

**CONTRACT DESIGN FOR SMALL SCALE MUSSEL GROWERS
IN SALDANHA BAY: A TRANSACTION COST APPROACH**

by

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DECLARATION

I declare that this thesis is my own work. It is submitted for the degree of Masters of Science of Agricultural Economics to the University of Stellenbosch, Stellenbosch. It has not been submitted before for any other degree or examination in any other university.

Abstract

This study examines the role of contracting in reducing transaction costs in small-scale mussel farming in Saldanha Bay. Masiza Mussel Growers (Masiza), an initiative by the public and private sector to address the imbalances of the past through entrepreneurial development, are used as a case study hence a case study approach is followed. Two transactions were considered, one between Masiza and Blue Bay Aqua Farm (Blue Bay) and another between La Vie Sea Food Products (La Vie) and Masiza. These transactions form the basis for analysis.

Market risks, uncertainties, environmental risks, information incompleteness, illiteracy, limited technical knowledge of farming, lack of appropriate infrastructure and lack of transport facilities are identified and examined as possible sources of transaction costs that constrain the existing supply chain relationship. The study shows that asset specificity, time specificity, and site specificity play a positive role in the supply chain as they result in relative dependency amongst parties. Opportunistic behavior within the existing supply chain is neutral, but appears to be relatively high on the spot or fresh live market. Characteristics of market transactions for mussels and associated transaction costs suggest that fresh-live spot market trading for Masiza is difficult to attain. This therefore motivates parties (Masiza) to contract or vertically integrate, as it is costly and risky to rely on spot live markets. Interviewees (Masiza) pointed out that the benefits associated with contract farming outweigh the transaction costs associated with this governance structure. Hence a market specification contract with the La Vie (a processing company), and a production management and resource provision contract with Blue Bay (a larger producer) were designed. They reduce transaction costs associated with fresh-live markets and ensure a more stable and reliable market for growers.

Uittreksel

Die studie ondersoek die rol van kontraktering in die vermindering van transaksie koste vir klein skaal mossel produsente in Saldanha baai. Die *Masiza Mussel Growers (Masiza)* word as gevallestudie gebruik. Twee transaksies met o.a. *Blue bay Aqua Farm (Blue Bay)* en *La Vie Sea Food Products (La Vie)* was ter sprake en laasgenoemde het as basis vir die analise gedien.

Mark risiko, onsekerheid, omgewings risiko, gebrekkige informasie, ongeletterdheid, beperkte tegniese kennis, beperkte infrastruktuur en beperkte verroer fasiliteite is geïdentifiseer en ondersoek as moontlike oorsake van hoë transaksie koste wat die huidige aanbod ketting strem. Die studie toon aan dat interafhanklikheid tussen die betrokke partye deur bate, tyd en area spesifisiteite bevorder word en dus 'n positiewe rol in die aanbod ketting speel. Opportunistiese gedrag binne die bestaande aanbod ketting is neutraal, maar blyk hoog te wees in die vars mark. Transaksie kostes en eienskappe blyk beduidende beperkinge te wees vir kleinskaal mossel produsente om aktief deel te neem in die mark. Die opstel van kontrakte (of vertikale integrasie) blyk dus 'n uitkoms te wees. Respondente het aangetoon dat kontrak boerdery voordelig blyk te wees. Laasgenoemde het tot die ontwikkeling van mark kontrakte met die *La Vie* ('n verwerkings maatskappy) asook produksie bestuur en hulpbron voorsiennings kontrakte met *Blue Bay* ('n groot kommersiële produsent) gelei. Die kontrakte beperk transaksie koste vir die vars mark en verseker 'n stabiele en betroubare mark vir produsente. 'n Transaksie koste analiese word gebruik om transaksie kostes te ondersoek en te verifieer binne die industrie.

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Abbreviations

Blue Bay = Blue Bay Aqua Farm

CPPP = Community Public Private Partnership

CT = Contract theory

DBSA = Development Bank of Southern Africa

DTI = Department of Trade and Industry

ECI = Ebony Consulting International

ICT = Incomplete contract theory

KTDA = Kenyan Tea Development Authority

La Vie = La Vie Sea Food Products

Masiza = Masiza Mussel Growers

MSP = Market specification contract

NIE = New institutional economics

PMC = Production management contract

RPC = Resource provision contract

TC = Transaction costs

TCE = Transaction cost economics

DEDICATION

To my mom, Nosayini Diza, and my siblings.
You are my world

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CHAPTER ONE

INTRODUCTION

1 Introduction

In the agricultural sector contract farming is an option worth exploring due to the increased reliance on supply chains. By affiliating small-scale producers, who do not have the capacity in terms of volume or know-how, with larger producers or commercial enterprises under some form of contractual or co-production arrangements, new export capacities and greater competitiveness can be achieved (International Trade Forum, 2002).

According to Makhura (2001), this affiliation of small producers can be achieved by commercialising subsistence agriculture. As in other areas of the world, particularly in developing countries, small producers face barriers to accessing markets due to a number of constraints that reduce incentives for participation.

When affiliating these small producers to the mainstream, their capacity to produce competitively must be taken into consideration (Ngqangweni *et al.*, 1999). From an economic point of view it can be argued that these farmers have the potential to survive, if a set of opportunities is provided (Makhura, 2001). The challenge is then to provide opportunities to smallholder agriculture to show that there are agricultural activities that small farmers can undertake both profitably and efficiently in the current South Africa (Ngqangweni *et al.*, 1999).

When improving participation of these farmers in the mainstream, particularly within mariculture industries, policies governing this sector cannot be ignored. Until recently no formal government policy was available for fisheries, including for mariculture, in South Africa. In 1997 a White Paper on Marine Fisheries Policy for South Africa was produced, in which mariculture is clearly identified as a sector requiring special attention, particularly with regard to promoting expansion and diversification of activities. The principles on which the policy rests address issues such as fair and

equitable access, transparency and accountability, and the Reconstruction and Development Programme (Brink, 2001).

Most importantly, the fisheries policy is founded on the belief that all natural marine living resources in South Africa, as well as the environment in which they exist and in which mariculture activities occur, are national assets and the heritage of its entire people. Hence they should be managed and developed for the benefit of present and future generations. Being the lead agency for mariculture in South Africa, Marine and Coastal Management (MCM) will need to play a major role in achieving these objectives.

The recent restructuring of MCM is seen as the creation of a committed mariculture section that is tasked with co-ordinating the development process in mariculture. Mariculture in South Africa is therefore poised to become a bigger role player in the field of marine resources, as existing operators approach production targets, new entrants become established, and the technology for exploiting new species is developed.

1.1 Background of the project

The Masiza Mussel Growers (Masiza), an initiative by the public and private sector to address the imbalances of the past through entrepreneurial development, was established. Masiza (Pty Ltd) was put under the custodianship of the Centre for Integrated Rural Development (CIRD), which is a non-governmental organisation focusing on enterprise development in disadvantaged communities (Karaan, 1999).

The Community Public Private Partnership (CPPP) has facilitated the new Masiza, with a large mussel growing enterprise (Blue Bay Aqua Farm) as the technical partner of this venture. The purpose of this initiative is to revitalise dormant rural economies through the linking of resource-rich rural communities with private sector investors interested in the sustainable utilisation of those natural resources.

Blue Bay Aqua Farm (Blue Bay) sold six of its mussel rafts to its ex-employees (Masiza). Masiza members know the business of mussel mariculture, because they were trained as employees of Blue Bay, where they were employed for 2 years before the project began. In addition they also worked for another mussel producer before joining Blue Bay. This shows that these individuals have considerable experience regarding mussel production.

Despite this considerable experience, low levels of literacy (which ranges between grade 0-4) inhibit them from acquiring relevant managerial, marketing, networking and other business skills. These growers are all Xhosa speaking originally from Transkei and none of them speak nor understand English/Afrikaans, which are the most important languages in doing business. The project has been in operation since June 2002.

1.2 Research questions

The following questions serve as guidelines to the study. This section begins with the central question and two sub-questions:

What are the necessary elements of a viable contract that ensure resource provision, production management activities and market specification at lower transaction costs for Masiza? Following this question are two sub-questions which serve to further simplify the central question.

- What are the transaction cost factors facing Masiza that impede them from participating within the industry?
- What is the nature of the relationship that is necessary to improve co-ordination and to enhance contractual arrangements between Masiza and the processor that addresses opportunism, information incompleteness, uncertainty and contract incompleteness?

1.3 Problem Statement

Since 1994 several processes have been put in place in South Africa to reverse discriminatory legislation and to improve participation, while at the same time

important initiatives have been implemented to deregulate and liberalise the agricultural sector. The rapid process of deregulation and liberalisation in the past decade has exposed the limited capacity of many farmers to adjust to market changes (National Department of Agriculture, 2001).

The existing market provides tough competition for small growers. The new market system has made it hard for small growers to participate in mainstream agriculture. It is difficult to access markets due to several market requirements, lack of bargaining power and sophisticated consumer demands. It becomes difficult for small growers to convince consumers to choose or buy their products rather than those of commercial producers, due to the lack of resources and the required technology to compete.

The result therefore is that most of the produce is consumed by their families or sold at very low prices to avoid waste. As Makhura (2001) indicated, most small farmers will take any price offered by buyers as long as there is a chance to trade. As shown by Karaan (1999 and 2002), small mussel growers in particular are faced with these problems which are associated with high transaction costs in the industry.

Masiza faces costs of accessing markets, environmental risks such as red tide disease, and rapid deterioration in water quality which affect product quality, market risks which are exacerbated by perishability of mussels, lack of transport and telecommunication facilities, lack of market information, managerial skills, illiteracy and other infrastructure, inability to access production credit etc. Masiza faces transport problems such as getting to the rafts (production units), delivery and collection of products and seeds. As stated by Makhura (2001), the presence of these costs impedes the participation of small farmers in the mainstream agriculture.

These transaction costs prevail in different phases of the industry and are characterised as pre-production¹ transaction costs, production² transaction costs, and processing and marketing³ transaction costs.

Due to the above-mentioned constraints Masiza find it difficult to operate independently without support from a large grower and a processor. In this instance a partnership between Masiza, a processor (La Vie Sea Food Products) and a large commercial producer (Blue Bay) is worth exploring. This partnership will enable Masiza to penetrate the market and actively participate in the mainstream agriculture through the help of Blue Bay and La Vie Sea Food Products (La Vie).

This collaboration can afford Masiza the opportunity to grow quality mussels under the supervision and support of the Blue Bay. In addition, production equipment and production management services can be rendered to Masiza. Training and mentoring programmes for capacity building can also be made accessible through this collaboration. Therefore working with Blue Bay will eliminate most of these constraints and minimise production, environmental and market risks.

In order to ensure that these market risks and uncertainties associated with markets are minimised, a partnership between Masiza and La Vie is explored. This will ensure Masiza's access to a guaranteed market and a constant flow of income and therefore increase their opportunities to obtain production credit from other financial institutions.

1.4 Hypothesis

This study follows the hypothesis that contractual arrangements will reduce transaction costs and improve the participation of Masiza in commercial markets. This study assumes that when transaction costs are low, co-ordination between Masiza,

¹ Karaan (2002) refers to this as the presence of asset specificity, information asymmetry, bureaucracy, high investment requirements, and adverse selection.

² According to Karaan (2002) this refers to the presence of factors such as diseconomies of scale, moral hazard, hold-up problems and co-ordination with the processor regarding perishability of the product, etc.

³ These refer to the prisoner's dilemma, information asymmetry, economies of scale in marketing, etc.

Blue Bay and La Vie will improve and more participation from all parties will take place. Therefore the underlying assumption of the study is that the transaction costs could be improved by a contract that will regulate trade relationships between Masiza, Blue Bay, and La Vie. This assumption emanates from Williamson's argument that institutions should be designed in order to minimise transaction costs. Therefore a contract is designed both as an incentive and adaptation tool to minimise transaction costs for Masiza.

1.5 Objective of the study

The main aim of the study is to design a viable contract that ensures resource provision, production management activities and market specifications that reduce transaction costs for Masiza. Such a contract will establish relevant relations between Masiza, Blue Bay and La Vie. The contract should cover resource provision, production management activities and market specification aspects.

When designing this contract, transaction cost factors facing Masiza, Blue Bay and La Vie are identified and used as guidelines and determinants for an appropriate contract for these parties. According to Warning *et al* (2002) and Eggerston (1999) the whole concept of contracting relies on the level and nature of transaction costs, as influenced by the magnitude of imperfect information and other transaction costs. It is for this reason that theoretical and conceptual frameworks based on transaction cost economics (TCE) and contract theory (CT) is used. These theoretical frameworks were then applied to the mussel industry.

1.6 Motivation of the study

The general hypothesis within New Institutional Economics (NIE) is that institutions are transaction cost-minimising arrangements that may change and evolve with changes in the nature and sources of transaction costs (Kirsten and Sartorius, 2002). Von Braun *et al* (1989) substantiate this by arguing that the formation of institutions is a response to missing markets in an environment of pervasive risks, incomplete markets and information asymmetry. NIE provides an illustration of how contract

farming is used to cope with market failures that are due to *information asymmetry*, *hold-up problems*, *principal agent problems* and *prisoner's dilemma*. It is argued that NIE together with TCE, deal with most related transaction cost problems.

Kirsten and Sartorius (2002) pointed out that one of the reasons why firms emerge is to economise on the transaction costs of market exchange and that the extent of vertical integration⁴ depends on the magnitude of these transaction costs. In this study CT and the TC approaches are used to design a contract and to illustrate how Masiza use contract farming to cope with high transaction costs.

This research aims at informing small growers, large growers, processors, the entire agribusiness sector, empowerment programmes, and the Department of Agriculture about mechanisms that can be put in place when addressing similar problems. In addition, it yields more knowledge regarding the application of these theoretical frameworks to empirical research and further serves as a stepping-stone for future studies.

1.7 Methodology

The study follows a case study approach and therefore the following tasks must be carried out in order to ensure the success of the study: field work and observation, preparation for personal interviews and data collection, data analysis which entails tabulating and categorising issues, analysis and interpretation. The study uses multiple sources of data, namely: literature survey, personal interviews, fieldwork and observations.

⁴ According to Rehber (1998), this occurs when a firm combines activities unlike those it currently performs which are related to them in the sequence of marketing and production activities. It should therefore be noted that agricultural forms of vertical integration include contract farming.

1.7.1 Case studies

A case study approach has long been common and has recently been utilised in several studies, for example, Hobbs (1996), Wang (2003) Masuku (2003), Sartorius (2003) and Karaan (1999 and 2002).

Hobbs (1997) argues that most empirical studies regarding transaction costs have been carried out on an individual industry level and on a narrower level, such as a case study approach, which according to her is a much better approach than investigating an issue on a multi-industry level. She argues that the multi-industry level approach makes proper research difficult. The main problem associated with that is the manner in which data are collected and the difficulty in obtaining valuable relevant information.

Despite their ability (case studies) to present detailed information about an industry and their relevance in problem solving on an industry level, case studies are criticised for not being able to present a broader perspective or a general perspective on the situation. It is argued that they only present a particular case, which might not be applicable to other areas, and therefore cannot be used for policy formulation and policy recommendations.

The Mussel Species with respect to Masiza Mussel Growers: The rationale behind mussel farming is that mussels are efficient as filter feeders compared to other shellfish. According to the study presented by Qisheng & Jianguang (2003), mussels can filter 10-15 gallons of water a day, consuming absolutely everything in that water. There are three basic methods used internationally to cultivate mussels, namely rope culture (plastic ropes or mesh tubes hanging from the rafts), lantern net culture and bottom culture.

Masiza together with Blue Bay use rope culture whereby mussels are clustered in ropes (6m long) and covered by a net and then suspended from rafts. These rafts are made of a wooden material and kept floating on the water. One raft carries about 311 ropes and each rope carries about 40-60 kg of mussels.

Saldanha Bay, where Masiza and Blue Bay are located, is regarded as one of the best areas particularly for shellfish farming in South Africa. This is due to the constant flow of nutrients from the Benguella current, which is rich in nutrients; weather conditions in the area also favour shellfish farming. Moreover the area is relatively free from red tide disease, which rarely occurs but which can affect shellfish (mussels) and destroys their quality.

It is reasonable to state that this bay has a global comparative advantage. The fact that the production cycle for shellfish is much shorter than the production period in other major foreign production areas, such as China, New Zealand (where most of the South African imports come from), the Netherlands and China confirms that. The mussels grow to market size in a period of 4 to 6 months, whilst it takes 18 months for mussels to grow to market size in New Zealand, 24 months in Spain and 30 months in the Netherlands (Karaan, 1999).

1.7.2 Data collection and field work survey

A literature review on contract farming, early and more recent experiences of contract farming, fieldwork and personal interviews formed part of this investigation.

Fieldwork entailed direct interaction with relevant parties; this followed a participatory and interactive approach, where the researcher worked closely together with the three parties (Masiza, Blue Bay, and La Vie) for a period of two years. The fieldwork was an ongoing process since the beginning of the project in June 2002 until the completion of this research. The fieldwork also helped in underpinning socio-economic related factors as the way of characterising Masiza. This assisted the researcher in gathering information on social capital issues such as culture, religion, customs, tradition and trust regarding the parties.

In conducting the research a number of activities were undertaken; following the case study method and procedures, a series of personal interviews with Masiza, La Vie and Blue Bay were arranged. Blue Bay and La Vie were selected for interviews because they are both core partners of this venture, the former being the main technical partner

while the latter serves as the main market for Masiza`s products. The three parties are the main participants in this venture.

No questionnaires were distributed, but open-ended questions were prepared in advance to maintain logic and flow of relevant information from all relevant areas of the project. Data were further examined to address the initial propositions of this study. All participants were presented with similar questions during the interviews for measurement purposes and consistency. This was an information-gathering exercise intended to make a practical contribution to all the areas.

Several visits to the rafts (where production takes place) and to the processing company were made. This enabled interaction with all the participants in the industry. Field work was done so that the researcher could understand the industry profile, and this entailed observing the attitudes of all the participants, observing their personalities and characteristics, observing the actual transactions taking place and recording all aspects relating to the transactions. It was also intended to ensure that subjective analysis and unrealistic conclusions are avoided.

1.7.3 Measuring transaction costs

Milgrom and Roberts (1992) argue that it is difficult to distinguish transaction costs from other managerial costs. While it is not easy to separate transaction costs, De Bruyn (2001) argues that transaction costs can be separated from production costs; according to him production costs are easily separated from normal managerial costs. Mathiesen (2003a, 2003b, and 2003c) provides a clear distinction of these costs by deriving transaction costs from other costs. This is shown in equations 1 and 2 below.

$$C_a = P_c + T_c \quad (1)$$

Therefore:

$$T_c = C_a - P_c$$

$$T_c = C_c - M_c \quad (2)$$

Where T_c = transaction costs,

P_c = production cost and

C_a = all costs

C_c = co-ordination costs

M_c = motivation costs

Equation 2 defines (TC) as the cost of co-ordination less motivation cost. While equation 2 differentiates TC from other costs, it should also be borne in mind that some TC cannot be observed, and therefore cannot be separated from other costs. This distinction is important for the study for the basis of analysis and to avoid confusion.

Despite the fact that the costs of monitoring the actions of the buyer or seller and the costs of valuing a good can be easily recognised, it is not easy to measure these costs in financial terms. The difficulties of measuring transaction costs according to Hobbs lie mainly in the manner in which data are collected. According to Delgado (1999) in De Bruyn (2001), transaction costs in marketing and processing in Africa arise due to the fact that market prices do not fully reflect true costs and returns for all market actors.

Despite recognition of TCE, the theory has been criticised for its lack of empirical support. De Bruyn (2001) argues that, despite the fact that transaction cost analysis has been recognised as most suitable in dealing with transaction cost-related factors, there is still a lack of empirical research.

The study by De Bruyn (2001) revealed that measurement of TC could be accomplished by ranking TC attributes in relative terms. For example: if a particular type of transaction cost is higher in situation A than in situation B and different individuals consistently specify the same ranking whenever the two situation are observed, then TC are measurable. Hobbs (1996) confirms this idea and further states that it is only the effect and impact of TC on the institution that can be measured. The absolute and monetary value of the actual transaction is difficult to measure. According to her, this deficiency is attributed to the unavailability of data from firms or industries.

Several techniques have been employed including both quantitative and qualitative methods but none of them has ever been precise in its measurements. Econometric

techniques measure the effect which is determined by the magnitude of the coefficient in the regression (Hobbs, 1996).

Wang (2003) citing Joskow (1999), Shelanski and Klein (1995), Crooker and Masten (1996), Masten and Sausier (2000), Boerner and Macher (2001), and Vannoni (2002) argue that TC can be measured on the basis of:

- i. the economic value of the resources used in locating trading partners and executing transactions;
- ii. The differences between prices paid by the buyer and received by the seller.

In contrast with this view, Wang (2003) and Hobbs (1996) argue that in empirical studies TC are not directly measured but relatively measured. This view emanates from the Williamsonian approach that states that the absolute amount of the TC is not important. What matters is the relative ranking of TC associated with different contractual choices (market contract, risk management contract, resource provision contract) within an organisation. To measure or benchmark the level or degree of transaction costs, this study followed Williamson's approach.

Hence a conceptual framework was formulated with the focus on uncertainty, transaction frequency, asset specificity, opportunism, bounded rationality, information asymmetry, hold-up problem, principal agent problem and prisoner's dilemma as identified during field work. The significant relationship between the chosen variables makes it clear that economising on TC is the unifying logic behind various contractual arrangements of production, marketing and resource provision. The degree of asset specificity (eg, a high level of asset specificity requires very long-term contracts) uncertainty and information asymmetry guides the researcher towards an appropriate choice of contract with appropriate terms and duration.

1.7.4 Data analysis and interpretation

The main transaction considered in this study is that between Masiza and Blue Bay, which entails exchange of resources, production equipment, technical advice, mentoring support and service provision between the two parties. Following this is the

transaction between Masiza and La Vie, which entails the exchange of fresh live mussel produce. These transactions form the basis for analyses and hence are identified as the unit of analysis and as benchmarks.

During data gathering several issues were identified and then grouped for the purpose of data analysis. After grouping, the issues were then categorised, tabulated accordingly and then analysed. In analysing this data a three point likert type scale was used; 1 = constraint; 2 = neutral; and 3 = enhancement. These three interpretations are also interpreted as; 1 = negative (-); 2 = neutral (0); and 3 = positive (+) as adapted from Masuku (2003). In addition TCE and CT were used in both in analysing data and interpreting results.

The researcher relied on the literature and practical experiences to present evidence in various ways, using various interpretations of qualitative research as justified by transaction cost analysis. Concerning contract enforcement, three factors were noted, namely: the value of the relationship, the value of the actual transaction, and the cost of enforcement. These factors helped to determine an appropriate enforcement mechanism that is relevant for the existing relationship. The study largely adopted a qualitative approach.

1.8 Outline of the study

Chapter one provides the background and an introduction of the study. Chapter Two presents the background and market overview of the mussel product. Chapter Three reviews the literature on contract farming where lessons from both national and international experiences are presented. Chapter Four provides a theoretical framework on CT and TCE. This chapter establishes the reasoning behind the choice of CT, and TCE for this study.

Chapter Five provides a transaction costs analysis (TCA) where TC associated with the industry are identified, verified, measured and discussed. This chapter attempts to measure these TC, as this is considered useful in identifying the institutional response.

This TC knowledge is used to design an appropriate contract. In this chapter an actual plan is executed in which the conceptual framework as developed in chapter three and four is applied to existing problems in the mussel industry. This application directs the study towards the formulation of an appropriate and viable contract for Masiza. Chapter Six provides types of contracts with enforcement mechanisms and recommendations addressing problems highlighted in this study.

1.9 Study Area

The study was conducted in Saldanha Bay on the West Coast of the Western Cape province. Both Masiza and Blue Bay are situated in this area, which is about 200 km from the city of Cape Town. The processing company La Vie is about 30 km away and located in a small town called Velddrif.

CHAPTER TWO OVERVIEW OF THE MUSSEL INDUSTRY

2.1 Introduction

The mussel industry is still one of the small and developing industries in South Africa. This industry is based mainly in the Western Cape, with relatively low production when compared to the production of other countries such as Denmark, China, New Zealand and Spain, etc.

2.2 Market overview of mussel products in South Africa

The South African mussel production for year 2003 and 2004 is illustrated in Table 2.1 below. The entire production comes from Saldanha Bay (from Blue Bay and Masiza), which is the only production area for mussels in the country (Pienaar, 2004).

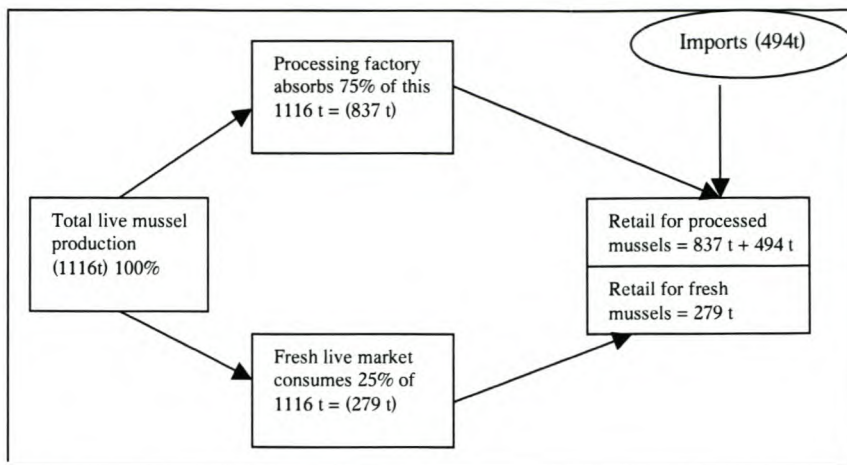
Table 2.1: Industry output in year 2003/04 (tons)

Producers	Output (t)	Percentage (%)
Blue Bay Aqua-Farm	1000	90%
Masiza Mussel Growers	116	10%
Total	1116	100%

Source: Own calculations as adapted from Pienaar (2004)

Masiza and Blue Bay produces 1116 tons of mussels from 60 mussel rafts covering an area close to their fully allocated 50 hectares; six of these rafts belong to Masiza. According to Pienaar (2004) all the produce is consumed by the local market and still remains in short supply. He feels that the market has grown bigger and is still developing.

Because local production is insufficient for the local market, about one third of total consumption is imported in the form of frozen and processed mussels each year, as shown in Figure 2.1 below. Hence, projects such as Masiza still have a big role to play. Pienaar (2004) believes local production will rise with the drive to give small mussel farmers access to the industry. A brief mussel market break down is presented in Figure 2.1 below.



Note: t = tons

Figure 2.1: Market overview for mussel products

Source: ITC (2003) and Visser (2004)

Figure 2.1 shows both fresh live and processed markets. Mussel markets, both fresh and processed, are characterised by relatively insufficient output resulting in a supply deficit. According to Pienaar (2004) the average mussel harvest has grown from 700 tons/year in 2000 and 2001 to 1116/annum in 2003 and 2004. This rise in output is mainly attributed to the contribution made by new entrants such as Masiza. So far these growers have contributed up to 10% of overall output to the industry, but this is likely to increase as more rafts and other small growers come in (Pienaar, 2004).

It is important to note that fresh live mussels are mainly produced and consumed locally, none are imported or exported. This is due to the fact that fresh live mussels are extremely perishable and therefore cannot be transported for a period longer than a day. This implies that South African producers are faced with the challenge of ensuring that local demand is met. According to industry experts (Pienaar, 2004 and Visser, 2004) this challenge has not been conquered due to the insufficient number of producers resulting in insufficient supply in the market. Hence growers like Masiza are encouraged to participate to meet the rising demand.

Despite the fact that the industry needs more participants, challenges and problems associated with fresh live markets cannot be ignored. These problems exist because of the nature of these markets. The market, particularly the fresh live market is such that each grower should have reliable and transport to guarantee immediate transportation

of mussels. Proper networks, communication facilities, managerial and business skills are some of the essential requirements characterising this market. These are some of the impediments inhibiting active participation of small growers such as Masiza in this market.

2.3 Consumption

The consumption of mussels in South Africa is continuously rising. This, amongst other things, is attributed to the fact that consumers in general are becoming more health conscious, and regard fish products as carrying fewer health risks (Visser, 2004). Therefore the 279 tons of fresh mussels illustrated in Figure 2.1 above is becoming insufficient. According to Pienaar (2004), the fresh market demands far more than this amount, hence more production is required.

The processing factory currently absorbs between 800 to 900 tons of fresh produce for further processing. Figure 2.1 shows that an average of 837 tons per year is produced; implying that about 75% of the total local output is processed. This amount is then redistributed to retailers. This processed output together with fresh live produce is then supplied to the local market for local consumption.

According to ITC (2003) South Africa imported about 494 tons of processed mussels in 2002. This, together with 837 tons of local produce, is supplied to the retail sector resulting in a total consumption of 1331 tons per annum. This is also expected to rise as the rise in demand continues. Brink (2001) as substantiated by Visser (2004) argues that South Africa's production will increase as more new entrants are becoming part of the industry. Most importantly Visser (2004) argues that South Africa produces far better quality compared to other world producers and therefore has better opportunities of commanding a big share in the local market.

2.4 Major mussel producers in the world

This section presents volumes produced by some of the major world producers.

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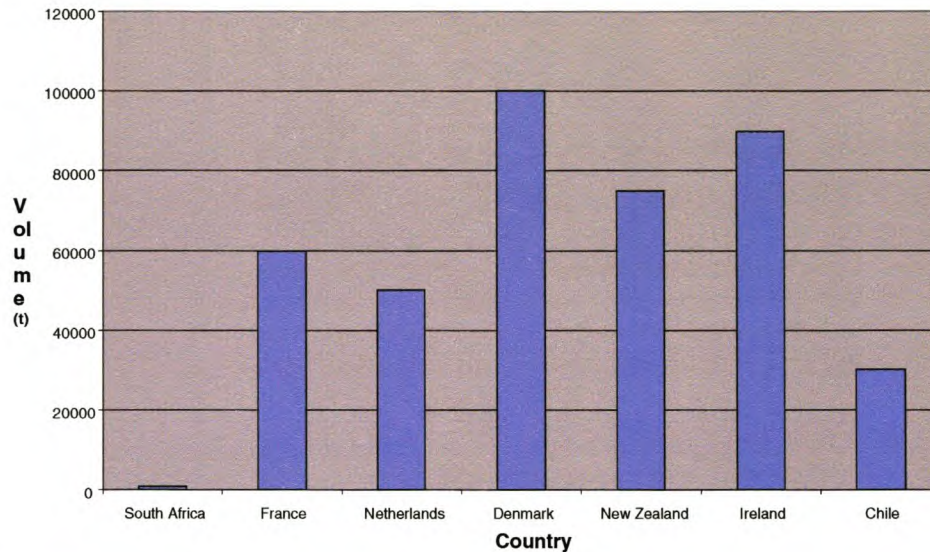


Figure 2.2: Major world producers

Source: ITC (2003)

Despite South Africa's comparative advantage with regard to weather, environmental conditions and relatively short production cycle, it still produces relatively small quantities compared to other producers. This is mainly due to the fact that, the South African mussel industry is not yet fully established. The industry is expected to grow and command a relatively larger share in world production and possible enter the export market.

It is argued that South Africa shows a great potential in mussel farming and what is required are new entrants to participate, particularly small farmers. Karaan (2003) pointed out that a great potential in mussel production also lies in small-scale production. He further argued that mussel production could experience rapid expansion, as new areas for small growers are made available in Saldanha Bay.

The major producing countries as listed in Figure 2.2 above are Denmark, New Zealand, France, Netherlands and Chile. The mussel industry in *New Zealand*

developed from a very slow beginning in the 1970s. But today's annual production in the New Zealand mussel industry is estimated at over 75 000 tons and more. The type of mussel produced is green lip, which is the indigenous species of the country. The industry is said to be highly mechanised both in production and processing (Hearn, 2002). Most of the mussels are sold frozen in halfshell. One of the reasons driving exports in the New Zealand mussel industry is the surplus production which occurs almost every year. Also China, Netherlands, Denmark and Ireland command a strong position in the market, producing more than 100 000 tons a year (Bol, 2002; Kristensen & Petersen, 2002; Prou and Gouletquer, 2002; Carroll, 2002; King, 2002).

2.5 SWOT Analysis for South African mussel industry

It is important for the study to ensure that a SWOT analysis is conducted, both for the purpose of informing new entrants (Masiza) in the industry as well as existing actors about strengths, weaknesses, opportunities, and threats in the entire industry. Table 2.2 below addresses SWOT analysis of the mussel industry. This table also serves as the basis for further analysis as carried out in Table 5.1 of Chapter five.

Table 2.2: SWOT analysis of the mussel industry in South Africa

<p>Strengths</p> <ul style="list-style-type: none"> • It is a small industry with much market potential • Excellent quality • Mussel is a high-value product • It is easily consumed • Healthy and nutrient rich product • It is produced throughout the year, meaning continuity is assured • Saldanha is the arguably best area in the world with relatively short production periods, good weather and a suitable environment (Karaan, 1999) • Saldanha is a nutrient-rich coastal region • The industry has few participants (mainly large producers) & currently opening up opportunities for new entrants • Less production against huge demand (Demand exceeds supply significantly) 	<p>Opportunities</p> <ul style="list-style-type: none"> • Increasing number of hectares • Increasing demand (Demand > Supply) • Opportunities for export market • Expanding production • Good government legislation, environmental policies • Productivity gains by small growers • Entrepreneurial development • Technological advancement, eg. Long lines, large rafts, hauling equipment.
<p>Weaknesses</p> <ul style="list-style-type: none"> • Lack of product awareness and lack of promotional activities • Only one best area for production in South Africa (Saldanha) • Access to finance • Bureaucracy 	<p>Threats</p> <ul style="list-style-type: none"> • Red-tide disease • Weather and environmental conditions • Exchange rate (on imported resources) • Imports • Entrepreneurial failure

2.6 Concluding remarks

This chapter has presented an overview of the mussel market in South Africa. Mussel production in relation to world production was explored. Major producing areas in the world were presented. Subsequently, a swot analysis was presented as part of the market overview, showing existing challenges and opportunities within the industry.

CHAPTER THREE

LITERATURE REVIEW ON CONTRACT FARMING

3.1 Introduction

Contract farming can be defined as one means by which firms can exert control over the production and marketing processes in order to reduce production and transaction costs (Runsten and Key, 1996; Minot, 1986; and Katjiuongua, 2001). However, contracting may displace the decision-making role of small-scale farmers to downstream processors or marketers, making farmers quasi-employees. Also, given the high per unit cost of contracting with small farmers, who may also have greater difficulty in meeting stringent quality and safety standards, contract farming may favour large-scale farmers. According to Reardon and Barrett (2000) this can reduce income and employment opportunities for smallholders.

Williamson (1975) argued that in order to reduce transaction costs, institutions are created. Contract farming as an institutional design helps to reduce transaction costs. According to Williamson (1975), these institutional arrangements decrease uncertainty and risk, because they limit individual freedom of action. Williamson argued that this makes the behaviour of market participants much more predictable.

Contract farming often includes a number of variations and multiple objectives, which include welfare, political, social, and economic criteria. According to Kirsten and Sartorius (2002) citing Sporleder (1992), and Runsten and Key (1996), a contract could specify: (a) the price and the quantity, (b) the quality of products, (c) the provision of the agribusiness inputs, (d) the provision of credit facilities, (e) the conditions of production and delivery and grading requirements.

3.2 The early experience with contract farming

Contract farming as an institution in agriculture has been in existence for a long time. Countries like the United States and those in Central America engaged in this institutional arrangement in various forms since the beginning of the 20th century (Runsten and Key, 1996). The Japanese employed this arrangement to secure sugar production in Taiwan since 1885 (Runsten and Key, 1996 and Rehber, 1998). Between the 1930`s and the 1950`s many food and fibre sectors, particularly in the United States and Europe, were involved in contract arrangements.

Industries like the fruit and vegetable industries increasingly made use of contract farming. Furthermore merchants in Europe and North America entered into seed production contracts with growers in Australia, Britain, Canada, France, Holland, Hungary and the United States. A significant increase in contracting for vegetables, fruits, nuts and seed crops was recognised by these countries during the 1950`s. By the late 20th century contract farming was widespread across Western Europe, the United States and Japan (Rehber, 1998).

This institution has been recognised by several countries, including developing countries, which see it as a vehicle to success. Both Eicher and Staatz (1998) in Kirsten and Sartorius (2002) noticed an increasing effort by Asia, Latin America and Africa to participate in and make use of this practice. This is because it looks profitable and sustainable due to the higher returns earned by high-value export crops and the impact of new technologies. Latin America has a much longer history than Africa in that contract farming has been extensively promoted there since 1945 in a series of import substitution programmes (Kirsten and Sartorius, 2002).

Little and Watts (1994) described a similar experience in Africa, where an increase in contract farming in the fruit and vegetable canning sectors of colonial Africa was recorded. This expansion was followed by a rapid increase in the period 1975-1985, with some 60 schemes operating in 16 countries.

On the African continent South Africa has a long history of farming under contracts, which includes a wide range of sharecropping arrangements in the 20th century (Bundy, 1979 in Kirsten and Sartorius, 2002). The recent studies show that vertical co-ordination arrangements currently exist in the tea, fruit, sugar, flower, cotton, vegetable, timber, fishing, barley and tobacco sectors.

3.3 The need for contract farming in developing countries

Contracting can reduce a participant's exposure to risk specifically in an open and uncertain market. Processors and consumers increasingly demand a uniform product of standard quality. This then implies that a contract is a vehicle that food processors and marketers are using to respond to consumer preferences and to reward producers who respond.

A cost benefit view of contracting is that farmers use contracts to increase their income stability. Because most contractual arrangements reduce risk in comparison with traditional production or marketing channels, a contracting farmer's resulting income tends to be less variable over time. The farmer also benefits by having a guaranteed market and price, as well as access to a wider range of production inputs and technologies. This therefore means that farmers can also specialise their management efforts on a particular part of the production process.

From the processor's perspective, it is argued that processors use contracts because they need uniformity and predictability to suit consumers, but also they benefit from lower costs in processing, packaging and grading. This benefit to the processor also serves as a benefit to consumers in the form of a spill-over effect known as a positive externality. This implies that, through savings from contracting arrangements by a processor, a consumer can probably buy a product at a few cents per Rand less.

The trend toward contracting is part of a general shift in entrepreneurial functions within agriculture. Most concern about this shift centres on resource control in

agriculture and the impact of those that control resources on producers, suppliers, price and income at various stages of the production and marketing process.

Given the poor performance of agriculture in many developing countries, particularly in Africa, many donors and governments hoped that contract farming and its variants would bring about improved incentives, increased income for farmers and positive multiplier effects for impoverished rural economies. As a result there was considerable growth in the number of contract farming schemes in the 1970s and 1980s. Most of these contract schemes and grower schemes were multipartite arrangements involving private firms (Glover, 1994 in Von Braun and Kennedy, 1994).

Contract farming in developing countries has experienced mixed fortunes, yielding some successes and many failures (Little and Watts, 1994; Runsten and Key, 1996). In the African context, contract farming has been observed to disrupt power relations within farm households, to exploit an unequal power relationship with growers, and lead to growers becoming overly dependent on their contracts (Key and Runsten, 1999). Kirsten and Sartorius (2002) pinpointed several experiences and lessons from contract farming, most of which are evident from the literature. These lessons highlight a number of factors that determine the success of contract farming ventures.

3.4 Agribusiness and small farmers in developing countries

According to Royer (1995) and Pasour (1998), the changes in agricultural markets have influenced the need for higher levels of managed co-ordination. According to them, this has resulted in the introduction of different forms of vertical integration and alliances which have become a dominant feature of agricultural supply chains.

Allied to these changes is a worldwide increase in consumer demand for differentiated agricultural products that are relatively labour intensive. Looking at both food demands and food safety issues, it is likely that these might be a cause for concern, particularly in fresh food products and especially in developing countries. Fresh food

products, which include fresh meat, seafood and fruits, account for half the value of the total food and agricultural exports from developing countries (Unneveher, 2000).

However, it is often the well endowed and the skilled that have the ability to be part of the co-ordinated marketing chains and alliances. There is therefore a danger that quality standards, food safety rules of the consumers and the corporations in the developed countries can act as effective barriers to participation in high-value chains by small exporters and small producers. Only a small number of farmers in developing countries have the ability to be part of these lucrative markets and for them the reward can be substantial. As it is, several developed countries are denying small farmers from developing countries the opportunity to sell, citing safety and product standards as the reason (Unneveher, 2000).

Recent studies of the managerial economics of industrialised agriculture have revealed new insights into the economic rationale for higher levels of managed co-ordination as a choice of governance structure. In conjunction with this, the history of vertical co-ordination projects in developing countries has provided many lessons and reference frameworks against which future development can be evaluated (Unneveher, 2000). All these could pioneer a new approach to improve our understanding of the problems of market access facing farmers in developing countries.

There is serious concern about the ability of small farmers and also small agribusiness firms to survive in the medium term under these changing circumstances. However, there still remain opportunities for small farmers to exploit. The major route for continued survival will however be through exploiting other factors. One such factor is a reliance on external rather than internal economies of scale through networking or clustering and other forms of alliances. This could be done among small farmers or through establishing links between small farmers and large enterprises that have already overcome the major barriers to market entry. These links are usually formalised through some form of contract, which is similar to contract farming schemes implemented in developing countries.

3.5 Contract farming and transaction cost in South Africa

This section outlines a number of problem areas which were addressed through the application of transaction costs analysis and contract theory in South African agriculture. Small farmers face several barriers and challenges (transaction cost-related), which impede them from participating in mainstream agriculture.

A tangible solution to deal with this situation is therefore required from both the government and the private sector. Karaan (1999, and 2002) provided several options to address this situation. In his articles a case study for small mussel and oyster growers was presented and several suggestions to bridge this gap between the commercial and small sector such as small independent operators, contract farming, franchising and vertical integration were documented.

Contract farming has also been a component of the most successful income-generating projects for smallholders as well as an important earner of foreign exchange in developing countries. Contract farming, together with TCE, has not really taken root in South Africa. Few studies have directly addressed the issues of contractual relations or contract farming in South Africa. Among those documented studies is the work by Karaan (1999 and 2002) as stated above.

Tregurtha & Vink (1999) conducted their study on "Trust and supply chain relationships". The main focus of their study was to show the difficulties that are involved in building a trust-based relationship, particularly when looking at the cases of small growers and large firms. Small barley growers in the North West Province were studied and South African Breweries was the main partner. A study by Masuku (2003) on contractual relationships between small cane growers and millers in Swaziland also covered a great deal of ground with regard to this subject.

A study by Mutungul (2000a) that was conducted in two Kwa-Zulu Natal districts on household decisions relating to the sources of purchased food (as cited by Makhura, 2001) also contributed to this subject. Makhura (2001) focused on determining the

influence of transaction costs on farmers' choices of marketing channels in the Northern Province. Hardman *et al.* (2002) also conducted a study on improving co-operation in the South African fresh apple industry. The study investigated aspects of co-operation between South African producers, packers and exporters in the Western Cape and Langkloof East areas in 2001. This study showed areas where more resources should be committed to make the SA fruit and apple export value chain more competitive.

The study by Meissenheimer *et al.* (2000) was conducted in the Western Cape wine industry to identify sources of transaction costs in the South African wine supply chain. The study examined possible transaction costs which induce inefficiencies and constrain the global competitiveness of the supply chain. In addition there is a study by Sartorius and Kirstern (2002) where they looked at how to link small scale farmers to agri-business. Sartorius (2003) looked at the economics and application of contracts using different case studies and contributed to the South African pool of knowledge with regard to transaction costs and contract application.

3.6 Types of contracts

Contracts can be of various types, which include:

- i. **Marketing contracts:** These are sometimes called market specification contracts. Rehber (1998) and Hobbs (1996) further explain them as the case where the producer sells the raw commodity to the processor at a specified price, method of payment, quality and time. In this type of contract the producer has full autonomy regarding production decisions. It is important to note that there is risk transfer together with the decision of when to sell and how to market the product. The seller transfers some risk together with the decision of when to sell and how to market the product to the buyer. Despite this transfer, control over the production process remains with the seller.
- ii. **Resource-providing contracts:** These are contracts specifying some measure of company control. In this type of contract certain company resources can be supplied and there is a measure of company control. The producer agrees to produce the raw commodity under some degree of company control and

specification as well as to sell the commodity to the processor at an agreed price, quality and time (Rehber, 1998; Wolz and Kirsch, 1999 in Kirsten and Sartorius, 2002). That is, the integrator provides production resources with certain conditions and managerial assistance and supervision. Product prices are usually based upon spot markets and income guarantees to the producers are minimal.

To be precise, more control lies with the buyer where the buyer provides a market outlet for the product, supervises the production and supplies key inputs (Hobbs, 1996). In addition to Rehber's (1998) description, Hobbs (1996) confirms that it is often the buyer who may own the product, while the seller is paid according to the volume of output. She regards this type of contract as the contractual arrangement closest to full vertical integration; for example, a feed manufacturer might contract with animal producers, supplying feeds, overseeing production methods and the marketing of the finished animals (Hobbs, 1996).

- iii. ***Production management contracts:*** This type of contract includes full company control as well as the provision of company inputs. In this regard, complete control of the production process passes to the integrator, who will supervise production, provide the necessary inputs and services, and remunerate the producer for the raw commodity at an agreed price (Rehber, 1998). These types of contracts, which are sometimes referred to as management and income guaranteeing contracts, often include the production and marketing stipulations of the former two types. In addition, market and price risks are transferred from farmers to integrators. On the other hand, the integrator takes a substantial part of the managerial responsibility from the farmers.

A fair contract should contain reciprocal obligations with a balance between the rewards and the risks accruing to each party. A production contract should at least contain the following provisions: (a) define the parties, (b) specify the type and quality of the produce, (c) state the quantity of the produce, (d) state clearly the responsibilities of both parties concerning production and

marketing practices, (e) indicate the manner, including timing of delivery or collection, (f) determine the price (specific or formula) or other consideration, and indicate the effects of variations in quality, quantity, or manner of delivery and also specify the manner and timing of payment. It is recommended that an arbitrator be appointed or otherwise the way disputes are to be resolved should be specified.

3.7 Advantages and disadvantages of contract farming in agriculture

3.7.1 Advantages to producers

The enthusiasm of donors about the benefits of contracting in developing countries has resulted in inflated expectations of the potential of this institution (Little, 1994 in Von Braun and Kennedy, 1994). Nevertheless, there are benefits to the farmer, which Roy (1963) described. Contracting allows farmers to overcome the barriers of entry into specific sectors.

Farmers usually enter into contracting production in order to reduce transaction costs and gain access to information, technology, marketing channels, managerial skills, technical expertise, access to plant and equipment and patented production procedures (Carney, 1998; Royer, 1995 and Delgado, 1999). Contracting could also improve access to capital and credit. This is a major concern of most farmers and especially so in developing countries. Farmers may be prepared to relinquish their autonomy for the sake of being able to produce and secure markets and support services.

Contracting farmers can reduce production costs and increase production and income as a result of their use of new technology and their access to company resources. The reduction in cost is due to better technology, better collective decision making, and reduced transport and marketing costs (Hennesy, 1996; Pasour, 1998 and Royer, 1995).

Contracting farmers can reduce marketing risks and stabilise income, and in this sense the integrator provides a form of insurance (Runsten and Key, 1996; Wolz and Kirch, 1999; Colchoa, 1999; Sofranko *et al.*, 2000). At the same time contracts may simplify production and marketing. Contracting farmers can increase profit opportunities

through a greater product range, diversification and differentiated products (Korovkin, 1992; Von Braun and Kennedy, 1994; and Delgado, 1999). There is widespread evidence of an improvement in farmer income in developing countries as a result of contracting (Levin, 1988). In addition, the educational experience of interacting with an agribusiness partner can provide a platform for farmers in developing countries who are attempting to convert from subsistence to commercial farming (Sofranko *et al.*, 2000).

3.7.2 Disadvantages to producers

Most of the critiques against contract farming relate to the disadvantages to the farmers embedded in contractual arrangements. These disadvantages include farmer's loss of autonomy, increased production risk, increased market power of agribusinesses, increased concentration of production and insuring instances, and reduced producer income. There is a universal loss of autonomy as farmers operate under a centralised control system and the contracted farmer is sometimes reduced to little more than a hired hand (Schrader, 1986; Korovkin, 1992; Morvaridi, 1995; and Sofranko *et al.*, 2000).

A further source of criticism is related to increased production risk in that the farmer must meet the contractual obligations of the integrator (Royer, 1995). In this sense, risk can also increase in that the farmer invests in highly specific fixed production assets, combined with the non-assurance of a permanent contract or the chance that the integrator may default. Production risk is increased especially when the farmers in developing countries diversify out of traditional crops into non-traditional crops where the technology has not been developed or adapted locally (Runsten and Key, 1996)

Runsten and Key (1996) argued that contracting universally increases land use intensity, which can lead to higher levels of pollution. Contract farming in developing countries can result in decreased food production and increased food security problems as a result of the concentration on contract crops (Morvaridi, 1995 and Rehber, 1998).

It is accepted that prices paid to the contractor will be less than spot market prices because of the reduction in marketing risk to the farmer and the increased market power of the contracting firm. The result can be reduced income, as shown by Pasour (1998). This situation might especially penalise a contracted farmer with high levels of capitalisation and managerial skills where an open market exists for the same crop (Runsten and Key, 1996). Moreover, contract production often involves a high-cost package of inputs that require financing facilities.

The change in cost structure is especially marked in developing countries when farmers diversify out of the traditional crops and can negate the effect of increased revenue (Von Braun *et al.*, 1989). Farmers incur additional cost because of the need to co-ordinate their production to suit the integrator, as well as to liaise for the use of company inputs and services (Glover, 1987).

3.7.3 Contract enforcement

Although contract farming involves a written agreement between farmers and the agribusiness firm, these contracts are seldom legally enforceable in practice (Grosh, 1994). The poorly developed legal institutions in developing countries contribute to high transaction costs in prosecuting individual smallholders for breach of contract. Enforcing a contract also leads to a souring of the relationship between farmers and the firm as well as between the agribusiness and the community.

Adding to these high costs in terms of financial and community relations, one may find that in many countries contracts are often viewed as not legally enforceable. Thus the only real penalty at the disposal of the contracting firm is to discontinue the contract with those farmers not complying with its terms and then to write off lost income.

Because of these costs, firms deal only with growers who are less likely to default who are often the larger growers, and they are thus required to screen applicants. These screening and enforcement costs are fixed costs and can be minimised by

reducing the number of contract farmers, which also has the effect of favouring larger growers (Key and Runsten, 1999).

Farmers sometimes breach contract either on account of production failure or because they have sold the produce to competing buyers. When there is a good market at harvest, many farmers are lured by higher spot prices where they can sell their produce for cash. In this way they, avoid the repayment of credit, which is usually subtracted at the time of delivery. The farmer often claims production failure for the lack of compliance with the contract. The absence of effective legal systems and lack of collateral held by small farmers, as well as weak insurance markets, create considerable risk for companies engaging in contract farming with smallholders, again creating barriers preventing entry to agricultural markets for some smallholders (Kherallah, 2000).

In resolving the problem of farmer default, agribusiness has developed a number of innovative mechanisms to deal with this problem. These mainly focus on high-value crops. These mechanisms include:

- i. lending through groups,
- ii. good communication and close monitoring,
- iii. range and quality of services offered
- iv. incentives, and
- v. co-operation between buyers.

In the absence of public mechanisms for contract enforcement, private enforcement mechanisms can be effective. A study by Gow *et al* (2000) has shown that the use of internal private mechanisms for contract enforcement through contractual arrangements between two parties in an exchange can make contracts self-enforcing. This is mainly through trust-based relationships. The introduction of contract innovations and associated support programmes in this case study induced output and productivity growth in both the agribusiness and the farmers. An input provision and investment facilitation programme was introduced for farmers who signed long-term contracts with the company. In other parts of the developing world, one finds that

legal institutions do not play an important role in the enforcement of contracts. An analysis by Fafchamps and Minten (1999) suggested that trust-based relationships are the dominant contract enforcement mechanism under these circumstances.

Trust is established primarily through the repeated transactions of the contracted parties. Trust and social networks are usually the mechanism by which the transactions and contractual arrangements in developing countries are enforced and thus provide another alternative to be considered in reducing contract default (Masuku, 2003).

With many agribusiness firms controlled by multinational interests often from a different ethnic group, usually related to previous colonial regimes, one would expect that trustworthy relationships would be hard to come by. Striving towards establishing trust-based relationships is however, still important for purposes of self-enforcement.

3.8 The objectives of different actors and the constitution of the contract

Contract farming is attractive to foreign aid agencies for many of the same reasons that it appeals to national governments. It provides a regulated system for channelling large amounts of money straight to smallholders. It also provides for the transfer of technology. The other motive is profit. The Commonwealth Development Corporation (CDC) and the World Bank have pioneered some very successful smallholder components to make them politically acceptable and able to qualify for funding. Baumann, (2000) found that a major problem with contract farming is that different partners in the projects may have different objectives and these are often not clarified.

Table 3.1 below shows three different role players with their aims and objectives in specific circumstances. The collaboration of these different role players is essential in order to ensure the success of the project, as illustrated in the table below.

Table 3.1: Objectives of a smallholder programme

Farmers	Government	CDC
1. Secure food supply	1. Increased production of priority food and cash crops	1. Farmers and governments able to achieve objectives
2. Increased income from sale of cash crop	2. Maximum net foreign exchange earnings or savings	2. Sustainable economic development from investment in cash crops
3. Improved standard of social services	3. Minimum cost to national exchequer	3. Recovery of loan funds and interest payments from projects
4. Minimum utilisation of own resources	4. Maximum rural employment generation	
5. Minimum exposure to risks of indebtedness, crop failure, imposed authority	5. Improved social facilities and rural infrastructure. Impact on growth in areas surrounding projects	

Source: Baumann (2000)

3.8.1 Objectives of private contractors

All crops that are conducive for contracting have economies of scale in infrastructure, processing and transport. Many of them were traditionally grown in plantations and estates for this reason. Grower schemes that allow the company to delegate production to smaller farmers have several advantages. The contract assures the company of regular inputs of raw material from the small farmer so that it is able to meet its economies of scale. They would not be able to achieve this through purchases on the open market (Little and Watts, 1994).

Contracts can specify planting dates as well as total quantity to be delivered. The contract therefore both reduces the uncertainty and gives the company control of the production process. Furthermore, the company does not have to invest in land, hire labour or undertake large-scale farming operations. Some companies and parastatals retain a nucleus estate surrounded by growers, especially when the economies of scale of the processing plant depend on a certain volume of throughput.

Many companies have withdrawn from production completely, delegated responsibility for processing, and retained control of only the most critical stages of

marketing. Avoiding conflict over land ownership and labour issues is an important advantage of the contract, whatever the level of integration of the company.

Little and Watts (1994) argued that not only does contract farming allow potential problems with labour to be avoided, but it allows the company to profit from self-exploitation of family labour. Apart from these economic reasons, there are several political reasons why contract farming is attractive to private companies. It allows the company to avoid investing too much resources in a country and therefore to avoid the risk of expropriation.

Contract farming as a smallholder-friendly scheme can be good for the public image of a company and give the impression that it is progressive. This can be exploited by the company to encourage the state or even international aid agencies to provide credit for operating capital or for the rehabilitation of plantations.

3.8.2 Objectives of governments

It is argued that contract farming is usually politically very attractive to both government and investors. They avoid foreign ownership of large tracts of land and may also create the impression that other features associated with plantations, such as the enclave effect, are avoided. Grower schemes may also appeal to governments who, whilst realising the political necessity of addressing the needs of the smallholder, prefer to keep them under a central authority.

Ellman (1986) in Kirsten and Sartorius (2002) stated that some aims of government are to increase cash and food crop production, maximise rural employment generation, and to improve social facilities and rural infrastructure. However these often clash with implicit objectives which are to:

- i. Accord political acceptability to a plantation type project;
- ii. Mobilise cheap family labour for production; and

- iii. Move reluctant farmers from a heavily populated area to an under-populated area. Grower schemes are often linked to and facilitate resettlement schemes.

Glover and Kusterer (1990) in Kirsten and Sartorius (2002) argued that contracting has a trade-off for policy makers, even if their objective is solely to promote rural development. The contracting relationship is not a zero sum game because the distribution of benefits between the firm and its growers can affect the total magnitude of benefits available. For example, a bank may supply credit to growers and expect high producer prices so that the growers can repay their debt.

3.8.3 Objectives of growers

The primary motive for smallholders to become contract growers is market access and increased income from the sale of crops with an acceptable level of risk. Local markets are highly volatile and prices can drop within days. International markets are more stable than local ones, but they are inaccessible without specific channels such as those provided by grower schemes. Small growers are often reluctant to adopt new technologies because of the risks involved.

Furthermore, there is no guaranteed supply of inputs such as fertiliser and agro-chemicals from government, and public extension services are often poor. Contract farming provides the smallholder with access to these technologies and with either private or priority treatment from the public extension service. The company has a large vested interest in ensuring that the smallholder has access to these services. It also gives them access to credit, which is one of the most frequently stated reasons for smallholders to become growers (Kirsten and Sartorius, 2002).

3.8.4 The constitution of the contract

There are three observations that are useful to bear in mind when composing contracts:

- i. A contract is the means by which risk is distributed between the grower and the contractor;

- ii. A contract is the representation of a relationship rather than the relationship itself (Baumann, 2000) and related to this, the constitution and administration of a contract are highly dependent on the political and economic environment in which it is embedded. Contracts can be thought of as varying in intensity between those that pay the market price on delivery and those in which every detail, including the production process and price, is fixed (Glover and Kusterrer, 1990 in Kirsten and Sartorius, 2002);
- iii. The division of value added between the grower and the contractor is determined by the policy objectives of the scheme, crop characteristics and the alternative markets available to them. Table 3.2 outlines the typical rights and obligations in contracts.

Table 3.2: Rights and obligations of farmers and the principal in smallholder contracts

Farmer Obligations	Principal Obligations
1. Use land for purposes specified in a contract	1. Supply credit and inputs
2. Following production regulations specified in a contract	2. Provide technical and managerial support
3. Maintain internal farm roads and drains infrastructure	3. Maintain infrastructure
4. Sell crop through project authority	4. Purchase all production of acceptable quality
5. Repay loans	5. Pay farmer according to agreed formula
	6. Maintain accounts in a comprehensible form
Farmer's rights	Project authority's rights
1. Timely receipt of services and payments specified as obligations of project authority	1. Timely recovery of payment for services provided to farmers
2. Compensation in the event of default by project authorities on any of its obligations	2. Purchase of crop as specified in a contract and imposition of penalties in the event of default

Source: Baumann (2000)

The contract should in theory specify in detail the rights and obligations between the growers and the firms, including the penalties for breach of contract by either side. However Glover (1987) stated that few contracts are perfectly contingent and most are vulnerable to misinterpretation. Baumann (2000) referred to the example in Kaleya, a project in Zambia, where smallholders had to sign an 18-page agreement which specifies their obligations. The company in return endeavours to arrange

certain services, but there is no corresponding clause protecting farmers in case of the company defaulting. The Kenyan Tea Development Authority (KTDA) has no formal contract, which leaves the growers dependent on the goodwill of the project authority. This has so far been successful largely because of mutual dependencies and the support the KTDA has received from its partner.

Contracts tend to be more favourable for smallholders when the processor is heavily dependent on the smallholder for a steady flow of raw material. Nevertheless, even those contracts which are among the best fail to specify appropriate penalties for non-performance of obligations, clear explanation of the price formula, the procedure for paying growers and a procedure for independent arbitration.

A commercial contract – at least in the initial period – will try to ensure that it has the best possible arrangement for exploiting the resources of growers. In the initial phase of the project the growers will be attracted by price, credit and technical incentives offered by the company. Companies do offer these in the initial phases of the project and then lock growers into production through exploitation gaps in the contract (Baumann, 2000). Some contracts for example prevent growers from seeking other opportunities and force them to stay in the existing contract regardless of up-coming opportunities.

Contractors, whether commercial or private firms, frequently have long waiting lists of growers who would like to join their schemes and are therefore able to be demanding in their requirements. Hence, they can often specify the assets that the applicant should have, the level of experience with the crop, the availability of labour to produce the crop and secure title to land and education.

Many of these requirements eliminate poorer farmers and the selection is often dependent on interviews and patronage ties. The contract can also specify the age and marital status of a grower. Baumann (2000) referred to a Ghanaian example of oil palm growers, where a grower had to be married with children and be able to direct

their family labour to the production of the oil palm. The contract and any debts incurred under this are subsequently inheritable and transferable.

The contract can also specify the amount of land which can or should be put under the contracted crop. For example the Kenyan Tea Development Authority specifies a limit to the area for tea production in order to ensure that the labour to harvest it is sufficient and therefore maintain quality output.

Most problems which are incurred under contract farming are a consequence of the contingent nature of the contract and manipulation on both sides, rather than the terms which are written into the contract. The relative dependencies of the contractor and grower are extremely important in deciding how contracts are administered. The most common problem for the contractors is that they are unable to maintain their monopoly of the market and other buyers appear and offer a better price. The contract usually safeguards the contractor from such eventualities by specifying levels of production, deducting costs in advance and supplying credit (Baumann, 2000).

A further problem is that another contractor moves into the area to offer growers a better deal and takes advantage of the investment the pioneer company has injected into technical know-how and infrastructure development. Companies can also face problems from manipulation of the product, for example adding stones or objects for weight, adulterating procedures as revenge, and using patronage ties to upgrade produce and to divert inputs intended for contracted crops elsewhere. Watts (1990) in Kirsten and Sartorius (2002) have found that companies also use informal ties to enforce contracts and ensure grower loyalty when legal and property rights are difficult to control.

3.9 Crop characteristics for contract farming

One of the factors in contract farming which is often debated is whether contract farming is commodity specific? What influence does the crop have on the nature and effectiveness of the project? Binswanger and Rosenzweig (1986) argued that technological conditions and crop characteristics combine to give rise to situations in

which contract farming is the most viable option. This is specifically true for crops where important economies are associated with processing and co-ordination. In particular perennials need much maintenance and take a long time to mature. This is a reason why specific crops are grown under contract. Commodities grown under contract are often grown to specifications linked to grade and quality standards that allow the commodity to be classified and priced. Kirsten and Sartorius (2002) used tropical tree crops as an example in drawing the link between the technology of production and organisational structure. They argue that the characteristics of perennial tropical tree crops favour production in organisations that have a rigid and hierarchical authority structure and a division of labour according to tasks and functions. The need for such an organisation is more pronounced the greater the investment, the newer the crop and the more demanding and less commercialised the growers are.

Goldsmith (1985) in Kirsten and Sartorius (2002) isolated the following technical requirements which contribute to the development of a contract system:

- i. Perishability: if one cannot store the crop then a stable market is necessary
- ii. Bulkiness: high value per unit and profitable to transport
- iii. Permanence: if one cannot abandon or alter the crop, then a guaranteed market is required;
- iv. Processing: the need for processing creates dependence which can be exploited;
- v. Variations in quality: contracting is encouraged where crops vary in quality and quality is important for processing.

However, whilst it is clear that crop characteristics influence technologies and production strategies, the form of labour attached to a commodity is often best explained by the larger political environment. It is also relevant to consider the types of contracts which different crop characteristics give rise to and how these are shaped by social relations.

Furthermore, crop characteristics can affect household welfare (if there is gender division of labour and displacement of food crops), regional development, sustainability and future development (is there technology transfer; do growers remain dependent, etc).

Examples of crop characteristics and how they influence contract farming

Processing: The type of processing which a crop needs has an impact on the contracts and production relations under which it is grown. If a crop needs quick processing, growers are particularly vulnerable to the terms stated by the contractor, if they have no alternative place to take the crop. The fixed capital assets represent a high proportion of the cost of processing, so the profitability of the firm depends largely on the ability to operate very close to plant capacity.

The importance of quality: The importance of quality in the product also has a bearing on production procedures. In some cases this will be through the transfer of technology to the growers and an investment in their ability to farm. Extension officers visit the growers and transfer some of the skills required for plant establishment. In other cases, the company will specify uniform production procedures which are not easily transferable and which do not build on the growers' indigenous knowledge of their microenvironments. In other cases there is very little technology transfer.

Labour intensity and frequency: The labour intensity of the crop and the frequency of labour input needed have an enormous effect on how it is produced. For example, tea has been heralded as the perfect contract crop because it is labour intensive throughout the year and yields a monthly income. The effect of labour intensity and frequency is therefore likely to depend on what role the contract crop plays in the larger farming and social system.

Regularity of income: Crops like tea are attractive crops for small farmers because they receive a monthly cash income compared to the annual payments received from other crops.

Switching costs: The shifting costs associated with different crops are the costs to the producer of switching to a new buyer (Glover, 1984 in Kirsten and Sartorius, 2002). These costs have been identified as the principal determinant of agricultural

marketing structures and the credit systems associated with them. If the costs are low, producers would be free to choose their buyers. However, buyers will not extend credit because they will have no assurance that this will be paid back or that they will reap the benefits of technical assistance to growers.

If switching costs are high, a permanent producer-buyer relationship can develop, but there will be no assurance that the buyers will not appropriate the benefits. The ease with which growers can switch is heavily influenced by the ease with which product quality can be assessed, the perishability of the product and the need for purchased inputs.

3.10 Financial and economic implications of contract farming

The economic case for smallholders rests on three arguments, according to Tiffen and Mortimore (1990) in Kirsten and Sartorius (2002):

- i. Small farms tend to use more labour and produce more output per unit of land than estates;
- ii. Owners tend to use more labour and produce more per unit of land than tenants;
- iii. Income inequalities tend to hinder technology diffusion, while encouraging mechanisation on estates in labour-surplus countries, where labour-intensive technology would be more appropriate.

In general, smallholders do have a lower ratio of fixed working capital to land owned, so economic efficiency would indicate a strategy of lower purchased inputs and lower output. They lower wage costs because of their ability to use family labour and they ignore minimum wage legislation and may therefore be able to compensate for lower capital intensity with higher labour intensity. A stable income is high on their list of priorities, so they may avoid dependence on a single crop, and because they have a smaller proportion of fixed costs, they have a greater ability to change production when the market turns. They are also less able to invest in upgrading their production (Tiffen and Mortin, 1990 in Kirsten and Sartorius, 2002). There are few smallholder projects that are able to sustain themselves without government or development agency support.

The accumulated evidence suggests that smallholders are not efficient if judged only by yield per hectare. However, economic efficiency is not only a matter of returns to land. Smallholders can adopt a low-input and low-output strategy and continue making a profit at prices that would not be economically viable for estates. Such flexibility offers the possibility of efficient resource allocation in response to the diversification of economic opportunities in the developing and urbanising economies, as well as being a form of insurance against the uncertainties inherent in world markets (Tiffen and Mortin, 1990 in Kirsten and Sartotius, 2002).

The political case for smallholder contracting rests not only on efficiency, but also on equity considerations in the distribution of land and in the regional knock on effects that smallholdings generate. There is mixed evidence in relation to the relative benefits of smallholder farming. Many of the institutions such as CDC, which supported contract farming as a development activity are withdrawing their involvement from commercially unattractive projects. Baumann (2000) pointed out that the capital costs of smallholder development projects have often been ignored. A higher social and economic benefit may actually be achieved by spreading the investment around a larger number of people rather than concentrating it all on a few projects.

3.10.1 Capital investment

Contract farming usually involves a variety of factors including international agencies, government ministries and private firms. In some cases the roles that these actors play are so intertwined that it is difficult to classify the scheme in any sector. This raises some important questions in assessing the financial viability and sustainability of smallholder schemes.

- i. How is risk shared within these projects? For example, sometimes producers receive public credit at a subsidised rate to help them cope with market risks.
- ii. Does contracting with local producers allow foreign firms to shift the burden of financing crop production onto local governments and international aid agencies and benefit from indirect subsidised loans? (i.e targeted subsidization).

Usually the capital investment levels per hectare and per farmer in contracting projects are high. But this is especially so in settlement schemes where the land and infrastructure have to be developed.

The major sources of finance for smallholders are governments, local banks, local companies and international agencies. The types of finance used include grants, loans, equity investments, services provided in kind and self-generated funds (Baumann, 2000). Few smallholder projects have more than token equity investment because of the riskiness of the venture from the point of view of the funding agency, and the availability of loan finance rather than equity capital.

Baumann (2000) found that a problem with the financial structure of the projects which they studied was the high debt to equity ratio. This exposed the projects to financial risk, and the concentration of equity capital, where it existed, in the processing unit introduces the risk of conflict between the producer and processor.

3.10.2 Marketing and price

Contract farming represents the converse of free market forces. Contract farming schemes usually arise because of imperfections in the market environment that do not allow normal price signals to regulate supply. In many cases the market niche is either so narrowly defined or so unfamiliar that growers would not produce the crops unless they were under contract in a vertically integrated market system (Baumann, 2000). Thus contract farming is in fact a response to market imperfections. The contracting scheme then tries to internalise the market for the commodity and avoid market competition. A market *monopsony*⁵ is an essential component of contract farming, as it is the only way to ensure that companies can secure a return on their money. This can be difficult with crops like coffee, which are relatively easy to process and to market independently.

⁵ Monopsony is a state in which demand comes from one source. If there is only one customer for a certain product, that customer has a monopsony in the market for that product (Moffatt (2004).

It is usually when farmers begin to behave as free market actors, selling their goods to the highest bidder that contract schemes run into problems. Many companies often depend on the state to ensure that they receive a market niche that is protected from too much competition.

If switching costs for producers are high, then contractors can be assured that they will have a return on their investment, but the producer will have less bargaining power over price. The switching costs of crops are highly dependent on crop characteristics such as the level of inputs required, perishability, the need for processing, and the ease with which quality can be assessed.

Many producers do in fact have only one channel through which they can sell their produce. This is not necessarily adverse for the producers, because they have a guaranteed market for any amount of production of acceptable quality. However, it can leave the producer in a weak bargaining position on price and vulnerable to manipulation by project authorities.

Market fluctuation presents a major problem for most commodities grown under contract. Many are grown in special market niches that are vulnerable to international market swings, and boom bust cycles. There has been a general decline in the terms of trade for plantation crops as compared to manufactured goods. Prices are also characterised by volatility, which is in part a consequence of the difficulty of adjusting to price changes. Smallholders are likely to respond to price swings by shifting their resources into another area of production. Contractors often try to prohibit this diversification, but for smallholders in a volatile market doing so may be essential for survival and risk management.

3.10.3 Pricing formulas

The main factor encouraging smallholders to join contract farming schemes is the price the authorities will pay for the product, and a guaranteed market. This has widely been accepted as one of the best guarantees of success in a contract-farming

scheme. There is plenty of empirical evidence that smallholders will drop production of a crop if at all possible, when the price falls (Baumann, 2000). There are also instances where smallholders will continue to produce despite conflicts with the management and difficult conditions, if the price paid for their crop is good, the market guaranteed and payment prompt.

Much of the success of smallholder projects depends on whether the contractor is willing or able to meet these requirements. Much therefore also depends on what alternative markets are available to smallholders and the nature of the dependency on the producer. The price the contractor pays for a product is often dependent on quality. This can work as an incentive if the producers feel their work is rewarded. However, crop quality, consistency and standards are often the most contentious factors in a contract. They are easy for the contractor to manipulate in order to push down the price offered for produce.

For example, if the yield for a particular crop is unusually high, the contractor may raise its quality standards so that it can reject those crops which it does not want. The company can also delay collection times for produce and then lower the price if the value of the produce decreases. Companies cannot, however, get away with this manipulation indefinitely. The uncertainty over rejection removes the risk-reducing incentive for smallholders and lessens its value. Smallholders will diversify and abandon production if they do not receive an adequate price. Companies and governments have therefore tried to counter the volatility of the market and find ways to stabilise the price. A good price formula can help in sharing the costs and benefits between producer and processor.

3.10.4 Credit

Access to credit is one of the key incentives for smallholders in joining contract-farming schemes. Credit can be extended in cash, in kind or in the advance of services or capital inputs. Loans are usually given on the security of the land or the anticipated value of the crop. Loan recoveries are usually made from crop sales or as service charges. Sometimes the farmers obtain loans separately from an existing national

credit agency or bank, in which case the contract itself can serve as collateral. Glover (1987) has found that trans-nationals are increasingly reluctant to finance contract growers and have attempted to persuade state banks to assume this responsibility. The advance of credit is a vital part of contract farming and often the only way the smallholder can enter the market.

There are several recurring problems with credit which appear in the empirical literature. One is that credit is only advanced for the contracted crop, whereas farmers may need the money to settle non-crop expenses such as school fees, etc. This has been found to be a major complaint amongst several farmers. Nyoro and Whitter (1986) in Baumann (2000) mentioned coffee farmers in Kenya, who have taken loans to finance non-coffee expenditure.

Many of the studies in Africa mentioned the lack of credit for small farmers as a major problem for the welfare of smallholders. Most projects discourage or forbid diversification, because it reduces the throughput of the main crop and it is more difficult for projects to recover debts from the sale of other crops (Glover, 1987).

A second major problem with credit is that smallholders can be locked into a deteriorating debt situation. A grower may enter into a contracting relationship and then be unable to terminate it if the company or project deducts payments and the expected returns do not materialise. In such a situation a grower may have to stick to the same company and is effectively at their managerial mercy.

3.11 Concluding remarks

This Chapter firstly defined contract farming, types of contracts and vertical coordination in agriculture. The role of and reasons for increased contract farming in agriculture were also documented. This Chapter also showed advantages, disadvantages and lessons of contract farming from other developing countries. It further demonstrated the relevance and application of transaction cost theory and contract theory to emerging agriculture in South Africa.

CHAPTER FOUR

CONTRACT THEORY AND TRANSACTION COST ECONOMICS

4.1 Introduction

The aim of this chapter is to present a theoretical framework for contract design, which consists of contract theory (incomplete and complete contract theory) and transaction cost economics (TCE). Contract theory explains both approaches i.e. complete and incomplete contract approach. Both approaches of contract theory are defined and analysed within the context of TCE.

It is also important to note that both TCE and contract theory (CT) are characterised by two major differences with regard to economic contracts. In (CT) a contract is regarded as an incentive tool for the farmer, while TCE regards it as an adaptation tool. Despite this difference CT is embraced within TCE, which is part of the new institutional economics (NIE) (Menard, 2000). In addition TCE together with CT deal with common transaction cost problems such as: *hidden information and hidden action problems, dynamic agency issues and incomplete contracts* (Masten, 1999).

In most literature it is clearly stated that real world contracts are usually characterised by incompleteness in the sense that there are inevitably some circumstances or contingencies that are left out of the contract (Williamson, 1975 and 1985; Hart, 1995; Azfar, 2002; and Brynjolfsson, 1993). As Brynjolfsson (1993) put it, this might be due to the fact that these circumstances are either unforeseen or simply too expensive to enumerate in sufficient detail. For instance, the level of tangible quality of a manufactured product, the level of care used in maintaining certain equipment, or the thought process used in generating a creative insight are all aspects of a contract that are often too costly if not impossible to include in a contract. Brynjolfsson (1993) regarded this as a natural consequence of the *bounded rationality* of the parties.

In this form of contract (incomplete contract) each of the parties has certain rights under the contract, but its incompleteness means that there are some *residual rights*

that are not specified in the contract. When these rights pertain to the use of an asset, the institution which allocates these residual rights is property ownership. All rights to the asset not expressly assigned in the contract accrue to the person called the owner of the asset. There are several problems associated with incomplete contracts as discussed in the following sections.

4.2 Contract theory and transaction cost economics

TCE considers bounded rationality as the main concept in determining contractual relationships. Put differently, contractual incompleteness is assumed to be the result of this behavioural assumption. CT presents a different perspective; it purports that contract incompleteness is due to non-verifiability by a court of law (Williamson 1996).

Considering that contracts are incomplete and assuming that contracting parties may use such characteristics to behave opportunistically, contractual relationships should be the result of a cost-minimisation process. More precisely such a process corresponds to a trade-off between the parties. On the one hand, there is the willingness of the parties to be covered by the contract, especially if investments specific to the transaction have been made. On the other hand, there is the willingness of the parties to adapt the transaction to unanticipated changes (*ex post* inefficiencies). As a consequence, the contract is considered not only as an incentive tool inducing efficient investments, but also as a tool to provide *ex post* flexibility once the contract has been signed in order to avoid the dissipation of the quasi-rent⁶ in inefficient *ex post* bargaining.

TCE represents another approach to studying institutional arrangements. The emphasis is on governing transactions. TCE holds that all but the simplest transaction requires some kind of mechanism – what Williamson (1985) referred to as governance structure to protect the transacting parties from various hazards associated with exchange, as discussed later in this chapter.

The appropriate governance structure depends on the characteristics of the transaction, so TCE implies an applied research programme of comparative contractual analysis – that is, how do different forms of governance work in various circumstances? For this reason transaction cost is sometimes described as the governance branch of the NIE as opposed to the measurement branch, associated with Alchian and Demsetz (1972).

The governance approach is distinguished by its emphasis on incomplete contracts. In the transaction cost framework, economic organisation imposes costs due to the fact that complex contracts are usually incomplete. A complete contract specifies a course of action, a decision, terms of trade contingent on every possible future state of affairs.

In the textbook model of competitive general equilibrium all contracts are assumed to be complete. The future is not known with certainty, but the probability distributions of all possible future events are known. In an important sense the model is eternal: all relevant future contingencies are considered in the *ex ante* contracting stage, so there are no decisions to be made, no actions to be taken at all, as the future plays itself out (Williamson, 1985).

TCE relaxes the assumption of complete contracts and holds that all complex contracts are unavoidably incomplete. In the real world the future holds genuine surprises and this limits the available contracting options and also different contracts work for different situations. In simple transactions, such as procuring off-the-shelf components, uncertainty may be relatively unimportant and spot market contracting works well.

For more complex transactions, such as the purchase of specialised equipment, a more sophisticated contract is needed. However, such a contract will typically be incomplete; it will provide remedies for only some possible future contingencies. This results in opportunistic behaviour. One example of such contracts is the relational

⁶ Quasi-rents are payments in excess of the amount necessary to keep an asset in its current use

contract; an arrangement that describes shared goals and a set of general principles that govern the relationship. Another is the implicit contract, which is an arrangement that, while un-stated, is assumed to be understood by all sides. Williamson attributes contractual incompleteness to cognitive limits or bounded rationality, following Simon's (1961) interpretation of human action as intendedly rational, but only limitedly so.

Analysing Contracts: In addition to the above-mentioned theoretical background, it should be understood that contracts are not analysed in the same way by these approaches (contract theory and transaction cost theory). While both approaches emphasise the importance of investments, some notable differences still exist as shown by Table 4.1.

Table 4.1: Main differences between transaction cost theory and incomplete contract theory

Contract theories	Behavioural assumptions	Informational assumptions	Environmental assumptions	Sources of contractual incompleteness	Contract role
Incomplete contract theory	Substantive rationality	Asymmetric information between contracting parties and third parties	Risk	Non-verifiability of relevant variables	Mainly an incentive tool to minimise investment distortions
Transaction cost theory	Bounded rationality or opportunism	Asymmetric information between all parties	Uncertainty	Mainly bounded rationality	Mainly an adaptation tool to minimise transaction costs

Source: (Saussier, 1999)

These differences help one to understand why the contract is not analysed in the same way in both approaches. Regarding incomplete contract theory, the purpose of the contract is to minimise *ex ante* investment distortions that can affect the surplus the parties have to share *ex post*. In transaction cost economics and contract theory two main different perspectives exist: on one hand, the contract is an incentive tool to prompt the parties to invest (contract theory). On the other hand, it is a tool that must

(Anonymous, 2004).

permit rapid and inexpensive *ex post* adaptations in order to make gains from trade (this is the role that is particularly emphasised by transaction cost theory) (Williamson 1996).

Although very little has been done to test incomplete contract theory's propositions regarding contractual choices, transaction cost theory appears to be an empirical success story, as argued by Williamson (1996). Transaction cost theory assumes that economic agents seek to economise on both transaction and production costs, considering that transaction costs are linked directly to the transaction characteristics. All the propositions derived from this framework are based on the following characteristics: *asset specificity*, *uncertainty levels* and *frequency* of the transaction. When transaction cost theory is followed closely, the choice of contractual form and the decision to invest in specific assets are made simultaneously (Williamson, 1996).

4.2.1 Bounded Rationality and Uncertainty

The above two concepts explain the reasoning behind contract incompleteness, that is an incomplete contract due to the presence of bounded rationality and uncertainty. As pointed out by Simon (1976 and 1987), bounded rationality implies that economic agents do not know all the solutions to the problems they face, they are unable to calculate the possible outcomes of these solutions and are unable to arrange these outcomes perfectly according to their preferences. In other words, although people intend to make rational decisions, they are unable to do so due to the limited capacity to evaluate all possible decisions accurately (Hobbs, 1997). This becomes a serious problem in uncertain situations, where the ability of people to take rational decisions is constrained.

For contracts this means that economic agents are unable to design optimal solutions taking into account every relevant contingency without incurring high and sometimes prohibitive costs and delays. If one assumes that decisions are time consuming and costly, that agents can make mistakes and that they are victims of strong information asymmetries because they do not share a common vision of their present and future economic positioning, then one can understand why a complete contract cannot be drawn up.

Another reason explaining contractual incompleteness is radical uncertainty. Agents cannot imagine the characteristics of the future. With radical uncertainty the agents do not know the possible characteristics of the future states of the world; they cannot draw up contingent contracts that will fit every future situation efficiently (Coase, 1998).

4.2.2 Opportunistic behaviour and prisoner's dilemma problems

It is argued that opportunism and prisoner's dilemma are the consequences of uncertainty and bounded rationality. In transaction cost literature this is known as "self-interest seeking with guile". Hobbs (1997) argued that it is not always the case that opportunistic behaviour will prevail, but the risk of opportunism is usually present, especially when there are a small number of lucrative opportunities or bargain problems. The example provided by Azfar (2002) of the sugar farmer and the miller simplifies this concept. Immediately after the miller has invested, the farmer sees some opportunity to act opportunistically. The farmer decides to hold up sugar cane in demand for higher prices. This opportunistic behaviour is also made possible by the fact that the level of asset specificity on the side of the miller makes it very expensive to dis-invest, and the farmer is aware of that.

Hobbs (1997) has argued that the fewer the number of alternative suppliers available to a buyer, the more likely it is that an existing supplier will act opportunistically to alter the terms of the business relationship to his own advantage. Amongst other things this can be shown by demanding a higher price than that previously agreed upon.

In further explaining opportunistic behaviour Axelrod (1987) and Forest (1985) used the prisoner's dilemma problem. According to them, this explanation originated from political science and game theory. It is described as a classic problem of conflict and co-operation. It is an abstraction of the situation felt by a prisoner who can either cut a deal with the prosecutor and thereby rat on his partner in crime (defect) or keep silent and therefore tell nothing of the misdeed (co-operate).

This so-called prisoner's dilemma has drawn interest from a number of theorists, especially game theorists. Each of two partners has a choice of co-operating with the other or defecting. Depending on the partner's decisions, each receives a pay-off according to a pay-off matrix as shown in Table 4.2 below.

Table 4.2: Pay-off Matrix on prisoner`s dilemma

		Player 2	
		Co-operate	Defect
Player 1	Co-operate	R=6, R=6	S=0, T=10
	Defect	T=10, S=0	P=2, P=2

Source: Axelrod (1987) & Forest (1985)

According to Table 4.2 when both players (partners) co-operate they are both rewarded at an equal, intermediate level (reward R). When one player defects, he receives the highest level of pay-off (temptation, T), while the other player gets the sucker's just deserts (sucker, S). When both players defect, they both receive an intermediate penalty (P).

4.2.3 Asset specificity

The extent to which opportunistic behaviour or the risk associated with it exists in a business relationship usually depends on the level of asset specificity. For instance, a sugar miller decides to invest in a sugar farm with the idea of eliminating transport and other related costs. The mill has no alternative use other than milling the farmer's sugar cane. If the farmer then decides to act opportunistically, the asset invested by the miller remains unused. It is then better to run at a loss than completely dis-invest.

Figure 4.1 is presented as a supporting tool to further illustrate the concept of asset specificity. The diagram helps to clarify and understand the influence of asset specificity in deciding about the type of market and type of arrangement suitable for the business.

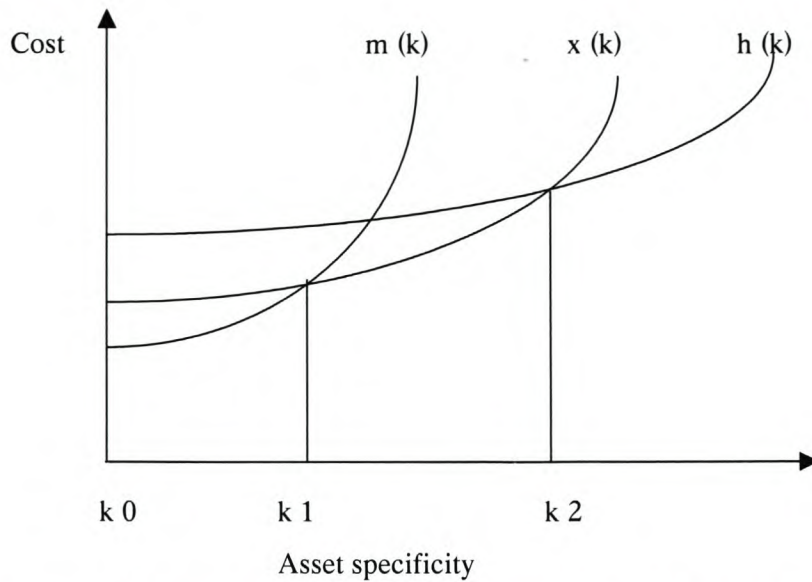


Figure: 4.1 The level of asset specificity and the cost of governance

Williamson (1985)

Where: $m(k)$ = Spot market

$x(k)$ = Hybrid forms

$h(k)$ = Hierarchy

This diagram shows the relationship between the level of asset specificity and the governance cost prevailing in the relationship. In determining the more efficient governance structures, according to Williamson (1985), the chosen governance structure is the one that provides inferior transaction costs or low costs, as determined by the attributes of the transactions.

The diagram demonstrates that the greater the specificity of assets, the greater the hierarchy tendency. The spot market entails minor costs when asset specificity is low, as shown by k_0 to k_1 in Figure 4.1. The graph shows that the cost of governance increases as asset specificity increases, showing a positive relationship between costs and asset specificity in the relationship. This is shown by the movement from k_1 to k_2 , which is the hierarchy $h(k)$, and appears to be more advantageous.

In summary, it is noticed that the spot market is associated with relatively lower costs at lower asset specificity than hybrid and hierarchy markets, as illustrated by $m(k)$ and $h(k)$. As shown by Figure 4.1, the costs of investing in spot markets outweigh the

benefits of doing so when asset specificity increases. This then means only low levels of asset specificity are favourable for fresh markets as they are associated with relatively low costs. Mussel growers face high levels of asset specificity and therefore fresh markets become unfavourable for them, as they are associated with relatively high market risks and costs.

4.2.4 Information asymmetry

Information asymmetry is one of the most crucial transaction costs factors in any business relationship. This is a situation where one party knows more than the other regarding the transaction or about the item involved in the transaction. The neo-classical theorists assumed perfect information, whilst transaction cost theory violates this assumption (Hobbs, 1997).

Transaction cost theory recognises that information is incomplete and therefore business partners have to use such information to conduct a transaction. As argued by Hobbs (1997), this can lead to opportunistic behaviour in that, when information is hidden before transactions take place, *adverse selection* prevails. In his article on the market for lemons, Akerlof (1970) in Hobbs (1997) suggested that in a situation of asymmetric information, a seller may possess information about defects in a product such as a faulty second-hand car that is not available to the potential buyer. Therefore the fact that this information was not revealed to the buyer simply represents opportunistic behaviour. It therefore becomes difficult for a buyer to distinguish between a good and a bad car. As a result he may pay the same price for both cars.

Moral hazard is also a result of hidden information, and this usually emerges after the transaction (*ex post* opportunism). If there are difficulties in observing the actions of the other party, this can act as an incentive to behave opportunistically to increase economic welfare. Hobbs (1997) cited the example of an insurance company which is unable to observe the actions of the client; as a result more clients take less care in preventing fire and this in turn leads to more fires (fraud) and higher premiums paid. Some people may even decide to damage items deliberately just to collect more insurance payments.

In contrast to opportunistic behaviour, there is *steward behaviour*, where the word of the party can be taken as his bond. This is a trust relationship, here the assumption of opportunistic behaviour is violated

4.2.5 Principal agent problem

The principal agent problem describes interactions between two parties to a contract, namely an agent and a principal. The legal origin of these terms suggests that the principal engages the agent to act on his behalf. The agent does not necessarily have to be an employee of the principal. Usually the agent is the one who is in a position to gain some advantage by renegeing on the agreement. Therefore the principal has to provide the agent with incentives to abide by the terms of the contract.

In simple terms the principal agent problem is divided into a *hidden action problem* and a *hidden information problem*. In a hidden action problem the agent takes an action on behalf of the principal, and the principal is not able to observe the action of the agent completely. Therefore the principal has to provide incentives for the agent to choose an action that is in the best interest of the principal.

In a hidden information problem the agent possesses some private information that can be used for decision making by the principal. Therefore in order for the principal to obtain such information he has to provide incentives for the agent to supply the information. The principal and the agent should jointly choose a contract that specifies an action and a division of the revenue that is *Pareto efficient*. It is argued that if all variables were observable and verifiable, the principal and the agent would presumably choose a contract that is *pareto efficient* (Anonymous, 2003).

In cases where the agent's action is neither verifiable nor observable, the action specified by the contract must be consistent with the agent's incentives. A contract is said to be incentive compatible if it satisfies a given constraint. And it is incentive efficient if it is incentive compatible and if another incentive compatible contract that

leads to one party being better off without making the other party worse off (*pareto optimal point*) does not exist (Anonymous, 2003).

4.2.6 Trust

Trust is one of the most critical concepts in a business relationship, especially in contractual relationships, as it avoids or reduces the risk of opportunistic behaviour. It follows that, due to the existence of trust, steward behaviour, which opposes opportunistic behaviour, exists. Masuku (2003) referred to trust as the belief that a party's word or a promise is reliable and that the party will fulfil his obligation in an exchange relationship. This is one of the important elements that should be considered when establishing a contractual relationship between small mussel growers and the firm.

Generally trust is important in most contractual relationships, but this is not always the case, depending on the nature of the relationship and the business. The importance of trust is determined by its economic value to a particular relationship. This is a very broad concept which could be classified in various ways; Masuku (2003) made the following distinctions:

- i. *contractual trust*: this entails shared norms and promise keeping according to contractual agreements.
- ii. *competency trust*, which refers to a shared understanding of professional conduct as well as technical and managerial standards.
- iii. *good-will trust*, which depends on a consensus of fairness.

Chiles and McMackin (1996) in Levi (1998) argued that the conditions that generate trust can be understood in terms of *social norms*, and social *embeddedness*. Trust is therefore an important issue in supply chain integration, since effective planning based on shared information between and among partners is an essential element to make such integration successful. It is therefore argued that trust is the determinant of commitment. Trust ensures a flow of information from both parties through effective communication.

This is based on the assumption that, if trust exists, then *hidden information* and *principal agent* problems will be minimised and therefore market information will be

shared amongst parties (Suh and Kwon, 2003). When parties believe in each other and are committed, fewer problems exist and are resolved by both parties as agreed (joint problem solving). This leads to co-operation and therefore co-ordination will be improved. Efficient transfer of products from the production unit to the (buyer) firm will result (logistics). When all the above elements are ensured, less cost in acquiring and digging, and more market information and production information, etc. ensue. Transaction costs will then be minimised.

Several economists, including Oliver Williamson, have questioned the necessity of trust in the exchange relationship. According to Williamson (1993) transaction cost economics maintains that opportunistic agents do not enforce open-ended promises to behave responsibly, and therefore efficient exchange is realised only if dependencies are supported by credible commitments. According to him, trust is irrelevant to commercial exchange and reference to trust in this connection promotes confusion.

To demonstrate trust's role in various forms of exchange, Levi (1998) maintains that this requires both a clear understanding of the concept and means to observe and measure its role, implying an empirical theory of trust. According to him, researchers including Williamson, have actually ignored this concept and hence there is even less consideration of how to identify it and how to measure it.

Despite this ignorance, the presence of trust reduces the transaction costs of searching, enforcing and monitoring a contract. How then does one know when there is trust and at what level it is, despite the work it does? A number of factors such as belief, social capital and the history of the relationship as shown in the mussel industry (project) can provide answers to this question. Trust is rare outside of interpersonal relations and prevails among those with considerable knowledge of each other's incentives. It is difficult to study trust directly as it involves beliefs; Levi (1998) maintained that it is possible, but not always easy, to study trustworthiness.

4.3 Concluding remarks

This chapter dealt with both transaction cost and contract theory to explain the role and importance of contracts in dealing with the transaction cost characteristics of the firm. This chapter further complemented Chapter Three, which showed that minimising transaction costs is one of the reasons for increased vertical co-ordination. In addition the chapter provided a sound theoretical and conceptual framework.

CHAPTER FIVE

Transaction costs as a basis for deciding on contract design for Masiza Mussel Growers in Saldanha Bay

5.1 Introduction

The theoretical framework for TCE and CT as described and presented in Chapter Four is applied in this chapter for analysis and interpretations in an attempt to design a contract for Masiza. This is aimed at reducing TC and risks through co-ordination, supply chain integration and trust-based relationships between Blue Bay, Masiza and La Vie within the mussel value chain.

5.2 The Mussel supply Chain for Masiza Mussel Growers

The diagram below shows an overview of the mussel supply chain from Masiza to La Vie, distributors, wholesalers and retailers. The study analyses a transaction between Masiza and Blue Bay and one between Masiza and La Vie as identified by the arrows. These transactions are used as the unit of analysis to decide on the nature of contracts suitable for the parties (Masiza, La Vie and Blue Bay).

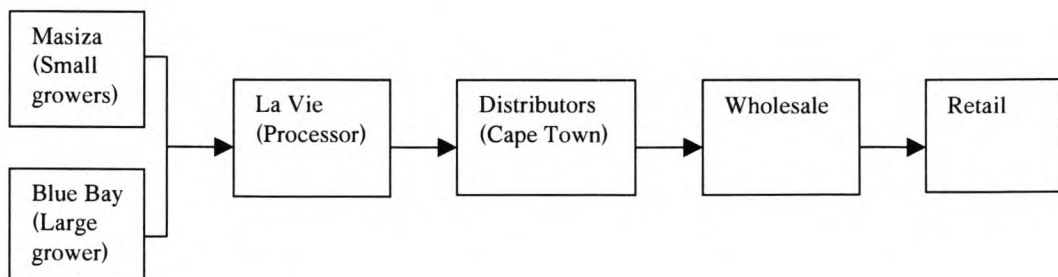


Figure: 5.1 Mussel supply chain for Masiza Mussel Growers

5.3 Motivations for contracting

Blue Bay and La Vie have both demonstrated adequate benefits that allow cost savings to be conferred on Masiza through contracting e.g. marketing, resource provision and production contracts as discussed below. Masiza as a new entrant is

currently facing several challenges, which relate to inaccessibility of markets, inputs, resources, services, technology, knowledge and information. These are exacerbated by long distances to markets (Saldanha Bay to Cape Town), perishability of mussels, lack of communication infrastructure, lack of transport facilities, and lack of technical know how of the business. The following table presents impact and implications of TC for Masiza.

Table 5.1: Risks and transaction costs in Masiza Mussel Growers

Risk factors	Transaction cost category	Aggregate effect on mussel supply chain	Possible impact on mussel supply chain	Implied Response
<ul style="list-style-type: none"> Red-tide Adverse climatic conditions, environmental factors and pollutants Market risks, production risks and credit risks Risk of technical failure of investments 	Uncertainty	-	<ul style="list-style-type: none"> 100% sales are lost due to red-tide for a specific period (week) Bad weather conditions reduce daily productivity Market/production uncertainties and risks make it difficult for small farmers to plan for the future 	<ul style="list-style-type: none"> The risks factors resulting in uncertainties are constraining the supply chain relationship. Hence, growers are encouraged to vertically integrate or contract to guard against uncertainties and risks. i.e Market specification and Production management contracts are encouraged.
<ul style="list-style-type: none"> Illiteracy levels Price differences between fresh and frozen market Slow flow of market information Slow technology transfer Credit availability to Masiza Limited management skills of farmers 	Information asymmetry	-	<ul style="list-style-type: none"> Illiteracy and lack of telecommunication infrastructure result in: - Misunderstandings Lack of market information and understanding of consumer needs Difficulties in understanding price differences as offered by fresh market and the factory (50% difference) Limited technology transfer, and management skills. 	<ul style="list-style-type: none"> Market specification contract will help Masiza with telecommunication infrastructure, marketing skills, & interpretations of information. Educating growers to improve literacy is contained in this contract Human capital and entrepreneurial developments Need for safety nets
<ul style="list-style-type: none"> Blue Bay as a single supplier of services/resources La Vie as a single processor and buyer Masiza as ex-workers 	Opportunistic behaviour	0	<ul style="list-style-type: none"> No negative impact, as it appears negligible due to existing trust and dependency 	<ul style="list-style-type: none"> Ownership, existing relationship and trust have a great influence on this supply chain.
<ul style="list-style-type: none"> Harvesting schedule/time High perishability of mussels 	Time specificity	+	<ul style="list-style-type: none"> Stringent and prompt delivery times. 	<ul style="list-style-type: none"> This results in low or no inventory hence, market specification contract can avoid quality deteriorations and other market risks and ensure a guaranteed market.

<ul style="list-style-type: none"> • High investment and establishment costs • Rafts and equipment • Processing factory and equipment • Limited alternative use 	Asset specificity	+	<ul style="list-style-type: none"> • No alternative use of resources • High sunk costs • Both farmers and processor possess fixed assets; hence are highly dependent on each other. 	<ul style="list-style-type: none"> • Parties in the supply chain use only specialised assets, this results in reliance on each other. This encourages stronger relationships. Therefore a market specification and production contracts are encouraged to reduce risks of technical failure of investment and ensure market availability.
<ul style="list-style-type: none"> • Production site/area • Equipment suppliers • Suitable Marine conditions 	Site specificity	+	<ul style="list-style-type: none"> • Saldanha Bay as a nutrient rich area hence providing locational advantages. • Good productivity • Economies of scale 	<ul style="list-style-type: none"> • Risk sharing with local firms through production and management contracts.

constraint (-); neutral (0); enhancement (+)

5.3.1 Access to markets

Blue Bay and La Vie have so far proven to be instrumental in providing markets for Masiza. Unlike Masiza these firms (Blue Bay and La Vie) have advantages in market knowledge and experience, business and technical information, legal expertise, and economies of scale in production, processing, and transport. In addition, they have the financial muscle and well established networks necessary for sustaining the existing relationship between them and Masiza. From Masiza's perspective, in the absence of this supply chain relationship the market is missing in the sense that the transaction costs of accessing other markets such as the fresh live market on a small scale are relatively high. These missing markets as recorded by interviewees (Masiza) result in Masiza having to search for buyers, and therefore spending resources in negotiating or bargaining in order to ascertain the desire of other firms to buy mussels.

The existing transaction costs are attributed to a number of factors such lack of transport facilities, telecommunication infrastructure, networks, market and production information, managerial skills and illiteracy, as demonstrated in Table 5.1 above. This table shows that there is information incompleteness in this supply chain. This is mainly due to illiteracy, language barriers, lack of communication skills and market information as revealed by personal interviews and field work. The highest level of education for Masiza's members is between grade 0-4, implying that none of the members has gone beyond lower primary school. One member of the group

(Masiza) has never attended school. Illiteracy affects their level of communication and ability to communicate in other languages i.e English and Afrikaans.

The inability to communicate in either English or Afrikaans is a strong disadvantage as evidenced during field work. Most of the markets or consumers communicate in both English and Afrikaans, and this makes it hard for Masiza to relate or connect with the real world (markets). The language and communication problems (illiteracy) are critical issues in the mussel supply chain resulting in the researcher serving as an interpreter. This problem is such that Masiza cannot operate independently without the help of well-established businesses and other independent bodies as facilitators.

Lack of transport facilities also imposes another constraint to these growers (Masiza). Masiza cannot afford to purchase necessary transport facilities. This makes it hard for them to source inputs and transport their output to markets or processors. Long distances from Saldanha Bay to Cape Town (200 km) where distributors and other markets are located make it impossible for Masiza to access these markets i.e fresh live markets. In addition, Masiza do not have the necessary financial capital that will enable them to participate in such markets. On the other hand, relatively small volumes also make it hard for Masiza to participate. Even though some of these markets can be able to collect the produce from Masiza, but small volumes make this an expensive exercise.

The collaboration of these growers (Masiza) with Blue Bay and La Vie has helped with addressing production efficiencies (as discussed in the following sections), availability of markets, market information, networks, translation and interpretation of information and exposure to the industry. Hence Masiza are encouraged to contract.

5.3.2 Managing risks

Risks in this regard are characterised by technical failure of investment, price fluctuations, lack of information, production risks, environmental conditions, credit risks, and exchange rate volatility. From the mussel growers' perspective (Masiza and Blue Bay), the incidence of red tide disease, although predictable, can bring farming

to a complete halt and may result in significant losses in turnover. While this incidence seldom happens (i.e once in five years) the cost of not guarding against it is large. According to Pienaar (2004), some farms have previously gone bankrupt due to this disease. Hence it is suggested that Masiza should take insurance against this.

A rapid deterioration in water quality due to unwanted discharges into the water and other biological occurrences are major threats to mussel farming. Very high water energy levels as an environmental risk has the potential of damaging or destroying farming systems. This occurrence is largely unpredictable and can only be managed via the construction of robust structures and site positioning. Site positioning is critical for mussel growth; because mussels feed on nutrients in the water. Therefore the water or site where mussel farming is located should be nutrient rich.

Marine biologists and Micro biologists usually help out with water testing to determine the level of nutrients required for growth of mussels. These measures are also important for new entrants in determining suitable production areas, and ensuring sufficient nutrients for mussels. So far, Masiza are unable to determine when and how to go about arranging for these tests. Besides organising the tests, it is also difficult for them to interpret the water test results as they are usually in English or Afrikaans and too technical/scientific for them to understand. For example according to Wiggins (2005) citing Pienaar (2004), there were insufficient nutrients in the water towards the end of 2004.

This was caused by low up welling resulted from insufficient wind blowing from the Benguella current. Because of constant and regular water testing, this was determined on time and therefore necessary arrangements were made to ensure sufficient growth of mussels. Masiza do not have capacity nor necessary knowledge to go about addressing such issues, hence collaboration between them and Blue Bay remains essential

As the farms are located in the sea where other boats, fishermen, and most importantly the oil ships pass through, these impose some threats to this farming system. Other boats or ships can accidentally hit the rafts and break them, growers also fear that oil ships can easily spill or leak some oil and easily harm mussels.

Hence according to Pienaar (2004) and the growers, this requires proactive measures to minimise these risks as they are neither predictable nor avoidable. Masiza do not have the insurance facilities to guard against this, hence Blue Bay remains an important figure.

Table 5.1 illustrated effects which these risks factors have on the existing supply chain and Masiza. Given the nature of this enterprise as explained by these factors, Masiza cannot afford to exclusively deal with any of these risks. This is mainly due to the fact that Masiza do not have capital or resources, skills and proper net works that will help them address these problems. It is only collaboration with well-established firms that can help them cope with such risks. Contract arrangements with Blue Bay and La Vie may help them to overcome or minimise such risks, as suggested by Carney (1998); Royer (1995); and Delgado (1999) and discussed in section 3.7.

5.3.3 Provision of information and logistical support

Information can be expensive to gather. Table 5.1 shows that information incompleteness is a constraint in the supply chain. Market, production and technical information, transport, volumes, financial capital and illiteracy are major problems in the existing supply chain. Hence a participatory approach, integration and capacity building are encouraged. Collaborating with Blue Bay and La Vie has the advantage of spreading information to Masiza because Blue Bay provides technical information and technical assistance on a regular basis.

In addition, this dissemination of information is also combined with management advice as well as providing feedback on issues regarding the business. This includes specialised information such as timing of seeding, seeding techniques, harvesting time, harvesting techniques, management of product quality, and other market and technical information. As recorded from the interviews, Masiza acknowledges that without the support from these firms their business would have followed the same trend as other projects in the area, which succumbed in the past. This was due to lack of markets, infrastructure, skills, networks, and financial support.

5.3.4 Access to credit

Masiza as new entrants currently cannot access credit for establishing and operating the business, because most financial institutions claim that growers (Masiza) do not have collateral. In addition, these institutions require some historical figures or trends showing cash flow of the business and how the business is performing. These growers have been in operation for less than two years which does not provide sufficient data to justify continuity and sustainability.

Due to the fact that Masiza are small, with little output, and insufficient capital to serve as collateral, Blue Bay offered to provide as collateral under a buy back option. In this case the company (Blue Bay) agreed to sell start-up capital such as rafts and other equipment to Masiza on credit and asked the bank to finance this transaction. This is done on behalf of Masiza where Blue Bay provides as a collateral to the bank. If growers (Masiza) default, Blue Bay will buy back the entire capital with interest from the bank. This is a special arrangement that these two parties (Masiza and Blue Bay) have arranged. This, according to Pienaar (2004), is the only way that will help Masiza to access credit from banks.

It is important to note that Masiza have not received any funding so far, and therefore still owe Blue Bay start-up capital. ABSA bank has just recently approved Masiza's loan application, stating that they have qualified for a certain amount of loan. This application was consolidated by the fact that these growers are currently in a good working relationship with Blue Bay and La Vie. On the other side Masiza have also tried applying for grants and loans from government. While government has promised that there is money available for such ventures, the process takes too long due to red tape and inefficiencies. Masiza is currently financing this capital through monthly repayments made to Blue Bay. Masiza decided to start paying to reduce the debt and avoid increasing the interest burden.

5.3.5 Access to insurance facilities

Section 5.3.1 and 5.3.2 presented the risk factors, including environmental risks, that need to be guarded against. Pienaar (2004) recommended that Masiza should have an

insurance facility to reduce costs associated with these risks factors and to ensure stability. In addition Masiza as they stand, do not have sufficient capital to take risks of not insuring their business.

Despite the importance of this facility, the costs associated with it cannot be ignored because of its inaccessibility to Masiza and high monthly premiums. Blue Bay agreed to cater for them within the company's insurance facility, subject to a monthly premium payable to the company. Table 5.2 shows the amount contributed by each party to the insurance facility per year.

Table 5.2: Insurance facility

Name of the firm	Amount due in Rands/year	Amount due in percentage/year
Blue Bay Aqua Farm (BBAF)	R 62 800	89.72%
Masiza Mussel Growers (MMG)	R 7 200	10.28%
Total	R 70 000	100%

Own calculations as adapted from Pienaar (2004)

This insurance is required to cover cases such as accidents, pollutants, environmental damage, etc. (For instance, if a ship or boat hits the rafts and destroys the produce, or for some reason Masiza are found liable for damaging fishermen's boats etc. According to Blue Bay the annual insurance fee is about R 70 000, and Masiza are expected to pay about 10.28 % of this (R7200/year) as shown in Table 5.2 above. According to the agreement, this insurance fee will be deducted monthly (R 600/month) throughout the year to ensure insurance cover. This also forms part of the production management contract to be entered into by Blue Bay and Masiza.

5.3.6 Provision of subsidies

Mussel prices depend entirely on external forces such as exchange rates and other market forces (Visser, 2004). A stronger Rand has made it easier for local consumers and retailers to purchase overseas produce at the expense of local produce. This suppressed local mussel prices, particularly for processed and frozen mussel, by approximately 30% towards between 2003 and 2004.

This strong price competition also has a greater impact on local producer' prices, such as Masiza. These growers currently sell fresh live mussels to La Vie at R 3, 25/kg, and the recent exchange rate has also indirectly put pressure on this price. This results from the fact that, if prices for locally processed and frozen mussels are suppressed this also forces local processors to buy fresh live mussel at reduced prices.

According to the processor, if the exchange rate continues to drag down the price, they will be forced to adjust the entire pricing system, even if it means reducing Masiza' price. Therefore, government subsidies are necessary to take care of such cases and to ensure continuity and sustainability of small farmers such as Masiza. According to Pienaar (2004) and Visser (2004), the subsidy required would ensure that growers do not sell below production costs, which might be the case if the current stronger Rand continues.

5.3.7 Capacity building

Table 5.1 shows that there is a high level of information incompleteness that result from a high level of illiteracy. It is therefore agreed amongst members that training and workshop programs on language skills, communication skills, presentation skills, leadership and management skills, and business skills should be organised for the benefit of these farmers. This capacity building *inter alia* aims at developing these growers as future entrepreneurs through mentorship, specialised courses and experiential learning.

5.3.8 Specialised assets

The more specific the transaction is, the greater the need for co-ordination, commitment and reliable exchange. Because this venture involves a high degree of asset specificity as shown in Table 5.1 as shown in Figure 4.1, spot and fresh markets cannot fulfil the needs and demands of Masiza. Specialised assets are relatively high for both Masiza and La Vie due to the huge capital outlay invested in mussel farming such as rafts, sorting tables, mussel cat, other production equipment, refrigerators, storage systems, steaming facilities etc. Once invested, their use can hardly be altered to any other farming system. This factor plays a vital role in the growers' decision-

making process as also influenced by relatively high sunk costs⁷. This implies that Masiza, Blue Bay and La Vie do not have any alternative other than producing or processing mussels. Hence, there is a high level of dependency on each other and this enhances the relationship between contracting parties as shown in Table 5.1 and discussed in section 4.2.3.

5.3.9 Product characteristics

Characteristics of the product also play a major role in deciding whether to contract or not. As noted in the fieldwork the mussel product is characterised by a number of features such as:

- i. **Perishability:** mussels are highly perishable, and therefore require immediate processing. After harvesting the product can be stored for a maximum of three days, this is only so if it is stored under proper cold storage or refrigerators. Perishability therefore necessitates growers to secure stable markets to avoid perishability problems of the mussels. Hence a contract between Masiza and La Vie is encouraged.
- ii. **Processing:** if not processed the mussel can be sold directly to the fresh live market, but unfortunately Masiza have not been able to access this market. This is mainly due to relatively high costs of accessing this market such as: lack of transport, infrastructure, communication facilities, networks, information and market power. Selling to the local processing factory is the only viable option for these growers.
- iii. **Permanence:** mussel farming is also characterised by asset specificity, which cannot be altered to other use. This alone results in dependence and reliance on stable markets for the produce.
- iv. **Demand:** according to Visser (2004) the level of demand for mussels also plays a vital role. Mussel farming in South Africa is still a developing market and therefore its demand increases continuously, which is a positive factor to the venture as highlighted in chapter two.

These features make it difficult for Masiza to rely on fresh live markets for sales and therefore they require a stable market.

⁷ Sunk cost: when what is done cannot be undone, implying that there are some costs that cannot be

5.3.10 Prices and profit margins

The current agreed price is R 3,25/kg and therefore Masiza offer their produce to La Vie at this price. On the other hand fresh live markets offer highly competitive prices, starting from R 6.50/kg to R 11. 50/kg depending on the size and quality of the mussel. Masiza always wants to maximise returns from sales. Equation 1 below shows how the revenue is calculated using the model of Deshayes (1988) cited by Duvaleix *et al.* (2003). This model presents production costs, management costs, total revenue and profit margins.

$$R_s = S - C_p - C_m - R \quad (1)$$

where:

R_s =Refers to a revenue from sales; S = Sales of the product; C_p = Production costs; C_m = Management costs; R = reserves.

Management costs are subtracted from Masiza's returns by Blue Bay, who usually provides these services to Masiza on a daily basis. Some of the generated returns or profits are usually kept apart as savings for future contingencies, which equation 1 refers to as reserves. The results from equations 1 are presented in Table 5.3 below. This serves to present a brief indication of income and costing of Masiza and the financial implications of contracting with La Vie and Blue Bay. This refers to seasonal costs and returns, which is twice a year.

Table 5.3: Seasonal revenue from sales

No of rafts (6)	Ropes	Marketable produce (Kg/rope)	Output/raft (Kg)/6m ⁸	Income/raft (Rs)/6m	Cost ⁹ /raft/6 m	Running costs/Raft ¹⁰ /6m	Profits (R)/6m
Per raft	400	50	20 000	R70 400	R10 320	R 5 332	R 54 748
Per 6 rafts	2400	3000	120 000	R 422 400	R 61 920	R 31 992	R 328 488

Own calculations as adapted from Pienaar (2004)

reversed.

⁸ 6m = 6 months (this is an average production period for mussels to mature)

⁹ This refers to the monthly instalment for repaying the rafts & equipment @ 12% rate.

¹⁰ Running costs are covered by the R 0,43c/kg payable to BlueBay by Masiza. R 0,43c covers:

- Provision of transport to production units,
- Daily supervision and monitoring
- Handling of mussels and technical support including training
- Crates, stationary and overhead costs

This R 0,43c amounts to R 8, 60/crate (20kg) and R 5332/raft/6m.

Only R 3.25/kg was considered for calculations, as it is the current selling price for Masiza. It is therefore clear that Masiza receives a relatively small margin when selling to La Vie rather than to the fresh live or spot market as shown by price differences (R 3.25/kg and R 6.50/kg). But the price risks and market uncertainties associated with the fresh live market should also be borne in mind. This therefore necessitates Masiza to draw up a contract to safeguard against market uncertainties and risks and therefore minimise these TC. This is also justified by TCE as it says that firms vertically integrate only when costs associated with that are less than costs associated with spot markets, as discussed in section 5.3.1.

5.4 Concluding remarks

This chapter focused on demonstrating the TC's facing Masiza, TC effects and the implications on the existing relationship. It further showed areas that require attention when designing the contract to ensure low TC and a viable contract. The results suggest that TC characteristics of the mussel supply processing operations influence the choice of governance structure. Hence as stated in TCE, the governance structure with less transaction costs is chosen.

The results show that the nature of production and processing operations require high levels of managed co-ordination to ensure quality and stability in the mussel value chain. The results further suggest that Masiza are better off with contractual arrangements than relying on spot or fresh-live markets, despite relatively low profit margins associated with this governance structure.

CHAPTER SIX

CONTRACT DESIGN FOR MASIZA MUSSEL GROWERS IN SALDANHA BAY

6.1 Introduction

It may be assumed that La Vie, Blue Bay and Masiza endeavour to act rationally, but cognitive limitations inhibit them from foreseeing the future. For this reason it becomes difficult to attain a complete contract arrangement for the parties, as postulated in both TC literature and CT in chapters three and four.

Blue Bay and La Vie presented their ideas and experiences regarding the contract. On the other hand, Masiza also expressed themselves through active participation in several discussions and meetings. A participatory approach was exercised to ensure a free flow of ideas, experiences, feelings, beliefs and expectations from all three parties. In addition, the researcher was afforded an opportunity to access all the necessary documents such as financial budgets, production planning, business plans, codes of conduct and drafted contracts. This consolidated the information and data gathering process and thereafter a TC and CT approach was used both for analysis and interpretation as discussed in section 1.7.

This participatory approach prevented the researcher from being subjective and from thinking for these parties rather than thinking with them. It helped all parties to participate actively, think and plan together in a collective manner to promote the project and result in a viable contract for all parties.

6.2 Selected contracts for Masiza Mussel Growers

After detailed verification and analysis presented in the previous chapter, three basic contracts were proposed: market specification, resource provision and production management contracts. This design was done together with Masiza and Blue Bay as the technical partner, as well as La Vie as the major buyer.

Due to the fact that Masiza are new entrants and still operating on a small scale with insufficient capital, therefore it becomes difficult for them to take all the risks. Hence, they prefer contracting with an established partner and a recognised processor. In addition, they prefer that the necessary support and coaching should come from people they know and trust, hence the following contracts were designed.

6.2.1 The Market Specification Contract (MSC) for Masiza Mussel Growers

This section further elaborates and provides more specific explanations on the suggested specifications in the proposed contracts listed on Tables 6.1 and 6.2 below. MSC refers to the contract between Masiza and La Vie. This contract aims at reducing market risks and uncertainties associated with fresh live markets as shown in Table 5.1. In this instance, La Vie guarantees Masiza that it will purchase their produce on specified dates as agreed in this contract. The contract can be implemented for a period of five years, with constant monthly standing meetings. This five-year period will allow Masiza to fully establish themselves.

Table 6.1 and 6.2 list a summary of all items that feature in the contracts detailed in these sections (6.2.1, 6.2.2, 6.2.3 and 6.3). These contract specifications as listed below were obtained from interviews with Masiza, Blue Bay as well as La Vie and they were then interpreted using both TC and ICT.

Table: 6.1 Description of resource & production contracts and their influence on transaction costs

Risks factors	Proposed contract types	Contract specifications	Impact on transaction costs
Technical failure of investment, High investment and establishment costs, Limited managerial skills, Credit profile	Resource Provision	<ul style="list-style-type: none"> • Access to equipment and resources, • Buy back option, • Bulk purchase of resources and equipment, • Debt amortization schedule, • Enforcement measures, • Access to transport and 	This aspect ensures full transfer of property rights to growers. This enhances productivity and assures certainty. Improves growers' bargaining power and production stability.

		logistical support.	
Production risks, Environmental risks, Adverse climatic conditions, Credit inaccessibility, Slow technology transfer, Red tide risk, and Lack of production management skills	Production Management	<ul style="list-style-type: none"> • Access to production information, • Provision of technical support, • Provision of inspection services, both minor and major checks, • Ensuring application of good agricultural practices (GAP), • Ensuring quality and acceptable production requirements, • Ensuring compliance with the existing requirements • Enforcement measures. 	These reduce production risks and uncertainties, environmental effects, production information incompleteness, maintain quality, and ensure compliance with production requirements and other industry requirements.

Table 6.2 Description of market specification contract and its influence on transaction costs

Risks factors	Contract types	Contract aspects	Impact on transaction costs
Market risks, Volatility of prices, Slow flow of market information, Lack of negotiation skills High perishability of mussels	Market Specifications	<ul style="list-style-type: none"> • Contract duration, • Quality of the mussel, • Quality of services, • Price formulas, • Quantity sold, • Delivery schedule, • Payment methods, • Access to market information and networking, • Enforcement measures. 	These reduce market uncertainties, market risks, market opportunism, transport costs, information incompleteness and therefore equip growers with necessary experience

It is important to note that market risks and uncertainties are transferred to La Vie together with the decision of when and how to market the product. Masiza do not have full control over marketing; this rests with La Vie. Despite this agreement Masiza are free to market their products anywhere as long as the agreed quota is satisfied. The MSC entails a full description of prices, payment method, product quality, and times of delivery and payment as discussed below.

Product characteristics: One important point which also drives Masiza into a contract arrangement is the shelf life of mussels. Mussels have a relatively short shelf life ranging from 1-2 days. This calls for immediate consumption or processing, and hence Masiza are encouraged to secure a stable and guaranteed market.

Delivery terms: Delivery or collection of mussel takes place from Monday to Friday, immediately after harvesting. According to the parties the usual time is between 11h00 and 13h00 in the morning. They prefer delivery in the morning to avoid direct heat from the sun, which could result in mussels drying-up and therefore poorer quality. Masiza deliver mussels in bulk at the harbour. It is important to note that delivery times are not flexible due to the sensitivity and perishability of mussels.

Another key feature of a mussel contract arrangement is the organisation of inputs and output distribution and the strict scheduling of transport as influenced by time specificity. This is a vital aspect of the contract because logistical problems can jeopardize both Masiza's and La Vie's profitability and their existing relationship. It is important to note that La Vie provides transport to collect mussels from the harbour, but it is the responsibility of Masiza to ensure that mussels reach the harbour on time. Poor logistical support will inevitably sour relations with La Vie and reduce the viability of the venture, hence Blue Bay and La Vie usually ensure that logistical support is available.

Costs of delivery from the point of production to the harbour is for Masiza's account. Masiza pay Blue Bay all transport costs for transporting the produce from their production units to the harbour. This forms part of the R 0, 43c/kg service levy which Blue Bay deducts monthly from all the produce sold by Masiza for all the services rendered by Blue Bay to Masiza. The delivery period is in accordance with harvesting time and requires produce to be collected immediately to avoid quality deterioration.

Quantity delivered: An amount of 20 bins (400 kg/8 ropes/day) of mussels is delivered to La Vie from Monday to Friday for a period of six months (first half of the year). After this period all parties may reconsider increasing the amount, depending on production performance and market opportunities. Masiza acknowledge that, whereas La Vie require delivery of mussels, they both have complete discretion as to

when the delivery should be made and as to how much mussels are required at any particular time. Under no circumstances, other than the above mentioned would these delivery terms and conditions be altered without full participation and satisfaction of all the parties.

Price: The price of the mussels also depends on the market forces of supply and demand. The current price as in 2004/2005 is R 3, 25/kg. All three parties determine the price based on market forces. Important factors affecting prices are quality, level of demand, exchange rate, and supply (Visser, 2004). When the Rand is stronger, the import parity price goes down and suppresses the local produce in favour of imported produce, suppressing local prices.

Despite these forces, Masiza's farm gate price for mussels has not changed for the entire season. This is mainly influenced by the fact that Masiza have so far proven to be highly competitive in terms of quality (Visser, 2004). Blue Bay and La Vie have indicated that Masiza produces far better quality mussels than themselves.

It is important to note that Masiza currently lacks bargaining power with regard to price determination. Only Blue Bay and La Vie have powers to decide when and how prices should be adjusted. Therefore, an independent facilitator should be granted some powers by the parties to become part of such negotiations. Amongst other things this body will ensure and enforce transparency during these negotiations. The independent facilitator will also ensure that, Masiza have adequate knowledge about prices paid to Blue Bay and other producers. Therefore Masiza together with the facilitator will be part of all monthly standing meetings and participate in any discussions or improvements that need to be made. To counter act the language problem, this individual should be at least able to speak Xhosa and any of the official languages in the Western Cape (English, and Afrikaans)

Payment terms and conditions: The parties agreed that payment will be made at the end of every month. La Vie will deposit the cheque into Masiza's bank account on the last day of the month. The deposit slip will be faxed to both Blue Bay and Masiza for their records as proof of deposit. The original slip will then be forwarded either by post or personal delivery within four working days. Blue Bay will then deduct all the

money owed as invoiced from Masiza' account. This withdrawal will be done by both Blue Bay and one member from Masiza against both their signatures. These deposit slips, receipts and invoices will be presented in all monthly meetings.

A number of accompanying documents are essential. A daily invoice book for daily sales, daily invoice books for costs and fee charges (for services rendered by Blue Bay). Masiza also are required to present their monthly bank statement showing all monthly withdrawals and debits (amount owed to) to Blue Bay and to at least one independent third party at performance meetings, which will be arranged monthly.

Product quality: According to Visser (2004), the processing company (La Vie) requires the same quality from Masiza as is expected from Blue Bay. A minimum width of 4 cm and height of 6 cm for black mussels are minimum market requirements. Cleaning takes place on the rafts as suggested by parties. This saves time and makes work easier and therefore contributes to productivity. According to the growers, they are able to harvest and seed at the same time, which saves them time.

Masiza have so far managed to meet market standards in terms of quality and most importantly Visser (2004) indicated that the quality of mussels from Masiza is better compared to Blue Bay`s mussels. He further pointed out that despite the minimum quantities these growers are making, there is a significant value adding that the entire industry has realised. The quality that Masiza is producing is referred to as top class quality and therefore the industry endeavours to ensure that they continue producing it. What makes Masiza`s mussels better is the fact that they employ manual labour unlike using machinery which sometimes breaks the product resulting in crakes etc.

6.2.2 Resource Providing Contract (RPC) for Masiza Mussel Growers

This is the contract entered into by Masiza and Blue Bay. Blue Bay has provided the following equipment to Masiza on loan and therefore repayment is required: (a) seeding table, (b) sorting table, (c) board, (d) binding/cotton net, (e) gloves and sleeves, (f) boots, (g) rain suits, (h) polo neck/sweaters, (i) manufactured ropes, (j)

water, (k) boats, (l) information (m) technology, (n) knife, (o) technical advice and (p) rafts.

These items were provided on credit by Blue Bay at the beginning of the project. Therefore Masiza are required to repay the loan in monthly instalments with interest. In financing these resources a special arrangement was made. Blue Bay agreed to stand surety on behalf of Masiza and ensure that the bank does not repossess the rafts, (see section 5.3.4). The aim is to buy the rafts back and re-employ the farmers in the case of them defaulting and as a last resort measure. Blue Bay and Masiza collectively buy other production equipment e.g gloves, knives, cotton nets and boots from suppliers in bulk volumes. This gives them an opportunity to share costs and therefore eliminates unnecessary costs which are usually incurred in the case of a single buyer.

In addition buying in bulk usually offer relatively higher bargaining powers to bargain for lower prices. This also gives Masiza an opportunity to share transport costs and others. Blue Bay purchases all the required items and thereafter debits Masiza's bank account with the amount owed. An invoice showing the total amount paid for the items is provided to Masiza immediately after purchase or during monthly performance meetings. The amount owed by Masiza for the items is calculated by both Blue Bay and Masiza.

In addition Blue Bay has agreed to render the following services, for an amount of R0, 43c/kg. They will maintain the rafts and equipment in a satisfactory condition. These rafts or equipment are bench marked against Blue Bay's rafts, hence their standard should meet that of Blue Bay and as required by the market. An invoice for maintenance and repairs is required at all times. Blue Bay will further ensure that the rafts are properly stocked at all times. This is done through daily supervision by both Masiza and Blue Bay.

Blue Bay carries out monthly inspections of the rafts as part of the R0,43c/kg charge. In addition there is one major check which is done once a year through Cape Diving at R 150/hour for cleaning rafts and ropes, and for carrying out minor and major sub-surface repairs on the rafts. Blue Bay arranges daily visits to the rafts, monitors

working methods, exchanges ideas, co-ordinates work flow, provides weather forecasts and assists Masiza with record keeping.

The provision of material inputs to Masiza is an important feature of this contract. Before each production cycle Masiza prepares a list of required equipment based on scheduled production. Blue Bay will then assess the necessity of such equipment and therefore continue with the transactions. Large and expensive materials such as seeding tables, ropes etc are usually on Blue Bay's account, which are later deducted from Masiza's proceeds on a monthly basis.

This contractual arrangement also resulted in a transfer of technology from Blue Bay to Masiza. Blue Bay is willing to provide all required technology to Masiza to ensure quality and efficiency. Since Blue Bay and La Vie both have higher bargaining powers than Masiza a third party is required as previously discussed in section 6.2.1 above and further substantiated in section 6.3 below.

The incentives that Blue Bay is getting for their services go beyond the R 0,43c/kg charged to Masiza. The government has also created a favourable economic environment for companies involved in empowerment. These incentives include tax rebates or reduction in company taxes. Therefore besides the willingness shown by Blue Bay, there are also some incentives received which encourage a participation of this nature.

This contract is designed mainly to ensure full participation of Masiza in all aspects of the business.

6.2.3 Production Management Contract (PMC) for Masiza Mussel Growers

This is a contract entered into by Masiza and Blue Bay. While Masiza are given six rafts and other production equipment, they do not have complete control over production. Technical support and management skills are rendered by Blue Bay to Masiza from time to time as required. Blue Bay renders some additional training services to equip Masiza with the specific skills necessary for mussel farming. In addition, other forms of training also entail developing maritime skills (driving boats

and operating the mussel cat, etc). This also forms part of equipping them to become independent mussel growers in the future.

As outlined above under the PMC, Masiza do not have complete discretion regarding how many ropes should be seeded, and how much should be harvested. The daily seeding and harvesting depends on production forecasting and calculations for the seasons. The aim is to ensure continuous and sustainable production with a constant flow of income.

Blue Bay intervenes in production mostly for quality assurance reasons and good production practices. This ensures that good quality is produced and therefore guarantees a market with a reasonable price. Market and price risks are transferred from Masiza to Blue Bay in this contract, similar to the market specification contract. The firm takes a substantial part of managerial responsibility on behalf of Masiza to ensure smooth operation and good quality products. This contract together with the resource management contract is thus interlinked.

6.3 Contract enforcement

This section presents different enforcement mechanisms suitable to the various parties.

6.3.1 Market Specification Contract

If Masiza fail to fulfil their duties in terms of this contract, La Vie will convene an immediate meeting with Masiza to address the problem. Masiza will nominate an independent third party should they see a need to do so. The meeting shall consist of Masiza, La Vie and Blue Bay, and an independent third party.

In such meetings La Vie will grant Masiza 30 days to remedy the situation. Should Masiza remain in breach, La Vie can give up all rights in terms of the contract. Thereafter Blue Bay, Masiza and the independent third party will deliberate on the matter and explore the remaining options. The last option will be re-employing Masiza as farm labourers. This will only happen after all the other avenues are

explored such as ensuring that proper support is available, capacity building, and availability of resources as mentioned in the contract.

On the other hand, if La Vie is in breach similar steps will be followed and Masiza, and La Vie, together with the third party, will decide on appropriate penalties. Masiza can in this case use the buy-back option as an enforcement tool. This option, as discussed previously, states that, should Masiza go bankrupt or fail, Blue Bay will take responsibility for such failure. This is an expensive exercise for Blue Bay, hence it is in their interest to ensure that Masiza do not go bankrupt.

It is also important to highlight that Blue Bay has shares in the processing factory. Therefore if Masiza decides to withhold supply, the entire industry will lose about 10% of the total output resulting in relatively less profits. This implies that if Masiza fails, all three parties will be affected. It should also be born in mind that this 10% contribution from Masiza carries some weight because of their relatively high quality.

On the other hand, Masiza can decide to shirk or act opportunistically. This would result in Masiza supplying relatively fewer mussels and selling the rest to rival alternative buyers. This will be a manifestation of a prisoner`dilemma. La Vie has also expanded the factory and their operations to cater for additional supply from Masiza. This expansion has some cost implications for the factory, hence La Vie cannot afford anything less than what Masiza currently supplies.

In addition to the buy back option, the Masiza`s project has gained significant publicity. This is justified by the fact that this project formed part of the Provincial launch of Mariculture and Aquaculture projects in March 2003 in the Western Cape. This project was presented in front of the former provincial Minister of Social Development in 2003 and other high profile politicians in the Western Cape. The media, also academics and a masters` student have written and published a number of articles on this project.

All three parties are aware of these facts, and therefore it is expected that the two parties Blue Bay and La Vie will not drag themselves into bad publicity, as will be the case if Masiza fails. Image is one of the essential factors that make a business succeed

and remain competitive. Therefore as a business, Blue Bay and La Vie endeavour to protect their image to maintain standards and remain competitive. This also counts in favour of Masiza in that all three parties are at least expected to cooperate to avoid unnecessary costs that are associated with bad publicity, shirking and opportunism.

6.3.2 Resource Providing and Production Management Contract

Masiza and Blue Bay enter into both RPC and PMC. In this case Blue Bay convenes a meeting with Masiza or Masiza convenes a meeting with Blue Bay depending on which party is in breach. It is mandatory for both parties to ask an independent third party to attend. If both parties decide to convene a meeting without the presence of the third party, that meeting would not grant them any decision-making powers.

In this meeting 30 days notice is given to the party in breach of contract to remedy the situation. In the event of failure to comply or to remedy the situation within 30 days, and only when there are no alternatives to improve the situation will Blue Bay be allowed to buy back the rafts and equipment from the bank and absorb Masiza as employees.

In the case of Blue Bay failing to comply within the given period (30 days), Masiza will convene a meeting with an independent third party and deliberate on the matter. After this, a final decision whether to extend the notice or terminate the contract with the condition of re-employing Masiza members will be taken. The contract may be terminated by any of the parties if one party proves not to take the necessary actions to correct such failure within a stated period. It is important to note that no party will be able to terminate nor take decisions regarding contract terms with out full participation of all parties concerned and a third independent party.

6.4 Concluding the research questions

This section concludes the entire study by responding to the research questions documented in Chapter one. The central question of the study is stated as follows:

6.4.1 What are the necessary elements of a viable contract that ensure resource provision, production management activities and market specifications at lower transaction costs for Masiza Mussel Growers?

A detailed response to the above central question is documented in sections 6.2 and 6.3 above, which is composed of three designed contracts and appropriate enforcement mechanisms. Following this question are two sub-questions.

6.4.1.1 What are the transaction cost factors facing Masiza Mussel Growers that impede them from participating in contractual arrangements within the industry?

Masiza suffer costs of accessing markets, accessing production credit and production resources, cost of searching for markets and production information, environmental risks associated with production, market uncertainty and market risks associated with fresh live markets, and lack of managerial skills requiring continuous supervision. These relatively high transaction costs prevail in different phases of the project and are characterised as, pre-production transaction costs, production transaction costs, processing and marketing transaction costs, as well as the economic and political environment (see table 5.1).

Masiza also find it difficult to access mussel seed for seeding rafts and Blue Bay can mainly provide this. Lack of transport facilities to get to the rafts, for delivery and collection of mussels and seeds exacerbate the situation. Therefore working with Blue Bay and La Vie will eliminate most of their problems and minimise production, environmental and market risks.

Masiza find it difficult to operate independently without support from Blue Bay and La Vie. In this instance a contractual arrangement between Masiza, La Vie and Blue Bay is necessary. Hence three contracts are designed to address transaction costs problems as previously discussed in Chapter five, and section 6.2 and 6.3 above.

6.4.1.2 What is the nature of the relationship that is necessary to improve co-ordination and enhance contractual arrangements between Masiza Mussel Growers and the processor that addresses opportunism, information incompleteness, uncertainty and contract incompleteness?

It is generally agreed that for these contracts to work, trust is essential. Therefore in concluding this study a trust-based relationship is highlighted as one of the critical components of this contractual relationship. Following the theoretical principles of CT and TCE, it is argued that all contracts are incomplete, implying that not all future contingencies are safeguarded. TCE together with CT state that this usually serves as a basic premise for economic agents to act opportunistically. Hence Masiza, Blue Bay and La Vie emphasise trust in the entire supply chain. They try to ensure that trust is maintained through open communication at all levels, monthly meetings, fulfilling obligations and clarifying all relevant issues at all times.

The existing relationship between Masiza and La Vie is also characterised by relatively high levels of asset specificity for both parties. This is one of the factors which makes Masiza together with La Vie put more emphasis on a trust based relationship. This is also due to the fact that the level of dependency is high resulting from high asset specificity. One can therefore conclude that trust in this instance carries some economic value, as its absence would lead to poorer co-ordination and inefficiencies in the supply chain.

The other bargaining tool for Masiza is their acknowledged good quality. This high quality also provides them with some leverage and bargaining power. This according to Visser (2004) puts the local industry at an advantage over imported mussels. Consumers are becoming more educated and well informed about the product hence are able to differentiate good quality from poor quality. Therefore Masiza have so far contributed positively to the entire industry and therefore received high recognition both from the industry and public.

On the other hand it cannot be assumed that Blue Bay and La Vie will remain trustworthy forever, and provisions for such cases are necessary. The contract has also

emphasised the participation of an independent third party. This refers to a public body either from the government or other public institutions. This body's main role is to represent Masiza's interest at all levels, to ensure transparency in terms of the pricing system, quality determination, and other issues. In addition, this individual should also provide some extension services on regular bases.

On the other hand, this supply chain relationship is also characterised by the so-called buy back option as discussed in chapter five above. It is therefore in the interest of all three parties, particularly Blue Bay, to ensure that Masiza does not default. Failure by Masiza implies that Blue Bay will cover all relevant production costs. Therefore in enforcing this contract Blue Bay will play a considerable role as it is also in their interest to ensure that the project succeeds as discussed in section 6.3.1.

6.5 Concluding remarks

In response to research questions in chapter one and TC and risks factors raised in Chapter Five, the contracts between Masiza and Blue Bay together with a contract for Masiza and La Vie were designed. Three contracts were found necessary for this venture i.e, a market specification, a resource provision, and a production management contract.

This contractual arrangement gives Masiza an opportunity to develop and grow in the business and become future independent entrepreneurs. It enables them to operate under conducive environments such as: access to markets; provision of material inputs and information; capacity building; technical support and better access to credit. The later is also made evident by the fact that ABSA bank recently approved a loan facility for Masiza. Therefore these contracts further ensure adequate participation of Masiza within the industry.

In concluding the contract enforcement aspect, five essential factors were identified. These include; (i) profile of the project (Masiza) as discussed in section 6.3.1; (ii) buy back option as discussed in section 5.3.4; (iii) independent third party as presented in section 6.2.1; (iv) good will trust; and (v) quality of mussels as discussed in section 6.2.1. These are the main factors that can work to Masiza's advantage with regard to

ensuring that all three parties operate smoothly and within the terms and conditions of this contract.

In conclusion, the results of this study suggest that this contract has served as an institution that allows Masiza to overcome barriers of entry to the mussel industry and other financial institutions such as ABSA bank. This therefore enables Masiza to become independent entrepreneurs. This study also showed that Masiza would not have overcome these barriers of entry to the industry and to the financial sector without the assistance of Blue Bay and La Vie. Therefore a contract that ensures adequate incentives for all parties in the existing supply chain to promote and preserve a trust-based relationship is required.

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