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Department of Economics

# Poultry producers' perceptions of changing market conditions

- A field study of the poultry production in Khartoum state of Sudan

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## **Poultry producers' perceptions of changing market conditions**

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# Summary

Sudan has always showed great potential in the poultry industry, but it has not been until now that this potential has blossomed and is growing quickly. As large agribusinesses<sup>1</sup> are taking over the market shares within the urban areas, smallholders<sup>2</sup> have been put out of business. They are not able to compete with mass production and lack financial assets to improve their production techniques. Contract farming is defined as initiatives from agro industrial companies to secure access to smallholder produce and has in developing countries become a way of allowing the poor to participate in a larger market (Farrington, 1999).

The aim with this study was to investigate the suitability of implementing the contract farming concept within the poultry industry in Sudan today. The study is a qualitative field study and the authors have conducted qualitative interviews with respondents involved in the poultry industry in Sudan. For an overall perspective the respondents represented different parts of the poultry industry. The empirical results were later analysed in relation to the assumptions of agency theory.

The results found imply that it would be difficult to introduce contract farming in Sudan's poultry industry today. This is mainly explained by the agribusinesses unwillingness to take on more responsibility as they already are under stress because of government interference. Other findings are that the agribusinesses see no benefits from entering a contract agreement with a smallholder. The study also found that nor the smallholders did see much benefits other than financial from cooperation with the agribusinesses. Political issues cause problems for agribusinesses as well as smallholders, and have created a nervous society where independence seems to be the goal of each party.

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<sup>1</sup> Agribusiness refers to the various businesses that are connected with producing, preparing and selling farm product ([www.dictionary.cambridge.org](http://www.dictionary.cambridge.org), 2012).

<sup>2</sup> Smallholder refers to farmers operating a farm of 2 ha or less ([www.ifpri.org](http://www.ifpri.org), 2007).

# Sammanfattning

Sudan har alltid visat stor potential för kycklingproduktion men det är först nu som denna potential tillåts blomstra och växer snabbt. Då stora företag tar över marknadsandelar i städerna, tvingas småproducenterna lägga ner sin verksamhet. De inte har möjlighet att konkurrera med massproduktion och saknar finansiella tillgångar för att förbättra sina produktionssystem. Kontraktproduktion definieras som initiativ tagna av stora företag för att säkra tillgången till småföretagarnas produktion och har i utvecklingsländer varit ett sätt för småproducenter att nå en större marknad (Farrington, 1999).

Syftet med denna studie var att undersöka lämpligheten att införa kontraktproduktion inom fjäderfäindustrin i Sudan idag. Studien är en kvalitativ fältstudie och författarna har genomfört kvalitativa intervjuer med respondenter involverade i Sudans fjäderfäindustri. För ett helhetsperspektiv representerade de intervjuade olika delar av fjäderfäbranschen. De empiriska resultaten analyserades i förhållande till Agenteorins teorier.

Resultaten antyder att det skulle vara svårt att införa kontraktproduktion inom Sudans fjäderfäindustri idag. Detta förklaras främst av att de stora företagens ovilja att ta ett större ansvar, eftersom de redan är under stress på grund av regeringens inblandning. Dessutom ser de stora företagen inga fördelar med att ingå avtal med småproducenter. Studien fann även att även småproducenterna såg få förmåner utöver finansiella från samarbete med stora företag. Politiska problem gör det svårt för både företag och småproducenter och har skapat ett oroligt samhälle där autonomi tycks vara varje parts mål.

# Abbreviations

CTC:	Sudanese Central Trading Company
FAO:	Food and Agriculture Organization of the United Nations
IFAD:	International Fund for Agricultural Development
SIDA:	Swedish International Development Cooperation Agency
UNDP:	United Nations Development Program
GDP:	Gross Domestic Product

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# 1 Introduction

The first chapter of the study firstly provides a problem background. Thereafter the problem, aim and delimitations of the study are presented as well as an outline of the work.

## 1.1 Problem background

The republic of Sudan is located in the north eastern part of Africa. On the 9<sup>th</sup> of July 2011, the country was divided into two regions due to political, economic and religious differences (www, Sida, 2011). Agriculture is the largest economic sector, in terms of contribution to the GDP and is the largest employer. Even if the agricultural sector has been demolished due to the oil industry, Sudan is still dependent on its agriculture since it stands for 40 percent of the GDP (Freiji, 2008).

The world's poultry production provides the human population with two main products: table eggs and broiler meat. Multinational agribusinesses<sup>3</sup> have taken over the industry in the western world and are, step by step, penetrating the markets in developing countries as well. Also in Sudan, modern automatic control systems and record keeping are becoming the norm rather than the exception. As the economy is growing, urbanization from the rural areas towards cities is making people dependent on agro-industries which provide easy access to food (Freiji, 2008).

Hagan and Tshumi (2005) explain economic growth as the most important contributor to poverty reduction. Economic growth depends on effective markets for goods, services and commodities that operate effectively for everyone and basic services such as education, health care and water supply. Poor infrastructure and misinformation leads to noncompetitive market systems and in turn slows economic growth. In the absence of functioning market structures the smallholders'<sup>4</sup> become vulnerable to volatile markets. Transaction costs that arise due to mistrust, information asymmetry and physical distance between buyer and seller typically exclude smallholders from participating in a larger market (Hagan and Tshumi, 2005).

## 1.2 Problem

The problem of market failure in Sudan depends on many factors that problematize the poultry industry.. In Khartoum, the agribusinesses are taking over the meat supply chain and putting smallholders out of business. Delgado (1999) describes four ways of overcoming market failure and establishing a functioning market so that smallholders are included in the market: First the smallholders need to gain access to land or financial assets, second they need continuous information about the market outlook and spot prices, third access to service, and fourth a functioning infrastructure as well as access to remunerative markets.

One way of overcoming market failure is for smallholders to produce under contract for agribusinesses. This has been proven effective in several countries around the globe and is

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<sup>3</sup> Agribusiness refers to the various businesses that are connected with producing, preparing and selling farm product ([www.dictionary.cambridge.org](http://www.dictionary.cambridge.org), 2012).

<sup>4</sup> Smallholder refers to farmers operating a farm of 2 ha or less ([www.ifpri.org](http://www.ifpri.org) , 2007).

seen as a way for smallholders to secure their income and for the agribusinesses to solve problems caused by government regulations (Eaton and Shepherd, 2001). However, the outcome of a contract agreement is dependent on several factors such as government interference, power balances of the parties and possibilities of external contract enforcement (Sethboonsarng, 2008). These factors are critical issues that can destroy this form of arrangement with severe consequences for both parties (Key and Runsten, 1999). Where no safety nets are provided and an environment of mistrust has been established, people tend to be more risk averse and skeptical towards changes (Kontos, 1990). There will be no change as long as mistrust and skepticism is allowed to grow and infiltrate the market environment. But who is willing to risk and take the first step towards collaboration, and is collaboration wanted from all parties? What are the incentives for contract agreements and are the benefits considered worth the risk?

### 1.3 Aim and delimitations

The main purpose of this study is to investigate the suitability of implementing the contract farming concept within the poultry industry in Sudan today. Another aim with this paper is to grow an interest for this form of production among market participants. Contract farming has not yet been introduced into the Sudanese poultry industry, although long used within other industries (Eaton and Shepherd, 2001). The study is conducted with the following questions in mind:

1. How are the market participants affected and responding to the current changes in the Sudanese poultry industry in Sudan today?
2. Under which conditions is contract farming an interesting business opportunity for large agribusinesses?
3. How can agribusinesses benefit from contracts with smallholders?
4. How would the agribusinesses provide assistance/benefits for the smallholders?
5. Under which conditions are smallholders interested in entering a contract agreement?

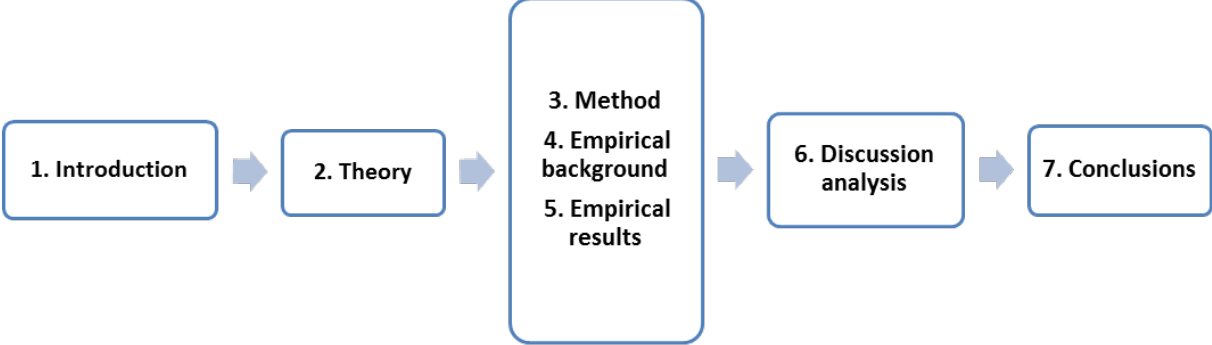
#### **Delimitations**

The project takes place in the Khartoum state in the northern part of Sudan. It is limited to a field study of how smallholders and agribusinesses perceive the contract farming concept and tries to identify the reasons for their perceptions. This study does not calculate potential gains for the implementation of contract farming. Moreover, it neither intends to practice the theory of contract farming by creating implementation schemes nor by setting future goals.

### 1.4 Outline

Chapter 1 begins by giving a brief introduction to the study, the problem background and the problem. The first chapter then continues by defining the aim and the delimitations of the study. The second chapter provides a theoretical framework for the study by explaining the agency theory as well as the contract farming concept. Under agency theory, the risk problem and the agency problem are discussed. The opportunities and challenges of contract farming are discussed in the second part of chapter.2. Chapter 3 outlines how the problem was approached and how data was gathered. The third chapter also identifies some of the difficulties of the project. The authenticity and reliability of the data collected are also discussed. Chapter 4 provides a background to the empirical study. The results of the empirical study are presented in chapter 5, while chapter 6 analyzes and discusses the results.

Chapter 7 provides the conclusions drawn by the authors. Figure 1 illustrates the outline of the study.



*Figure 1. Illustration of the outline of the study.*

## 2 A theoretical perspective

This chapter introduces the reader to different means to overcome market failure and explains why the authors choose to investigate the possibilities of contract farming. The second section explains the agency theory and what implies to the parties to enter a contract. The agency theory discusses the agency and the risk problem. The last part of the chapter explains the contract farming concept, as well as identifies common Opportunities and difficulties of contract farming. Although there are several other theories such as the transaction cost theory and game theory, that could explain the situation in Sudan, the authors chose the agency theory since it is a theory that describes the functions and outcomes of contract agreements. By only focusing on the agency theory the study becomes more insightful.

### 2.1 Means to overcome market failure

This section gives a brief overview of a few common approaches regarding rural development and how market failures can be conquered.

#### **Every man on his own**

Even though the independent smallholders are free to choose every step in the production process, the choices are often limited to few options (Delgado, 1999). The traditional market is ruled by middlemen and small scale processors that act in their own interest by reducing the smallholders share and increasing final prices (Goldsmith, 1985).

#### **Cooperatives**

As smallholders have limited bargaining power, towards the government and agribusinesses, a smallholder group can strengthen the smallholders' possibility to influence their environment (Sethboonsarng, 2008). Cooperatives in Africa can be problematic because of the moral hazard problems that arise when it is hard for the smallholders to control the management. Moral hazard is defined as a party's actions to maximize its own benefits from a contract agreement in aspects where the other party does not have full insight (Holmstrom, 1979). This can lead to inappropriate political activities, and financial problems (Delgado, 1999).

#### **Out grower schemes on government land**

The Gezira scheme is one of the largest projects for agricultural production in the Sudan. It was established in the 1980s and lets local smallholders produce crops on governmental land under tenancy contracts. This solution is considered a way to solve land issues. The tenants are given restrictions regarding what crops to grow and also on payment to the government for inputs while they have complete responsibility for the management of the land. Moral hazard again becomes a major problem since the smallholders found ways to cheat the contract and prefer short term income to large term stability (Kontos, 1990).

#### **Large agribusinesses (plantations)**

In the future, independent agribusinesses will probably have problems to compete with contract farming solutions since it is politically less sustainable (Delgado, 1999). The large agribusinesses might provide some job opportunities but offer few growth opportunities for smallholders in the area as agribusinesses tend to act autonomously and exclusively (Goldsmith, 1985).

## Contract farming

Contract farming is a well-established concept in developed countries and combines the benefits of large agribusinesses and smallholder production such as quality control, marketing and equity considerations (Glover, 1987). In the U.S. today almost all the poultry meat is produced under contract agreements. Similar examples are shown in France where contract production stood for over 80% of the meat produced in 1994 (Ramaswami, Prathap and Joshi, 2005). In Germany contract farming stands for about 38 % of the production (Menard and Klein, 2004).

Implementation of contractual production is also growing in developing countries around the world. Contract farming in South Africa is seen as a sustainable solution to avoid spot prices and 81% of the poultry is produced by contract farming or vertical integration (Sautier, Vermuelen, Fok and Biénabe, 2008). Although this form of production requires higher effort on part of the agribusiness in developing countries, studies have shown that it can be successfully implemented in Africa. In India contract farming is more cost efficient than non-contract farming. As long as the agribusiness contracts low income smallholders, the agribusiness will be able to gain a large surplus from the produce (Rawaswami, Pratap and Joshi 2005). In both Bangladesh and India studies have shown that smallholders that produce under contract are better off with secured and higher income than non-contracted smallholders (Rawaswami et al, 2005; Begun, 2005).

## 2.2 Theoretical framework -The agency theory

The agency theory is based upon a two sided agreement where the principal<sup>5</sup> and the agent<sup>6</sup> are free to enter or leave the contract. In the case of contract farming, the agribusiness plays the role of the principal or sponsor that pays the smallholder, and the smallholder is the agent that completes a task that is agreed upon (Norrman, 2005). As illustrated in figure 2 the outcome of the contract is a product of the behavior of both parties.



Figure 2. Illustration of the concept of The Agency theory Source:(www,MAAW,2012)

The theory focuses on the problems that arise due to opportunism<sup>7</sup> and lack of human ability to be completely rationale. Norrman (2005) also states a few basic assumptions that affect the actions of both parties. Firstly, each party acts in its own interest, has its own goals with the contract and intends to get as much out of the agreement as possible. This is done at the cost

<sup>5</sup> In this study the agribusiness plays the role of the principal that hires the agent for a certain service.

<sup>6</sup> The smallholder is referred to as the agent that agrees to perform under contract.

<sup>7</sup> Opportunism is defined as self-interest seeking with guile such as cheating and misleading (Hill, 1990).

of the other party. Information asymmetry and different risk averseness are other sources of disagreement. The disagreements involved with contracts may lead the principal to control the agent in order to ensure that the agent acts in the principal's interest. The Agency and Risk problems are explained below in order to understand the outcomes of contracts and the reasoning of the parties.

### 2.2.1 The Agency problem

The Agency problem is based on two critical aspects that arise due to the goal conflict and the information asymmetry of the two parties: adverse selection and moral hazard (Eisenhardt, 1989). Information asymmetry arises because the principal is unable to identify the hidden competences, knowledge and actions of the agent (Saam, 2007). Even if the company is able to identify them, the costs of monitoring the actions of the agent are higher than the return of doing so.

Moral hazard is described by Eisenhardt (1989) as a lack of effort on the part of the agent and depends on the principal's ability to measure the results and the work effort of the agent. In contract farming, moral hazard may arise for instance when the agribusiness (principal) provides the smallholder with input such as seeds, and the smallholder (the agent) only uses a part of the input for the intended purpose and sells the rest to other smallholders. In such cases it is difficult for the agribusiness to control what has happened to the input.

### 2.2.2 The Risk problem

Eisenhardt (1989) also discusses the Risk problem that arises due to the difference in risk averseness of parties. Who is the most risk averse usually depends on the composition of the contract (Saam, 2007). There are two types of contracts, behavioral- and outcome-based. An example of a behavioral-based contract is a labor contract where the risk belongs to the company (Norrman, 2005). An outcome-based contract, on the other hand, transfers the risk onto the smallholder. The agent is more likely to behave in accordance to the contract when the contract is outcome-based or when the principal has sufficient information to verify the actions of the agent (Eisenhardt, 1989).

### 2.2.3 Theoretical solutions to the problems

There are, however, solutions for overcoming the agency theory problems, such as incentive compensation, monitoring systems, vertical integration, game theoretical solutions, self-selection, signaling, bonding and screening (Saam, 2007). The assumption is made that it might be cost inefficient for the company to control every step of the smallholder's work, even though the principal will always feel the need to monitor their agents more closely to be able to control and align the agents' goal with their own. Knowing this, we choose to concentrate on incentive compensation systems, game theoretical solutions, bonding and vertical integration (Adams, 1996).

#### **Incentive compensation systems**

With an effective incentive compensation system, such as a well written contract, the goal of both parties' will be to maximize production and cost effectiveness. An incentive compensation system is a good way for motivating both parties to work towards the same goal (Shapiro, 2005).

#### **Bonding**

Bonding refers to an agreement that binds the agent to a certain performance level. If the agent does not manage to fulfill or achieve this level, sanctions will reduce the compensation

(Saam, 2007). In countries with questionable jurisdiction systems, such as Sudan, it might be hard to enforce contracts and opportunistic behavior can be a major risk factor (Sethboonsarng, 2008).

### **Integration**

Smallholders can by provision of technical assistance improve their practices and in that way be able to provide the agribusiness with better meat. This, however, implies investment and training costs, and there is no guarantee that the recommendations will be followed in the long term. Nevertheless, Delgado (1999) argues that even though poultry production is well suitable for smallholdings and smallholders may need institutional support, vertical integration is probably not the best solution.

### **2.2.4 Problems with the Agency theory**

Criticism towards the agency theory is mainly due to the fact that it is too general, and therefore, is inefficient in real life situations. According to Eisenhardt (1989), the agency theory is considered one sided because it has the ability to exploit potential workers. Other authors also state that it is not mathematically useful in the practical context of organization theory (Eisenhardt, 1989).

## **2.3 Contract farming**

In this section, the concept of contract farming is explained. The Opportunities as well as the Challenges are identified and brief explanations of different types of contract farming models are provided.

### **2.3.1 Defining contract farming**

Contract farming is a way of allowing the poor to participate in a larger market (Farrington, 1999). It can also be described as initiatives taken by agribusinesses to secure access to smallholders' production (Coulter, 1999). Eaton and Shepherd (2001) define contract farming as an agreement between smallholders and processing or marketing firms for the production and supply of agricultural products under forward agreements at predetermined prices (Eaton and Shepherd, 2001). In other words, contract farming, when well administered, should benefit both parties and could be a way to overcome market failures such as information asymmetry and poor knowledge transfer. Contract farming gives smallholders in developing countries the possibility to develop their production through the assistance of the private sector. For countries with political instability or poor financial assets this is positive since this development would require an enormous amount of public sector resources. (Sethboonsarng, 2008). This would be positive for all parties as a form of large scale poverty reduction.

Contract farming in developed countries includes a variety of different commitment levels from the agribusiness. In developing countries, the need for technical assistance provided by the agribusiness to the smallholder is usually higher (Sethboonsarng, 2008).

### **2.3.2 Types of contract farming**

Eaton and Shepherd (2001) divide contract farming into five different models. These are the centralized model, the nucleus estate model, the multipartite model, the informal model and the intermediary model. The model of an agreement is mainly defined by the objective of the

contract. This in turn depends mostly on the type of crop, the smallholder's knowledge and experience, as well as the type of resources that the agribusiness is willing to provide.

#### **Centralized model**

The centralized model can be defined as a large agribusiness engaging in a contract agreement with one or many smallholders. The sponsor, also known as the principal, usually buys the product, packages it and distributes it to the market. This model is mostly used in dairy, poultry and tree crops businesses. It's also vertically integrated; therefore, the quality and quantity of production is strictly controlled. The involvement of the principal varies in this model (Eaton and Shepherd, 2001).

#### **Nucleus estate model**

In the nucleus estate model the principal owns and manages the entire production system in order to assure homogeneity of the produce. This model is mostly used for tree crops but some studies show that it can be effective for dairy, vegetable and fruit production (Eaton and Shepherd, 2001).

#### **Multipartite model**

The multipartite model usually involves government, statutory and private agribusiness working together with smallholders. Access to credit provision, production, and management, processing and marketing is through separate organizations. China is one of the countries that is known for working with the multipartite model, in which the government, township committees and foreign agribusiness have entered into a contract with local smallholders (Eaton and Shepherd, 2001).

#### **Informal model**

The informal model can be used by small firms as well as entrepreneurs who make simple and informal production contracts which are usually seasonally based, such as for vegetables and fruits. Material inputs and technical assistance is very limited, thus seeds and basic fertilizer is only what is offered. For this model to work successfully, support such as research and extension services need to be provided. This support is usually the responsibility of the government (Eaton and Shepherd, 2001).

#### **Intermediary model**

The intermediary model is based on agribusinesses subcontracting crops to intermediaries e.g. large food agribusinesses buy crop from a smallholder committee, which has a personal informal contract agreement with the smallholders. In this model, the sponsor (principal) must be aware of the loss of control over production and prices paid to smallholders (agents) by the middleman. In other words, it could lead to lower income for smallholders and bad quality of production for sponsors (Eaton and Shepherd, 2001).

### **2.3.3 Opportunities and challenges of contract farming**

Although contracts differ, common opportunities and challenges of the different parties are presented in table 1. Firstly, contract farming in developing countries usually means that the agribusiness provides the smallholder with inputs such as technical assistance or technology. Moreover, the smallholder is guaranteed fixed pricing structures and, through forward contracts, access to reliable markets as well as financial assets in the form of prepayment. Agribusinesses, on the other hand, should be interested in contract production since it is less likely to be subject of political criticism compared to large scale production. It is also a mean to overcome land constraints and for the agribusiness to become more cost efficient because



of lower labor costs such as hiring, training and supervising personnel (Sethboonsarng, 2008). Another reason for agribusinesses to engage in contract farming is to be able to share risks of failure and secure the quality of the production (Eaton and Shepherd, 2001).

However, manipulation of quality standards by the agribusinesses to get the products at a low price is the most common problem for smallholders (Glover, 1984). An example of this is an agribusiness that paid its smallholders for the net-weight difference of an empty truck and the same truck loaded with birds. By cheating in the weigh-in of the truck, the agribusiness managed to pay less than agreed for the poultry. The smallholders ended up underpaid and defrauded (Haroldson, 1992). An investment may also mean an increased risk for the smallholder if the agribusiness is unwilling to share the risks of new technology (Eaton and Shepherd, 2001). These new techniques could also be unsuitable for the smallholders' production or in the local social concept. The smallholder might also become dependent on the agribusiness, and although (s)he usually enters the contract freely, (s)he might find it difficult to leave the contract since most of the investments are made designed especially for contractual production (Key and Runsten, 1999). The agribusiness, on the other hand, must ensure the smallholders' legal rights to the land, as well as take social and cultural constraints into consideration. In order to be sustainable, a contract should not interfere with tradition and lifestyle in the area of operation (Eaton and Shepherd 2001). According to Kontos (1990) smallholders' lack of commitment and sense of common purpose makes them unreliable as business partners. Therefore, a well written contract should contain clear and strong incentives for the smallholder to act in mutually beneficial ways. Eisenhardt (1989) states that these types of contracts are outcome based rather than based on behavior of the smallholder.

*Table 1: Opportunities and challenges of contract farming, (Delgado, 1999, Eaton and Shepherd, 2001, Sethboonsarng, 2008).*

	<b>OPPORTUNITIES</b>	<b>CHALLENGES</b>
<b>SMALLHOLDER</b>		
	<b>Access to markets</b>	<b>Manipulation of quotas</b>
	<b>Increased incomes</b>	<b>Unsuitable technology</b>
	<b>Secured price and buyer</b>	<b>Increased risk</b>
	<b>New technology</b>	<b>Overreliance in advantages</b>
	<b>Technical assistance</b>	<b>Corruption</b>
<b>AGRIBUSINESS</b>		
	<b>Political acceptability</b>	<b>Social life &amp; culture</b>
	<b>Overcoming land constraints</b>	<b>Smallholders' lack of commitment</b>
	<b>Cost efficiency</b>	<b>Extra contractual marketing</b>
	<b>Production reliability</b>	<b>Discontent smallholders</b>
	<b>Quality consistency</b>	<b>Smallholders' lack of common purpose</b>

### 3. Method

In this chapter the authors explain the research process. The scientific method and approach are described, followed by an explanation of how the data was collected. Finally, some complications and the quality of the study are discussed.

#### 3.1 Scientific Method and approach

There are three different ways to approach a research problem; adductive, deductive and inductive (Perry, 1998). An empirical study is appropriate when trying to prove a theory or hypothesis (Kothari, 1985, 3). This study is a deductive empirical study where a theory is used to analyze the empirical results. In this study the agency theory is used to be able to identify and compare the results from the empirical study with the results of prior studies in the subject.

This study is a field study based on a literature review and qualitative interviews. The method was used to get a deep understanding of the problem. The qualitative study is preferred when trying to explain people’s behavior (Kothari, 1985). Since the authors needed to introduce and explain the concept of contract farming to the respondents, personal meetings and qualitative interviews were preferable. Personal meeting give the possibility for discussions and explanations. The authors also assumed that higher quality data would be achieved through personal meetings.

This method was preferred by the authors out of respect for the culture as well as to establish trust. One specific reason for this was to assure the respondents that the authors were working independently with neither affiliation nor responsibility to the government. This was found important for the respondents’ confidence and willingness to speak freely.

#### 3.2 Methodology

Figure 3 shows the steps in the research process taken by the authors to solve the problem.

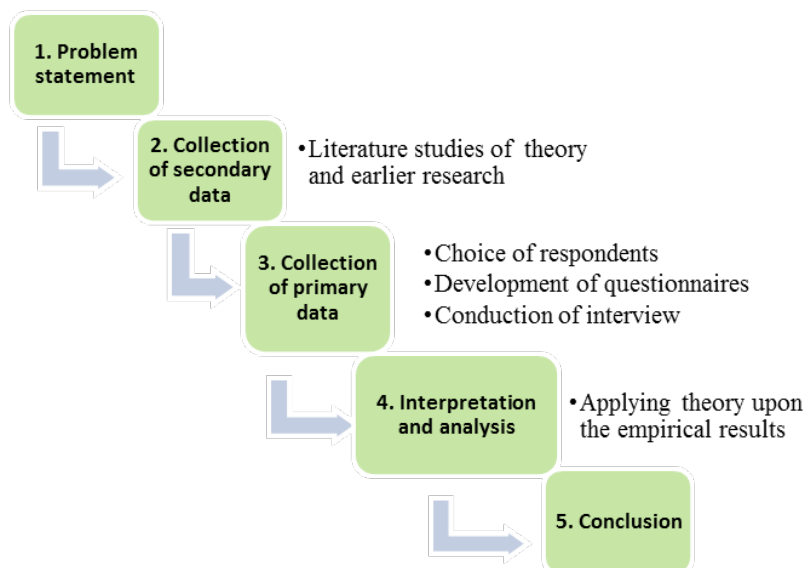


Figure 3. An illustration of the research process.

The steps were chronologically followed starting with information gathering from secondary and primary information sources. When the data was gathered and summarised, the analytical phase started. Finally, a conclusion was drawn based on the data analysis.

### 3.2.1 Collection of secondary data

The study began with the collection of secondary data regarding contract farming, M4P<sup>8</sup>, and poultry production in general. Published scientific peer reviewed articles were obtained from Google scholar by browsing key words such as agency theory, contract farming, Sudan, poultry production, market failure and market for the poor. Regarding the poultry production in Sudan, Sudanese master theses that were found at the University of Khartoum were used. For a brief overview of the poultry sector and the specific characteristics of the area, secondary data was obtained from official reports from international organizations such as the United Nations Food and Agriculture Organization (FAO), the United Nations Development program (UNDP) and the Swedish International Development Cooperation Agency (SIDA). Although several sources were used for the theoretical part as well as for the introduction part, the authors are aware of the fact that some of the data might be outdated, especially because of the recent political changes in the Sudan.

### 3.2.2 Collection of primary data

Primary data is data that has been collected by the authors himself and that has not been published earlier (Glass, 1976). The empirical study is based on qualitative interviews with four university professors, the former vice president of agriculture and production manager at the Central Trading Company, two agribusinesses and 11 smallholders. The data was collected during a six weeks visit to the Khartoum state of Sudan in April 2012.

#### 3.2.2.1 Choosing respondents

As the aim of the study is to get a wide picture of the current situation in the poultry industry, the respondents were chosen by their involvement in the industry. The initial aim was to interview only agribusinesses and smallholders, but as the study developed, it became clear that a more overall picture of the market failure in the Sudan was necessary in order to explain the deep mistrust from both parties. The universities in Khartoum helped with access to the first private poultry producers.; These poultry producers were regarded as very developed and modern by the authors why they were not classified as smallholders<sup>9</sup>. Since the authors also wanted to gather information from smallholders with poor financial assets, the authors tried a different method to reach the other smallholders. This method involved asking the smallholders themselves for neighbors and friends referrals within the poultry industry, and by doing so, smaller farms were reached.

#### 3.2.2.2 Development of questionnaires

Initially, three different questionnaires were created, one for the university professors, one for the agribusinesses and a one for the smallholders. A fourth questionnaire was later created especially for the government agency. Already after the first day of interviewing, approximately half of the questions were excluded to be able to complete the interviews

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<sup>8</sup> The M4P (market for the poor) approach is a way of reducing poverty and promote economic growth by making market systems more effective (Hagan and Tshumi, 2005).

<sup>9</sup> As seen above; Smallholder refers to farmers operating a farm of 2 ha or less ([www.ifpri.org](http://www.ifpri.org), 2007).

within a reasonable time period. It was also noted that some of the questions were irrelevant for the study and that it took focus away from the key questions regarding contract farming and network relationships. Another reason for certain question exclusion was that the respondents often gave extended answers that included many of the questions. After the reconstruction of the questionnaires, the interviews took t 45 to 90 minutes per person interviewed depending on the respondent. Only two smallholders and one university professor were interviewed with the initial questionnaire, but already then some of the questions were merged together, thus why those questions will not be reported and analyzed. A few questions regarding cooperation network relationships were modified and added to better highlight the situation. The questions added were; 1) questions regarding the smallholders relationships with supplier and customer. The questions completely excluded were: 1) direct questions regarding the smallholders' income; 2) questions regarding frequency of slaughter since all smallholders tried to slaughter at day 45 and 3) questions regarding the direct costs for inputs since these questions only took focus away from the main subject.

### **3.2.2.3 The interviews**

The interviews were conducted at the University of Khartoum, the Veterinary College, a research center for poultry and at the agribusinesses head offices. In the introduction of the interviews, the authors presented themselves, the aim of the study and the concept of contract farming. The respondents were provided with a copy of the questions and a brief explanation of the contract farming concept in Arabic. Contract farming was also briefly explained orally, although some of the respondents were familiar with the concept.

Dr. Omer Abdelwahab is former vice president of the Ministry of Agriculture and is currently production manager at the Central Trading Company supporting smallholders with technical knowledge of agricultural practice. With experience in business through governmental work, he has worked with both the Gezira scheme and the Agricultural revival plan<sup>10</sup>. These are the major agricultural changes attempting to enforce the Sudanese agricultural practices since the country independence in 1956. Therefore, Dr. Abdelwahab is expected to have good insight in governmental policies towards the agricultural sector. The intention with this particular interview was to obtain a government perspective of the situation.

Dr. Adallah Khedir is currently the dean of the agriculture in Khartoum University. He did his undergraduate studies in the American university of Beirut and later concluded his PhD in the United States.

Dr. Ibrahim Alnaeem is veterinarian specialized in poultry. He lectures at Khartoum University at the Faculty of Veterinarian Science.

Dr. Ahmed Abdelgadir is a retired university professor in animal production with specialization in poultry production. Although pensioned, Dr. Abdelgadir is a volunteer consultant in the Research Center for Poultry Production in Khartoum.

Dr. Ibrahim Abdelsalam Yousif is the dean of animal production in the Faculty of Agriculture at Khartoum University.

The two agribusinesses that have been interviewed are Arabia and Shebeika poultry. Representing the agribusiness were Dr. Hassan Altigani, production manager at Arabia, and

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<sup>10</sup> The agricultural revival plan is a five year program that constitutes a national strategy for Sudan's Agricultural Revival and covers matters such as land use as well as holding of livestock. (Nimir,2008)

Dr. Hashim Ahmed, technical manager at Shebeika. The agribusinesses' together stand for about 32 percent of the country's commercial poultry production and both are part of the six agribusinesses that drive or control the industry. Other agribusinesses are Mico, Catreber, Ommat and Kuwaitea. Since the government is a shareholder in Mico and government interference was found to be a major problem for the free market, the authors were advised not to investigate its business although it alone stands for about 30% of the commercial poultry production.

A computer, a notepad and a recording device were used to secure the information. As the tools were prepared during the introductions, the authors asked for permission to record the interview. All respondents agreed to being recorded, but if the interviews were interrupted, the recording device was paused out of respect towards the respondent. During the interviews, follow up questions were often discussed, and at the end of the interviews, informal chatting became the norm. During some of the interviews with the smallholder, a translator attended to make communication easier between the authors and smallholders.

The research began with interviews and meetings with university professors and university based investigators in agriculture business and poultry. The main goal of these interviews was to obtain an overall picture of the poultry industry. It was also presumed that the universities are able to speak more objectively about the current situation. A third reason for these interviews and meetings was to obtain information to smallholders and agribusinesses. The interviews and meetings were held at the University of Khartoum and Ahfad University for Women in the Omdurman region.

Qualitative interviews were also conducted at the head offices of the two agribusinesses. These interviews were conducted in English. On a separate day from the interviews, a tour of one of the agribusiness farms was provided which gave the authors a deeper understanding of what had recently been explained.

The interviews with the smallholders were mainly conducted in Arabic. These interviews took place at smallholder farms<sup>11</sup> as well as at the University of Khartoum. Although, some of the smallholders were of the opinion that they understood the contract farming concept, a simple explanation of the concept and the questionnaires were provided in Arabic. A tour of the farm was sometimes provided.

## 3.3 Complications

### 3.3.1 The interviewer effect

In face- to- face interviews, the interviewer is seen as the primary reason for errors in qualitative interviews. This is due to the known as well as unknown impact that the interviewer has on the respondent. Social desirability is affected by the respondents as well as the interviewers' age, race, gender and social status as well as by the interviewers' expectations (O'Muircheartaigh and Campanelli, 1998). The authors realized that this might have occurred since some of the interviews were conducted through a translator. Overall, the agribusinesses and the respondents from the universities were eager to give extended answers. The authors at times had to read between the lines to try to understand the overall picture. During the interviews with one of the agribusinesses the authors noted that the answers were

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<sup>11</sup> This refers to smallholder farm 3,6,7 and 9.

affected by the young age and the nationality of the authors. This was shown by the answers given, were vague motivations such as “this is Africa” or “in Europe things are different” were often used. The interviews with the smallholders were affected by the educational level as well as the nationality of the authors that expectedly made the smallholders more positive towards the contract farming concept.

### 3.3.2 Time

Time was the major problem that the authors had to deal with during the study. This was partly due to the culture and the problems of respecting the interview schedule as meetings were cancelled, postponed or opportunities suddenly appeared. This made planning difficult and catching the moment became the strategy to get in touch with the respondents. Misunderstandings because of different reference frames, culture and language were another issue that had to be conquered. Another problem was to get in touch with smallholders. This was due to the fact that the universities began by providing the authors with large smallholders with growth potential and modern systems. This is assumed to be because of the close relation that these smallholders had with the universities, being research farm.

## 3.4 Reliability, validity and authenticity of the results

The reliability of research results is one of the major problems of a qualitative interview. Misunderstandings and inability of the authors to judge the reasonability of the responses increase with a poor background knowledge of the subject (Gysin, 2010). In this study, the authors had a better understanding of the theoretical concept of the study while the respondents had a higher knowledge of the production process and technical data. Following each interview, the authors gained more knowledge and were able to include more relevant questions. The respondents also believed that their understanding of the situation developed and the authors found it easier to identify and judge the reliability of the information given as the interview progressed. Although the credibility could have been increased by letting the respondents take part in the interview summaries to confirm the understandings, this was only partly accomplished because of the limited amount of time to complete the study.

Validity is the evaluative judgment of a study’s interpretability, relevance and score utility (Messick, 1988). Because of the changing market conditions for poultry producers in Sudan today, the study is considered to be relevant in time. Contract farming is considered a possible solution to overcome market failure in several developing countries today (Sautier et al, 2008). The study also provides an understanding of the poultry producers’ perceptions of cooperation and business relations in Khartoum state. The results found could be used by poultry producers that are interested in developing their businesses. The study can also provide entrepreneurs interested in entering the growing Sudanese poultry production industry, with knowledge of the current market situation. The study is restricted to the Khartoum state of Sudan. The characteristics of the Sudanese market failures are considered similar to other African countries. Because the study is limited in scope, different production systems were not represented in the results.

The authenticity of the sources could be a problem since the respondents were not consulted for a final verification of the conclusions of the interviews. This is partly due to language problems with translation and illiteracy, as well as time constraints. Since this has not been done, there is a possible risk of misunderstandings and misinterpretations by the authors. Other problems that could reduce the authenticity of the study are relations to the government

in which some of the respondents did not feel completely comfortable expressing critique towards their government.

Although unstructured interviews gave the authors the possibility to ask follow up questions, this method makes the comparison between individual respondent answers more challenging (Kothari, 1985).

## 4. Empirical background

This chapter provides information about Sudan and the country's poultry production. Factors affecting the outcome of the production and the production forms are identified and briefly described.

### 4.1 The Republic of Sudan

As mentioned previously Sudan is located in the North East of Africa as you can see in the picture below. The climate varies between tropical in the south and desert in the north. Depending on the time of the year, the average daily temperatures vary between 22.8 to 37 degrees (Alhusain, 2005). The country itself is very dry with few rain periods and an annual precipitation of 121, 4 mm (Alhusain, 2005). Sudan is rich in natural resources, but is still considered to be a poor country due to underdevelopment, conflicts and political instability (www, UNDP, 2012). Since 1970, 90% of the Sudanese land is owned by the government (www, FAO, 2012). In irrigated areas, land has commonly been surveyed and registered, and the government leases it to tenants and private entrepreneurs by individually designed contracts. The land used for pasture and subsistence cultivation is unregistered and communally owned under customary land laws (FAO, 2005).



Figure 4. Map of Sudan (www,IOM, 2012.)

### 4.2 Poultry production in Sudan

Although the poultry production in Sudan is promising, it is still a business with much room for improvement. During the last decade, the annual production of broiler meat has been steadily rising from 16000 metric tons in the 1980 to about 30 000 metric tons in 2002, with an annual growth rate of 3% (FAO, 2005). The growing population together with the GDP income per capita has increased the demand for meat. In 2008, about 3640 Sudanese poultry producers were registered, although many smallholders are presumed not to be listed (Freiji, 2008). In 2002, the Sudan had a net import of 490 000 live chicks and the number of birds in the country was estimated to 45, 3 million (Ahmed, 2009). 96% of the commercial poultry



production is located in the Khartoum state of Sudan. This could be explained by the continuous urbanization from rural areas to the cities, implying a future rising market demand in this area. However, Sudan remains the Arab country with the lowest intake of poultry meat per capita a year. In 2005, the intake of commercially bred poultry was 0,77 kg of meat per capita which can be compared to Egypt with 9 kilos per year or Saudi Arabia with a yearly intake of 39 kg of poultry meat per capita (Freiji, 2008).

The low intake of poultry in Sudan can be explained by the price of meat. Traditionally, the price of red meat from sheep and cattle has been low, but during the last decade, a rise has been noted. In the past, poultry meat production has been dependent on the importation of production inputs such as feed, vaccines and parent stock (Freiji, 2008). As the industry is growing and the agribusinesses establish themselves, the agribusinesses tend to be able to produce chicken more efficiently. For Sudanese poultry producers, the cost of environmental regulation systems and feed are the two major expenditures affecting the producers' final profit. Feed cost itself stands for 50-70% of the producers' total costs. Depending on the production system used, air condition can be the second largest expense (Emmam and Hassan, 2010). These factors crucial role for the outcome of the poultry producers economies are explained further.

### **Local production systems**

The Sudanese warm environment is the major factor that depresses productivity of the poultry in Sudan (Alhusain, 2005). Because of high electricity costs and poor financial assets, it is expensive to regulate the temperature in production facilities. An effective housing system for the chicks is the most efficient way to overcome these problems (Emmam and Hassan, 2010). There are currently four main poultry meat production forms in Sudan. These are traditional backyard breeding, open house systems, semi-closed systems and closed systems.

Traditional backyard poultry farming remains a common way of securing the protein intake of the household (Emmam and Hassan, 2010). Domestic species are fed in open yards and their food source is low nutrition feed from ground scratch and household waste (Ahmed, 2009). This production form is not competing with the other forms of production and the record keeping is low.

In Sudan, open house systems are still the most common way of producing poultry for a commercial market (Emmam and Hassan, 2010). This system consists of a metal-roofed enclosure fenced with simple chicken wire. The open house systems have long been the standard for 95% of poultry production farms in the Khartoum state (Emmam and Hassan, 2010).

Semi-closed systems are open house systems with air conditioning that manage to lower the temperature of the houses, usually 5-10 degrees. On a hot summer day in Khartoum this could still mean that the birds growth environment lies over 35 degrees which is about 10 degrees over an ideal growth environment (Emmam and Hassan, 2010).

The modern closed system is the most efficient form of poultry production (Emmam and Hassan, 2010). These systems provide secure optimal circumstances for the birds regarding protection from cold, rain, wind, and hot sun (Alhusain, 2005). The closed systems are mainly used by the large poultry producers since they are expensive and require a high degree of technical inputs such as air conditioning and fans.

**Feed**

While agribusinesses import expensive but perfectly prepared concentrate and high quality grains from the international and the domestic market, smallholders are often solely dependent on locally grown grains (Emmam and Hassan, 2010). The local feed mainly consists of sorghum, ground nut cake and sesame seeds. Sudan is currently the only Arab country that is self-sustainable in its feed production, with the exception of concentrates (Freiji, 2008).

Sorghum is a grass well assimilated to grow in dry and hot climates. It alone stands for about 60% of the chicks feed intake in most African countries (www, IFAD, 2012). Although Sudan is well-equipped to feed its domestic market, pressure from the international market raises the price for sorghum, ground nut cake and sesame seeds. When the suppliers sell their products to the international buyers, the consequence is higher prices in the domestic market which has severe effects on the economy of the poultry producers. The price volatility is not only depending on international demand, but it is also depending on season instability. Storage problems are the reason why the sorghum price is three times higher at the end of the season than in the beginning (pers.comm. Abdelwahab, 2012). Moreover, unreliable rainfall, political instability and dysfunctional infrastructure harm the price stability in the country (www, IFAD, 2012).

## 5 Empirical results

In this chapter, the authors have summarized the findings from the interviews that were conducted with a governmental representative, university professors, agribusinesses and smallholders.

### 5.1 A governmental perspective

#### 5.1.1 The role of the ministry in supporting agribusinesses

Sudan has a large department of extension services that works to disseminate technology in all parts of the country. However, in the case of the smallholders that represent the majority of the agriculture in Sudan, the agricultural extension services is not acting as expected and less than what is desirable (pers.comm. Abderwahab, 2012).

NGOs have good possibilities to solve the problems and the government has a positive view of foreign help according to Abdelwahab (pers.comm. 2012). Foreign investors that bring financial assets into the country by working together with the smallholders could be a possible solution to make the market work more efficient.

#### 5.1.2 The agricultural challenges

Abdelwahab (pers.comm, 2012) mentions that the problem of low productivity could be explained by financing problems, lack of effective extension services, lack of technology assimilation and smallholders marketing costs. The government used to provide free seeds to be able to improve food security in the country but the opportunistic behavior on the part of the smallholders became a problem which was difficult to control.

Weak extension services are a big problem since technology and knowledge transfer are critical factors in solving the problem of low productivity. There are many problems or factors that result because of low productivity and the government is not doing enough to improve the situation for the smallholders.

For instance, financing is one problem for smallholders and efforts have been made by banks in cooperation with the government to introduce micro financing. Micro-financing is seen as a possible solution but it has been difficult to reach out to the smallholders. This is partly due to mistrust towards the institutions and partly due to high interest rates. In a situation like the current, when everyone is marketing for themselves, middlemen and wholesalers take advantage of the situation. Some middlemen make smallholders produce on credit to be able to make the in-prices higher.

Volatility in feed price is a major challenge. The government does not have enough storage space to cover the market demand for grains. Smallholders usually store feed by burying it into the earth on the top of a hill (also called “Mucmura”), although silos and storage places would be preferred.

Another problem, according to Abdelwahab (pers. comm, 2012) are land constraints and land laws. Approximately 90% of the land in the Sudan is government owned. The land is usually used for traditional agriculture without any rental contract. A smallholder might have been using the land for generations when an agribusiness arrives with a contract from the government and states its legal right to the land. Rental contracts are usually between 5-25

years long, but the investment act is very beneficial for investors, and if you prove to be serious about the land use, the contract given can be for almost 99 years. Investors and rural people have conflicts about land tenure.

### 5.1.3 Opportunities of the private sector

The poultry business is growing; the price has risen from 6SDG<sup>12</sup> to 20SDG per kilo during the last decade. Abdelwahab (pers. comm., 2012) also speaks of the market as being completely free.

The Agricultural Revival Plan is an ambitious plan to make the Sudanese agricultural production more effective but has not been fully implemented due to country's financial difficulties. The plan includes the improvement of infrastructure and water harvesting. During Abdelwahab's time as the undersecretary of the Ministry of Agriculture, the plan was inspected by the FAO, which considered it to be a splendid plan. "If at least 60 % of the plan could be implemented, then it would have a great impact on the country" states Abdelwahab (pers.comm., 2012). The revival plan was put in implementation in 2007 and was anticipated to take five years to fully implement, but the time limit has already doubled since the money that was first promised never arrived from the Ministry of Finance. Only parts of the financial assets have been obtained.

The Ministry's policy towards the private sector is very positive and open-minded; however, smallholders are not thoroughly included in the industry because large and efficient businesses are preferred by the government. The government prefers large agribusinesses which conquer smallholders in both quality and price. The opportunities of the smallholders are good if they learn to use micro financing and if they obtain better extension services. There is also a new act making it possible for seven smallholders to register an agribusiness to cultivate their land as a business. The problem is still that "cooperation" is a frightening word in the Sudan.

### 5.1.4 Challenges in the sector

Cooperatives have many times failed in Sudan which has become a problem since no one dares to try it anymore. People, overall, tend to depend only on themselves and on their family. Still, with better agricultural extension services and ongoing political instability, private solutions such as contract farming have to be the solution. It is too risky to depend on money from the government, but who will invest in contract farming and put financial assets into the agricultural sector in Sudan, asks Abdelwahab (pers.comm, 2012)

Abdelwahab (pers.comm, 2012) shares several challenges that the agriculture sector faces currently:

1. Because of the war since 1955 and other problems little attention has been paid towards the agricultural sector.
2. It is crucial that the smallholder owns his own land. The problem is that the government does not care who is cultivating the land as long as it is being done efficiently. The smallholder should work on his own farm and obtain his own profit to be considered an interesting business partner.

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<sup>12</sup> 1 SDG equals to 0,225 American dollars (forexticket.biz, 2012) . This implies that:  
6SDG = \$1,35  
20SDG = \$4,5

3. The government prefers to induct projects with tangible results such as building dams that everyone can see instead of investing in capacity building and teaching. Capacity building is not as popular in the sense that it is harder to show results.
4. Smallholders are poor, and therefore, prefer short term income rather than a larger income in the long run. Cash that is given might not go to agriculture. That is why inputs are given in form of tractors for example.
5. Cooperatives are needed. The problem is that cooperation is a well-known concept that has been given a bad name. One example of this is the Gezira scheme. A major problem with Gezira was the lack of administration and supervision. The situation has created anarchy where everyone is trying to cheat the each other. Also, since the supervisors and controllers are related to the families that own the poultry farm, a liability problem arise whether to help the family or the government.
6. Changes have to be implemented step by step which is often preferred by the government and the industries.

## 5.2 Perspective from academia

The university professors see poultry production as a growing industry with much potential. This is due to rising prices for red meat, as well as the economic development that is expected to lead to a rise in the demand for poultry. The per capita intake of the poultry and the increasing number of inhabitants are other contributing factor, Abdelgadir (pers. comm., 2012).

A problem in Sudan today is that the country used to be dependent on meat from the domestic breeds that are well adjusted to the conditions of the country. Since the rise of commercial broilers, international breeds have been imported. These breeds are not as well adjusted to the heat and are subject to local diseases which have raised the need for high technology equipment and medicine (pers.comm., Abdelgadir, 2012).

### 5.2.2 Challenges

Governmental policies regarding taxes on import and technical equipment are problems to overcome. Feed availability and volatile prices, especially in sorghum; raise the need for storage areas. The problem is that investing in storage is expensive, which in turn means that only the government and large agribusinesses are able to afford it. The agribusinesses prefer to produce their meat close to large cities since the main business opportunities are there. Transportation to other areas of the country is expensive since the meat has to travel in refrigerated vans (pers.comm., Yousif, 2012).

The smallholders, on the other hand, face problems such as competition of the large agribusinesses that tend to take over the markets in Khartoum, Omdurman and Bahri. Finding capital and financial assets is another problem identified by the professors. High interest rates often scare people away. At the moment smallholders in rural areas can still do well since the large businesses have not yet entered that market. Smallholders are also more sensitive to feed price volatility and are less resistant to overcoming changes and market fluctuations. Instead of protecting the smallholders, the government tends to favor the more efficient agribusinesses. Smallholders should also be provided with better extension services in the

form of training and equipment since they play an important role in filling the supply-demand gap in the poultry industry. In open- and semi-closed production systems, the birds become more exposed to diseases brought from outside the farms. This in turn leads to more veterinary treatment which is also very expensive (pers.comm., Yousif, 2012).

The inefficient extension services provided is a problem especially for the smallholders. By training and obtaining knowledge the smallholders would be able to make their production more cost efficient. Overfeeding is an example of smallholders paying for low nutritious feed and later having to over-feed the poultry without gaining/obtaining ideal output. (pers.comm., Khider, 2012)

### 5.2.3 Opportunities

As long as the agribusinesses are able to finance investments, they have a rapidly increasing market to satisfy. There is no doubt that entering the poultry business involves great opportunities. If effective extension services would be provided the possibilities of the smallholders are still good in rural areas since the agribusinesses tend to concentrate their market to the urban areas as well. Smallholders still fill an important position in the market, especially in the rural areas (pers.comm., Khider, 2012).

### 5.2.4 Contract farming

Contract farming is greeted positively by the universities, and Abdelgadir (pers.comm, 2012) refers to contract farming structures in Saudi Arabia and Brazil where the agribusinesses provide the smallholders with input on credit and slaughter assistance. Alnaeem (pers.comm., 2012) sees contract farming as the only way for smallholders and agribusinesses to be able to coexist in the future. The agribusinesses are currently taking over the production market but are already faced with difficulties from the government. “The Sudanese government needs to find ways to produce the inputs inside the country since the business is becoming too risky when depending on imports and the need for foreign currency” says Abdelgadir (pers.comm., 2012).

## 5.3 Agribusiness perspectives

Arabia and Shebeika produce their poultry under well- managed environmental conditions in modern closed production systems. Figure 5 provides a scheme for the agribusinesses production process .Veterinarians work at the farms and which have their own slaughter houses in close connection to the stables. After slaughtering, the meat is stored in chilled storage rooms until ready for packaging and transport. The agribusinesses ’ vans are also refrigerated to keep the best possible standard of the meat and so the transport can take place during any time of the day. Finally, the meat is sold to stores in the markets of Khartoum. Shebeika poultry has its own store that also sells the meat. The farms are located nearby the

cities to facilitate transport costs and be able to meet the demand.

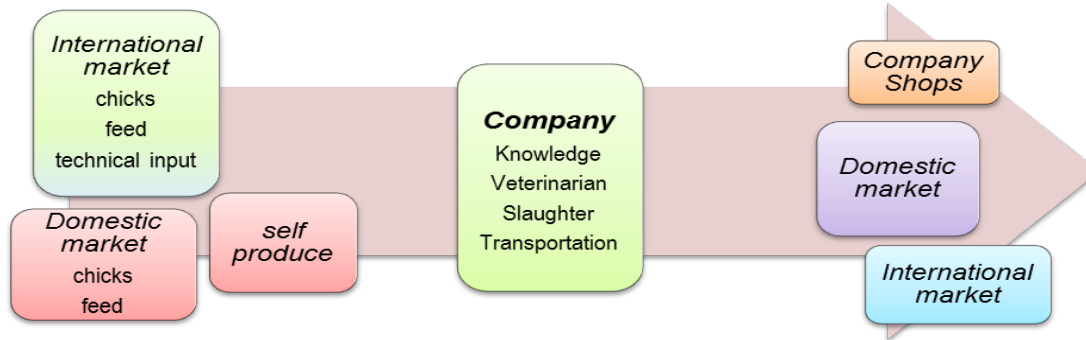


Figure 5. the production process of agribusinesses (own interpretation)

### 5.3.1 Arab Poultry Breeding and Production Company

Arabia Poultry Breeding and Production Company, was initially founded in Kuwait in 1983. It is a privately owned agribusiness with 42, 5 % of the stakeholders in Sudan, 12, 5% in Saudi Arabia, 12,5 % in Kuwait and 12% in Iraq. Arabia is one of the largest poultry producers in Sudan and has about twenty percent of the commercial market share. It currently provides jobs for 425 employees in the above mentioned countries. It is the only Sudanese poultry producer that is ISO 9001 certified (pers.comm., Altigani, 2012)

According to Altigani, the main goal of the agribusiness is to increase the business. There is a plan to double the broiler production from 4,5 million tons to 9 million per year within a five year period. The development plan also includes being autonomous in terms of egg- and poultry feed-production. This involves investment plans where the hatchery will produce 17 000 000 hatching eggs per year.

#### 5.3.1.1 The production process

The production process starts in the breeding houses. 65% of the eggs are self-produced and 35% are imported from breeders in Belgium, Holland and France. The eggs stay in the hatcheries for 21 days and are then transferred to the broiler houses until day 37-42. The slightly shorter slaughter age if compared to other producers (45 days) is explained by cost efficiency. This is due to the fact that the proportion of feed intake by the broilers is not justified by the increasing body weight after this time. Once slaughtered, the meat is stored in a shock freezer which is -40°C to avoid contamination. After that it's stored into a regular freezer before transportation the customers (pers.comm., Altigani 2012)

The agribusiness imports feed mainly from Europe. Since the demand for poultry is much higher than the supply, the agribusiness chooses not to export. Arabia poultry sees a large potential for the growth of the domestic market since it expects the poultry demand to rise from 1,5 kg of meat intake per capita to about 9kg per capita (pers.comm., Altigani, 2012).

#### 5.3.1.2 External relations

The relationship with the government is mainly through laws, taxes and controls that only include costs for the agribusiness. The agribusinesses do not cooperate nor does the government help or assist the agribusinesses. However, improved sorghum seed has been given to smallholders by the government as a resolution to improve the productivity of the grain in the country. Except for European agribusinesses, Arabia is not cooperating with any

other agribusiness or organization. Although, it could consider having sister agribusinesses that would provide Arabia with cheaper inputs such as feed. (pers.comm., Altigani, 2012).

### **5.3.1.3 Contract farming**

Contract farming is not considered an interesting business opportunity for the Arabia agribusiness. This is initially explained by the smallholders lack in biosecurity, but as the discussion moves forward, the authors also obtain other possible explanations for the negative response. The agribusiness has previously had bad experiences from interference with smallholders in the nearby areas and Altigani (pers.comm., 2012) is not happy with what has happened.

*“Smallholders always create problems for the agribusinesses . We tried to offer them assistance and part of our land as long as they took better care of their carcasses. Their current treatment of by-products is creating biosecurity risks for us. Nor do they respect our land (pers.comm., Altigani, 2012).*

### **5.3.2 Shebeika Poultry**

Shebeika Poultry was founded in 2002 by Abdelrahman Shebeika who is currently the general manager. The agribusiness started as a small business with only two broiler houses and has been growing rapidly. Now Shebeika has two big farms in the outskirts of Khartoum. Together these two farms cover about 512 hectares with a capacity of 300000 chickens and about 250 employees.

Shebeika’s goal is to develop a breeder and hatchery farm as well as to implement ISO 14000 and 9001 quality standards. The agribusiness is importing one day old chicks from the Netherlands and Belgium. Shebeika’s main concern is to overcome hard currency from the market. To be able to concentrate on the production process instead of the currency issue, Shebeika has invested in breeder stables so that they can produce their own chicks and eggs (pers.comm. Ahmed, 2012).

#### **5.3.2.1 Production process**

According to Ahmed (pers.comm, 2012), the production process from the beginning to the end is organized so that the employees are divided into teams and each team has a task to accomplish. Before the new batch arrives the houses must be cleaned, and the equipment has to be maintained and ready to be used.

The agribusiness has its own distributors in Khartoum, Omdurman and Bahir to be able to reduce prices of the middlemen, and by having their own stores, Shebeika can decide over the price. Shebeika has its own refrigerated cars and all transport is done by the agribusiness. Shebeika is quality oriented, they have been awarded by the Khartoum poultry committee for having a fine end product (pers.comm. Ahmed, 2012).

#### **5.3.2.2 External relations**

The agribusiness have many obligations towards the government. It needs to renew their licenses for the two farms every year. It has to get permission from the Ministry of Agriculture on all of its imports. Local veterinarians have to inspect the slaughtering process in order to approve that the meat is safe for human consumption. Shebeika has only business



relations with suppliers and buyers, but does not intend to deepen these relations into cooperation since autonomy is considered very important.

Ahmed expressed a complicated relationship with the government. One of the problems is Mico and the unpredictable costs. In the year 2006 the government became a shareholder in Mico, and since then the agribusiness has grown to become one of the largest poultry producer in Sudan. By having the government as a shareholder, it has been easier for Mico to avoid some of the costs that are faced by the private agribusinesses and has therefore been able to sell its meat for a much lower price than the rest of the poultry producers on the market. Shebeika has been able to stay in business due to the fact that customers are willing to pay for a higher quality meat (pers. comm., 2012).

### **5.3.2.3 Contract farming**

Contract farming is not considered an interesting business opportunity since smallholders are not presumed to be reliable or efficient business partners (pers.comm. Ahmed, 2012).

*“While we produce 120000 birds per day, a smallholder might only have the capacity of 10 000 birds in total. This makes their production systems very inefficient”. (pers.comm., Ahmed, 2012).*

Overall, autonomy and individualism was explained as the only way to make business in Sudan. Ahmed (pers.comm., 2012) also commented on the difference between other countries and Sudan. In countries with working infrastructure and independent external controllers, agribusinesses have to act responsibly and a certain standard is guaranteed. Since Sudan does not provide a functioning system, controlling the quality work of the smallholders would require a lot of time and money. The only connection that Shebeika is willing to have with smallholders is the possibility to sell one day old chicks, if its egg production exceeds the agribusiness's need. Even if contract farming would become interesting in the future, the agribusiness would never be willing to provide the smallholders with financial assets in the form of money. It might though consider providing other inputs such as feed and medical costs.

*“If you give them money, you never know for what they use them” (pers. Comm. Ahmed, 2012).*

Another reason why the agribusiness does not cooperate with smallholders is explained by the unbalanced benefit from the parties. The agribusiness does not want to provide technical assistance, economical input or share its knowledge since it might mean that the smallholders will be dependent on the agribusiness, and by that time, the agribusiness will have lost many of its resources specificity (specific knowledge) and smallholders might become dangerous competitors instead. Shebeika has invested money in educating its personnel. It would be unwise to not use the competence that the workers have gained over the years. (pers.comm. Ahmed, 2012).

## 5.4 Smallholders perspective

The table below is intended to give an overview of the smallholders' situation. The authors found this information important to take into consideration for the analysis of the smallholders' answers. Out of sixteen interviewed smallholders, representing eleven farms, only two were women. The table shows the number of chicks on the farms and the number of people interviewed and dependent of the production. The table also shows the education level as well as the dependency level of the production.

Table 2. Brief overview of smallholders.

Farm	Type of production system	Production size	Sex	Years within business	Other Income	Education level
1	Closed	63000	Mix	>5	-	University diploma
2	Closed	66000	Male	>15	-	University diploma
3	Closed	35000	Male	>15	-	Elementary school
4	Semi-closed	22000	Male	>15	Software	High school
5	Semi-closed	16000	Male	>10	-	Elementary school
6	Semi-closed	8000	female	>10	farming	Elementary school
7	Semi-closed	2000	male	<5	teaching	University diploma
8	Open	11000	male	>15	Farming	Elementary school
9	Open	6000	male	>10	Periodic income	Elementary school
10	Open	10000	male	<5	-	Elementary school
11	Open	4000	male	>15	farming	Elementary school

### 5.4.1 The production process

The smallholders buy their chicks from one of the two large suppliers or at the market for current market price and transfer them in simple boxes, preferably at night to lower the mortality rate of the chicks during transportation. At the market, the farms also search for feed that mainly consists of domestic ingredients such as sesame seeds and durra. The birds are then raised in systems with an intense labor dependency. A veterinarian visits the farms to give the basic injections within the first ten days compared to the first day by the agribusinesses. The chicks are transported at day 45 to the slaughter house for slaughtering and are then returned to the smallholder. Figure 6 provides an illustration of the smallholders' production process. Some of the smallholders transport the chicks themselves in their own or

borrowed vans or cars while some slaughter houses offer transport for the chicks. It is then up to the smallholder to sell his products at the market.

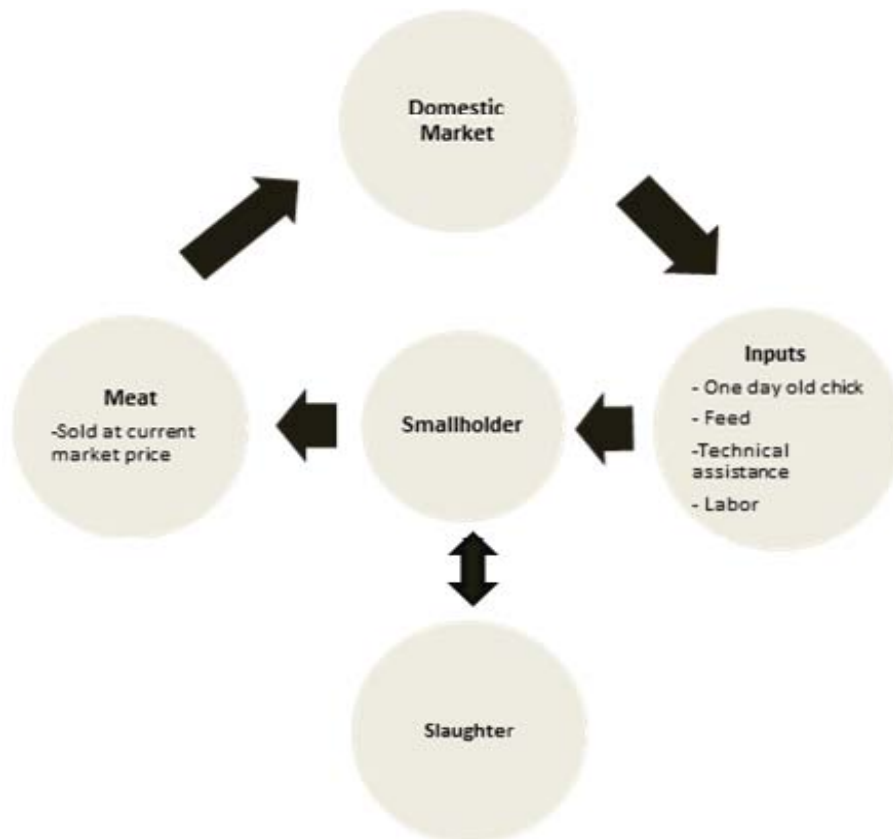


Figure 6. The production process of the smallholders (own interpretation)

#### 5.4.2 External relations

The government seems to leave the smallholders in peace and does not interfere in the production process. Taxes and charges are not paid by the open housed systems since their production is not always registered while the largest closed systems are registered as agribusinesses have to pay some agribusiness fees. The smallholders that also produce feed have at times been provided sorghum seeds for free by the government.

Poor financial assets were a major problem faced by all the smallholders. Although the government often let these smallholders slip the controls and standards, financial security is needed to acquire inputs. Smallholders 1 and 2 have obtained some financial help from the universities and are in return expected to provide university students with trainee work. None of the smallholders interviewed had financed their businesses by bank loans. This was explained by the high interest rate (12-14%) that makes the investment very expensive. Private financing by saving money during several years was the most common way to finance investments together with private loans from family members and friends.

Two of the closed production systems and one semi closed farm were insured. Smallholders 4, 6, 7 and 10 said that they would invest in insurance if they had a closed production system or a more advanced one since losing that would involve a greater financial risk. They did not seem to consider mortality because of diseases as a high enough risk factor to motivate

insurance. One of the closed system smallholder did not have insurance because of religious reasons.

The limited number of suppliers of chicks creates oligopoly market and the ability to raise chick prices. Since the smallholders are not able to import chicks from foreign countries they have to rely on hatcheries within the village. This has had several negative effects on the production. Another problem is the high mortality rate of chicks during the transportation of chicks from the farm to the slaughter houses. Some of the smallholders solve this by transporting the chicks at night but during the summer season the heat can still be intense. According to smallholder 11 (pers.comm., 2012) one percent of the chicks die during the transportation to the farm or slaughter house.

#### 5.4.3 Contract Farming

Most smallholders found contract farming an interesting business opportunity as long as the contracts are well written and suitable for their needs. Technical inputs were desired as well as help with the distribution of the products. They also see a working opportunity with an agribusiness as being a great experience to gain new network connections. Many smallholders have expressed that getting access to new technology is necessary, since new techniques could upgrade the production, leading to a better quality output. According to smallholder 5 (pers.comm., 2012) he will not produce any meat if he is not sure that the market will buy his product. That is also why smallholder 5 along with other smallholders express that contract farming can solve this particular problem.

The smallholders did not seem to think that knowledge transfer was needed and the ones negative towards the idea showed a fear of vertical integration or as they expressed it, the agribusinesses interfering and trying to affect their routines and daily work. Most smallholders also expressed an anxiety of being cheated by the agribusinesses.

Overall the higher educated smallholders gave longer and more detailed replies than the lower educated. The educated smallholders' appeared more critical towards signing a contract agreement than the less educated smallholders. The smallholder with lower degree saw no negative effects with contract farming what so ever. According to smallholder 8 and 11, contract farming was the only way for the farm to expand. The smallholders with university education were aware of some negative effects of contract farming and expressed an unwillingness to lose their independency as a business. Another interesting point of view was the unwillingness towards letting an agribusiness to promote the smallholders' production under the name of the agribusiness. This was motivated by the negative feeling of the agribusiness acting as a middleman to gain money on the work performed by the smallholder. Smallholder number 1 did not want someone else to take credit for his work since he was proud over his product.

Different responses were also noted when interviewing men and women, the two women that were interviewed were confident and business minded. The women also gave extended replies and personal replies which were interesting for the authors since it led to interesting discussions and a more personal relationship was established. The male smallholders were proper with their replies and didn't want to make any mistakes.

## 6. Analysis and discussion

This chapter analyzes the empirical data obtained from the study in regards to the agency theory. The theory explains the behavior of the agent and the principal under a contract agreement with focus on the agency- and the risk-problem. In the case of contract farming, the agribusiness plays the role of the principal that has to rely on the work of the smallholder, also known as the agent, for its own profit. To overcome the agency and the risk problem, the agribusiness will want to control the smallholder's work by strengthening the relation or offering attractive incentives for the smallholder to fulfill the agribusiness's needs.

The agency problem arises because of information asymmetry or in other words the principals' limited ability to control and understand the agents' hidden characteristics, knowledge and intentions. The agency problem relates to mistrust, opportunism and the humans incapability to be completely rationale. Limited ability for the principal to control the agent leads to opportunistic behavior in form of moral hazard or misinterpretations because of information asymmetry. The risk problem treats the parties' differences in risk averseness depending on which party is taking the risk. The one taking the risk is usually more eager to avoid risk than the other party.

The study intends to answer the following questions. This is done by comparing empirical data from interviews with published articles, official statistics and other data.

1. How are the market participants affected and responding to the current changes in the Sudanese poultry industry in Sudan today?
2. Under which conditions is contract farming an interesting business opportunity for large agribusinesses?
3. How can large agribusinesses benefit from contracts with smallholders?
4. How would the agribusinesses provide assistance/benefits for the smallholders?
5. Under which conditions are smallholders interested in entering a contract agreement?

### 6.1. Mistrust, affecting the attitudes towards collaboration

As in several other African countries faced by war, corruption and poverty, mistrust is a major challenge to overcome affecting every part of the markets in Sudan. Abdelwahab at the CTC refers to his own experiences from working for the government. The government used to offer free seeds to secure food safety for the smallholders. The problem was that the smallholders sold part of the seed or used the land to grow cash crops for short term income. Poor control and management made the food safety plan unsustainable as cheating was not effectively recognized. Because of this the government nowadays is skeptical towards supporting smallholders in similar ways since it expects the smallholders to act opportunistically and irrationally once again (pers.comm. Abdelwahab, 2012). Similar behavior has been identified by Kontos (1990) when smallholders in the Gezira scheme acted opportunistically, trying to outsmart the system by renting out the land to subtenants or by overwatering their crops.

On the other hand the universities, agribusinesses and the smallholders all show serious mistrust towards the government. Even Abdelwahab at the CTC confirms that the work of the agricultural extension service is unsatisfactory, especially towards smallholders as it has let them down. Technical assistance is not offered to an adequate extent and large agribusinesses

are preferred as land tenants. This is also confirmed by Yousif, dean of animal production at Khartoum University.

Also, the agribusinesses relation with smallholders is tensed. This can be explained by land issues were the smallholders do not respect boundaries and contracts. The agribusinesses also have little faith in the smallholders' abilities to manage their farms in bio-secure and efficient ways. According to the agribusinesses, smallholders that are not able to manage their farms properly run the risk of spreading disease and epidemics that end up hurting everyone involved. Ahmed, technical manager at Shebeika, describes an unwillingness to enter contracts with smallholders because of the costs that would arise due to control issues. He would not be willing to provide money to a smallholder since he would lose control over how it is used. The explanation for this is the agribusinesses' mistrust of smallholders' intentions. If Shebeika and Arabia poultry support smallholders with sorghum for chicken feed, there is no guarantee that the feed will go to chicken production. Since there is a shortage of sorghum due to rise in demand for human consumption, it is attractive to sell the seeds provided and outsmarting the agribusinesses. That's a risk agribusinesses do not want to take.

The lack of trust in others makes cooperating in the form of contract farming, very expensive for the principal since the extent of control would be large (Eisenhardt, 1989). Moral hazard on part of the smallholder is expected by Arabia and Shebeika that's why the agribusinesses try to only depend on themselves. This decision could be explained by the agribusinesses' beliefs that it would be non-cost-efficient to monitor the smallholders every step (Adams, 1996).

## 6.2 Avoiding government interference

Smallholders could help the agribusinesses to overcome some of the problems that the government might create for the agribusinesses since contract farming could be more socially accepted (Eaton and Shepherd, 2001). While the agribusinesses expressed problems with government interfering with business, the smallholder respondents had so far been left in peace. The agribusinesses could avoid problems with the government since part of the assets would be written on the smallholders. Contract farming could also be cost efficient as the agribusiness will save money on staff training, and behavioral payment (Eaton and Shepherd, 2001). Although, the unstable political situation and bad experiences from earlier projects are making the positive effects of profits appearing small and too uncertain to be considered interesting business opportunities for the agribusinesses today. Moreover Ahmed (pers. comm., 2012) explained that much of these training costs had already been invested in the people that work for the business today. To train smallholders to do the same job would be a lack of investment.

The agribusinesses attitudes towards being independent are based upon several reasons. Firstly, the relationship with the government is tense. The government is a stakeholder in one large poultry producer Mico, and debatable regulations create apparent problems for the other agribusinesses that try to compete with Mico. Both Arabia and Shebeika, mention that as soon as a smallholder enters a contract agreement with an agribusiness, the government will interfere and complicate the cooperation. Contract farming is described as initiatives taken by agribusinesses to secure access to smallholders' production. However, it is difficult to create and believe in change when the government refuses to support any idea (Coulter, 1999).

## 6.3 When problems are larger than benefits

Both Shebeika and Arabia poultry see no satisfactory benefits of entering a contract agreement due to many reasons. Firstly, they assume that management standards would dissolve. With the high control of bio-security that Arabia and Shebeika poultry have, they believe that smallholders due to poor knowledge won't be as careful. Arabia and Shebeika have put a lot of time and money into training employees to do the job correctly. They see no benefits in starting all over again.

*“The job is done better if it's done by the agribusiness itself”* -Ahmed, technical manager Shebeika Poultry.

The idea that cooperation with small farms would be expensive has been found to affect the agribusinesses attitude towards contract farming (Sethboonsarng, 2008). Shebeika and Arabia produce 7-15 thousand ton of poultry meat a day and have capacities of mass production and high quality. For an agribusiness to start a contract agreement with a smallholder whom has very limited capacity for safe and effective production would be a vast and tedious project for both parties (pers., comm., Altigani, 2012).

## 6.4 “Safe” business excludes the poor

Eaton and Shepherd (2001) point out the large need for financial, technical and capacity input that the agribusinesses would have to provide for the smallholder to establish a sustainable contract agreement. In developing countries the input from the agribusiness generally has to be higher than in developed countries. In the case of poultry production in Khartoum the smallholders will not be interesting business partners unless they produce in closed systems. Since the smallholders lack the financial assets to invest in closed production systems, and the agribusinesses seem unwilling to provide these assets; the evolution as well as the cooperation seems to be immobile. Key and Runsten (1999) find that the preference of agribusinesses to collaborate with large smallholders is one of the main concerns regarding contract farming. This would imply that Shebeika and Arabia could only consider to work with farm 1,2 or 3 that already operate closed production systems. These farms are in theory the ones with less need for help.

## 6.5 Imbalanced power relations

Some of the smallholders are willing to sign a contract if the agribusiness provides them with the inputs they feel that they need, such as technical assets, credit. According to a few smallholders, entering a contract agreement is also a big risk for them as it could mean that they will not be able to grow as independent businesses if they produce for an agribusiness. Some smallholders dream of having their own agribusiness one day. By agreeing upon a contract, this commitment would limit the smallholders' chance of developing their own ideas. To exit a contract agreement would be even harder for a smallholder because they are dependent on the agribusinesses' inputs. This dependence further leads to the agribusiness controlling the smallholder instead of working together.

Most smallholders also see the risk of being cheated with a contract agreement. Since many smallholders can't afford lawyers to look through the contract, they feel there is a great chance for manipulation. As smallholder 1, expressed it:

*“Me, as a smallholder, I want to grow, and make my own farm bigger one day. To work through a contract is a good way for me to gain more experience, knowledge and network connection. but what happens when I want to exit the contract? Can you secure for me that the agribusiness will not hassle me? I'm a small farmer with very little connection, while the agribusinesses are ten times my size and for sure have more connections. To start a problem with them could mean the end of my farming career”.*



## 7 Conclusions

This study was intended to investigate whether or not contract farming was considered an interesting business opportunity for poultry producers in Sudan and a mean to let smallholders participate on a larger market. The concrete answer to this question is no. Contract farming between smallholders and agribusiness poultry producers is not seen as an ideal business opportunity for either party. This implies that little collaboration will take place without the interference or incentives created from a third party. As long as Sudan continues to be politically unstable and corruption continues to play a major role in business, neither the agribusinesses nor the smallholders can count on the government or extension services to solve their problems. However, contrary to the smallholder and agribusiness perspective, both the universities' staff and the production manager at the CTC welcome contract farming as an interesting option. Although contract farming could be considered important for smallholders in the Sudan, the critical aspects require much effort to overcome. Although contract farming could be considered important for smallholders in Sudan, the critical aspects require much effort to overcome.

When looking at the situation from an agency theory perspective, we presume that the agribusinesses and the smallholders' different views are due to different risk averseness and the risk perceived by the parties. The university professors and the government are able to refer to the implementation of contract farming as an experiment, because they put little at risk themselves. As the agribusinesses and the smallholders are the ones whose incomes depend on the production effectiveness, they are less eager to spend money on new projects. Also, the time frame of a project is important. If a project is non-successful after a few years, the government can simply refer to it as a failure and move on. However, a smallholder might lose his entire business and have obtained large debts within a short period of time. For contract farming to be a sustainable solution to market failure in Sudan, strong involvement and commitment from both smallholders and agribusinesses are essential.

The differences in quality, price and service offered to the customers has created two separate production chains where large agribusinesses reach the most attractive markets and smallholders mainly fill the supply-demand gap as the agribusinesses are still not able to satisfy the growing demand. In this study, mistrust and poor infrastructure has been central explanations to the current relations between agribusinesses and smallholders. This mistrust is due to the underlying reasons explained above. The few extension services that are offered are met by suspicion and the same negative attitude was noted towards cooperation and contract farming. On the one hand, we hear the agribusinesses explanations for their unwillingness to depend upon others. Traditional reasons and bad examples are easily used to explain the negative points made. We can also understand that expected problems with biosecurity and moral hazard with smallholders scare agribusinesses off. On the other hand, someone needs to take a first step towards improving an infected business environment. The chance of getting smallholders to listen and accept offers from large agribusinesses is greater than the other way around. As stated above, the initiative has to come from the larger institutions.

### 7.1 Outlook

A growing urban population is dependent on the agricultural produce from the rest of the country. The current situation, with a war in Darfur has put the country's most arable land incapable of contributing efficiently to agricultural produce. If competing with animal

consumption, human consumption will always come first. This means that the rise in food prices for humans has affected the rise in the price for animal consumption as well since the land left for the growth of animal feed is taken over by the produce for human consumption. As stated above, the feed cost is up to 70% of the poultry producers' total production costs. As a result, stabilizing feed price and securing the availability of the feed, during the year would be an important way to ease the poultry producers' economic situation. This study focused on the possibility of small poultry producers to produce poultry through a contract agreement with a large agribusinesses in order to secure an income. At the end of this project, we have noted time after time a need for feed and storage possibilities. For future studies we see a possibility for contract farming where smallholder agriculturalists specialize in poultry feed production such as maize or soy beans. By helping smallholders to specialize in these crops the agribusiness would become less independent on expensive imported feed and less dependent on external currency. This would also make the smallholders more attractive contract partners rather than a competitor.

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# Appendix 1: Interview with Universities

Date:

Time:

Place:

Name of person interviewed:

Position:

Type of organisation:

## **Poultry industry in Sudan**

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1. What is the market outlook for the poultry industry in Sudan?
2. What are the challenges faced by agribusiness poultry producers?
3. What opportunities do the agribusiness poultry producers have?
4. What are the challenges faced by smallholder poultry producers?
5. What opportunities do the smallholder poultry producers have?
6. Are there existing policy promoting/supporting the poultry industry development or hindering it?

## **Contract Farming**

---

7. Do you see any current potential for contract farming in the poultry business in the Umdurman region? Why?, Why not?
8. What do you believe to be the greatest difference between the smallholders and the large companies when it comes to developing their businesses?  
*Economic difference? Networks connection and network size? Education?*
9. Are small holders well included in the poultry business today?
10. How do smallholders access a larger market? (Regional, national, international)  
*Interest organizations?, Other?*
11. How would small holders access the larger market if they do not produce under contract?
12. How could contract farming be successfully implemented in Khartoum?
13. What benefits do small holders have when it comes to production?  
*For ex. Become aware of sick individuals at an early stage?*
14. What is the biggest concern in the industry today?
15. What do you think could be difficult in finding an agreement on a contract, between agribusiness and smallholder? Do you think it will be difficult for smallholders and agribusinesses to agree on a contract were both parties are satisfied?
16. What would be an ideal setup for contract farming in the Sudanese poultry industry?
17. How would you implement contract farming today?



# Appendix 2: Interview with Universities

Date:

Name of person interviewed:

Position:

Type of organization:

Email address:

## **Poultry industry in Sudan**

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1. What role does the ministry play in supporting agribusinesses and smallholders?
2. How is the agricultural extension organized?
3. How would you describe the ministry's policy towards the private sector? (*agribusinesses and smallholders*)
4. Are there existing policies promoting/supporting the poultry industry development or hindering it?
5. Would you consider smallholders well included in the poultry business today?
6. What opportunities do the agribusiness poultry producers have?
7. What are the challenges faced by agribusiness poultry producers?
8. What are the challenges faced by smallholder poultry producers?
9. What opportunities do the smallholder poultry producers have?
10. Do you consider contract farming as being a possibility for the poultry business in Sudan? Why?, Why not?
11. How would small holders access the larger market if they do not produce under contract?

# Appendix 3: Interview with Companies

## **Background**

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1. When was the business founded?
2. What's your main goal?
3. How do you operate to reach your goals?
4. How much is your yearly revenue?
5. How many employees do you have?
6. Do have any quality certification, if so what are the demands?

## **Current production**

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7. How does your production process work?
8. Who is your main customer today?
9. Do you export part of your production?
10. Do you co-operate with other organizations today? How?
11. How do you collaborate with the government
12. Are there any requirements from the government that you must fulfill?

## **Contract Farming**

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13. Do you see benefits from entering contracts with small holders today or in the future?
  - Why?
  - Why not?
14. What are your major concerns with entering a contract agreement?
15. How can smallholders change its way of managing their business to become an interesting business partner?
16. What are you willing to provide for smallholders?
17. Do you find smallholders trustworthy as business partners?
  - Why?
  - Why not?

# Appendix 4: Questionnaire Smallholders

Time:

Place:

Name of person interviewed:

## **SOCIO-ECONOMIC STATISTICS**

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Gender.....  
Age of respondent.....  
Household size.....  
Education level .....  
Profession/Occupation .....  
Main income generating activities .....

### **BACKGROUND**

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1. Why did you decide to produce poultry?
2. For how long have you been in the industry?
3. Is the family depending on other income?

### **PRODUCTION SIZE**

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4. How many chickens do you have?
5. Do you keep record of your production? (*i.e. mortality rate etc.*)
6. How is the farm financed?
7. Do you plan to invest in your production?
8. How will you execute your investment plans?
9. Are you part of a cooperative or other organized group for poultry production and sales?
10. Do you have insurance for your production? If, not why?
11. Are there any requirements from the government that you must fulfill?

### **NETWORK RELATIONS**

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12. Who is the buyer?
13. How extended is your relationship to the buyer?

14. Who provides you with chickens?
15. How extended is your relationship to the provider?
16. From whom do you buy food and other input for the chickens?
17. How do you get production to the place of sales?
18. Do you face any problems in poultry production? What are the problems?
19. How do you solve the problems?
20. How is the work load divided between family members?

### **CONTRACT FARMING**

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21. Have you heard of contract farming before? If, yes how?
22. Would you consider contract farming an interesting business opportunity?
23. What do you think that a large poultry company could assist you with if you enter a contract agreement with them?
24. Would you be willing to set a future price for the chicks you sell in order to eliminate price risk? If, yes for what duration?
25. What is your greatest concern about entering a contract agreement?

## Appendix 5: Questionnaire Smallholders (Arabic version)

- ١- ماهي الاسباب التي دفعتك للعمل في إنتاج الدواجن؟
- ٢- كم سنة قضيتها في حرفة الصناعات؟
- ٣- هل للأسرة مصادر دخل أخرى؟

### حجم الإنتاج

- ٤- كم عدد الدجاج الذكور؟
- ٥- هل تحتفظ ببيات الإنتاج؟
- ٦- ماهي مصادر التمويل؟
- ٧- هل تسعى الفروع في الاستثمار لزيادة إنتاج؟
- ٨- كيف تنفذ خطط الاستثمار؟
- ٩- هل أنت عضو في جمعية تعاونية أو جمعية منتجة للإنتاج وتسويق الدواجن؟
- ١٠- هل تأمن لك المزرعة؟ وأذا لا فوهي طاقا؟
- ١١- هل هناك متطلبات حكومية للإنتاج؟

### العلاقات المتكافئة

- ١٢- من هو المتكافئ؟
- ١٣- ماهي مدى معرفة المتكافئ؟
- ١٤- من الذي يمكنه إعداد الإنتاج؟ من الواجب؟
- ١٥- طاهي مدى معرفة بالموارد؟
- ١٦- من من تشرى مدخلات الإنتاج؟
- ١٧- ماهي وسيلة الذخيرة من إعداد الإنتاج في البيع؟
- ١٨- ماهي المشاكل التي تواجه إنتاج الدواجن؟
- ١٩- كيف تتطلب مدونة المشاكل؟



٥٠- كيف يتم تقييم أخطاء العمل بين أفراد أسرة؟

### التعاقد الزرني

٥١- هل سمعت بالتعاقد الزرني من قبل؟ إذا نعم فمتى؟

٥٢- من تعهد التعاقد الزرني فترصد استثماره في العمل؟

٥٣- من المتقارن ماذا يجلب أنه تقدمه لدى شركات لإنتاج

اللبنة إذا دخلت معهم في تعاقد زرني؟

٥٤- هل من بإمكانه وضع أ - ما - مستقبليه حتى تستطيع

التغلب على تذبذب الأسعار - ومخاطرها؟ وأذا الإجابة

نعم فكم من الزرني؟

٥٥- ما هو أكبر تحفظ لدى عند الدخول في التعاقد الزرني؟



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