four categories.

Farm input supply businesses comprise: agricultural chemical input suppliers of fuels, fertilizers, pesticides and herbicides seed and feed concentrate suppliers; agricultural machinery and equipment suppliers; automobile, tube, tyre, and foam manufacturers; credit and veterinary services suppliers. The producing farm firms are crop producers and livestock producers who are farmers scattered all over the country. Food processing agribusinesses in Nigeria include food and fruit juice canners; manufacturers of beer, soft drinks, cocoa drinks, coffee, and tea; producers of confectionary sugar sweets, chocolate, cakes, biscuits; tobacco processors and/or manufacturers; meat processors; wood processors and furniture makers and distributors, paper millers and tissue paper manufacturers; leather and footwear manufacturers; food packaging and cartons manufacturers; cotton processing, spinning, weaving and textile companies; food processors of cornflakes, jam, bread, butter, milk, margarine, and tomato puree; oils, soap, and toothpaste manufacturers; fishing companies, fish processors, packers and distributors. The food marketing and distribution agribusiness companies in the country include private food stores; wholesalers and retailers of frozen foods including super markets;

These four groups can be found in the formal and informal sector of the economy. The formal agribusiness sector is defined as any manufacturing firm registered with the National Directory of Establishments published by the Federal Office of Statistics and includes those that are registered with the Manufacturers Association of Nigeria (MAN) or the National Association of Small and Medium Scale Enterprises (NASME). The informal sector is not registered with these umbrella bodies but may or may not be organized into localised associations. Examples include food processors, private food stores, supermarkets, farmer cooperatives, and wholesalers scattered all over the country. This group differ from micro-enterprises by the share volume of output or sophistication of machinery used in the production process.

Agribusiness firms are scattered all over the country but are concentrated in three main industrial clusters in Nigeria; Kano Kaduna Jos in the north; Lagos Otta Ibadan in the south west and Port Harcourt Aba Nnewi Onitsha in the southeast. In general, the Lagos Otta Ibadan axis accounts for 44 percent of the registered firms and roughly 52 percent of the employment. Based on the average number of employees per firm, the largest firms are also located in the Lagos area. While most of the sector is made up of small-scale enterprises (about 60 percent of the firms have between 20 and 49 employees), these account for 12 percent of employment. With a few exceptions, firms with more than 500 employees provide the bulk of sectoral employment. As a whole they account for 53 percent of total employment in the manufacturing sector (Marchet et al, 2001).

## Support Institutions

Agricultural development in Nigeria has been supply driven focussing primarily on the generation of technology and transfer. This supply driven approach is dominated entirely by the public sector, operating within a Research-Extension-Farm Input Supply Linkage System (REFILS). The key players in this system are 18 agricultural research institutes, 37 public extension outfits; state owned input supply companies and farmers especially smallholder farmers. Much emphasise was placed over the years on the generation and transfer of improved agricultural technologies to farmers. Very little emphasis was placed

on the development of markets and the commercialisation of agricultural output in Nigeria. This is one factor that has impinged negatively on agribusiness development in Nigeria.

The Nigerian agricultural research system is the largest in sub Saharan Africa employing about 1000 scientists and 10000 other staff (Shaib et al, 1997). The activities of the 18 agricultural research institutes are complemented by research in three agricultural universities and 23 regular universities with agricultural faculties. The human resource capacity in the agricultural faculties of Nigerian universities is about 1300 agricultural scientists. In addition, the international agricultural research centres have had substantial impact on the agricultural development of Nigeria. These include the International Institute of Tropical Agriculture with its headquarters located at Ibadan, the International Centre for Research in Semi Arid Tropics (sorghum) with a sub station located in Kano, northern Nigeria, West African Rice Development Association (rice) and the International Livestock Research Institute (livestock) with a substation also located in Ibadan. Private sector participation in research and development is small and confined to adaptive research by a few agro industries in Nigeria.

The extension of agricultural technologies to farmers has been the primary focus of the State Agricultural Development Programs in Nigeria. Their efforts are however complemented by the activities of NGOs such as Sasakawa Global 2000, private companies such as Shell Petroleum Development Corporation, Nigerian Agip Oil Company, and some organised farmer associations such as Farmers Development Union (FADU). Private agribusiness firms also provide extension activities usually related to specific input or product markets. Of significance in this respect is the Nigerian Tobacco Company. The extension activities of these companies (including the oil companies) are highly rated but cover a very small share of farmers and in the case of private companies; the extension is focused on specific inputs and products.

As of today, the farm input supply organizations are virtually moribund. These companies were operated, as state owned enterprises mainly involved in the supply of fertilizers, but due to high incidence of corruption, cumbersome bureaucratic problems, biases in delivery and general logistic defects their operations were largely ineffective. The National Seed Service still exists to test and certify foundation seeds developed by the research institutes. In the recent past, private sector input companies like Premier Seeds, Alheri Seeds, Candel (agro chemicals), Syngenta (agro chemicals), Leventis (seeds and agro chemicals), UAC (seeds and agro chemicals) emerged to blaze the trail in private sector participation in the Nigerian agricultural input sub sector. Even then these seed companies have to abide by the public sector norms of selling or distributing certified seeds in which the national varietal release committee has approved (foundation seeds) after three years of testing and approval. However private sector participation in input supply to farmers in Nigeria is growing.

## Raw Material Sourcing

The major sources of agricultural commodities used by agribusiness enterprises and the degree of local sourcing of these commodities suggest that there is some sort of linkage between agriculture and industry in Nigeria. It is postulated that the effects of this linkage is the generation of farm-level employment and income especially for rural dwellers. It is also believed that effective farm agribusiness linkages give farmers the benefits of modern

technologies, quality control, marketing, and other modern services. To gain insight into the efficacy of existing farm agribusiness linkages in achieving these objectives in Nigeria we examine the strategies adopted by the agro-industrial enterprises in local sourcing of agricultural raw materials.

Agribusiness firms in Nigeria use five strategies to source agricultural raw materials. These are direct purchase from the market, use of buying agents, direct purchase from farmers or producers, use of out-growers or contract farming, and own production where firms set up their own farm enterprises. Obviously, contract outgrower schemes and direct purchase from farmers have positive impact on rural incomes (Goldsmith 1985; Glover 1987). Unfortunately these two strategies are not popular in the Nigerian agribusiness sector. A survey by NISER (1999) on the strategies used by agribusiness firms is presented in Table 7. This suggests that the use of buying agents and direct purchase from the open market are quite popular amongst agribusiness firms. The soft drinks, livestock feeds, biscuits, and beer agribusiness sub-sectors mostly source their agricultural raw materials by direct purchase from farmers. This indicates that these sectors actually encourage farm agribusiness linkages. Use of contract farmers is virtually non-existent for all agribusiness firms except in the beer and flour-milling industries but at very low levels. The impact of farm agribusiness linkages on rural income and employment is likely to be lowest for the pharmaceuticals, confectionery, vegetable oil, and flour-milling industries.

It should be noted that the raw material requirements in the livestock feeds industry are mostly by-products hence the popularity of direct purchase from the producers may not mean better income for the farmers and does not imply that the income effects are domiciled in the rural areas. Rather, the incidence is likely to be more in favour of the other firms, the flour milling and beer industries. Unless the strategy for local sourcing of the agricultural commodities by flour-millers and vegetable oil industries have more favourable impact on rural income and employment, the indirect effects of the linkages between livestock feeds industries and agriculture cannot be favourable.

The popularity of direct purchase from the markets and reliance on buying agents by most agribusiness firms as strategies for the local sourcing of raw materials indicates that the price and income effects of the linkages on farm activities would have very little impact in the rural economy. This is because the buying agents tend to exploit the farmers by offering low farm-gate prices while taking advantage of the poor market information and scarcity situation in the urban market place. The result is that farmers do not respond as expected to price signals while the end-users continue to suffer from inadequate supply and rising costs. These strategies have the tendency to perpetuate weak and rudimentary linkages between agriculture and industry as well as increase domestic prices far beyond international market prices. The fact that agricultural subsidies in Nigeria usually goes to unintended beneficiaries (Idachaba 2000), coupled with weak farm agribusiness linkages encourages importation of raw materials by agro industries even for commodities in which Nigeria has a comparative production advantage. A possible exception is the beer industry whose linkages with cereals production are relatively more intensive and hence their employment and income effects could be relatively higher than others.

The greatest impediments to increased local sourcing of agricultural raw materials in the agribusiness sector, is competition from other uses especially as food and by other industries. This arises as a result of the multipurpose use of some of these commodities and hence alternative markets. Maize is used in the beer industry as well as in the flour-

milling industry and the livestock industry and it is also consumed fresh. The same is true for sorghum and several other agricultural products. This is a clear indication that domestic production at the farm level is inadequate and cannot satisfy the needs of agro-industry as well as consumers.

Outside competition from consumers and other industries, most agribusinesses also have storage problems, making it difficult to stock raw materials. This calls for the use of contract farming to ensure adequate quantities of raw materials on specified delivery dates. Another impediment is the poor quality of products, especially in the pharmaceuticals and confectionery sub sectors. The issue of quality has implications for specialization in the production of specific crop varieties to suit specific types of industrial demand. A final impediment is the inadequacies and high cost of funds. The issue of inadequate funds arises because most firms purchase raw materials directly from the market, as observed earlier.

## Case Studies

### Abakili Rice Processors

The demand for rice has increased at a much faster rate in Nigeria than in most other West African countries. Between 1960 and 1970, Nigeria had the lowest per capita annual consumption (average of 3kg) of rice in West Africa. Since then, Nigerian per capita consumption levels of the crop have grown at 7.3 percent per annum. Per capita consumption in the 1980s averaged 18kg and reached 22kg in the 1995 to 1999 period. A combination of factors seems to have started this increase in the demand for rice consumption. The first is urbanization and urban lifestyles, which encouraged easy-to-prepare foods such as rice.

Rice production has also increased (9.3 percent p.a.) during the 1960 to 1999 period especially as a result of vast increases in area cultivated (8 percent p.a.) and to some extent through increases in yield (1.4 percent p.a.). Production increase has however not matched consumption increase so that imports had to make up the shortfall in demand.

The Nigerian government has actively interfered in the Nigerian rice economy over the last 30 years. Government policy had been inconsistent, oscillating between import tariffs and import restrictions. This oscillation has affected domestic rice production in such a way that during periods of ban, domestic rice production picked up to meet the challenge in domestic demand and during periods of reduced tariffs, domestic production and prices of local rice plummeted. In February 2002, the government again increased tariffs for imported rice to 100 percent.

Abakiliki, the capital of Ebonyi State, emerged primarily as a rice-producing town in the early 1960s. Presently, it has the largest concentration of rice mills in Nigeria with about 400 rice-processing mills located in the town. These small rice mills are all privately owned with about 96 percent owned by individual entrepreneurs. The remaining 4 percent are cooperatively owned. Most of these mills were established as early as 1960. Presently, the mills are governed by the byelaws of the Association of Rice Mill Owners at Abakiliki. The

Association supervises processing operations at the mills, maintains quality control and monitors standards and measures. Individual processing mills obtain their own stock of paddy but joint processing with other mills may arise in the case of large purchases by rice merchants. Government support to the mills is non-existent but the local council collects taxes and market tolls from processors and traders.

The key players in the rice staple food sector are small-scale farmers and rice processors or millers. The small and medium scale processors initiated the relationship between rice farmers and processors in the 1960s. This relationship was basically informal and relied heavily on trust between the two parties. Initially, millers who generally were migrants from outside Abakiliki town and environs, encouraged farmers who were indigenes and owned the land, to produce rice for their mills. The millers provided inputs, rice and fertilizer, and other non-cash gifts such as goats and drinks. Later these non-cash benefits were converted into cash, but the millers/processors continued to provide credit to the farmers to enable them pay for fertilizer, labour and parboiling costs. The millers later purchased 75 percent of the total (parboiled) rice output from the farmers at harvest, when prices were lowest, and milled for the market. The balance of 25 percent was left with the farmers to sell, especially during the off-season, when prices were highest, to offset their household obligations. This informal arrangement existed and served the purpose of both parties because the confidence level between farmers and millers then was very high.

However in the recent past this arrangement has collapsed completely due to several related reasons. First, farmers became unreliable and were no longer honouring the informal agreements. Secondly, it became more difficult to produce rice due to gall midge problems resulting in low yields. However, the most important factor that led to collapse of this farm agribusiness linkage was the high cost of labour for rice production. Labour for rice production became expensive because the active labour left the rural areas in very large numbers aided by the new political freedom/democratization. The attraction to the cities is due to the discovery of a new lucrative enterprise and alternative off farm employment-motorbike taxis-popularly called "Okada" in Nigeria. The increase in labour costs coupled with increased rice imports eroded the profit margin of farmers and made it difficult for them to meet obligations and commitments with processors.

This situation has given rise to a very critical problem in Abakiliki area. Migration of labour to the major cities in Nigeria implies that the rice production enterprise, which actually opened up the town of Abakiliki, is declining. However, the millers have not relocated. So how do they survive? Six years ago rice processors sourced 70 percent of their rice from within Abakiliki and environs. Today, rice millers source 80 percent of their rice from outside Abakiliki to keep their mills working. The major sources of paddy rice are from the production zones of Adamawa, Benue, Nasarawa, and Taraba. This has increased competition for paddy rice, as other processors from other States especially Nasarawa and Taraba States have to compete with Abakiliki processors for paddy rice from these production zones.

One critical aspect that is lacking in the rice production sector is the absence of a pressure group at the national level. The rice millers associations in the country are localised in different towns and there is little effort to influence the emergence of an enabling policy environment that would make the rice crop sector competitive in the regional market.

## Sorghum Outgrower Scheme with Guinness Plc.

Sorghum is a very important staple crop produced mostly by small farmers and consumed as food in northern Nigeria. In 1984, the crop suddenly became an industrial raw material for breweries. The government imposed a policy of backward integration in which agro-industries including breweries were required to source their raw materials within the country. In addition, breweries were required to establish farms as a prerequisite for import licence allocations from government. With the anticipated complete ban of barley and maize imports by 1988, the breweries had no choice but to look inwards. Sorghum was found to have good malting qualities and it suddenly changed from a major household staple to a cash crop, a case of necessity becoming the mother of invention. But production still remained in the hands of small, uneducated farmers scattered in different parts of the country. The breweries were compelled to compete for this limited commodity and obviously many folded or were bought up by bigger and stronger breweries. From 34 breweries in Nigeria in 1984 the number was reduced to 16 by 2002. One of the largest breweries, Guinness Nigeria Plc survived this onslaught in the Nigerian business environment.

Guinness Nigeria Plc is a multinational company that has been in the brewing business in Nigeria since 1950. Its products include Guinness extra stout, Harp Lager beer and Malta Guinness. In 1984, the brewery acquired a 3000 ha farm in Mokwa for the production of maize but this is not the reason why the brewery was included in this study. In fact, the farm at Mokwa has already been sold as the company found it cheaper to purchase maize in the open market than to produce. Between 1995 and 1998, the company had established an outgrower scheme primarily for the promotion of ICSV 400, a particular sorghum variety among farmers in Nigeria. The variety made it cheaper to process sorghum for malting than other varieties. Other important factors that pushed the company into investing in the scheme were that profit margins were generally high with local raw materials and there was no foreign exchange risk using local raw materials. Guinness Nigeria Plc was the only company of this multinational that sources its raw material locally.

By 1997, the company started a contract grower scheme with farmers in Kano, Kaduna, Katsina and Taraba States. The objective of the company's contract grower's scheme was to create awareness about the improved variety and consequently get a large group of farmers to adopt and grow the crop. In other words, the company's intention was not to continue with the scheme over a long time. In the four years that the company ran the scheme, they provided seed, basal and top dressing fertiliser to farmers in the four States. Farmers were required by formal contract to produce a field of pure ICSV 400 sorghum variety. At first, farmers were sceptical about the intentions of the company but by the following year participation increased and farmers grew the crop in an area ranging from 2 to 75 ha per farm household.

Farmers under the scheme were closely monitored four times during planting, thinning, top dressing, and during harvest. Company staffs were provided with vehicles and drivers to criss-cross the country on monitoring missions. Following increased participation of farmers, the company pulled out of the scheme in 1998. There were other reasons for the termination of the scheme. The level of commitment by farmers was not



encouraging. In some cases, farmers did not honour the contracts and some diverted the fertilizers provided to alternative crops such as vegetable production. Farmers also did not follow the technical advice and suggested planting dates.

Presently, the company uses agents to purchase grains or trusted suppliers who had earlier bought from producers/farmers at prevailing market prices. This too requires a formal contract. First, the company will receive applications or letters of intent from prospective suppliers. This is followed up by a local purchase order (LPO) to the buying agent to supply grains within a specified number of days to any of the company's buying centres at Kaduna, Zaria, Kano, Agbede, Ewu, and Sapele. The LPO specifies quality requirements such as percentage of insect damage, weather damage and foreign matter content. The price paid for grain to the buying agent is based on market information but will usually cover the market price of grain, market charges, transport to buying centre, handling charges at buying centre, and a premium. Grain purchases are done at specific times of the year.

While this option tends to meet with its grain requirements, the company would have preferred a farm-gate alternative where it would be able to bulk grain directly from farmers without getting to the market to avoid taxes and grain merchants who normally raise prices. However farmers are scattered all over the country and bulking logistics are very expensive.

### Fuman Agric Agricultural Products Fruit Juice Manufacturer

Fuman Agricultural Products is a medium-scale fruit juice manufacturer who started in 1995 by taking over the old Lafia Canning Factory established in 1954. The major raw materials of the company are fresh fruits such as orange, guava, pineapple, mango, and passion fruit. Main production lines are natural fruit juices i.e., orange, pineapple, guava, in 1l and 250ml tetrapak packages; others are canned fruits. Installed capacity is 5t/h but the company presently produces at 10 percent of its installed capacity.

Fruits are procured locally by the company's purchasing manager and from independent traders with informal links to the company. Fruits are purchased from Oyo, Osun, Ekiti, Ondo and Edo States in western Nigeria; Cross River in eastern Nigeria, and Nasarawa, Kaduna and Benue States in the Middle Belt. No formal contracts are made with suppliers. The company determines the price and usually offers the average between the seasonal and off-seasonal price. The company prefers to buy in the glut season when prices are low since fresh fruit market demand is saturated. In May 2002 pineapples were purchased at about US\$ 800/tonne. The processor may provide transport and in some cases provides some pre-finance to traders.

Direct links to the farming community are limited to former cooperative groups that had worked with the former Lafia Canning Factory in the western States mentioned above. In so doing, they provide soft loans, planting materials; equipment and other agricultural inputs while the farmer cooperative groups supply their produce to the company. The company reserves the right to discard poor quality products and the average annual prices are paid to farmers for their produce. At times when open market prices are better than company prices, farmers sell their produce in the open market. The company also goes farther field to purchase supplies directly from producers and agents at prevailing market prices from eastern and central Nigeria.

The main constraint faced by the company is the availability of raw material. The farming sector is not geared for a continuous and stable supply to the factory. Competition from alternative markets especially from northern Nigeria (where these fruits are not usually grown) reduces the company's source of raw material supply. The company is presently making efforts to obtain concentrated juice supplies from Ghana and South America. Other constraints mentioned are high interest rates charged by commercial banks (32-35 percent pa) and notorious problems with electricity supplies.

Several factors require strengthening. Appropriate staffing and a degree of decentralization in management structure are essential. Communication between the company and cooperative farmer groups and consultation especially with those inherited from the former Lafia Canning Company is vital to maintain a reliable supply of raw materials, particularly oranges. It is important that farmers work in partnership with the company and have a better understanding of their production system. This cannot be achieved without the appointment of a well-trained liaison and extension officer who speaks the local language, possesses appropriate interpersonal skills, and is preferably an indigene of the area.

### Cocoa Exporter Ed&F Man Nigeria

ED&F Man Nigeria, cocoa buyer and exporter, Mushin, Lagos buys around 30-40 000 tonnes of cocoa annually, the most of which is exported. Local processing serves the domestic market of cocoa-based drinks. Capacities are around 5 000 tonnes per year. The sector used to be under government control until 1985 but is now fully liberalised. Competition is high amongst cocoa buying agents. International market prices are published daily in the newspapers and the farming community enjoys full access to information. This is not the case for the staple crops discussed above. Buying agents are used who employ brokers who deal with the farming community.

Most cocoa in Nigeria is produced on a small scale. The average delivery per farmer is less than 5 bags (roughly 300kg per hectare of cocoa) per season. The company has access to international funds and advances monies to buying agents in the main season. The agents make weekly verbal contracts with farmers and agree on price. If prices fall, the farmer has to deliver more beans to the trader, which does not always happen, if prices rise, the buyer has to offer more, otherwise the agent defaults on the contract. Links between producers and overseas processors are well established. Due to the small-scale nature, international and local traders are in charge of collection, transport, grading/drying, etc.

There are a few cooperatives still in place. The initiators of the strong links historically have been overseas processors who relied on the government for internal buying. After the collapse of the Cocoa Board private traders dominated internal buying. Competition in cocoa buying is high, benefiting the farming sector. An estimated 90 percent of the world market price is paid to the farmers. Despite a lot of recent mergers and acquisitions due to lower profit margins in the international trade the cocoa sector in Nigeria is still profit making and is one of the most transparent systems in West Africa. Input supplies to farmers, however, have collapsed after the pullout of the government. Nevertheless the country's production base has stabilized over the last decade. Replanting of cocoa gets some support from the State.

The Association of Nigerian Cooperative Exporters, (ANCE), Ibadan was established in 1945 and closely linked to the State Marketing Board until its collapse in 1986. ANCE consists of village level cooperative farming societies (CPMS) and town-level Cooperate Produce Marketing Unions (CPMU). There are over 400 village level societies and 42 CPMU in five Western States in Nigeria, Oyo, Ondo, Osun, Ekiti and Ogun. ANCE used to be in charge of marketing Nigerian cocoa to terminal markets until 1986.

Its importance after the breakdown of the State-controlled cocoa sector has declined drastically but the organization still handles about 5 percent of Nigerian cocoa production. Cooperative members are shareholders and enjoy annual bonus payments, access to inputs, loans and voluntary credit schemes. The association supplies beans to a cooperative cocoa processor in Akure with a capacity of around 5 000 tonnes/year. The processor is supplied by the various cocoa traders and supplies cake/butter/liquor to Cadbury (Stanmark) Nigeria, Plc and other biscuit manufacturers.

## Constraints in the Development of Farm-Agribusiness Linkages

That agriculture and industry remain largely separate entities within the national economy whereas a symbiotic, mutually beneficial relationship anticipated, remains a paradox. One possible explanation is that the Nigerian agribusiness environment is full of uncertainties and risks arising from several factors. To give a picture of how this environment constrains agribusiness development in Nigeria some of these critical factors are discussed below.

### National and Regional Policies

There is no separate policy articulation for the development of agribusiness except for the brief objectives stated the 1988 Agricultural Policy for Nigeria document for agricultural commodity processing. The objectives of that section of the agricultural policy are stated as follows:

- to widen the demand base for agricultural commodities and, hence, accelerate the rate of growth of the agricultural sector;
- to preserve perishable agricultural commodities thereby reducing their level of waste and degree of seasonal price fluctuations; and
- diversify employment opportunities in the rural areas through the establishment of rural-based, small scale agricultural commodity processing industries.

There is no specific national policy that focuses on the development of agribusiness as an important sub-sector – especially in the areas of agricultural commodity quality standardization, storage, processing, packaging, haulage, and marketing. There is also no harmonized and regional policy that supports a programmed and targeted development of the agribusiness sub-sector in West Africa.

The Nigerian industrial policy is outdated and inconsistent with the situation of today. The last industrial policy was formulated in 1985 and ever since then the government has been unable to come out with a comprehensive industrial policy for Nigeria (Adegbenro, MAN, personal communication, 2002)

## Infrastructure

The most serious business problem in Nigeria is the state of infrastructure and the biggest infrastructure problem is electricity. According to a survey by Marchet et al. (2001), infrastructure problems are nearly two and a half times worse than the next biggest problem – finance. The deficiencies in the supply of electricity are, by far, the biggest infrastructure problem as reported by 94 percent of the firms in their sample survey.

The response mechanisms to the notorious inefficiency in public electricity supply include private provisioning, where firms purchase and use their own electricity plants, factor substitution, where firms adjust machinery from electronic to mechanical or manual; output reduction where firms reduce their output and product substitution where firms reduce the range of their products in the market. These responses are costly, as they lead to low capacity utilization, reduced output, and high production costs. These costs are in the final analysis transferred to the final consumer while some firms in the recent past have considered relocating their plants to Ghana and Côte d'Ivoire.

## Finance

The next major problem in the Nigerian business sector is the high cost of funds arising from the depreciation of the local currency (Naira) against major currencies coupled with high lending rates and extreme difficulties in accessing credit for working capital, especially for small agribusiness ventures. Presently, the lending rate has been allowed to float and in some banks it is as high as 25 percent. The high lending rate encourages service businesses such as trading and imports rather than productive ventures in the agri- business sector.

## Unpredictable Government Actions

There is a high level of uncertainty and lack of confidence in government and its intentions for the business sector. Managers are generally unable to make predictions of future sales and investment plans in the long term. This is because of a general level of uncertainty, especially with the inability to predict government policy. Marchet et al. (2001) noted in their survey that business uncertainty and the inability to plan because of fluctuations in government policies ranked third, behind lack of infrastructure and access to finance.

Uncertainty arises basically as a result of the conflicting objectives of government agencies. It is an oversimplification to speak of "the government" as there are in Nigeria a gamut of agencies of government that oversee the workings of the business environment. For instance, while the Federal Ministry of Agriculture and Rural Development has the mandate of supervising farmers, the Federal Ministry of Industries oversees agribusiness firms and large industries, while the Federal Ministry of Environment oversees matters related to industrial waste and effluents.

The Federal Ministry of Finance along with the Central Bank of Nigeria control matters of credit, regulate the merchant and commercial banks, foreign exchange, interest rate, and import or export regulations. But inter-ministerial relations are almost nonexistent

leading to implementation conflicts and this is one reason for policy inconsistencies in the Nigerian agribusiness environment. According to Idachaba (2000), when institutional arrangements for agricultural policy become highly unstable from being frequently changed and reversed, there is cause to worry over institutional sustainability.

To make successful business plans, managers must be able to make reasonable predictions about the macroeconomic environment and how it will affect their enterprise. Unfortunately, agribusiness firms in Nigeria find it very difficult to make such predictions. The unstable macro-environment, especially the exchange rate volatility, is a major reason why firms in Nigeria are unable to plan and unwilling to make large and long-term investments.

The risk and uncertainty in the Nigerian business environment is heightened by the tax regime. This problem arises from the wide variety of constantly changing taxes and levies imposed by the state and local governments. Many local levies overlap with federal taxes or with other state and local levies. The most notorious example is the Lagos State sales tax, which is applied on top of the federal value added tax.

Other overlapping taxes include local premises tax, ground rent, federal and state education taxes; sign board tax and mobile advertising tax. In addition to these there is withholding tax and pay-as-you-earn tax. The multiplicity of taxes and the poor design and administration of some taxes contributes to the risk and uncertainty of business in Nigeria. The tax system forces managers to devote a large amount of resources to dealing with the administration and its inefficiency reduces firms' stock of working capital. The tax regime is a particular concern to foreign-owned firms and those that employ significant numbers of expatriates. This almost certainly helps to discourage foreign investment and technology transfers.

## Regulatory Environment

The regulatory environment is also problematic and is an important cause of concern for agribusiness managers. Most regulations and laws change frequently or are inconsistently applied, causing firms to expend considerable time and effort to comply with them or negotiate ways around them.

There is a multitude of regulations imposed by all levels of government agencies. The Standards Organization of Nigeria and the National Food and Drugs Administration Commission are also frequent sources of burdensome regulations. It is reported (Marchet et al. 2001) that neither organization appears to have the capabilities needed to adequately perform its regulatory roles. Therefore, instead of protecting industry and consumers, they serve more as a way to harass businesses. In fact, most business managers believe that these agencies are not competent and function more as a source of graft than as proper regulatory bodies. The same can also be said of the federal and state environmental agencies.

However, as with many other countries, most of the actual laws and policies in Nigeria are reasonable and their value is understood by most of the manufacturing and agribusiness sector. However, the value of many regulations is lost when they are implemented in an arbitrary and capricious manner. This makes them ineffective and unfortunately increases

risk and uncertainty. On the other hand, one must not fail to mention the attitude of the average Nigerian businessman who is prepared to find ways and means of thwarting government regulations. A positive change in attitude and integrity may improve the administration of regulations in the Nigerian agribusiness environment.

Crime and security are significant issues facing every person and enterprise in Nigeria. Lack of security also discourages foreign investors. The government's inability to provide security imposes many costs upon the agribusiness sector. Some are measurable; such as the amount of money firms spend hiring security guards. Others may be difficult to quantify.

### Farm-Level Constraints

At the farm level, the Nigerian agricultural system is characterized by subsistence smallholder production in scattered irregular plots. Geographically, farmers are dispersed and unorganized so that the cost of bulking and consolidating their produce for commercial supplies is enormous. To circumvent the problem of bulking logistics, the formation of farmers into groups has been recommended (Kormawa et al, 2002). The weaknesses of working with groups are shifting allegiance, insincerity, loose organization and weak financial base. Shifting allegiance occurs especially when prices of commodities fluctuate. This is common for commodities that have alternative uses and/or alternative markets. Examples include sorghum and maize.

Farmers may also shift their allegiance to middlemen in such instances. Groups and individuals in the groups may be insincere and may not adhere to agreements. Sometimes groups may be loose organizations with no apparent leadership or coherence. Most farmer groups have a weak financial base and are unable to take up production opportunities. As a result (as we shall see in the next section), agro-industries use a series of alternative strategies to source raw materials. These methods include contract farming; own production, direct purchase from the producers or market, and use of bulking agents.

### Market Information Service

Market-oriented production requires the use of a real-time market information service. Daily information on market prices can be found in newspapers for traditional export crops such as cocoa but is completely lacking for other crops of industrial importance such as rice, sorghum, cassava, maize, and horticultural crops. Existing market information services are of no assistance to farmers and agribusiness firms as information is collected monthly by public agencies, basically for research purposes. Hence, both farmers and agribusiness firms are forced to operate in a non-transparent and speculative business environment.

Many agribusiness firms and farmers are unable to ascertain beforehand where to buy or sell commodities in order to maximize profits and reduce the risks associated with marketing. This has created a class of market agents who have capitalized on this non-transparent market situation and lack of information to rip off both farmers and agribusiness firms in Nigeria. In general, the agribusiness sector in Nigeria is not price

competitive and lacks service linkages to finance technology and export sectors due primarily to the absence of a national market information service.

## Factors Contributing to Success

Economic behaviour is clearly embedded in networks of social relations. But when relations of reciprocity and cooperation, the networks of solidarity, trust, and tolerance which are important aspects of social capital, have been substantially eroded and dismantled by poor policies and a harsh business environment, it becomes difficult to entrench a beneficial culture of farm agribusiness linkages. This is exactly the case with farmers and agribusiness enterprises in Nigeria. It is therefore not surprising that most Nigerian agribusiness firms use a combination of strategies such as buying agents, direct purchase from the open market along with own production, outgrowers, and contract farmers, and direct purchase from producers, to source their raw materials. The combination of strategies is an adjustment to the harsh business environment, the need to improve capacity utilization and company profits. In general, profit maximization and not development objectives have been the driving force on the part of firms in maintaining farm agribusiness linkages.

The common feature of farm agribusiness linkages in the case studies, irrespective of whether it is a formal or informal relationship, is that farmers agree to grow crops for a processing company or for export. Contracts are usually made for a period of one year at a time, usually at planting time, specifying what percentage of produce the company will buy and at what price. Naturally, the farmer provides land, labour, and tools but is supplied with inputs such as fertilizer, seeds, insecticides, and/or credit. Extension services may also be provided, but the company retains the right to reject substandard produce. In this scheme, the power relations are often viewed as skewed in favour of the company to the detriment of the farmer. It is argued that contracts between farmers and companies are exploitative because it involves an unequal power relationship that reduces farmers to hired hands.

This however is not the case for Nigeria. Farmers have great bargaining power in that they retain ownership of land and labour and they often have access to alternative sources of income and markets. Where farmers have total legal authority over the land, as in all our case studies, they do not have to implement recommended practices to retain their land. For instance, the observation that farmers do not adhere to technical advice and suggested planting dates (as observed in the Guinness Nigeria Plc outgrower scheme) may be the result of a conscious decision taken in the light of the need to maintain diversity in production.

Secondly, where crops such as sorghum, rice, and fruits have alternative domestic markets, it is obvious that farmers are unlikely to abide by contractual agreements (whether formal or informal) in the event of a price increase in favour of the contract crop. In addition, in areas where there are better alternative commercial crops than the contract crop (e.g. vegetables), farmers are also likely to divert inputs provided for the contract crop to higher income crops. Alternative production and market possibilities are therefore strong advantages in farm agribusiness relations, which may usually favour the farmer more than the company, especially in cases where the farmer controls the production resource –

land. Deviations from the letter of the contract may constitute a form of farmer resistance, but such deviations are unlikely to exist in the absence of alternative market opportunities.

Thirdly, farmers also own and administer the use of family labour but are unlikely to influence external factors that may affect (hired) labour migration. Farm labour costs have increased in the recent past (especially in Abakiliki, eastern Nigeria) due to migration to urban areas by the active farm population in search of alternative sources of income. This situation led to increased production costs for rice and makes domestic rice production and processing less attractive.

On the side of agribusiness companies, manipulations by the firms were also reported during interviews with farmers and processors for this study. For instance, farmers and suppliers have encountered manipulations of inspection standards to control deliveries. Firms discover that in bad years farmers dump grain on them and to avoid this they raise quality standards in order to reject excess supplies (S. Bello, personal communication, Lagos, 2002). Individual employees of the company may also reduce volume and standards to favour their private pockets and not company profits (A. Mouneke, personal communication, Abakiliki, 2002). Many agribusiness companies in Nigeria folded as a result of such selfish employee manipulations. Raw material purchasing officers and quality control inspectors of agribusiness companies are the major culprits of this practice and have also been known to take bribes and kickbacks.

Suffice to say however that partnerships between farmers and agribusiness firms have been most successful in areas where the firms have made conscious effort to promote and encourage farm level production without necessarily becoming involved in actual production. A typical case is the experience of Guinness Nigeria Plc described above. The relationship between farmers and processors in the informal rice sector had also been successful until recent increases in farm labour costs forced processors to look elsewhere for raw materials. A change in attitude of farmers to think in terms of commercial and not subsistence production and the identification of assured markets (agribusiness firms) helped to sustain these relationships. The fruit and cocoa industries observed in this study need to strengthen their existing farmer cooperatives/groups in order to sustain and improve raw materials supplies.

## Recommendations

### The Role of Government

Farm agribusiness linkages will remain an important and growing feature of rural Nigeria. The new democratic government continues to push a policy of increased private sector participation and western donors consider farm agribusiness linkages an appropriate tool for achieving economic growth through free market. Following the gradual withdrawal of government from the provision of farm input supply, especially the procurement and distribution of fertilizer, seed, and agrochemicals, the Nigerian agricultural sector now faces a new challenge on how to develop new private sector capacities to assume these roles. The government should provide incentives to encourage private sector participation in agriculture and agribusiness. Provision of rural roads, electricity, and telecommunication facilities is vital in this regard.



The focus on market orientation and commercialization of agriculture invokes a new strategy and sense of urgency for government to define appropriate responses to the globalization of agricultural inputs markets and liberalized food imports under WTO rules. Without such guidelines and policy (and given the present harsh agribusiness environment), the farm and agribusiness sector may be unable to ward off stiff competition from cheap imports in an era of trade liberalization and lower tariffs. There is a need to articulate an appropriate policy for the agribusiness sector, given the growing national and international competitive environment.

Finally, government should focus on providing an enabling institutional and consistent regulatory policy environment that removes all impediments to the free flow of agricultural commodities between farmers and agribusiness enterprises as well as across the borders or into the export market. Government should also provide appropriate safeguards to enforce contracts and protect private investments in agriculture.

### The Role of Agribusiness Firms

There is a need to improve supply chain efficiency through the reduction of transactions by agribusiness firms and to avoid unnecessary levels of traders. Emphasis should be given to buying directly from farmers as this will lead to some considerable advantage to both the industry and the farmer. This strategy will enable the industries to assist farmers directly as they provide them with an assured market for their crops. Basically, this implies breaking into the crop marketing chain at the farm level. Direct sourcing of raw materials will, however, require strategic planning and some investment at the grassroots level. In the case of grain crops (e.g. sorghum, rice, maize, cowpea, and soybean), with a known cropping calendar in northern Nigeria, recommended strategies for agribusiness firms might include the following:

- Identify farmers and potential farmers' fields. This could be done with a preliminary crop prospect survey (in late August/early September). Crop prospect survey is an annual operation that can be carried out by the industry to determine the extent of crop planting and establishment;
- List farmers during the final crop survey (in early October). Discuss with listed farmers their yield prospect and possible sale and delivery to designated warehouses.
- Submit list of confirmed farmers and grain type and quantity to the agro-industry or its agent;
- Distribute a formal or informal contract or memorandum of understanding made out by the industry or its appointed agent to farmers (by the second and third week of November).
- Commence grain intake and normal inspection at intake point (during the first and second week of December). Farm-gate buying should terminate by the end of February.

Where a company already has certain mechanisms such as crop prospect survey, market survey/information, and grain inspection operations in place this, method may pose no extra cost. As observed, timing is critical with this strategy and therefore it may be

necessary to limit collection points to one contiguous area and train farmers in groups on bulking strategies to further reduce costs. Extra staff may be necessary to accomplish this task if wider areas are to be covered.

Key factors to the success of this strategy would be early buying and early payment: Small farmers generally lack storage ability and capacity. Speculators take advantage of this to buy cheap from the farmers' store the grain for about 5 – 8 weeks before it is sold to companies. Using this strategy, the agro-industries will now compete with the speculators for farmers' output. The financial base of farmers is generally poor. They will prefer quick, near-on-the-spot type of payment (e.g. minimum delay of one week).

There are also quality and price advantages associated with this strategy. The quality advantage for the industry is that high-grade grain will be received without mixing. Admixing of high and low quality grain is almost always done at speculators' warehouses. Secondly, grain of higher homogeneity and purity are available because grain batches of the same source will be bulked and their origin can be identified. Thirdly, there will be less infestation because there is usually no old-season grain with farmers (no carry over) that could serve as inoculum. Most infestation occurs at speculators' warehouses. Therefore fresh new season grain obtained at the farm gate will require less fumigant usage.

With respect to prices, the use of this strategy implies the removal or reduction in suppliers' margin by dealing directly with growers/farmers (this will encourage production) and the bypassing of market charges (taxes and levies) both of which constitute about 8 to 12 percent of present grain purchase costs. Secondly, intensive adoption of this strategy in the first year may likely improve grain requirement by 15 to 25 percent. This will lead to a significant reduction in costs and a large savings for the company. Over the years, farmers' trust and confidence develop and supplies are likely to increase.

The above strategy will work well for agribusiness firms that use grain and to some extent fruits as their primary industrial raw material. For root and tuber crops and some vegetable oil crops, some primary processing may be required at the farm level to produce secondary products required by agro industries. This will require the introduction of small scale processing machines in rural areas to help transform the primary crop, improve shelf life, and reduce perishability. This will reduce bulk, transportation costs and spoilage. To facilitate rural transformation, large agro-industrial firms should pursue a processor group or community-based agro-processing group philosophy. This is particularly necessary for crops such as cassava, yam, plantain, and oil palm. Farm-gate processing into secondary products that are raw materials for industrial use is recommended to improve farm-level profit in rural areas.

## Public Private Sector Partnership and Market Information Service

The introduction of real-time market information service is vital to enable the commercialization of agricultural production and farm agribusiness linkages. Incidentally this service is a very expensive venture, especially for traditional non-export crops. To achieve this recommendation, a public private sector partnership is recommended in which the public sector agency collects market information on a daily or weekly basis, while the private sector funds its collection and dissemination on radio, newspapers, and the Internet. With the growing introduction of mobile telephony, daily or at least weekly data

collection and transmission of market information service and broadcasts on radio are feasible in Nigeria. Presently, the Rural Sector Enhancement Program located at the International Institute of Tropical Agriculture, Ibadan, Nigeria, collects and broadcasts (on radio and internet) such information in Nigeria on a weekly basis, though on a pilot level.

Finally, even though farmers have great bargaining power because they control the basic resources of production, many are not aware of this advantage. There is a need for a complete reorientation of farmers' attitude towards commercialized production. This will require the development of improved market linkages. A market information service provides this opportunity but this is one area (market linkages) that requires strengthening through capacity building.

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## South Africa

### Agribusiness and its Place in the South African Economy

Until early in 1998 the marketing of most agricultural products in South Africa was extensively regulated by statute. One of the main characteristics of the control that was exercised was isolation from world market forces. Most products were regulated under the 22 marketing schemes introduced from 1931 and especially from the time of the 1937 Marketing Act, although some products, including sugar, wine and ostriches, were regulated by those industry's own institutions under separate legislation.

Beginning two decades ago, the industry faced increasing pressures for deregulation, a process that was accomplished in two phases over this period. The major change in the first phase was the extensive deregulation of state agricultural marketing schemes within the framework of the Marketing Act of 1968. The origins of this change can be found in the shift in monetary policy in the late 1970s and fiscal strategies in the 1980s, which undermined the complex structure of protection, price support and cross-subsidies on which the system of agricultural support was founded. Yet isolation from the world market, accompanied by the increased isolation of the country in social, cultural, political and intellectual spheres during the 1980s, meant that the deregulation steps that did take place were aimed at the domestic market (Vink and Kassier 1991, Francis and Williams, 1991; Vink, 1993; Kirsten and van Zyl, 1996; Vink, 2000).

Further, the market in Africa was not considered to hold any real potential, partly because it was regarded as too small, but mostly because of the anti-apartheid measures that were in place. Foreign trade still largely consisted of managing imports and exports in order to manipulate domestic prices (e.g. maize, wheat), or of monopoly export schemes (e.g. for fruit). The first real steps in opening the agricultural sector to world market influences came with the Marrakech Agreement of the GATT in 1993, when all direct controls over agricultural imports were replaced by tariffs.

The government of national unity, elected in 1994, ushered in new policies across the entire range of state activities. In agriculture, some tended to follow the direction of changes already under way (Hall and Williams, 2000). Major direct policy changes had to wait until after the National Party, and its Minister of Agriculture, Kraai van Niekerk, withdrew from the government in 1996. New policy initiatives included the land reform programme; laws protecting agricultural workers and labour tenants against eviction and extending their rights; liberalization of international trade and agricultural marketing; the Marketing of Agricultural Products Act of 1996; a new rural development policy; and institutional restructuring in the public sector. South African agriculture has now taken its place as a fully integrated member of the global trade environment, and its trade patterns have shifted considerably over the past decade.

The field crop sector has been most affected by the process of deregulation. Field crop production has declined from almost half of total output in the three year period centred around 1978/79 to less than a third in the three-year period centred on 1999. In

this time animal production increased its share somewhat, while horticultural production increased its share by 10 percentage points.

Table 2: The value of commercial agricultural production in South Africa (1999)<sup>2</sup>

	Gross value of production (R'000)	Number of farms	Number of hectares	Output (tonnes)	Production (R per ha)	Yield (t per ha)
Maize	5 484 468		3 868 000	10 613 000	1418	2.74
Tobacco	437 720		16 000	29 700	27 358	1.86
Cotton	144 905		51 000	167 692	2 841	3.29
Soya beans	196 179		94 000	152 600	2 087	1.62
Field crops	13 666 600	11 992	9 528 309		1 434	-
Horticulture	11 714 500	8 039	3 898 486		3 005	-
Cattle slaughtered	3 983 215			495 000		-
Animal production	18 938 700	31 442	63 384 734		299	-
Total	44 319 800	60 938	82 209 571		539	

Sales in the South African manufacturing sector grew by some 2.5 percent per annum in real terms in the period 1996-2001, a rate close to the overall real rate of growth of the economy. By contrast, sales of the food and beverages industries grew by about half that rate, making it one of the worst performers in this sector. Recent sales growth in this subsector has been third highest among the components of the manufacturing sector. Production in the food and beverages group accounted for about 18.5 percent of total manufacturing output for the country in 1996, while employment was 15.9 percent of total manufacturing sector employment and the wage bill 13.5 percent of total manufacturing sector wages. A more detailed breakdown of the subsector is provided in Table 3, while the degree of concentration in 1996 is reflected in Table 4, the most recent available data.

Table 3: The South African food and beverage sector

	Sales (Rm)	Employment	Exports (R'000)	Imports (R'000)
1994	78 079	225 527	6 205 634	5 524 284
1995	80 131	219 155	6 752 412	6 291 720
1996	83 886	221 426	8 286 938	6 625 716
1997	83 607	209 686	8 247 898	7 471 358
1998	81 896	201 594	9 061 613	6 989 492
1999	81 759	203 211	9 122 024	6 468 007
2000	79 757	187 882	10 270 184	6 556 806
2001	84 689	184 187	12 225 957	6 742 894

<sup>2</sup> Note: During mid 2002 the South African Rand traded at roughly R10 against the US dollar

The South African agro-food complex, which consists of primary production plus the input and agro-processing sectors, accounts for around 14 percent of the GDP. In 2000 the agro food complex exported about R16 billion worth of primary and processed food products, or nearly 10 percent of South Africa's total exports. Almost all the productive and social activities of rural towns and service centres are dependent on primary agriculture and related activities. This includes increasingly popular and economically significant agro-tourism and game farming activities. Taking all of this into account it is true that more than half of the provinces and about 40 percent of the country's total population are primarily dependent on agriculture and its related industries.

## Linking Arrangements between Poor Farmers and Agribusiness – Case Studies

Due to its historical legacy South African agriculture is characterized by extreme dualism. There are around 50 000 large commercial farmers who are predominantly, but not exclusively, drawn from the white population. Commercial farms employ about 1 million workers, which is 11 percent of total formal sector employment in the country. Many of these workers live on commercial farms and their children receive education in farm schools. These commercial farms compare very well with the large farm enterprises in the US where packing and processing is sometimes done on the farm. Many farmers have recently moved to contractual arrangements with larger processing and retailing companies to secure markets and less volatile prices.

On the other hand retailers and agribusiness nowadays prefer such arrangements in order to ensure reliable supplies and less fluctuation in prices (as we discussed in the introduction). This trend has been very apparent following the process of abolishing the controlled marketing arrangements in the country in the post 1994 period. The linkages that have emerged range from formal delivery contracts to production under strict instructions to informal marketing arrangements.

Apart from the large-scale commercial farmers, there are also 240 000 small farmers (mainly black) that provide a livelihood to more than 1 million of their family members and occasional employment to another 500 000 people. These farmers supply local and regional markets where large numbers of informal traders make a living. Furthermore, an estimated 3 million households who are primarily located in the communal areas of the former homelands, produce largely to meet part of their family's total needs.

With the change in the political dispensation there has been a need to commercialise the agricultural activities of these households. Some earlier efforts by parastatal development corporations and some agribusinesses are commendable but the challenge of black empowerment in agriculture is so huge that much more needs to be done. Improving on-farm productivity for increased sales could be one way of stimulating commercial activity and thereby linking them to markets. However our experience with development efforts over the years has clearly shown that this approach is not sufficient because access to markets (and finance) seems to be more important for economic success.

Poor developed links with markets (and thus with agribusiness per definition) have reduced incentives in agriculture to such an extent that farmers in many cases have

abandoned farming activities. This has been a major problem not only amongst farmers of perishable commodities such as dairy, fruits and vegetables but also amongst grains, oilseeds and beef. The lack of market access is often attributed to poor infrastructure and communication. But sometimes it is just poor quality or quite often lack of trust that creates the perception that these farmers' products do not comply with the basic minimum requirements in order for it to be sold.

It therefore becomes quite important for agribusiness in South Africa to develop stronger links with disadvantaged farming communities to ensure that true economic empowerment materialises. It is argued that some special actions from the business community are needed to tackle this major challenge in South African agriculture. Maybe the lessons emerging from this paper can make a contribution in this regard.

Over the years, agribusiness have invested in some initiatives to ensure a much stronger engagement of farmers in disadvantaged communities in the production of especially industrial crops such as sugar, tea, cotton and timber. Lately there have also been a number of initiatives by agribusinesses and some facilitators to provide more and better market opportunities for disadvantaged farmers in the production of tomatoes, other vegetables, wine, fruit, grains, wool and livestock. These are all new initiatives and as a result it is not possible to document them. For that reason the following case studies are presented to illustrate the nature of the links of small-scale farmers with agribusiness:

- Small-scale sugar farmers linked to a sugar mill
- A group of small-scale timber growers linked to a major timber company
- Small-scale out-growers for a large tea company

In addition a very novel approach or concept to link small-scale grain and oil seed producers to the market is discussed. These producers are poor, do not have collateral and are therefore excluded from producing grains and oilseeds on a commercial scale. By linking the credit market, input market, output market and the futures market this is now made possible.

The analysis of the case studies is approached from a strict New Institutional Economics perspective. This approach allows to unpack the nature of the arrangement in a much more structured framework and also enables the debate the appropriateness of the current arrangement given the characteristics of the product, transactions and the partners.

### Transvaal Sugar Company

The South African sugar industry is regulated by the Sugar Act (1978), which grants statutory powers of self-government to this sector of the agricultural economy. The affairs of the sugar industry are controlled by the South African Sugar Association (SASA) who administers the production and supply of sugar cane to the millers and also the production, marketing and distribution of sugar. The principal sugar growing areas of South Africa primarily include Kwazulu-Natal, Mpumalanga and the Eastern Cape where the climatic conditions are more favourable for the growing of sugarcane.



The South African sugar industry produces an average of 2.5 million tonnes of sugar in 2000/1 of which 50 percent was exported to markets in Africa, the Middle East, North America and Asia. These exports contributed R 1.9 billion to the country's foreign exchange earnings. The sugarcane industry directly employs approximately 85 000 people and provides employment for an additional 265 000 in industries that are linked to this sector of the economy. The number of growers and area under sugar cane are illustrated in Table 7. South African cane growers produce over 23 million tonnes of sugar cane annually that are processed in 15 different milling areas. Large growers (3 percent) are responsible for over 70 percent of sugarcane produced whilst small growers (97 percent) account for less than 30 percent.

Transvaal Sugar Limited (TSB), which employs around 4 000 people, was founded in 1965 and operates in the province of Mpumalanga with offices in Johannesburg and Durban. TSB is a 100 percent owned subsidiary of Hunt Leuchars and Hepburn (HL & H) which, in turn, forms part of the Rembrandt Group of companies. The company has the capacity to produce 350,000 tonnes of sugar annually from its two factories and sugar production has increased from 109 500 tonnes in 1975/76 to the current level of approximately 300 000 tonnes in 2000/1. Assets employed have increased from R 80.5 million in 1986 to R 586 million in 1995 with an estimated current replacement value of R 2.3 billion.

The sugarcane supply-processing operation of the Transvaal Sugar Company consists of the factory processing operation and a range of growers. The factory processing operation consists of two sugar mills. The first mill is located at Malelane and the second mill is located south of Komatipoort both in Mpumalanga. The growers include the company estates and a range of contracted large-medium and small-scale suppliers.

The differences between the types of growers can largely be categorised on the basis of the differential farm size and the level of capital investment. In the case of the company estates, the milling company farm large tracts of land. This operation is categorised by a modern capital-intensive mono-cropped sugarcane production system with high levels of management input and control.

The second category of grower, namely, contracted medium-large growers, are also characterised by a modern capital-intensive mono-cropped sugar cane production system with high levels of management inputs. These farmers are contracted to the Transvaal Sugar Company by way of a long-term specification contract and supply in excess of 64 percent of the total volume of sugarcane delivered to the two mills. Most of these farmers operate farms that are in excess of fifty hectares and in many cases, sugar cane is one of the farm enterprises together with sub-tropical fruit and vegetables. These farmers are largely autonomous and the growing and delivery of sugarcane is self managed with ad hoc inputs from the agricultural division and the factory cane supply division who co-ordinates the timing of the harvesting and delivery operations.

The third category of grower, namely the contracted small-scale growers, includes in excess of 1 000 small-scale farmers belonging to thirty-two different supplier groups. The average farm size of these growers is 6.8 hectares with the smallest farm recorded as around 3.7 hectares and the largest 30 hectares.

### *Linking arrangements*

*The supplier contract.* The contractual arrangement between out-growers and the Transvaal Sugar Company (TSB) is controlled by a cane delivery agreement. All growers must adhere to the conditions and obligations that are specified in a comprehensive specification contract that binds the respective parties over long periods of time. The price paid to out-growers is determined by the specifications of the South African Sugar Association who determine the grower-miller split from the proceeds of sugar sales.

*Transaction characteristics.* The processing of large volumes of a perishable commodity like sugarcane requires the co-ordination of the activities of the growers with the optimum use of high fixed cost processing facilities that are unique to the sugar industry. The volume of supply, the nature of the suppliers and the industry specific nature of the processing plant and equipment, in turn, influences the dynamics of the firm's transactions. In order to identify and evaluate the transaction characteristics of the supply chain a number of assumptions were made. The annual number of sugarcane deliveries to the mill was employed to determine the transaction characteristic of frequency whilst the value and co-ordination requirements of company fixed assets were used as a basis to determine asset specificity. The transaction characteristic of uncertainty has been evaluated on the basis of analysing the conditions of supply.

*Transaction frequency.* The TSB milling operation processes around 19 000 tonnes of sugarcane per day or an annual volume of around 3.6mtonnesof sugarcane that are transported by way of 136 000 deliveries. The continuous nature of the processing operation, combined with the large volumes of sugarcane processed and the perishable nature of the raw commodity, do not allow the processor to stockpile sugarcane. On the basis of this evidence, this study has concluded that the transaction characteristic of frequency should be classified as high.

*Asset specificity.* The mill group currently employs over R500 million of fixed assets at gross book value. These assets have a current value in excess of R2 billion and are highly specific with low opportunity cost outside the sugar industry. The assets, moreover, are relatively immovable and are also site specific as they have been centralised in relation to the company estates and out-grower suppliers. Conversely, the assets of the contracted growers consist largely of irrigation and general farming equipment that can be applied relatively more easily outside the sugar industry. TSB management is required to manage and co-ordinate the harvesting and delivery of sugarcane from the company estates, over 140 medium-large scale commercial farmers and, in excess of 1 000 small-scale growers. On the basis of the value of sugar specific plant and equipment, combined with the high level of co-ordination required to synchronise the sugarcane supply-processing operation, it is quite evident that high levels of asset specificity exist in the supply chain. The milling company has therefore some vested interest in ensuring good relationships with the growers due to the fact that many (especially the larger growers) can easily switch to higher value enterprises such as mangoes and citrus if the incentives in sugar are not appropriate.

*Uncertainty of supply.* The uncertainty of sugarcane supply is a function of the reliability of the growers combined with the uncertainties of agronomic and climatic variables. Because the supply of sugarcane from the company estates is internalised in the company structure, low levels of uncertainty attach to this category of supplier. The reliability of supply from

contracted growers, however, is often a function of alternate opportunities and sugar prices that are struck in volatile markets. The level of uncertainty attached to this category of grower is, therefore, higher than the company estates. The high fixed cost nature of the processing operation, moreover, also promotes uncertainty because of impact this has on the volatility of cash flows (Drury, 1996, Horngren, 1999). On the basis of this evidence a low to moderate level of uncertainty is assumed.

*The governance structure for the sugar supply chain.* The process of matching a set of transaction characteristics with the optimal governance structure i.e. how the supply chain and the links with growers are managed is a central tenet of transaction cost theory. Organizations that have transaction characteristics that reflect high levels of asset specificity, combined with the need to carefully co-ordinate a complex input-output function, require higher levels of managed co-ordination than the open market mechanisms (Williamson, 1981; 1996; 2000; Petersen & Wysocki, 1997; 1998).

In the case of sugar production the transaction characteristics suggest an optimum structure somewhere between specification contracting, using outgrowers with contracts, and full vertical co-ordination. The actual organization structure of sugarcane supply in the case of TSB, however, displays an aggregated structure that is closer to specification contracting than full integration because 82 percent is acquired by means of grower contracts.

*The transaction cost of supply.* The objective of this section is to demonstrate that the transaction cost of small-scale growers exceeds that of medium and large-scale growers in the TSB cane supply operations. The differential cost of the smallholder supply operation, in general, is illustrated by the annual budget of R3.2 million of the small farm department of the company. The TSB grower transactions include set-up transactions, cultivation transactions, harvesting and delivery transactions and administration transactions.

Firstly, smallholders incur higher levels of start-up cost. Start-up transaction cost is incurred by all contracted growers with respect to the initiation of the contract. However, only small-scale farmer projects receive high levels of company assistance with respect to their interaction with local authorities, assistance with financing, training, land preparation and the installation and maintenance of irrigation equipment. Medium and large growers, largely, self establish their legality and ability to be engaged as contracted suppliers.

Secondly, smallholders incur higher levels of transaction cost in all phases of the growing operation. Small-scale growers, again, require higher levels of company inputs from the agricultural and small farm commercial departments with respect to the planting, weeding, fertilising, irrigation and ripening of cane. Small-scale growers, moreover, require higher levels of company inputs to guide and co-ordinate harvesting and delivery transactions. Conversely, larger farmers interact on an occasional basis with TSB with respect to growing technologies. Although larger farmers also receive regular visits from the TSB cane supply department, transaction cost for the company when dealing with the smaller growers is much higher.

Finally, smallholders also incur higher levels of administration cost per ton delivered. The administration of suppliers' accounts is managed by way of a creditors system that generates a weekly payment, in cheque form, for the weekly tonnes delivered to the mill. The creditors system also adjusts this payment if the supplier has drawn items from stores.

Large suppliers, for instance, only generated 76 accounting transactions against a delivery volume of 47 840 tonnes for the 2000/01 season. Conversely, medium size suppliers delivered 10,623 tonnes against 138 accounting transactions and small-scale suppliers 978 tonnes against 26 accounting transactions.

*Grower performance.* The grower performance, analysed between 1998 and 2001, indicates that small-holder production efficiency matched that of the company estates in this period. The cost structure of TSB and the four sets of selected farmers, although comparable from a total cost perspective, is significantly different in terms of operating and overhead cost. TSB displays a total overhead cost of R27 per tonne whilst small-scale farm overhead costs have been estimated at R13.3 per tonne. The small-scale growers appeared to contract more efficiently for a range of field and transport services than the company estates. Conversely TSB displays total operating costs of R86 per tonne compared to small-scale grower costs of between R96 and R100. The company estates appear to have lower cultivating costs than the small-scale farmers indicating, somewhat paradoxically, that the estate productivity exceeds that of the family farms. This could be partially explained by the fact that the production of sugarcane is not particularly labour intensive and that small-farmers may need to incur incremental cost for the use of mechanised inputs.

However the small-scale grower programme has had tremendous impacts in the Nkomazi valley. Since the mill at Komatipoort was erected and the irrigation infrastructure established the physical and socio-economic landscape transformed within two seasons. The link of smallholders with the Sugar Company has improved livelihoods and alleviated poverty in many households in the community. The multiplier effects are also visible as more small enterprises got established. Thus a large benefit for the community has materialised out of small-grower agribusiness linkage.

### *Summary and conclusion*

The case study is an example of a successful smallholder contracting arrangement in the sugar industry. The results illustrated that the transaction characteristics of the cane supply-processing operation influenced the level of managed co-ordination required, that small-holders incur higher levels of transaction cost and that they are able to compete, in terms of production efficiency, with larger contracted growers. The usefulness of these results can be debated from a number of perspectives.

Firstly, the use of transaction cost theory can contribute to a more informed process of selecting the right level of managed co-ordination for a given set of contractual conditions. Secondly, the case study clearly demonstrated that differential small-scale farmer transaction cost could be broken down into cost elements. This can be useful in a number of ways. Incremental cost, once identified, can be charged back to the grower, form the basis of an agribusiness approach to the state for assistance or, lastly, provide the motivation to organise farmer inputs by way of a farmers association. These findings can be used as a basis to convince agribusiness that small-scale operators can operate as viable business partners and at the same time create an economic externality to the benefit of the whole of society.

## Small-Scale Growers in the Timber Industry: Sappi's "Project Grow"

The South African forestry industry is an important player in the South African economy. This industry consists of two primary segments, namely, the growing of timber, which falls into the agricultural sector and the processing of timber, which falls into the manufacturing sector. The timber industry contributed a total of 2 percent of the total national gross domestic product in 2000/1. This contribution, over a twenty two-year period, has grown from 1.4 percent in 1979/80 to its current level. The growing of timber, currently, contributes towards around 8 percent percent of the national agricultural gross domestic product and the manufacture of pulp and paper products accounts for 9 percent percent of the national manufacturing gross national product. This industry, moreover, makes a significant contribution to foreign trade and forestry products generated an annual net trade surplus of R 3.3 billion, or 8 percent of South African exports, in 2000/1. The industry has demonstrated a consistent annual growth of 8 percent over the last ten years and is one of the most internationalised industries in the South African economy.

The South African forestry sector is a major employer of labour in South Africa. In 2000/1 the industry employed 135 000 people who were either engaged in the primary production of timber or the processing of wood. This sector employs 5.7 percent of the total working population and includes the support of over two million dependants, many of whom live in rural areas. The estimated linkages effect generated by the industry would suggest an average multiplier of four resulting in a total employment potential of 500 000 people. The industry, moreover, is a major contributor towards the development of rural infrastructure and provides R 15 million per annum to the provision of housing and R 40 million per annum to the provision of health care. Other contributions to rural infrastructure include R15 million per annum towards the provision of schooling and bursaries and R10 million per annum towards the maintenance of provincial rural roads.

The South African forestry industry, with a capital base of R25 billion and an annual turnover of R12 billion, is a major supporter of the small-scale grower sector. The industry has promoted the development of 15 000 emerging timber growers, in addition to, the promotion and support of forestry contractors and entrepreneur development programs. There are two principal types of commercial woodlot afforestation that embrace the small-scale farm sector. The first type is co-ordinated and sponsored by agribusiness and includes examples like Sappi's Project Grow, Mondi's Khulanathi Project and initiatives set up by the South African Wattle Growers Association. The second type of small-scale grower operations is typified by ad hoc, uncoordinated individual plantings where no records exist and no authorisation has been received from the relevant authorities.

A summary of small-scale timber production reveals that 50 percent of these growers are located in Zululand, 29 percent in the Natal Midlands and 11 percent in Southern Natal. Small-scale growers have, therefore, developed predominantly in Kwazulu-Natal with a small percentage in the Eastern Cape. The incidence of forestry as a farming practice appears to be influenced by land tenure systems where in Kwazulu-Natal woodlots are individually owned whereas in the Eastern Cape, land is owned on a communal tenure basis. At present some 24 205 hectares have been planted in managed small-scale grower schemes. The estimated total area planted, however is 43 455 hectares suggesting that 44 percent of the total area under small-scale farm afforestation is unauthorised and that 35 percent of farmers are operating without permission.

Some estimates have been made of the potential to expand the small farm sector and project that this sector can grow at an annual area of 17 630 hectares between 2001 and 2005, resulting in a total increase of 93 100 hectares involving 10 197 new applicants. The principal areas of new afforestation are projected to be the Zululand area where the industry would expand by 27 225 hectares and the Eastern Cape at an estimated additional 62 000 hectares. These schemes represent an investment of more than R30 million, which is expected to generate some R 60 million when clear felling takes place.

### *Linking arrangements*

The Sappi-Saiccor timber supply-processing operation includes a processor, namely, Sappi-Saiccor, a company in the Sappi Forest Products Group, and a range of company and contracted timber growers in Kwazulu-Natal, Mpumalanga, the Eastern Cape and the Highveld. The company produces dissolving pulp, a product that is made entirely from hardwoods, namely, eucalyptus and wattle. In 2001 a portion of the production process was subcontracted in order to reduce the level of fixed cost and induce capacity flexibility.

*The growers:* The entire timber supply operation is co-ordinated by the Sappi Forest Division and Sappi-Saiccor. Sappi Forest Division controls the activities of all the growers including the company plantations and a range of small-scale to large contracted growers. The first category of grower, namely, Sappi Forest, owns and manages 500 000 hectares of plantations in Southern Africa that primarily grow eucalyptus and softwoods.

The second category of grower includes medium to large scale contracted farmers. These growers are typically medium to large size family farms with an area under timber in excess of 50 hectares. These farmers are generally involved in a number of agricultural enterprises, which typically include timber, sugarcane, tea and fruit. Their timber plantations, thus, constitute only a part of the farming operation. This category of grower has been registered as a contracted supplier with the Sappi Forest division and the conditions of supply are dictated by a long-term specification contract. These growers are largely autonomous with respect to the growing of timber but the felling and delivery operations are controlled and co-ordinated by Sappi Forest Division who controls the supply of all timber to the Sappi-Saiccor mill. Sappi Forest personnel, however, can be consulted by the grower on an ad hoc basis. The timber operations of these farmers are less capital intensive than the company plantations with respect to plant, vehicles and equipment and in addition the farmers also subcontract a majority of the felling-delivery operations.

The third category of grower includes managed small-scale farmers incorporated in Sappi's Project Grow program. This category of grower, occupy on average 0.6 hectares each, is mostly located within a 100 kilometre radius of the company mill. Project Grow is a tree farming scheme that has the objective of converting rural subsistence farmers into emerging commercial operations. This project was launched in 1983 by Sappi Forests, the Gencor Development Fund and the Kwazulu Department of Agriculture and Forestry with a view to developing viable small scale timber operations in rural Kwazulu-Natal. Since 1989, Sappi Forest division has contracted out the management of this project to a rural development organization called Lima, which is a non government organization registered under Section 21. This organization receives an annual fee from Sappi Forest division, to administer the Project Grow initiative with two management staff, two administration staff, six extension officers and eight field assistants.

The Sappi Project Grow arrangement provides small farmers with financial assistance, seedlings, technical advice and a guaranteed market. Sappi Forest, via the management company Lima, provides an interest free loan of up to a maximum of R2 700, calculated on a per hectare basis, for farmers to establish trees where all contracts have the approval of the local tribal authority. Thereafter, advances are paid out to the farmer for completed certified work over the growing period of the trees to ensure that operations are funded over the growing cycle. The contracted farmers are thus paid to do the land preparation, planting, weeding, coppicing maintenance and the management of firebreaks. Lima extension officers visit the growers frequently after the trees have been established to provide further assistance with weed control and the preparation of fire breaks. Sappi Forest, if requested by the growers and Lima, may also assist during negotiations with harvesting and transport contractors. At the time of harvesting Sappi Forest buys the timber from the farmers at a market related price less the advances paid out during the growing period. Additional benefits from growing timber include fencing, building material and firewood which is obtained as a result of coppicing when the trees are between one and a half years and three years old.

Sappi Forest Division has invested in excess of R10 million in Project Grow in terms of loans and an additional R5.2 million in seedlings. A summary of the growth of this project indicates that the number of growers has increased from 101 to 7 100 in the period 1989 to 2001. A total area of 4 224 hectares is currently being managed under this programme.

Timber deliveries in excess of 1 500 tonnes of timber per month were achieved for 2001 generating some R2.6 million for the season. The estimate turnover for 2002 has been set at R3.5 million. It is estimated that an additional 1 120 people are employed by contractors who assist the growers with the planning and harvesting of their plots. The project contributes towards the uplift of women in this area as some 80 percent of the growers registered with the project are women. The project generates considerable revenue for local communities with an estimate of 50 percent of turnover retained within the community as a result of payments to local contractors, 42 percent retained by the grower and 8 percent refunded to Sappi as loan repayment.

*The supply contract:* All contracted suppliers are required to enter into a timber purchasing agreement with the Sappi Forests division. The purchasing agreement specifies the exact location of the grower as well as the commencement and duration of the relationship. The agreement indicates the total tonnage to be delivered to the mill during the period of the contract and also stipulates the annual tonnage. The contract specifies the price that the company will pay for the tree species to be delivered or alternatively that the parties shall agree to an annual price. The supplier must adhere to quality specifications as determined by the company mill. The supplier is required to obtain the necessary permits, license or statutory authority from the Department of Water Affairs and Forestry, the National-Provincial Environmental Authority and the Department of Agriculture. The conditions of delivery, risk, ownership and payment are outlined in the contract with the risk only passing to the mill once the specified timber has passed over the company weigh-bridge. The date and mode of payment for a timber delivery is also specified. The company undertakes to supply seedlings of a specific species on condition that the supplier gives proper notification and that transport costs are to be borne by the supplier. The company also undertakes to provide free technical advice during the growing cycle of the timber

however, the supplier must provide reasonable notification to the company and access to the growing site. A clause is inserted to cover both parties from “force majeure” and outlines the terms and conditions of the suspension or waiving of contractual liabilities. The enforcement of the contract is stipulated by way of written notice to the defaulting party and the supplier may not sub-contract or cede any of the terms and conditions of the agreement to a third party. Finally, the contract specifies the domicilia of the parties and outlines further miscellaneous legal clauses to the purchase agreement.

In certain cases, suppliers enter into a financial assistance agreement with Sappi Forests. This agreement stipulates the background of the applicant, the duration of the arrangement and an exact schedule of the growing and harvesting of specific species of trees. This agreement, moreover, stipulates the rate of interest to be paid to the company together with notification of a liability for finance charges. The terms of repayment are specified by way of a deduction of the financial assistance received from payments made with respect to the supply of timber under the timber supply agreement. Furthermore, the conditions that apply in the event of the non-supply of timber to the company, for whatever reason, are outlined. The supplier, applying for financial assistance, should be the registered owner of the stated property, and, if a loan in excess of R50 000 is made, then the supplier is obligated to register a covering mortgage bond in favour of Sappi Forests. In certain cases where the supplier plants in excess of 500 hectares the company may enforce a timber servitude on the supplier as an additional measure to enforce the contract. The contract, moreover, stipulates the general obligations of the supplier and includes conditions that enforce the supplier to comply with all environmental and silvi-cultural requirements. The contracted supplier, moreover, must sell the specified timber to Sappi Forests when the trees are at a specific age at a market related price relative to the area in which the mill is established. The financial assistance also includes the provision of free technical advice to the supplier up to a stated number of visits per year and outlines the risk-insurance requirements to be met by the grower who shall forward a copy of the insurance agreement to the company.

A different supply arrangement is used to contract small-scale farmers under the Project Grow arrangement. The Grow Agreement involves an arrangement whereby the Sappi Forest division supports the supplier both financially and technically. The duration of the arrangement is specified and the terms of assistance outlined. Assistance is received in the form of an initial interest free loan for planting, maintaining and weeding the timber. Sappi Forests also undertakes to provide seedlings. The grower must demonstrate they have all the necessary permits, licences and authority to grow timber on the said property including the compliance of the Department of Water Affairs, the National-Provincial Environmental Authority and the Department of Agriculture. The grower undertakes to meet a range of obligations that include compliance with Sappi Forest's environmental and silvicultural practices and access to inspection by all stipulated parties. The grower is obligated to sell the timber to Sappi Forest and this timber must comply with the stated mill specifications. The supplier must also comply with Sappi Forest's instructions to harvest the timber at a specific age. The price paid for timber is negotiated between the parties and corresponds to the prevailing market price. All risk of damage remains with the grower until it has crossed the weighbridge although timber that does not meet mill specifications may be rejected. The agreement, furthermore, cedes the grower's rights to the purchase price as a measure to provide additional security to the company. Finally, the contract outlines the conditions relating to the breach of the contract by the grower and the manner in which the contract will be enforced. The grower is not allowed to cede any



rights or obligations to third parties and all notices to the grower are to be delivered personally by the company or at monthly Project Grow meetings.

*Transaction Characteristics.* The interface between growers and the company mill, with respect to the continuous supply of large volumes of timber, generates a unique set of transaction characteristics. The number of deliveries of timber to the mill can be classified as the transaction characteristic of frequency and the value-degree to which the assets of the processor-grower are tied to the timber supply operation can be classified as transaction characteristic of asset specificity. Finally, the level of supply uncertainty has been classified as the transaction characteristic of uncertainty. The actual Sappi-Saiccor timber supply transaction characteristics, illustrated in Table 5, were developed for the period 2000/1 and are based on the delivery of over 1.6 million tonnes of timber to the Sappi-Saiccor timber yard.

Table 4: **Transaction Characteristics of the timber supply chain**

Transaction Characteristic	Sappi-Saiccor
Types of Growers	Estate, Large, Medium, Small, Micro
Hectares	> 500 000 hectares
Tonnage Crushed	1.64 million tonnes
Number of Deliveries	46669
Administration	5.3 tonnes/transaction
Asset Specificity	High
Co-ordination Level	12 months/year/24 hrs /day 7 days/week road-rail, wood chips perishable, mill requirement 6 000 tonnes/day
Value of Estates	> R 3.8 billion (net operating assets)
Value of Plant	> R 5 billion (replacement cost)
Uncertainty	Low-Moderate
Company Estates	Legislation, environmental issues, cost of inputs, physical variables, land constraints
Medium-large Growers	Timber Prices, physical variables, limited additional land, water cost, environmental
Small-scale Growers	Different time horizons, land tenure, cost of inputs, legislation, lack of access, moral hazard, theft
Processing	High Degree of leverage
Downstream	Volatile markets, changing nature of industry > high uncertainty

*Transaction frequency:* The transaction characteristic of frequency, illustrated in Table 5, has been developed on the basis of the number of timber deliveries that are made to the timber supply yard. The frequency of timber deliveries is high because of the need to maximise the use of mill capacity of approximately 6 000 tonnes of timber per day, combined with the limited ability of the timber supply yard to stockpile the commodity. The timber supply yard, therefore, needs to be replenished on a daily basis to ensure that stock-out does not occur. The frequency of deliveries indicates that 46 669 truckloads of timber resulted in the delivery of 1 663 520 tonnes of timber involving 1 489 203 tonnes of gum and 174 317

tonnes of wattle. The number of deliveries by road exceeds the deliveries by rail with 33 176 delivered by road transport rigs and 13493 deliveries (railway trucks). Of this total, approximately 86 percent of road deliveries and 91 percent of rail delivery, consist of gum, which accounted for 90 percent of the timber processed by Sappi-Saiccor in 2001. On the basis of these records, this study found that a level of delivery frequency of in excess of 125 truckloads per day occurred for the full calendar year. According to the comparative levels of transaction frequency, developed by Williamson (1975) and Petersen and Wysocki (1997), this study has classified the level of transaction frequency as intermediate-high.

*Asset specificity:* The mill group, which has a capacity of processing an average of 6 000 tonnes of timber per day, employs four mills of different capacity. The net operating assets employed are currently valued at R 1.3 billion, on a historical cost basis, that translates to a current replacement cost in excess of R5 billion for the year ending September, 2001. These assets are highly specific and have a low opportunity cost outside the timber industry. The assets, moreover, are relatively immovable and are also site specific as they have been located in close proximity to certain suppliers, harbour, rail and road facilities. The finished product is largely exported by ship and therefore the mill is site specific to the coast and harbour facilities. The factory assets also demonstrate high levels of asset specificity as a result of the need for high levels of co-ordination in order to maximise capacity usage. The timing of the delivery stream is, thus, co-ordinated in order to stagger the arrival of over 46 000 vehicles-railway trucks per annum in order to maintain capacity, as well as, reduce the turnaround cost of the timber supply yard. The logistics of timber supply requires the processor to co-ordinate a continuous delivery stream by road and rail from a diverse group of growers that are widely dispersed. The company must, moreover, ensure that each supplier is adhering to their contractual conditions. The high levels of co-ordination are also further influenced by the perishable nature of the semi processed raw commodity, namely, wood chips that are stored in an open yard and loose quality over time, especially in hot humid conditions. Finally, the level of asset specificity is increased by the timber specific knowledge and skills that have evolved, and are locked into, the timber processing industry. On the basis of the historical records, in conjunction with the grading of transaction characteristics it would appear that the intermediate-high levels of frequency, as a transaction characteristic, are matched with high levels of asset specificity in the processing operation group.

*Uncertainty of supply:* The uncertainty of supply has, historically, been relatively low due to a number of factors. Firstly, the uncertainty of supply has been reduced by the monopsonistic nature of the timber industry where Sappi Limited is a major player. Secondly, the company estates have, historically, produced more than 50 percent of the timber processed by Sappi-Saiccor and uncertainty of supply was further reduced by the site specificity of many growers who are located within a 50 kilometre radius of the Saiccor Mill. Thirdly, uncertainty is reduced by the long-term nature of timber production. Sappi Forest division is, in this regard, able to manipulate the supply of timber according to annual mill requirements and standing timber can, therefore, be felled if required or maintained until a future time when it is required. The economic viability of the standing timber is not affected due to the annual growth rate of this commodity. The uncertainty of supply has, therefore, been a function of the reliability of the company plantations and medium and large growers, combined with the normal agronomic and climatic variables that prevail in the timber growing industry. The uncertainty of supply from medium and large suppliers, in this respect, is reduced by a stringent specification contract whilst the activities of Sappi Forest are fully internalised in the structure of Sappi Limited. Finally,

deteriorating international markets for dissolving pulp, combined with increased levels of competition, have resulted in Sappi-Saiccor reducing capacity by 25 percent. Given the same volume of timber supply, the level of future uncertainty looks set to decrease as a result of downstream market pressures. Finally, uncertainty is partially a function of asset specificity. The reason for this is that the high level of fixed cost of the processing operation contributes towards increasing the degree of leverage, which in turn, increases the volatility of company cash flows. Since increased levels of volatility are associated with higher levels of uncertainty, the high level of asset specificity will tend to increase supply uncertainty. On the basis of the analysis of the historical records, combined with the current concerns of the timber, this study concludes that the current level of supply uncertainty can be classified as low to intermediate. Should Sappi Limited divest out of the timber growing industry, as has been suggested, the projected level of supply uncertainty is likely to increase.

*The governance structure for the timber supply chain.* According to Petersen and Wysocki (1996; 1997) and Williamson (1981; 1996; 1998; 2000), transaction characteristics that include high levels of frequency and asset specificity, combined with a measure of uncertainty, require higher levels of managed co-ordination than the spot market mechanisms. On the basis of transaction cost theory, the control of timber supply could be co-ordinated by a range of structures from specification contracting to full vertical integration on the vertical co-ordination continuum of Table 6. The contract characteristics of the supply arrangement suggest, however, that this structure would involve medium to high levels of managed co-ordination. The actual structure of control at Sappi-Saiccor does not necessarily contradict this and indicates that 50 percent of supply is controlled by specification contracting and 50 percent from the company plantations indicating an aggregated control structure in the centre of the continuum.

Table 5: Governance structure in the timber supply chain

Theoretical Optimum	Spot Market	Specification Contracting	Strategic Alliance	Formal Co-operation	Full Vertical Integration
Actual Structure		(50 percent)	XX		(50 percent)
Level of managed co-ordination	0 percent	Low	Intermediate	Int./high	High
Governance Form		Contract Growers			Company Estates

### *Summary and conclusion*

The case study demonstrated that large numbers of micro growers, namely, in excess of 7000 farmers, can be incorporated in the timber growing operation of an agribusiness partner. The timber case study also demonstrates that transaction cost theory can be practically employed to test the level of managed co-ordination in an agricultural supply chain. A number of worrying concerns emerged from this case study. Firstly, the high level of company support to the growers has resulted in a cost to Sappi Limited of R10 million since 1989. The project appears to have been conceived as a result of dual political economy-economic company objectives that translated into a paternalistic agribusiness

approach to managing the smallholders. Secondly, the withdrawal of the administrative support of the agribusiness could result in the abandonment of the project. The smallholders, at this stage, appear unlikely to organise their own affairs by way of a farmers association. Thirdly, the case study also supports the widespread contention that smallholders generate incremental transaction cost. Finally, the company's control systems are also, in many instances, unable-reluctant to disclose the differential cost of dealing with smallholders.

### Small Growers in the Tea Industry: The Sapekoe Story

This case study evaluates a tea supply chain in Sapekoe Estates (Pty) Ltd - a company located in the Northern Province of South Africa. The case study focuses specifically on one of Sapekoe Estates's plantations, namely Tshivusa Plantation situated in the former Venda Homeland. The Tshivase Estate, along with the rest of the company actively promoted small farming after 1987 and by 1992 some 157 small farmers were engaged to supply green tea leaves to the factory. In January 1999, the estate had engaged 330 small farmers occupying an area of 192 hectares. Each farmer occupied an area of approximately 0.6 hectares where 0.5 hectares was under tea. An annual contract was drawn up between the small farmer, as a grower, and the company as a processor. This contract was translated into the language of the farmer. The profile of the farmers indicated that a high percentage (as high as 96 percent) of mini farmers were females between the age of 22 and 53 years. Their profile indicated as many as 50 percent were illiterate whilst 38 percent had been educated at a junior primary school level only.

A series of quarterly reviews maintained between January 1999 and April 2001 reveals a trend of a reduction in company involvement with the mini farming project. The principal reasons included small farmers not adhering to plucking schedules, poor field practices, low yields and a lacking of an entrepreneurial ethos. In March 1999, it was decided to reduce small farm projects from 330 people occupying 192 hectares to 90 farmers occupying 67 hectares. In the period 1/4/1999 to 30/4/2001 the mini farmers complied with standards and demonstrated high levels of productivity.

In 1999 the small farmers improved productivity from 63.7 kg of green tea per labour unit per day to 99.9 kg. In 2000, weeding-fertilising operations were reported as satisfactory and plucking and pruning productivity often exceeded that of the estate. During this period all standards were maintained. The number of farmers reduced to 87, then 80 on the same area and by 31/10/2000 the company had the intention of expanding this number to 100. The mini farming project on Tshivase was terminated in June 2001 due to a change in legislation. The reasons for failure include the poor selection of participants, the poor management skills of the small farmers, the limited duration of the contract, volatile world prices and major strikes in 1996 where company workers intimidated the contracted farmers. The company also displayed a history of paternalism in the corporate culture, a high level of scepticism of company officials and the small farmers, who were originally employees, never became independent farmers.

#### *Linking arrangements*

*Tshivase Small Farm Contract:* The agreement is embodied in the form of a tea harvester agreement between the estate and the designated participant. The agreement stipulates a specified area as designated in the company records and actions both parties are regulated

in terms of Section 45 Act 32 of 1994. This act controls the institution of any legal action providing for the enforcement of any rights under, or arising from the agreement, in the Magistrate Court which has jurisdiction in respect the estate.

*Transaction characteristics:* The Tshivase Factory has processed an average of about 7,000 tonnes of green leaf tea in the period 1999 to 2001. The harvesting and delivery are co-ordinated and synchronised in order to maintain constant use of factory capacity which is estimated at 74 tonnes per day in two shifts. Capacity utilisation is hence 51.4 percent. The harvesting and delivery of green tea leaves co-ordinates some 36 different fields occupying an area of 577 hectares. Each field is plucked on an 8 to 12 day cycle indicating a high level of labour management as the teams move from field to field according to the designated plucking programs. The plucking cycle results in each worker's basket being weighed in the field and placed in a covered light delivery vehicle or tractor-trailer for delivery to the factory. The deliveries are weighed on entry to the processing operation and average out at around 1 500 kg per delivery. This would indicate that the factory receives in excess of 4 700 deliveries of green tea per annum. Each delivery should be offloaded in 20 to 30 minutes and the perishability of green tea leaves increases the need for high levels of co-ordination between the factory and the growers. In addition, the number of company weighing-inspection transactions in the field averages at around one transaction per 45 – 60 kg per labour unit (June 2001 Plucking Summary). There is a minimum of 25 weighing-inspection transactions in the field for an average delivery of 1 500 kg or some 117 500 field transactions per annum.

The high levels of frequency, as a transaction characteristic, are matched with high levels of asset specificity in the factory group with lower levels of asset specificity for the agricultural division. The assets of the Tshivase Estate factory were valued at R 7.56 million at gross book value in 2001. These assets are highly specific to the tea industry and have a low opportunity cost outside the industry. The assets, moreover, are relatively immovable and are also site specific as they have been centralised in relation to the company estates and out-grower suppliers. The factory assets also demonstrate high levels of asset specificity as a result of the need for high levels of co-ordination in order to maximise the use of capacity. The co-ordination of over 4 700 deliveries from 36 different fields has been that every field is plucked on an 8 to 12 day basis. And every delivery is scheduled to have a turnaround time of 30 minutes and less. The high levels of co-ordination are further influenced by the perishable nature of the green tea leaves that rapidly lose quality if they are exposed after cutting.

The uncertainty of supply has, historically, been relatively low due to the fact that the company estates have produced more than 96 percent of the processed tea leaves. The uncertainty of supply has therefore been a function of the normal biological and climatic variables experienced in the agricultural sector. The uncertainty of supply has, at times, been increased by the unavailability of labour, labour disputes and other forms of absenteeism. Small farm supply has been less reliable than the company estates and is cited as one of the factors contributing to the abandonment of this form of supply. The uncertainty of future supply could be affected by the land tenure situation of the company who currently leases all of its land from local tribal authorities. The downstream uncertainty in the tea industry is, however, elevated because of the volatility of world tea prices. The transaction characteristic of uncertainty is also increased because of the high level of fixed cost of the processing facilities where the need to maintain mill capacity is vitally important. The company therefore has a high degree of leverage with respect to its

fixed cost structure and any type of breakdown in the processing facilities, or alternatively, major shifts in climatic patterns, have a significant impact on the company cash flows.

*Governance structure:* The tea supply chain of Tshivase Estate displays the transaction characteristics of high levels of frequency, asset specificity and a moderate level of cane supply uncertainty. These transaction characteristics, in turn influenced by crop specific characteristics, clearly demonstrate that the Tshivase Estate requires high levels of managed co-ordination in order to co-ordinate large volumes of a highly perishable raw commodity that are supplied by the growers. It is therefore logical to argue that the Tshivase Supply Chain would not be able to function without high levels of managed co-ordination. The adopted governance form has resulted from the need to co-ordinate the high volumes of supply to maintain mill capacity at around 38 000 kg of green tea per day. The financial performance of the Tshivase Estate is severely affected if plant capacity is not utilised during the year, as there are moderately high levels of fixed factory cost. This study therefore has demonstrated that governance form is a function of transaction characteristics and that governance forms evolve in order to minimise total cost, rather than just transaction cost as stated by the proponents of transaction cost theory. Organization structure will thus impact on financial performance. In the case of the Tshivase Estate it would be clearly impossible to obtain and co-ordinate the supply of green tea leaves on the spot market.

The company, moreover, is unable to expand its own capacity from estate type supply because of an inability to acquire additional permanent land inputs because of a limited land market in conjunction with land tenure problems. Mill capacity, moreover, exceeds own supply capacity so Tshivase must acquire additional supply from out-growers or the mini farmer source. The Tshivase Estate has, therefore, clearly, adopted the optimum governance form over time in support of the original proponent of transaction cost theory, namely, Ronald Coase (1937). The Company has, therefore, clearly, adopted the optimum governance form in order to co-ordinate the large range of growers.

*Grower Performance.* The comparison of the growers has been evaluated on the basis of the plucking performance summaries that have been summarised for the period 1996 to 2000. The plucking performance evaluates the productivity of the estate and the mini farmers on the basis of the kg of green tea leaves delivered to the factory per hectare farmed and on the basis of the kg of made tea per hectare farmed. A further measure of efficiency also examines the green leaves picked per day per worker and expresses this measure as the yield per labour unit. The results suggest that mini farmers have outperformed the estate between 1996 and 2001 except for the period 1998/9. The mini farmers, on average, have been 7.26 percent more productive per hectare in terms of green leaves delivered to the factory, as well as, made tea than the balance of the estate. The labour yield per unit for the estate has been calculated on the basis of the conventional hand plucking technique and again the results indicate that the mini farmers have outperformed the estate in the period 1996 to 2001 except for 1998/9. The results for 1999/2000 were not available but, on average, the mini farmer yield per unit was 13.9 percent higher than the balance of the estate.

### *Conclusion*

This case study provided useful insights into what should NOT be done with respect to the design of a smallholder linkage or out-grower project. Firstly, the company officials never viewed the contracted growers as independent farmers but rather as former employees.

The autonomy of contracted farmers was, therefore, extremely limited. The design of the project, moreover, was rather directed at avoiding labour union problems rather than stimulating small-scale supply. The second important feature was the micro nature of the growers who operated on less than a hectare suggesting the need to evaluate a critical minimum size farm in any crop category. In this respect, there is some correlation with the timber case study. Finally, the reasons for the failure of this project are contradicted by the apparent competitive grower performance of the contracted farmers suggesting that the official company reason for the closure of the project, namely, the incompetence of the growers, was prompted by other reasons.

## Factors Contributing to Success

### Screening of Partners

The careful screening-identification of future partners is a key success factor. Farmers who have a record of previous interaction with agribusiness appear to be more successful contracting partners (Levin, 1988; Porter & Phillips-Howard, 1997a; 1997b). The three case studies all appear to have developed a data bank of farmer details for each prospective new farmer. In the case of the sugar industry, however, the screening process took more cognisance of the entrepreneurial ability of the prospective applicant, whereas, in the timber industry, it would appear as if a majority of applicants were accepted.

Screening costs, involving large numbers of applicants, can be significantly reduced if these activities are assisted by a representative farmers association or, alternatively, if the agribusiness contracts with the farmers' association rather than the individual farmer. The benefits of screening, moreover, can be increased if the process includes a business aptitude test, a credit check and a list of assets-collateral. Finally, the screening process should capture the location, logistics and communication channels of the applicant in order to ascertain the spatial dynamics of the project.

### Understanding of Historical Legacies

An understanding of the historical legacies and institutional environment will contribute towards a better understanding of the future transaction cost of contracting with large numbers of small-scale farmers. Transaction cost theory suggests that the transaction characteristics of agricultural supply chains are a function of a range of historical-social variables.

All of the case studies confirm the pervasive long term influence on economic performance of historical legacies that have influenced transaction cost as a result of the effect of culture, the historic concentration of industry, the influence on property rights economics, the level of regulation and the concentration of political power. Appropriate design measures can then be taken to reduce transaction cost in two ways. Firstly, many industries have the power to lobby for changes in the institutional framework and Williamson (2000) suggests that this form of economising can significantly reduce transaction cost. South African agribusiness, in particular, has the bargaining power to lobby for property rights amendments and some form of subsidy-tax relief for undertaking

smallholder start-up costs. Secondly, the design of organization structures can be undertaken more efficiently if an understanding of the dynamics of transaction characteristics is incorporated.

### Creation of Mutual Asset Specificity

The creation of mutual asset specificity reduces uncertainty and raises the exit costs of both sets of contracting partners. The case studies in the sugar and timber industries indicate that the business partner is confronted with significantly higher levels of asset specificity than the contracted farmers. The industry and site specific processing assets, in the sugar and timber case studies, were valued at R2 billion and R5 billion respectively. Conversely, the contracted farmers owned fewer assets that were of a more general nature. The South African sugar firm, TSB, in particular has a very high level of asset specificity and relies on contracted out-growers for 80 percent of sugarcane supply.

Transaction cost theory would suggest that a higher level of managed co-ordination is needed in the absence of inducing higher levels of mutual asset specificity or other interlocking factors. Mutual asset specificity can be pursued by way of farmers associations undertaking the purchase of industry specific capital inputs. The Swaziland sugar farmers associations appear to have increased mutual asset specificity by investing in sugar specific plant and equipment that is too lumpy for the individual farmer. The agribusiness can attempt to act as a facilitator of finance, in this regard, to increase the interlocking nature of the arrangement. Finally, the agribusiness can examine other ways of influencing mutual asset specificity by way of configuring the technology of the grower-processor operations in such a way that only the agribusiness possesses the technology to perform a specific element of the growing operation. Contracted growers, for instance, in the processed tomato sector, require specific harvesting technology that can be owned and operated by the agribusiness (Rehber, 1998).

### Design of Logistics

The design of the logistics of small-scale farm supply is a crucial success factor. An understanding of the relationship between commodity characteristics and logistics could be incorporated to reduce transaction cost (Delgado, 1999). The timber case study, in particular, illustrates that the increased level of transaction cost are generated by large numbers of small-scale farmers that are spatially dispersed. The agribusiness, at the outset, can evaluate the transaction frequency of visits, inputs and farmer deliveries with the distance from the processor, the nature of the roads and the available communication system. The transaction cost of logistics can be fundamentally reduced by allowing a farmers' association to provide the necessary inputs, as well as, organise the logistics of small-scale supply.

The timber case study, in particular, suggests Sappi Forest should contract with a farmers association for an aggregated monthly volume of timber instead of contracting individually with the 7 100 micro farmers. In the absence of a farmers' association the agribusiness can improve efficiency by establishing the nature of the roads, access and communication systems of the proposed project. The timber industry, in this regard, indicates that certain areas are impassable in the wet season and that declining levels of



rural security and high levels of ethnic conflict have resulted in a lack of access except for local community members. Finally, the agribusiness can assemble and program the transaction cost of logistics by capturing the spatial dispersion of the farmers, the number of transactions and the average distance to the processor.

### Assessment of Start-up Costs

The careful assessment and treatment of start-up cost is a key project evaluation procedure. In many instances, the agribusiness must commit long-term resources to establish small-scale farmer projects. Sappi Limited, for instance, has invested ten years and R10 million to establish small-scale tree farming in Kwazulu-Natal whilst the Transvaal Sugar Company in Mpumalanga incurs an annual cost of in excess of R3 million to ensure the viability of small-scale supply. Start-up cost will, generally, be higher if non traditional crops are being introduced because of the need to train farmers and introduce complex technology.

The start-up cost, moreover, can include the linking of small-scale farmers to institutions like banks, insurance companies and suppliers. The lack of access to these facilities, in conjunction with infrastructure deficiencies, has been cited as a prime cause of project failure (Gittinger, 1982). The assessment and treatment of start-up cost will influence the investment decision. This study proposes that the incidence of smallholder contracting in South Africa will be negatively influenced if agribusiness is expected to bear this cost. The assessment of start-up cost, therefore, should form the basis of lobbying for government subsidy-relief or alternatively to charge back this amount to the farmers. If the contracted farmers are unable to amortize start-up cost, the viability of the operation should be questioned from the outset.

### Commodity Characteristics

Certain commodity characteristics are better suited to contracting. Crops, in particular those which are labour intensive in the growing operation and display economies of scale in processing, are more suited to smallholder contracting (Delgado, 1999). The case studies in the sugar and timber industries did not demonstrate particular growing economies for smallholder family labour yet these growers, mostly matched larger growers with respect to the cost efficiency of production. The reason for this ability to compete with larger growers appears to stem from the ability to avoid overhead cost rather than the productivity of family labour. The results of the case studies suggest that smallholders maybe able to compete as growers with commodities that are not particularly labour intensive thus further relaxing the suggested product range of Delgado (1999).

Commodity characteristics can also be linked to transaction cost for design purposes. Commodities, for instance, that are perishable will require higher levels of co-ordination cost than those that can be stockpiled. Alternatively, commodities that have long growing periods may require a different contract structure from annual or shorter term crops. Growers, for instance, in the timber industry sometimes receive advances for work performed against the sale of the future crop. The design of contracting structures can thus consider developing a commodity characteristics profile and use this, together with processing capacity, as the basis for determining the transaction characteristics of frequency, asset specificity and uncertainty to determine an optimum structure.

The case studies clearly illustrate the ability to plot actual transaction and contracting characteristics with the optimum governance form. The actual governance form can then be compared and moved along the vertical co-ordination continuum of managed co-ordination. Agribusinesses that incorporate both contracted growers and fully integrated estates can, possibly, employ a looser form of specification than those who rely solely on contracted supplies. Finally, the inappropriate choice of technology, a function of the commodity characteristics, has been cited a cause of project failure (Gittinger, 1982). The agribusiness often has a choice of technology alternatives and it has been suggested that if a labour intensive option does not detract from performance, then this option should be chosen to better suit the competencies of the farm family

### Considering Transaction Costs

Contracting with large numbers of small-scale suppliers has been associated with higher levels of transaction cost (Runsten & Key, 1996; Rehber, 1998; Key & Runsten, 1999). The transaction costs of small-scale suppliers in the case studies clearly exceeded those of larger suppliers. The case studies demonstrated that transaction cost can be broken down into a series of cost elements including start-up cost, growing costs, harvesting-delivery costs and administration costs. The economics of contracting would suggest there is no reason for the agribusiness to choose small-scale suppliers over larger growers if all the contracted parties are paid the same price and deliver the same level of quality. This being the case, it is necessary to take specific steps to either avoid the cost or, alternatively, charge back the differential cost to the contracted party. Recurrent small farmer transaction cost can be avoided by contracting with a larger entity like a farmers association who undertakes the administration of its members' interests.

The farmer association, moreover, can be responsible for configuring its members with agribusiness requirements including training, extension, technology acquisition, provision of commodity inputs and co-ordinating harvesting-delivery schedules. The agribusiness firm can increase the successful operation of the farmers association by acquiring representation in the management structure, as well as, allowing the association to be represented in its own management structure. The agribusiness, moreover, can further influence the efficiency of the farmers association by ensuring this body maintains records, has no political agenda, is limited in size and that it contains sufficient professional management. A different approach to reducing transaction cost for the agribusiness can be engineered by way of charging back differential transaction cost to the small-scale grower by using activity based costing systems to identify the smallholders' incremental use of company resources.

The case studies illustrate that differential administration cost can be charged back to the grower on the basis of identifying accounting transactions as the primary cost driver. Activity based costing can also be applied to charge back incremental growing, harvesting and delivery transaction cost. The timber case study clearly indicates that the agribusiness cost of timber from small-scale suppliers is higher than medium-large growers and the company plantations. Finally, activity based costing can be used as a basis to highlight the incremental cost of recurring smallholder transactions with a view to lobbying the South African government for assistance-relief.

## Contracts

The history of contracting demonstrates that the presence of competitive fresh markets for grower outlets increases the level of uncertainty of supply. Transaction cost theory explains the increased level of cost to the agribusiness in terms of higher levels of opportunism by the grower. The occasional opportunistic sale of timber in rural Kwazulu-Natal highlights this problem that was well documented in the Mexican tomato-growing sector (Runsten & Key, 1996). The unauthorised sale of the contracted commodity can be especially problematic in the case of projects involving large numbers of smallholders in developing countries with poorly defined-upheld property rights economics.

The agribusiness, in this type of scenario, may not be able to legally enforce the contract because of the incremental cost of first dealing through an inefficient system and secondly because of the micro nature of the contract. The agribusiness can reduce unauthorised sales by securing an agreement with competitors with regard to the purchase of the commodity. Alternatively, the chances of contract enforcement are improved if market based prices are paid for the raw commodity. The agribusiness could also locate outside the area of the competitive fresh market.

Fafchamps and Minten (1999) suggest that trust based relationships can be a dominant interlocking factor that can contribute to contract enforcement. Transaction cost theory suggests that trust influences uncertainty as a result of its effect on the opportunistic behaviour of the contracting parties. Farmer distrust, combined with a perceived loss of autonomy and feelings of exploitation, has been widely cited as a major cause of contracting failures in developing countries (Glover, 1987; Clapp, 1994; Watts, 1994). It has been suggested, in this regard, that the level of trust that can be engendered between the parties will influence the success of future South African contracting arrangements. The development of trust is especially important given South Africa's history of colonialism and apartheid (Porter & Phillips-Howard, 1997a; 1997b).

Gow et al (2000) have demonstrated that contract innovations, or interlocking factors, can contribute towards reduced transaction cost. These factors include the administration of growers' affairs, the company acting as financier and supplier of inputs and high levels of involvement in local communities. The timber industry case study demonstrates the interlocking nature of a contract that provides financial assistance and/or part payment for certain phases in the growing process. Colchao (1999) suggests the agribusiness can successfully induce contract enforcement by acting as a banker to the contracted farmer. The agribusiness, moreover, is able to compete in the banking sector as a result of better information combined with the ability to enforce contracts in alternate ways. In this regard, the business could attempt to own-control the assets and technology of the grower, as well as, play a role in the financing of these assets (Colchao, 1999). The timber case study, moreover, suggested that the small-holder management company, Lima, has effectively become a high cost interlocking mechanism because it is so integrated in the everyday affairs of contracted growers.

Contract enforcement is an important success factor with respect to small-scale farmer contracting. In many instances contract enforcement is difficult to ensure through the legal process and the logic of contracting with large numbers of smallholders is a questionable issue (Runsten & Key, 1996; Rehber, 1998; Sofranko et al, 2000). The representation of farmers' interests by way of a farmers' association will reduce the agribusiness cost of

enforcement. Alternatively, the agribusiness can employ tribal authorities to enforce the contractual conditions. The logic, for instance, of attempting to legally enforce a set of contract conditions with respect to a farmer on less than a hectare of communal tenure land, as was the case in the timber study, is questionable.

The case studies in the sugar industry suggest that contract enforcement is achieved through the mutual interests of the parties rather than through the judicial system. The use of a renewable contract is suggested as a cost effective way to achieve enforcement (Key & Runsten, 1999). If suppliers have not performed in the previous year their contracts are simply not renewed the following year. Conversely, the firm in the timber case study appeared to pursue contract enforcement by way of registering timber servitudes or bonds, Williamson (2000) suggests that transaction cost can also be reduced by way of first order economising. This approach attempts to favourably influence the prevailing institutional environment in order to influence the economics of property rights. South African agribusiness, in this regard, has the potential to influence legislation that will reduce transaction cost. Legislation that could be amended includes land tenure, the water act, the role of tribal authorities, the labour act, rights of the female farmer, the national heritage acts and the conservation laws. The timber case study is an example of legislation that substantially increases transaction cost by way of a plethora of acts and legislation that must be complied with in order to register a new grower. The grower response to prices and other opportunities is suggested as a key long-term issue that can influence the stability of the contracting arrangements. A long-term perspective on prices could contribute to locking contracted growers into a commodity and ensuring continuity of supply in depressed conditions (Levin, 1988; Watts, 1994; Abbott, 1994).

## Other Issues

A number of other issues influence the success of smallholder contracting schemes. These issues include the role of female farmer, the control of land and water, the role of the state, the household food security issue and land degradation. The role of the female farmer is especially important in many developing country contracting arrangements (Carney, 1988) and Gittinger (1982) suggests that a failure to understand the social environment is a prime cause of project failure.

The case studies in the sugar and timber industries suggest female household members supply high levels of labour inputs. Agribusiness in South Africa can contribute towards the future role of the female farmer by securing legislation that ensures full representation-rights for the female farmer in communal tenure areas. It is also suggested that agribusiness payment for the commodity should be directed to the household member responsible for supply. The role of tribal authorities in communal areas will also need to be configured to promoting gender access in rural areas.

The issue of who controls land and water in the contract relationship can influence the success of the arrangement. If the land and water is owned by the contracted growers then the decision making autonomy of the farmer is not affected, however, if they are owned by the agribusiness the conditions of use should be mutually developed and fully understood by both parties.

Another key issue is the role of the state. In many developing countries the state has been an active partner of small-scale contracting projects. It has been suggested that if the state is a partner then, at the very least, it should provide some form of financial assistance. The equity objectives of the state can also be investigated with respect to their impact on economic performance.

Finally, the issue of food security and land degradation can influence the long-term viability of contracting arrangements. Monoculture contracting has been associated with a reduction in food crops and an increase in pollution (Rehber, 1998; Pasour, 1998; Wolz et al, 1999). Agribusiness can respond to these threats by encouraging farmers to grow food crops on a percentage of their land and pro-actively investigating the long-term threat of growing technologies on sustainable land use.

## Summary and Conclusion

The results of the case studies, combined with the potential of the South African agribusiness sector, suggest that large numbers of small-scale farmers could be linked to agribusiness partners by way of contracting arrangements. The proposals suggested, however, that a “fresh approach” to the design of these arrangements is required. This approach combined the lessons of history, conceptual developments in economic theory and the results of the case studies. The results, generally, suggested that the transaction characteristics of the grower-processing operations influenced the level of managed co-ordination required, that smallholder transaction cost exceeded that of larger suppliers and that smallholder production efficiency matched that of larger growers. The design of proposals, in response to these results, indicated a number of potential solutions that included the formation of a farmers association, the possibility of state assistance or the need to develop costing systems to identify, and charge back, incremental transaction cost to small-scale growers.

The case studies also suggest the pervasive, and long-term, influence of social-historical legacies on the economic performance of respective industry sectors. More specifically, the case studies demonstrate how the institutional structure in Southern Africa has been influenced by the earlier experience of colonialism-apartheid combined with the original concentrations of industry and infrastructure. The South African case studies, for instance, suggest that two hundred years of apartheid-colonialism have fundamentally influenced principal-agent costs, the concentrations of infrastructure and the property rights economics of the country. The timber case study, for instance, indicated the plethora of regulations-procedures required by a prospective grower to comply with the requirements of both local and national authorities before a water permit was granted. Clearly, the transaction cost incurred by the agribusiness of assisting these growers was influenced by both the degree of regulation involved, as well as, the inefficiency of local government authorities.

The current, somewhat inflexible, labour act in South Africa is a further example of how the costs of labour contracting have been influenced by a government attempting to redress historical imbalances. The case studies also demonstrated how the original concentration of the sugar and timber industries in Southern Africa was located in limited areas that provided the necessary natural resources. The government of the time,

international donor bodies and prevailing multinationals then "kick-started" these industries by providing major inputs, infrastructure and policy to protect these fledgling industries until they were able to compete. The original establishment of these industries, combined with a lack of incremental natural resources, presents an almost insurmountable barrier of entry for new entrants. These industries, moreover, display high levels of site, asset and human skills specificity as a result of the historic concentrations of economic development in specific regions of Southern Africa, as well as, the evolution of human skills and knowledge over the long term.

In conclusion, this report summarises the cost to agribusiness of assisting smallholders overcome the barriers of entry to high value cash crop sectors. The results of the case studies can be used by agribusiness with respect to acquiring a better understanding of the process and sacrifices involved. Smallholder contracting projects often involve many years of agribusiness inputs before supply commences. In many instances, moreover, the company is drawn into protracted equity issues involving a local community. The study, in particular, identifies some of the pitfalls and hidden costs that agribusiness can incur when embarking on small-scale contracting projects. The timber case study, in particular, is indicative of the difficulties of managing large numbers of micro farmers that appear to be unable to be consolidated as an economic entity. The withdrawal of the financed management structure of the agribusiness, in this instance, would result in the collapse of the project and the question needs to be asked, whether or not, the micro farmers have really overcome the barriers of entry, on a permanent basis, to this industry. Contracting projects, ideally, should result in the establishment of permanent growers that operate as viable business entities. Whilst support in the start-up phase is a necessary pre-requisite to overcoming the barriers of entry, the contracted farmers need to be weaned out of the company structure on a long-term basis.

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# Uganda

## The Agribusiness Sector and its Support Institutions

The Ugandan Economy is dominated by the agricultural sector. Agriculture provides most of the raw materials to the mainly agro-based industrial sector comprising of coffee hurling, cotton ginning, tea and dairy processing among others (MAAIF and MFPED, 2000). Agriculture contributed 42 percent to Uganda's GDP and 60 percent of total Uganda's export earnings in 2000. Coffee exports accounted for 27.6 percent of total exports whereas flower exports accounted for 2.82 percent (MAAIF and MFPED, 2000). Uganda has no significant exports of dairy and dairy products.

The vast majority of Ugandan farmers are subsistence or semi-subsistence producers. In 1996, 25 percent of all Ugandan farmers consumed all they produced. Another 70 percent sold less than 20 percent of their output, leaving only 5 percent who sold 20 percent or more of their production. The level of external input usage in Uganda is equally low with the hand hoe and machete still the predominant technology. In 1996 only 8 percent of Ugandan farmers had access to animal traction, 7 percent used fertilizers or other agrochemicals and 8.5 percent had an outstanding loan. Furthermore, the national average application of plant nutrients is 1kg per ha, less than 30 percent of Ugandan farmers use improved seed and less than 10 percent use some kind of plant protection measures. Recent strategies and programmes to eradicate poverty by transforming subsistence agriculture to commercial agriculture in Uganda include the National Agricultural Advisory Services (NAADS) and the Marketing and Agro processing Strategy (MAPS).

## Case Studies

### The Horticultural Sub-Sector

Other than small scale production of fruits and vegetables to meet domestic demand, commercial horticulture production in Uganda is dominated by floriculture production largely for export to the EU market. The local market for cut flowers exists but it is still small. Commercial floriculture too is still a new industry in Uganda dating back to 1993. The industry mainly focuses on cut flowers, cut foliage and to a lesser degree, pot plant cuttings. Cut flowers include a variety of Roses, Chrysanthemum cuttings, carnations and summer flower (Kaija, 1999).

Commercial flower growing for export in Uganda started in 1993 with only one exporter and about 2 hectares under production in 1993/1994. The flower industry expanded rapidly in a span of only 5 years to over 85 hectares under production and 22 exporters. There has been significant growth since 1995 in a number of flower exports, export volumes and values as well as employment (Table 7). Even in terms of contribution

to GDP, there has been a significant increase in the share of the flower to total exports (Mwesigwa and Niwamanya, 1999).

Table 6: Number of farms, area, output, employment and export of flowers in Uganda

	1995	1996	1997	1998
Number of farms	9	12	14	22
Area (ha)	40	45	75	80
Output (million of stems)	27	72	123	133
Employment -	1880	3000	3350	3300
of which permanent	1200	1440	1875	2050
Percentage of women	65	75	75	75
Average wage per month (Ushs.)	100,000	130,000	175,000	205,000
Export value (US \$ Million)	2.3	6.34	10.79	14.00**

Source: Compiled from Uganda Flower Exporters Association (UFEA) and ADC/IDEA Project reports.

### *Linking arrangements*

Commercial horticulture production in Uganda is dominated by the flower industry (floriculture). Commercial vegetable production is largely for the local market. This study was unable to find clear farm-agribusiness links in vegetable production. The flower industry in Uganda is also in its infancy with few individuals/companies involved. The key players are mainly exporters who are themselves flower producers selling in both local and international markets. The exporters operate mainly as limited companies, with no direct linkages with individual farmers or farmer groups.

Flower production in Uganda is largely associated with high entry and operation costs and limited market access. Large companies, enjoy scale economies in procuring inputs such as seeds (imported mainly from Holland) and accessing the world market than individual farmers. There are currently 22 flower farm exporters operating independent of individual farmers. However, in an effort to attract farmers to the floriculture industry, the Uganda Floriculture Association (UFA) was created to bring together all flower producers and dealers (florists) as a pressure group.

UFA is a non-governmental organization founded to promote and encourage floricultural production for the domestic and export markets. UFA became functional in 1991 and was officially inaugurated in 1992. It is supported by the Danish International Development Agency (DANIDA). In addition to promoting and streamlining floriculture production and marketing, UFA arranges competitive flower shows in the country, organizes training courses and seminars on floriculture and carries out research in floriculture production and marketing.

UFA membership is open to farmers dealing in floricultural production and marketing who are willing to participate fully in its training sessions and seminars. The association initiator and the current chairperson, is a proprietor of a flower firm, Bamuhalu florists. Bamuhalu florists firm links directly with small scale farmers. The firm currently links with four groups of farmers (mainly women) whose membership ranges from 20-60 persons. Farmers join and carry out production activities as individuals but operate as a group in marketing and skills acquisition (training) areas.

The linkage between farmers and the association has several mutual benefits. Member farmers receive training and extension services in flower growing and management, post harvest handling activities (packaging and preservation) and access inputs such as seed mainly on credit. Farmers are assured of a ready market and full time free flower production and marketing consultation.

The firm on the other hand is assured of timely and reliable supply of flowers. Highly demanded flowers are grown, especially chrysanthemums. Farmers are informed of pricing procedures in advance, implying that farmers are price takers. The firm determines the offer price based on cost of production and market conditions. Farmers are hence protected from the risk of price fluctuation. However, the firm appears to have a market information advantage over the farmers and may set near monopsony prices. Bamuhalu florists are one of many florists serving the greater Kampala area, capital city. Others seem to have no direct linkages with farmers other than purchasing flowers delivered to their shops. The discussion on challenges to farmer agribusiness linkages hence revolves around Bamuhalu florists.

### *Constraints and opportunities*

In order to synchronize production to achieve timely harvesting and marketing, farmers are required to raise seedlings as a group. Farmers are hence not free to operate independently and they are also price takers. The group lacks effective means of communication with group members and access to market information. This linkage between Bamuhalu florist and farmer groups appears to be of an informal nature. There are no clear rules, regulations and responsibilities. Such an arrangement could very easily work to the advantage of the firm.

Bamuhalu florist firm too is faced with limited capital. This has led to reliance on local technology to preserve flowers by dipping them in water, which severely reduces their shelf life to one week after which the flowers lose market value.

## **The Dairy Sub Sector**

The livestock subsector of Uganda contributes 17 percent to 19 percent of the Agricultural Gross Domestic Product (AGDP) and 7-9 percent of the National GDP. Dairying is an integral part of the agricultural system of most parts of Uganda. It is estimated that small holder farmers engaged in mixed farming and pastoralists together own 90 percent of the national cattle herd. From an economic point of view, cattle are the most important of all the livestock, although goats and to a lesser extent sheep, pigs and poultry make significant contributions to the economy and the diet. In 2001, milk export earnings were estimated at US\$ 3 million. Milk export earnings are expected to drop because of the restrictions recently imposed by Kenya and Rwandese authorities on their markets. Even then the dairy industry has great potential to contribute significantly to the social and economic development of Uganda, including boosting food security.

There has been a steady recovery in the animal population with an estimated population of 5.8 million in 2000, after a decline since 1972 because of looting and civil war through the 80's. Uganda's estimated total milk production for 2001 was 900 million litres. Out of this, 450 million litres was offered for marketing. Of the 450 million litres, 80 percent was sold unprocessed through the informal market. Approximately 90 million litres

was processed into liquid milk and milk products of which 90 percent was consumed locally and the remaining 10 percent was exported to regional markets. The annual growth rate of milk production is estimated at 7-10 percent. Despite these promising figures, the dairy industry in Uganda is still faced with some problems. The low milk price combined with reduced off take from rural farms has negatively impacted efforts to improve the quality of the existing breeds for higher milk production.

However, liberalization of markets and the increased participation of the private sector in input supply and marketing are expected to give farmers greater incentives to adopt improved technologies. Improved animal productivity has been identified as one of the options for increasing the income of the rural communities. Uganda has a comparative advantage in dairying and so there is considerable potential for developing it. Dairy development has received the greatest attention in the development of the animal industry in Uganda. Consequently, total national milk production has grown from 365 million litre in 1991 to 900 million litre in 2001, per capita consumption has increased from 16 litre in 1985 to 40 litres in 2001 and the effective demand is satisfied especially during the wet season.

Uganda still experiences a deficit of dairy products, amounting to a short fall of between 100 and 200 million litres per annum of milk needed to minimum nutritional standards (MFPED, 1996). This deficit represents an opportunity for continued expansion of market-oriented smallholder dairy production. This is attainable given the liberalization of the economy and of the input and output markets needed to sustain dairy production.

The Uganda Private Sector Dairy Industry Development Activity, which is a \$5.8 million three year activity funded by USAID is being implemented by a consortium of partners including Land 'O'Lakes (LOL), Heifer Project International (HPI), and World Wide Sires (WWS). This activity has the specific objectives of leading to increases in on-farm productivity levels and dairy processing, domestic consumption of processed dairy products, volume of milk entering cold – storage / bulking system, availability of milk and milk products in the North and East and exports.

The private sector in the dairy industry is extremely weak because only two processing companies are involved in exports and which companies are plagued by problems of funding and management. Despite the potential Uganda as a country has, it is not making use of its locational advantage to exploit the surrounding markets. For this to be done in good time, the government needs to take lead in milk processing and exports, or deliberately empower the private sector to do this. Milk production and marketing offers the advantage of a product with higher income elasticity of demand and relatively higher level of consumption by urban population (ILRI et al, 1996).

The government has liberalized the dairy sub-sector and the monopoly of the Dairy Corporation has been removed. As a consequence, a number of private milk processing facilities have started operating in several areas (MAAIF & MFPED, 2000). At the same time, there has been increased expansion of informal milk markets, which nationally supply 90 percent of milk in urban areas. The informal market channels vary greatly, from “producer – consumer” sales to multiple-intermediary channels involving some processing and an organized system of milk vendors. However, cooperatives near urban centres frequently report inability to sell all their milk, implying very little is known about relative importance of the alternative channels within the informal milk markets (ILRI et al, 1996).

### *Linking arrangement*

As a consequence of economic liberalization, a Dairy Development Authority (DDA) has been established to provide proper coordination and guide the implementation of the policies designed to achieve and maintain self-sufficiency in the production of milk. Activities of the DDA include promoting production and competition in the dairy industry and monitoring the market for milk and dairy products. The DDA also aims to establish liberal but harmonized dairy markets and to promote competition in milk collection, processing and marketing. Key players involved in the dairy industry include farmers, middlemen, processors, government institutions and non-governmental organizations.

Most of the small scale farmers are organized in dairy cooperative societies with a small percentage comprised of medium and large scale farmers operating as individuals. Farmer cooperatives also operate milk cooling facilities and also participate in milk marketing. The DDA recently drawn strategy doesn't appear to directly target strengthening farmer agribusiness linkages as a way of achieving its objectives.

Milk processors and other middlemen ensure stable supply of milk and milk products in both peak and off peak production period. They preserve milk in form of pasteurized milk and processed milk products such as yoghurt, ice cream, cheese and ghee to satisfy the increasing demand as a result of rapid population growth and changing consumption patterns.

The involvement of non-governmental organizations (NGOs) in dairy industry is two pronged. First, NGOs are involved in expanding and developing the dairy sector from subsistence to commercial production. Secondly, they are involved in promoting competitiveness in the dairy sector to ensure farmers find a ready market and consumers have access to safe nutritious milk and milk products.

The existing market structure at production level is that farmers are organized formally either as groups or limited companies or cooperative societies and registered with the dairy regulatory arm of the government. The registered farmers are free to establish linkages with support agencies including NGOs such as Land 'O'Lakes, Heifer International Project, World Wide Sires (WWS), DANIDA, and many others.

### *Benefits*

Existing farmer agribusiness linkages in the dairy sub sector appear to be limited to a nature of producer versus buyer or procurer. Even though on occasions, credit and inputs are involved. The Dairy sub-sector linkages among key players have several advantages. Members are assured of a ready market for their milk even in peak production periods during the rainy season when non-members face a problem of milk surplus. Member farmers also have access to credit services from their respective organizations. Credit is mainly provided in form of dairy inputs including access to veterinary services (such as drugs, artificial insemination services) and animal feeds. Cash credit is at times offered.

Furthermore, as agribusiness organizations, farmer groups, limited companies and cooperative societies involved in the dairy sector have access to various services from development agencies and government institutions. They mainly receive extension and training services in animal husbandry, marketing, processing and business management. They have access to farm development support such as acquiring improved breeds from

support agencies such as Heifer International Project, Send a Cow Project. They may also access farm inputs such as cooling machines and milk cans on credit.

Finally dairy farmer organizations are able to negotiate better milk prices through collective bargaining. Members are assured of market mainly from milk processors wishing to buy in bulk. One additional advantage to members is that groups, limited companies and cooperative societies provide a reliable milk outlet for their farmer members.

### *Constraints and opportunities*

The dairy sub sector, in general, and farmer agribusiness linkages in particular continue to face a number of challenges. Generally, there is scope for increasing milk production, processing and marketing in Uganda. Many farmers still rely on traditional methods of production and hence do not realize full potential from their production activities. There is need for innovative ways to promote technology adoption in the dairy sub sector. There is also a need to develop viable farmer groups or promote linkages that would enhance vertical integration into dairy processing and marketing. This would enable farmer-producers to benefit from value addition in the marketing channel.

*Market constraints.* The dairy retail market is largely controlled by milk middlemen who procure it from large distances. These agents tend to indulge in milk adulterations including adding water to increase volumes and adding chemicals to prevent the milk to turn sour. There is need to organize these middlemen into an association that would allow for self policing since many of these vices are difficult for the ordinary consumer to detect.

Milk consumption habits in Uganda are also still low. There is need for a concerted effort to promote milk production. This would enhance domestic milk demand and lead to a healthier society.

Many farmer organizations involved in the dairy sector also lack a ready market for fresh milk and have no access to modern technology to process milk into milk products such as cheese, ice cream, yoghurt and powdered milk to solve the problem of excess supply. During off peak periods when demand is high and prices are good, some members divert their milk to open market sales.

*Information asymmetry* between producers and marketers remain a problem. This leads to over-priced inputs and under-priced outputs discouraging increased production. Stronger farmer agribusiness linkages (supported by the DDA) could help increase information flow and highlight the mutual benefits of cooperation. Stronger linkages among stakeholders in the dairy sub-sector could also enable harmonization of activities, elimination of duplication and harnessing of the ensuing synergies.

*Power Imbalances.* The current imbalance in participation in the dairy sector also needs to change. The formal sector remains weak and small while the informal sector (milk traders) is large (about 80 percent) and fairly aggressive. The informal sector is also to some extent in-disciplined. Supportive measures and incentive structures are needed to encourage more formal sector participation in the dairy industry.

*Cost of Production.* Farmers are assured of ready market for their milk but are faced with a problem of low milk prices to the extent that they hardly break even. Farmers remain largely price takers with prices determined in a market where supply far exceeds demand resulting in low prices. During milk peak production periods, supply exceeds demand, and

excess milk is always considered as loss or disposed of at lower prices regardless of the unit cost of production.

In some cases farmers are also faced with a problem of delayed payments from their organizations. Farmers are not always paid promptly which hampers their production programs such as not meeting urgent animal management demands/problems. Many of the dairy based agribusiness organizations are capital constrained. As a result they hardly access modern farm inputs such as milk processing and preserving equipment. The situation has of recent worsened mostly for cooperative societies that no longer access financial credit. The source of funding was mainly loans from the now defunct Cooperative Bank.

*Opportunities.* A number of plans have been envisaged in order to strengthen farmer agribusiness linkages in the dairy sub-sector. Most importantly the focus is on establishing milk processing plants and milk collecting and selling centres countrywide. This is aimed at widening the market for fresh milk and milk products. This move is expected to translate into easier access to inputs and advisory services and better prices for raw milk. Better linkages should improve access to capital inputs and training services in production, processing and marketing aspects and access to domestic markets such as local institutions and export markets.

## The Coffee Sub- Sector

Coffee has been for decades, and still is the main stay of the Ugandan economy. However, it is notable that World coffee prices have dropped since a peak in early 1990s. Presently the world's supply of coffee is significantly (about 20 percent) higher than world demand. This oversupply has depressed prices to around US \$380 per metric tonne or less depending in large part on quality.

Prior to liberalization, in 1991, the Coffee Marketing Board (CMB), a parastatal organization, controlled coffee business, especially exports. Farmers were required to sell most of their coffee to cooperative societies, which served as the local agents of the CMB. Though farmers had the option to sell their coffee to private buyers, they were paid less than the official government price when they did so. Since CMB was the sole processor and exporter of Ugandan coffee, private buyers were required by law to sell the coffee obtained from farmers to CMB at the government-mandated price.

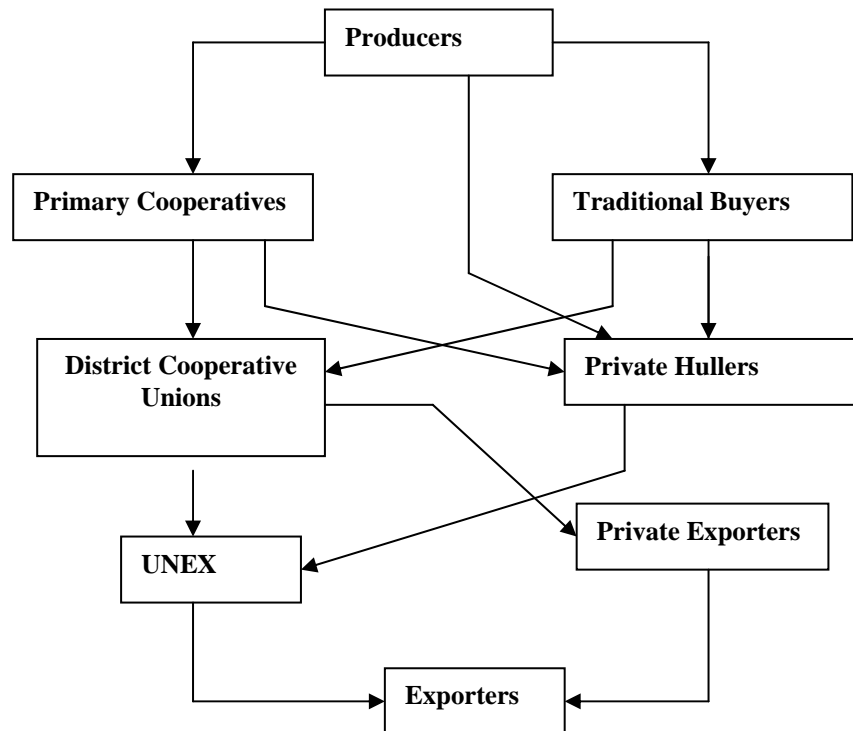
### *Linking arrangements*

The liberalization of coffee market made the coffee business attractive to a number of players. Consequently, competition has led to bidding up of prices at procurement stage. More farmers are increasingly integrating forward. They are by-passing the local stores and private buyers and are hiring processing facilities where they process their coffee at a fee and sell it to exporters or their agents. In addition, due to the ever-increasing competition, many exporters have adopted strategies aimed at a more vertically integrated trade structure. They tend to set up or hire hulling facilities, open stores/buying stations in the countryside in order to cut costs and increase the volume of procurement. Some of the indigenous exporters are also farmers.

A schematic representation of the current coffee marketing structure is found below.



Figure 1: The current coffee marketing structure in Uganda



\*UNEX is the marketing arm for cooperatives unions, representing various coffee farmers in the coffee growing area.

Formerly coffee farmers were depended on coffee buyers for credit services and advance payments although these services are no longer available due to unreliable coffee supply. In addition, farmers have been forced to sell fair average quality coffee, which is then processed by the buyer/exporter at a fee. This implies that the risk of quality losses is incurred by the farmers/middlemen. This arrangement in a way gives an opportunity to the buyer/exporter to dictate the price offered to the farmer.

Out of ten coffee exporters/processors that participated in the current study, only one exporter/processor, namely Kawacom, has some direct linkages with farmers. The company deals in both organic and non-organic coffee. With non-organic coffee business the company is not different from other companies in terms of business linkages. However, it is actively engaged with those farmers involved in organic coffee production. The company initiated the idea of organic coffee farming in 1999 as a result of declining coffee production due to declining soil fertility. The main aim was to expand its procurement capacity of high quality organic coffee, which has niche markets in the EU and fetches a higher price.

Benefits to farmers are currently limited to training services in organic coffee production and provision of inputs such as organic chemicals, coffee pulpers and an assured market at a reasonable good price. In order to increase their say in coffee post-production activities, coffee farmers have organized themselves into an umbrella association called Uganda Coffee Farmers Association (UCFA). This association was

established in 1995 to link coffee farmers with post harvest players and other service providers.

UCFA links with farmers who are organized in associations. Currently it deals with 50 grass root coffee farmers' associations with a total membership of 5,000 coffee farmers. UCFA carries out training programmes for farmers in modern agricultural practices, post harvest handling practices. Farmers have been sensitized about wet processing for value addition, quality improvement and mould prevention and have been introduced to commodity risk management. The umbrella Association also facilitates farmers to access input and credit services and serves as an intermediary between coffee farmers and input suppliers as well as marketing of farmers' output. The association also lobbies with donor agencies and government for financial support for its member associations.

Through linkages with UCFA, member farmers have benefited from better coffee prices than non-member farmers. This is because the training acquired has enabled member farmers to improve the quality of their coffee through better post harvest handling. Farmer members are also able to enjoy economies of scale by bulking their coffee making it easier for coffee buyers. Non-member farmers on the other hand normally incur most of the transaction costs.

However, UCFA still faces a problem of lack of a reliable and efficient market information system. Furthermore, the association still lacks a strong financial base to run the association activities. With low coffee prices, coffee wilt disease, old age of coffee trees, many farmers are finding it increasingly difficult to meet their subscription and other association obligations.

UCFA is strongly linked to the Uganda Coffee Development Authority (UCDA). UCDA aims at improving the quality and yield of Ugandan coffee at farm level by empowering and building coffee farmers' capabilities. Other than facilitation offered to coffee (clonal) nursery operators, UCDA appears not to directly target promoting and strengthening farmer agribusiness linkages in the coffee sub sector.

## Constraints and Opportunities

### Macro-Economic Policy Changes

The macro economic policies of liberalization and privatization have had different impacts in the three sub sectors of interest to this study. The coffee sector has seen decentralization of postproduction activities. Coffee buyers and sellers have relocated into production areas and increased their buying centres. The dairy sub sector has also become more competitive with many active players. The sub sector has seen physical concentration of milk buyers and sellers especially in urban areas. The horticulture sub sector appears to have undergone vertical integration with producers taking over virtually all post harvest activities.

### Limited Organizational Arrangements

There is limited formal organizational arrangement between farmers and postproduction players. As a result, agribusiness players active in post-production activities are faced with substantial limitations regarding access to farm commodities. One of the major constraints to the post-production agribusiness players is the supply fluctuation and unpredictable quality of raw materials. During peak production periods, farmers are faced with the problem of surplus agricultural production. For instance in peak production period for horticultural and dairy sectors, farmers are faced with a problem of excess surplus that is always disposed at a give away price or wasted due to high degree of perishability of the products.

### Lack of Markets

The agribusiness sector is also constrained with limited or lack of ready market for products coupled with price instability. Coffee and horticultural products are currently sold both locally and in international markets. One of the reasons coffee fails to meet international standards is because it is not adequately processed. Locally manufactured dairy products that are largely sold domestically are also encountering stiff competition from imported products perceived to be of a higher quality.

### Insufficient Information Flows

There is inadequate production and market information flow in all the three sub-sectors. This hampers the ability to take advantage of potential markets and to produce commodities that meet consumer tastes and preferences.

## Conclusions and Recommendation

Currently farm-agribusiness linkages in the coffee, dairy and horticulture sub-sectors in Uganda are organized in a complex manner. Many of these linkages have been stimulated by the need to achieve efficiency and increase market power as a result of government policies of liberalization and privatization.

There seems to be little doubt that integrated production and marketing in all the sectors has resulted in improved operational efficiency. It is not clear how these linkages have affected pricing efficiency. There is still a need to promote integration and coordination in the three sub sectors studied.

In order to modernize Uganda's agriculture and hence reduce poverty, both the public and private sectors have a role to play. It is important that their roles are both coordinated and complementary. The private sector is responsible for the production, processing and marketing of agricultural products. The public sector should create a conducive environment by formulating appropriate policies, removing barriers at all levels, improving infrastructure and putting in place an appropriate legal and regulatory framework.

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