

Drivers for development

A case of sheep and goat farming in Suriname



**A Research project submitted to
Van Hall Larenstein University of Applied Sciences
in Partial Fulfillment of the Requirements for
the Degree of Master of Development,
Specialization International Agriculture.**

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September 2008**

**Wageningen
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ACKNOWLEDGEMENT AND DEDICATION

This thesis is dedicated to my parents, Frank and Helen, who could not be present in person at this great moment in my life. Although not present in person, they supported me mentally through all the hard times. I am grateful for that.

Acknowledgement

First of all, I thank the Lord Jesus for the strength and knowledge he provided me with, to bring this Masters course to a successful end.

I would like to extend my utmost thanks and appreciation to my thesis supervisor Mr. M. Verschuur, who as advisor provided untiring encouragement, constructive criticisms and competent guidance throughout this study.

Sincerest gratitude is extended to the sheep and goat farmers in the Wanica district of Suriname, who have participated in this research.

I would also like to thank my colleagues at the Ministry of Agriculture, department of Animal husbandry and the veterinary officers who guided and assisted me during data collection in the field.

Special thanks are extended to my family and friends who supported me mentally during the whole Masters program.

PREFACE

This research project is submitted to Van Hall Larenstein University of Applied Sciences in Partial Fulfillment of the Requirements for the Degree of Master of Development with the specialization International Agriculture.

The report is the result of research work focusing on the farmers in the Wanica district in Suriname. It is intended to provide insight into the aspects that influence the development of the sheep and goat sub- sector in Suriname and the factors and actors determining the decisions of farmers.

The report has the following structure:

Chapter 1 comprises of the introduction to the research topic. That includes background to the research topic and justification, research problem statement and objective, and research main and sub questions.

In chapter 2 research design and methodology are described.

In chapter 3 background information about Suriname and an overview of the Animal husbandry sector are provided.

Chapter 4 describes the main concepts used in the research and definitions related to these concepts.

In chapter 5 the findings of the research are described.

Chapter 6 describes the conclusion and discussion, while in chapter 7 recommendations towards the employer of the researcher are given.

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LIST OF ABBREVIATIONS

MoAAHF	: Ministry of Agriculture, Animal Husbandry and Fisheries.
FAO	: Food and Agriculture Organization.
SRD	: Surinamese Dollar.
UCBS	: Union of Cattle Breeders in Suriname.
NABS	: National Agriculture Bank of Suriname.

ABSTRACT

This thesis report argues about the drivers for development for sheep and goat farmers in Suriname. The constraints obstructing farmers from bringing the sector from hobby to a more professional level will be described.

Encouragement of the production of small ruminants, namely sheep and goat, is one of the activities of the department of Animal husbandry in Suriname. The production which can be achieved on relatively small farms and can contribute to the income of farmers and rural populations is assumed by the ministry of Agriculture to have export potential to the Caribbean region. Although the farm gate and consumer prices in this sub sector are high, compared to other sectors, still production levels and efficiency are not improving. This in contrast to other sub sectors in Animal husbandry.

Major constraints identified by the research that can be mentioned include high investment risks, low management and technical skills of the farmers, inefficient production, lack of quality breeding stock and low bargaining power of the farmers.

Low bargaining power, a result of the monopoly position of the butchers and middlemen, is leading to low farm gate prices and farmer dissatisfaction. The low bargaining power can be one of the major constraining factors for farmers, as the majority of respondents consider the farm gate price as too low.

Respondents indicated opportunities to improve the production in the sector that include improvement of the government extension service and technical assistance towards farmers, import and availability of quality breeding stock, incentives, export oriented marketing and establishment of farmer cooperatives. The key recommendations of the document are to promote and stimulate organizing of farmers. The positive effects of organizing: increased economies of scale and bargaining power and better farm gate prices through corporate marketing can positively contribute to adoption and growth of the sub sector.

CHAPTER 1 INTRODUCTION TO THE RESEARCH

This research report has been written in partial fulfillment of the award of a Masters for Development degree with specialization International Agriculture. The research was conducted with the view to contributing to the development efforts of the employer of the researcher, the ministry of Agriculture.

1.1 Research background and justification

In the project document Animal husbandry development in Suriname (part of the Agriculture sector plan 2005 - 2010), encouragement of the production of small ruminants, namely sheep and goats is mentioned as one of the Government's policies. Reasons for the encouragement of the production which can be mentioned are possibilities for creating (additional) income for farmers and rural populations and the assumed export possibilities to the Caribbean region (MoAAHF, 2007). In these countries the natural means for agriculture production are limited, but the meat is very well accepted in contrast to Suriname (see table 1).

Table 1: Per capita consumption for different meat types (kg/ capita/ year).

Country	Year	Bovine meat	Chicken	Pork	Mutton and Goat	
Barbados	2003	12.00	46.00	10.00	6.00	F
Guyana	2003	2.00	32.00	1.00	1.00	F
Haiti	2003	5.00	4.00	5.00	0.00	F
Jamaica	2003	8.00	44.00	3.00	2.00	F
Suriname	2003	5.00	32.00	5.00	0.00	F
Trinidad and Tobago	2003	5.00	26.00	5.00	1.00	F

F: FAO estimates
Source: FAO, 2008.

The low intake in Suriname can be related to the fact that the eating habits regarding sheep and goat meat is limited to certain ethnic groups and religious festivities. Sheep and goat meat are predominantly consumed by respectively the Muslim and the Hindu society.

For implementing her policy, in 2007 a plan was written to encourage the production of small ruminants. This plan involves: (1) importing of breeding stock to upgrade the local herd, (2) establishing of a multiplication farm, (3) establishing of several model farms in the districts and (4) training of farmers in production and management techniques. The production of small ruminants is considered important for the department of Animal husbandry since it may contribute to reach increased and improved production of animal protein. The low actual production levels, high prices and low quality of meat on the local market are creating opportunities for interventions focusing on qualitative and quantitative production improvement (MoAAHF, 2007).

Table 2: Consumer price for the different meat types in Suriname (aug. 2008).

Meat type	Consumer price (€/ kg.)
Mutton and Goat	7.50 – 9.00 €
Beef	4.00 – 5.00 €
Chicken	2.50 €
Pork	5.00 €

Source: MoAAHF, 2008

Compared with other types of local produced meat, the meat of small ruminants is very expensive. In spite of both the high farm gate price as consumer price, farmers seem not to be motivated to increase production and efficiency levels. This is giving room to suspect that they consider other factors and actors to be of bigger importance in decision making for taking advantage of the high price and adoption of more productive techniques.

Farmers can have various motives for not adopting the production of commodities that are expected to be more lucrative and having export potential. These motives can range from high risks involved with production for export, to missing information about the profitability of the commodities and constraints in the access to inputs and infrastructure (Ashraf et al., 2008). Besides profitability (Singh, 2000 and Ashraf et al., 2008) also the education level of the farmer can be mentioned as a factor determining the adoption (Singh, 2000 and Birthal and Kumar, 2004¹). According to Adesina and Zinnah (2002) the traditional indicators of adoption determinants used in adoption diffusion studies, were found not to be important in driving the adoption decisions. In a study at the adoption of improved mangrove swamp rice varieties, the farmers' perceptions of the technology - specific attributes of the innovations were found to be major factors determining adoption and use intensities once adopted. Therefore, there is need for adoption studies to consider farmers' perceptions of technology - specific attributes in the assessment of technology adoption decisions.

Availability and accessibility of knowledge and market information are considered key issues in sector development. Market information is relevant since it links farmers to markets and customers, but also attractiveness, profitability and access to services should be considered.

The proposed research will focus on determining the attractiveness of sheep and goat farming, by identifying factors and actors hindering farmers for taking advantage of the favorable farm gate prices.

1.2 Problem statement

Despite the high farm gate price for sheep and goat, farmers are still not taking advantage of this favorable situation. Production levels are not increasing in contrast to other livestock sectors in Suriname.

Since the high farm gate price is not leading to an increase in production and efficiency, indicates that other factors and actors in the chain can perhaps be held responsible for the management decisions of farmers.

Insufficient knowledge of these factors and actors and their importance for farmers in decision making can be regarded as the main obstacles responsible for stagnation in development projects initiated by the Ministry of Agriculture in Suriname.

1.3 Research objective

For development efforts to be successful it is of crucial importance to identify the factors and actors that are contributing to the attractiveness of the farming type and are having influence on the management decisions of farm managers.

The objective of the proposed research is contributing to an improved insight in the factors and actors contributing to the development of sheep and goat sub sector.

1.4 Main research questions

- Q 1. What are the characteristics of the sheep and goat sub- sector in Suriname?
- Q 2. What is limiting farmers for developing the sheep and goat sub- sector in Suriname?

1.5 Sub questions

- Q 1.1 How is the chain currently organized in terms of actors, their role and relation?
- Q 1.2 What is the domestic market share for sheep and goat meat?
- Q 1.3 What is the effect of substitutes on production and market share?
- Q 1.4 What mechanisms or institutes are determining the farm gate and consumer price?
- Q 2.1 What farming systems are currently being used?
- Q 2.2 Which production support systems are currently available for farmers? (e.g. credit, extension, access to land etc)
- Q 2.3 What information is considered important by the farmers in decision making?

CHAPTER 2 RESEARCH DESIGN AND METHODOLOGY

This chapter elaborates on the research method and instruments of data collection. Furthermore are described the respondents, research site and sampling of respondents. The researcher went back to his home country, Suriname to collect data for this thesis report, in addition to literature reviews from various sources. Staff of the Ministry of Agriculture, department of Animal husbandry including veterinary and extension officers assisted the researcher in identifying the farmers.

Data collection was carried out in the period from July 16th to August 20th 2008 in the district Wanica, one of the coastal districts of the country. This district was chosen for data collection since it contains the largest population of farmers and agriculture activities in the country, but it is also the working area of the researcher.

2.1 Methodology

The researcher mainly used the qualitative method for data collection. This method is a more in-depth approach of data collection, which provides more intrinsic information for in-depth analysis.

During the research two strategies for data collection were used: desk research and case study.

The research started with a two week desk research to collect relevant theories, concepts and information, which were used for better understanding the research topic and for establishing the interview topics. Available relevant documents of the department of Animal husbandry in Suriname and other relevant sources were also consulted.

In the second phase of the research, conducted on farmer and butchers level, the field data was collected. For this purpose a case study was conducted, for providing qualitative, in depth information about the topic.

2.2 Instruments for data collection

The qualitative data was mainly collected through conducting structured interviews according to a pre-established list of questions (see Annex 1, 2, 3). Before conducting the interviews in the field, test interviews were conducted among staff of the department of Animal husbandry. The purpose of the test interviews was for finding out if the questions were clear to the respondents and providing the desired answers. Another advantage of the test interviews was that they informed the researcher about the interview questions that needed clarification during the interviews. The interviews were conducted in an open manner giving respondents the possibility to tell their story and providing additional information.

The list of interviewees included farmers, butchers, staff of the Ministry of Agriculture and relevant stakeholders among which representatives of the Union of Cattle breeders in Suriname and the National Agriculture Bank in Suriname.

It was in the line of planning to interview 20 farmers in the Wanica district of Suriname, 5 butchers in Paramaribo city, 2 staff of the department of Animal husbandry and 2 representatives from respectively the Union of Cattle breeders in Suriname and the National Agriculture Bank in Suriname. Unfortunately due to time and financial limitations only 17 farmers and 4 butchers could be interviewed, besides the 2 staff of the department of Animal husbandry and the 2 staff from respectively the Union of Cattle breeders in Suriname and the National Agriculture Bank in Suriname.

2.3 Interviews

Three main categories of interviews were conducted:

Individual interviews with farmers

The interviews with farmers focused on gathering information about the farming systems, chain relations and management aspects. Individual interviews provided the advantage of triangulation of data and deliberate effort was made to interview the farm managers.

Individual interviews with butchers

The interviews focused on gathering information about the chain relations, market and marketing aspects. Individual interviews, not only provided information from another chain actor, but also the advantage of triangulation of data. Deliberate efforts were made to interview the managers of the butcher shops.

Individual interviews with other relevant stakeholders

For gathering additional information and expert knowledge to triangulate data, 2 experts of the department of Animal husbandry in Paramaribo city having experience on the topic, one representative of respectively the Union of Cattle breeders in Suriname and the Agriculture bank were also interviewed. One of the interviewees of the department of Animal husbandry was a Veterinary officer active in the Wanica district.

2.4 Sampling of respondents

The initial intention was to select farmers strategically from lists provided by the department of Animal husbandry. For achieving this they would first be classified into categories based on the herd size, after which it was the intention to take a representative sample from each category. Given the fact that the abovementioned list which dated from a survey conducted in 2002 was strongly outdated, it could unfortunately not be used to stratify the farmers nor for taking a representative sample. At the moment of data collection a fraction of farmers on the list were no longer active in production or the number of animals reared was incorrect.

To solve the problem potential respondents among the farmers were first identified by extension and veterinary officers working in the Wanica district. The identified farmers were divided into the following categories:

***Small holders:** Up to 20 mature sheep and/ or goats.

***Large holders:** More than 20 mature sheep and/ or goats.

At random 10 farmers were selected from both categories by the researcher.

Selection of experts and farmers was on the basis of their knowledge of sheep and goat production, herd size, willingness to participate in the research and their role in the chain.

For selection of butchers the criteria of processing and marketing sheep and goat meat was used. According to data provided by the Ministry of Agriculture (MoAAHF, 2008) approximately 30 butchers selling mutton and goat meat are active in Suriname. From the butchers that were qualified according to the criteria a number of 5 were at random selected, out of the group of 30, as respondents.

2.5 Research site

The Wanica district is one of the 10 districts of Suriname. Each district is subdivided into resorts. The Wanica district is divided into 7 resorts, namely: Kwatta, Saramacca polder, Koewarasan, Lelydorp, De Nieuwe Grond, Houttuin and Domburg. Data collection was conducted in the resorts Kwatta, Saramacca polder, Koewarasan and Lelydorp.

Reasons for this selection being that the resorts are the working area of the veterinary and extension workers, who supported the researcher during field work. Other reasons that can be mentioned are time and budgetary limitations.

2.6 Data processing method

The collected data, the interview questions, were first arranged according to the related sub questions. After arranging the data it was summarized in compilation sheets. Afterwards it was presented in tables and graphs, using Microsoft Excel, for comparison and analyzation.

For analyzing the chain certain tools were used, for example: (1) Value chain mapping, (2) Quantifying and describing the value chain in detail and (3) five competitive forces model of Porter.

2.7 Time schedule

Activity	July 08				Aug. 08				Sept. 08				
Desk research	X	X											
Field research/ data collection			X	X		X	X						
Data processing					X			X					
Prepare concept report*									X				
Submit final report**										X			

* Submission September 8, 2008.

** Submission September 12, 2008.

CHAPTER 3 BACKGROUND INFORMATION OF SURINAME

In this chapter the country where the research was conducted, as well as its geographic location are briefly described. Furthermore this chapter provides an overview of the Animal husbandry and the small ruminant sub- sector.

3.1 Overview of the country: Geographic location and land potential

Suriname, member of the Caribbean Community, is located in the north-eastern part of South-America. In the north the country is bordered by the Atlantic Ocean, in the east, south and west it is respectively bordered by French - Guyana, Brazil and Guyana. It has a tropical climate with four seasons that can be distinguished throughout the year. There can be distinguished: minor rainy season (December- February), minor dry season (February- April), major rainy season (April- August) and the major dry season (August-December). The total land area is 163.820 km². According to the census organized in 2004, the total amount of inhabitants was 492.829. The country is divided into 10 districts which are subdivided into resorts.

In Suriname, that gained independence from the Netherlands in 1975, agriculture had played an important role in economic and rural development. Developments in the agriculture and minerals sector were in fact the main factors that determined the economic development and urbanization of rural areas.

Due to declining world prices for agricultural products, until the present date agriculture had lost her role of economic importance for the country, which had been taken over by the minerals and industries sector.

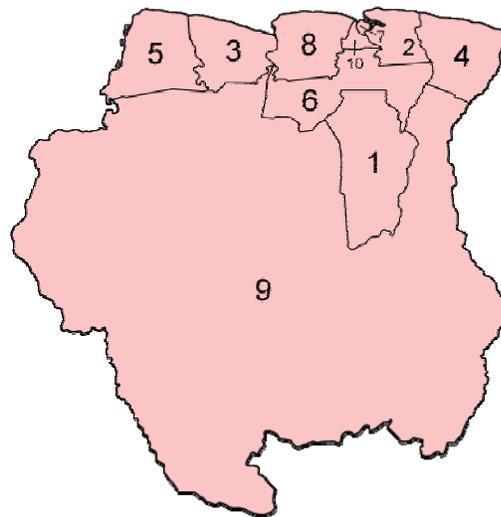


Fig. 1: Map of Suriname showing the different districts.
The Wanica district is indicated with the number 10.
(http://en.wikipedia.org/wiki/Districts_of_Suriname, accessed 1/ 9/ 08)

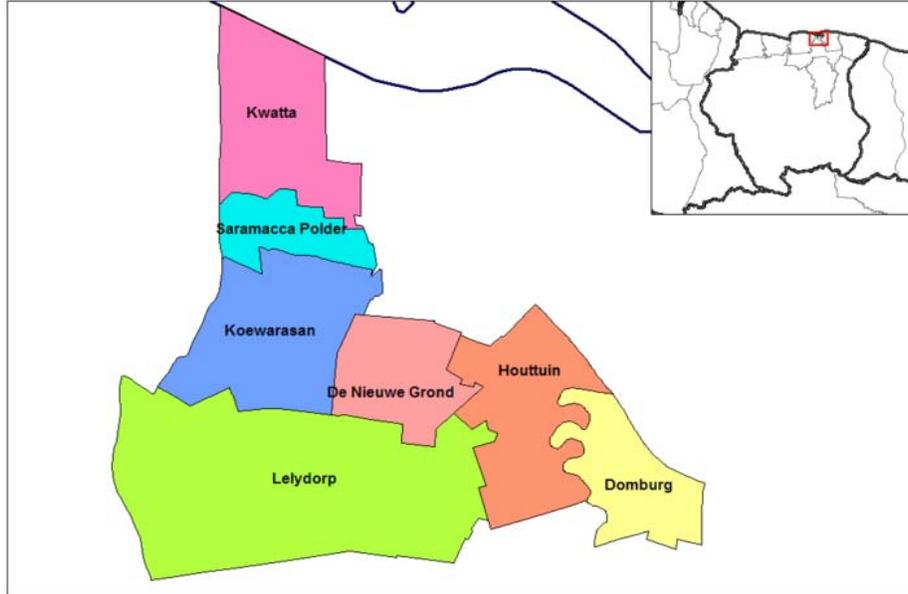


Fig. 2: Wanica district showing the division into resorts.
 (http://en.wikipedia.org/wiki/wanica_district, accessed 31/ 8/ 08)

3.2 General overview of the Animal husbandry sector

The contribution of animal husbandry to the domestic agriculture production has increased from 10% to 19% in the period 2000 to 2005 (MoAAHF, 2007).

The poultry sector is playing the most important role in the provision of animal protein for the nation (see table 3). With meat and eggs the poultry industry is contributing for approximately 58% in the local demand for animal proteins, and for 76% in the total demand for meat. Dairy products and chicken are imported to supplement local production, but other products from animal origin are totally supplied by local producers. In 2005 local farmers produced approximately 2.7 kg. of beef, 3.5 kg. of pork, 14 kg. of chicken, 58 eggs and 12 liters of milk per head of the population (MoAAHF, 2007). Table 3 provides an overview of the production figures of the different meat types produced in Suriname.

Table 3: Statistics of the sub sector Animal husbandry in Suriname.

Product	Quantity	1995	2000	2005
Beef	1000 kg.	2,400	1,606	1,338
Pork	1000 kg.	1,500	1,437	1,766
Mutton and goat meat	1000 kg.	15.00	7.60	11.20
Chicken	1000 kg.	3,300	4,040	6,500
Eggs	1000 units	35,000	50,000	58,800
Milk	1000 l.	16,700	2,800	8,000

Source: MoAAHF, 2007.

Due to the favorable farm gate price for milk female cattle were rather used for milk

production than being slaughtered, increasing the milk production in contrast to the beef production over the period 2000 to 2005 (see table 3). In table 3.1 the production quantities of the Mutton and Goat meat in Caribbean countries are provided.

Table 3.1: Production quantities (1000 kg.) of Mutton and Goat meat in the Caribbean.

Country	Year	Mutton	Goat	
Barbados	2007	108	28	F
Guyana	2007	550	270	F
Haiti	2007	780	6000	F
Jamaica	2007	10	680	F
Suriname	2007	32	28	F
Trinidad and Tobago	2007	30	420	F

F: FAO estimates.

Source: FAO, 2008.

Table 4: Number of total registered slaughtering in Suriname.

		2000	2002	2003	2004	2005	2007
Cattle	Numbers	12,914	10,295	9,870	8,648	7,647	8,719
	Total carcass weight (kg)	1,951,951	1,606,394	1,606,394	1,483,482	1,338,196	1,593,452
	Average carcass weight (kg)	151.10	156.00	162.80	172.00	175.00	182.70
Pigs	Numbers	19,377	21,100	20,031	22,683	25,586	23,465
	Total carcass weight (kg)	1,164,654	1,437,223	1,392,050	1,649,538	1,765,926	1,606,948
	Average carcass weight (kg)	60.10	68.10	69.50	72.70	69.00	68.40
Sheep & Goats	Numbers	837	773	1,458	1,600	1,813	1,357
	Total carcass weight (kg)	7,690	7,988	11,888	14,077	11,568	12,736
	Average carcass weight (kg)	9.20	10.30	8.20	8.80	6.60	9.40

Source: MoAAHF, 2008.

3.3 Sub sector small ruminants: Sheep and Goats

Several good reasons for keeping sheep and goats, as compared to larger ruminants, that can be mentioned are: (1) low purchase price or investment, (2) ability to survive on small amounts of food of low quality, (3) products in manageable quantities, (4) low risk of total loss, (5) high reproductive rate, (6) small farm land required (Coste and Smith, 1991).

In Suriname sheep and goat farms are mainly located in the coastal belt from the east to the west border, but the majority of the farms are located in the Wanica district, the biggest agriculture district of the country. Ownership of sheep and goats rests primarily

with small farmers often for purpose of subsistence, and small flocks of 10 head or less are quite common. The production system is characterized by intensive flocks, with or without integration with crop production using tethering systems or free grazing. In the production system which is solely focused on meat production (Bastiaensen, 1995), different breeds of sheep and goat are used and crossings between the breeds or with the local *Criollo* breeds. For sheep the breeds of the Barbados *Black Belly* and *West African* are frequently used, while for goats the *Dwarf goat* breeds are frequently used (MoAAHF, 2007).

The local herd, consisting of approximately 17,000 animals can be described as relatively small compared to other livestock, having inferior genetic quality and low production performance including slow growth and low meat quality (MoAAHF, 2007). Nevertheless the consumers are paying a high price for mutton and goat meat. Consumer prices of 7.50 to 9.00 € per kg are quite normal, what is making these meat type the most expensive in Suriname, compared to other types of locally produced meat. These high prices, however did not contribute to a raise in the production volumes of sheep and goat farmers. Reasons for not adopting sheep and goat farming which can be mentioned are: (1) technical and management shortcomings by large parts of the farmers of rearing sheep and goats in the humid tropics, (2) lack of quality breeding stock, (3) low quality of the current breeding stock, (4) rearing sheep and goats is a hobby for most farmers and (5) institutional shortcomings e.g. unclear view of the actual market situation and marketing possibilities by the Ministry (MoAAHF, 2007).

Literature review also revealed other reasons for non adoption by farmers, which are not identified by previous research in the country. These are high production risks involved with the production (Ashraf et al., 2008) and profitability (Singh, 2000 and Ashraf et al., 2008). Also the education level of the farmer can be mentioned as a factor determining adoption (Singh, 2000 and Birthal and Kumar, 2004¹).

CHAPTER 4 MAIN RESEARCH CONCEPTS AND DEFINITIONS

In the following chapter the main concepts used in the research and conceptual framework are described. Definitions related to the concepts are also elaborated.

4.1 Concept 1: Chain analysis

Kaplinsky, 2000 as cited in Asian Development Bank 2004, *defines a chain as the full range of activities which are required to bring a product or service from conception, through the intermediary of production, delivery to final consumers, and final disposal after use.* In operationalizing the concept of value chain analysis the indicators which can be distinguished are: (1) value chain mapping, (2) quantifying and describing the chain in detail and (3) economic analysis and benchmarking. The core and most essential indicator being mapping of the value chain (GTZ, 2007).

For the purpose of this research the chain analysis will be limited to mapping, describing and quantifying of the chain. These indicators will be elaborated in more detail in the following parts of the report.

4.2 Concept 2: The 5 Competitive forces model of Porter

Besides analyzing the competition among market forces, the model can also be used to predict the eventual attractiveness and profitability of an industry. The collective strength of the forces determines the ultimate profit potential of an industry, which is determined by the strongest competitive force (s) (Porter, 1979).

For the purpose of this research the model will be used to analyze two levels in the production chain, respectively farmers and butchers level.

4.3 Conceptual framework

To analyze the profit potential and attractiveness of a sector it is important to analyze the chain. A chain can be analyzed by chain mapping in which stakeholders, activities and relations are described. Analyzing the constraints and opportunities, calculation of gross margins can also be among the activities. After the forces engaged in the sector are identified, they are analyzed to determine their strength, using the model and theory of Porter. The competitive forces model of Porter can be used for both analyzing the competition among market forces and to predict the eventual attractiveness and profitability of an industry.

The Competitive Forces analysis is made by identification of 5 fundamental competitive forces: (1) Entry of competitors, (2) Threat of substitutes, (3) Bargaining power of the buyers, (4) Bargaining power of suppliers and (5) Rivalry among the existing players. Sometimes the Government is added as the sixth competitive force. The collective strength, determined by the strongest competitive force (s) determines the ultimate profit potential of an industry (Porter, 1979).

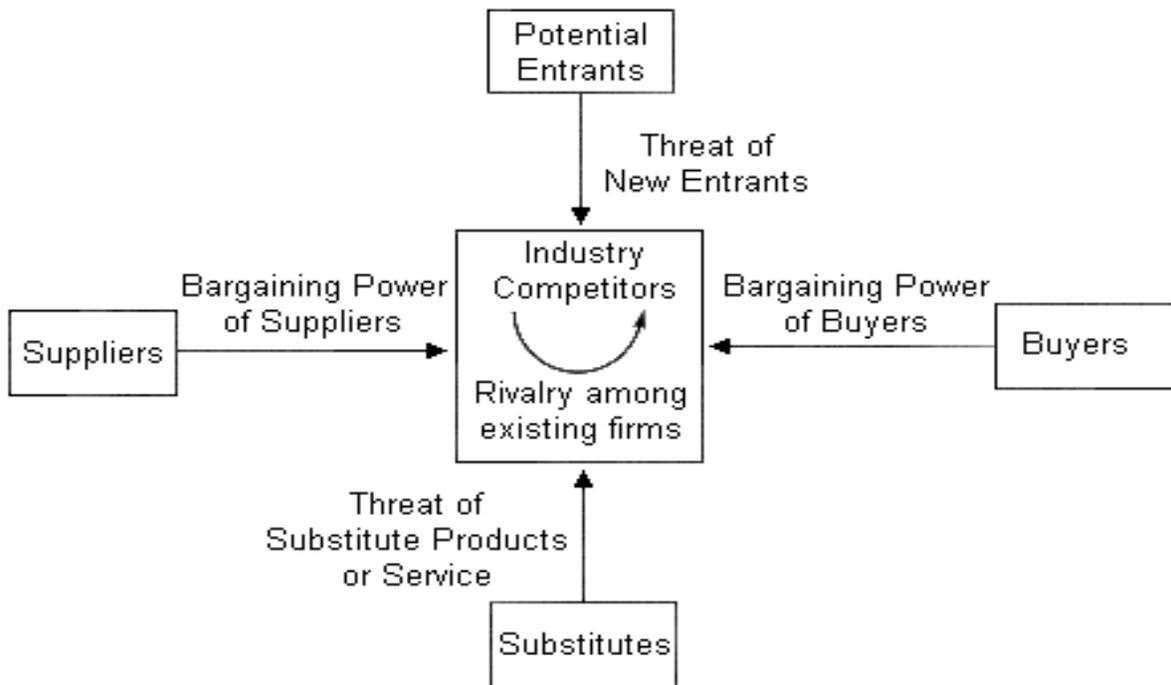


Fig. 3: Porter's 5 Competitive Forces model (Porter 1).

4.4 Chain analysis

Chain.

Kaplinsky, 2000 as cited in Asian Development Bank 2004, defines a chain as *the full range of activities which are required to bring a product or service from conception, through the intermediary of production, delivery to final consumers, and final disposal after use*. These activities are represented by: Animal husbandry, slaughtering, collection and preservation, raw skin trade, processing, trade and distribution in the model presented in figure 4.

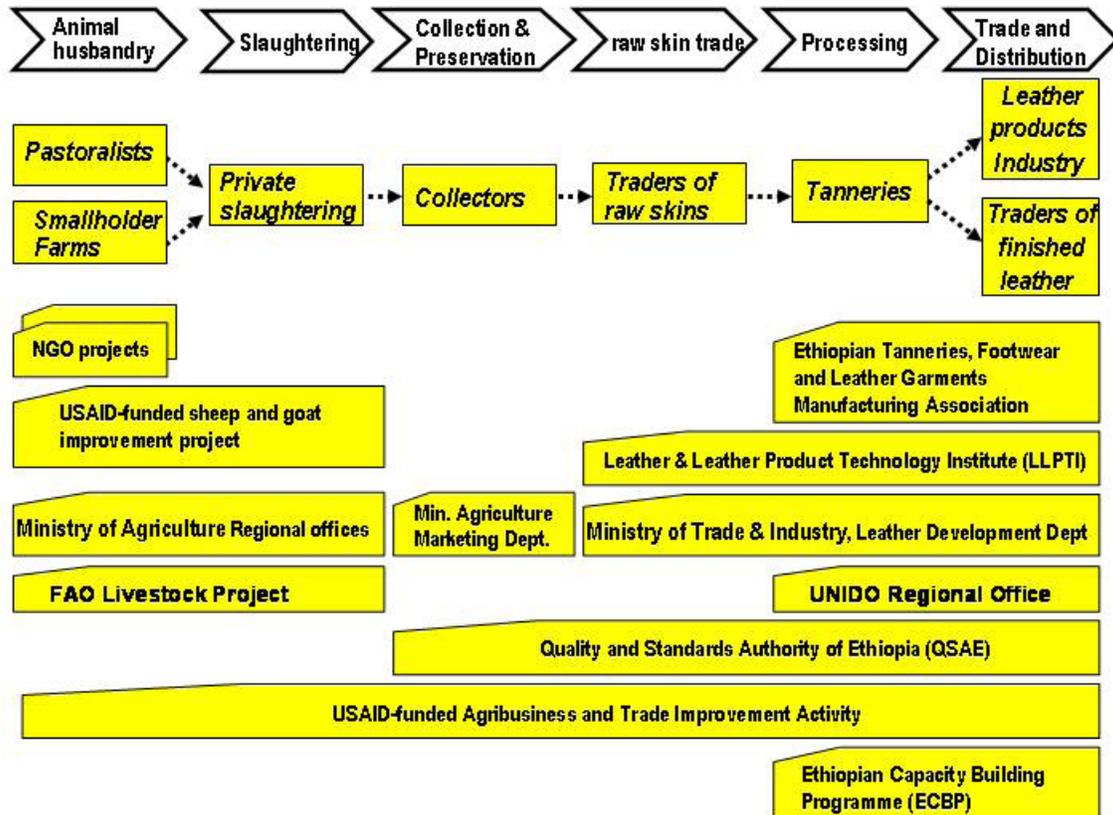


Fig. 4: A traditional finished sheep and goat leather value chain in Ethiopia: Mapping of chain supporters (meso level).
Source: GTZ, 2007.

Chain analysis.

Analyzing value chains comprises a whole series of different tasks, the core and most essential being value chain mapping. In the process of analysis the following three tasks can be distinguished (GTZ, 2007):

1. Value chain mapping
2. Quantifying and describing value chains in detail
3. Economic analysis of value chains and benchmarking.

For the purpose of this research the chain analysis will be limited to mapping, describing in detail and quantifying of the chain.

1. Value chain mapping. This indicates the drawing of a visual representation of the value chain system. Maps identify business operations (functions), chain operators and their linkages, as well as the chain supporters within the value chain (GTZ, 2007). In the process of mapping several definitions are used, which are described below.

a. Supply chain. A set of linkages between actors where there are no binding or sought-after formal or informal relationships, except when the goods, services and financial agreements are actually transacted (KIT et al., 2006). The management of a supply chain can be referred to as a business management tool rather than a development concept which is concerned with logistics rather than market development (GTZ, 2007).

b. Value chain. A specific type of supply chain, where actors actively seek to support

each other with the purpose of increasing efficiency and competitiveness. Time, effort and money are invested; relationships with other actors are built to reach a common goal, satisfying the consumer needs and increase profit (KIT et al., 2006).

c. Value chain operators. All those private enterprises performing productive, processing, logistic and commercial activities. They occupy the key role in the value chain assuming the risks and generating the economic value (GTZ, 2007). KIT et al. (2006) also referred to these operators as direct chain actors.

d. Chain supporters. Those performing services of common interest and providing collective goods for groups of chain operators or for the entire chain or sub sector, such as joint marketing or joint research for technical solutions (GTZ, 2007). KIT et al. (2006) referred to those as indirect chain actors.

e. Chain enablers. Comprise governmental institutions e.g. line ministries and departments and regional governments active in economic development, whose responsibility is creating favorable conditions for economic development (GTZ, 2007). According to the description of KIT et al. (2006) these can also be referred to as indirect chain actors.

2. Quantifying and describing value chains in detail. Includes attaching numbers to the basic chain map, e.g. numbers of actors, the volume of produce or the market shares of particular segments in the chain. Depending on the specific interest, specific chain analyses “zoom in” on any relevant aspect, e.g. characteristics of particular actors, services, or the political, institutional and legal framework conditions enabling or hindering chain development (GTZ, 2007).

3. Economic analysis of value chains. The assessment of chain performance in terms of economic efficiency. This includes determining the value added along the stages of the value chain, the cost of production and, to the extent possible, the income of operators. Other aspects are the transaction costs, the cost of doing business, collecting information and enforcing contracts. The economic performance of a value chain can be “bench-marked”, i.e. the value of important parameters can be compared with those of competing chains in other countries or similar industries (GTZ, 2007).

4.5 The 5 Competitive forces model of Porter.

The framework allows for analyzing the competition among market forces and for predicting the eventual attractiveness and profitability of an industry. The collective strength of the forces determines the ultimate profit potential of an industry, which is determined by the strongest competitive force (s) (Porter, 1979¹). In the first step of the process the scope of the market to be analyzed has to be determined. Afterwards all relevant competitive forces in the market are identified and analyzed. Hence, it is not necessary to analyze all elements of all competitive forces with the same depth (Recklies, 2001).

The Competitive Forces analysis is made by the identification of 5 fundamental competitive forces (Porter, 1979¹):

1. Threat of entry of competitors.
2. Threat of substitutes.
3. Bargaining power or strength of the buyers.
4. Bargaining power or strength of suppliers.
5. Rivalry among the existing players.
6. Government (sometimes added as the sixth competitive force).

Threat of entry of competitors. The easier new competitors can enter the industry the harder the competition will be. The barriers or threats determining the ease or difficulty for new entrants to start competing in the industry can depend on:

(1) Economies of scale, (2) Capital or investment requirements, (3) Access to industry distribution channels, (4) Access to technology, (5) Brand loyalty of the customers, (6) Likelihood of retaliation from existing industry players and (7) Government regulations e.g. subsidies for new entrants.

Threat of substitutes. The ease of substituting or making cheaper of a product or service can depend on: (1) Quality or similarity of the substitute product, (2) Buyers' willingness to substitute, (3) Relative price and performance of substitutes, (4) Low costs of switching to substitutes.

Bargaining power of buyers. The pressure that buyers can place on a business which depends on: (1) Concentration of buyers: A few dominant buyers vs. many sellers in the industry will result in very powerful buyers, (2) Differentiation or product standardization, (3) Buyers purchasing in large volumes, (4) Role of quality and service, (5) Product not extremely important to the buyers, (6) Low costs of switching from supplier and (7) Price sensitive customers.

Bargaining power of suppliers. This indicates the pressure that suppliers can place on a business which depends on: (1) Concentration of suppliers: Many buyers vs. few dominant suppliers, (2) Branding: The strength of the brand of the supplier, (3) Supplying industry has higher profitability, (4) No substitutes for the product, which is extremely important to the buyers, (5) High costs for switching to competitive product and (6) Role of quality and service.

Intensity of rivalry among existing firms. A highly competitive market may be the result of: (1) structure of the competition: More intense rivalry will exist if there are lots of small or equally sized competitors. On the other hand it will be less if an industry has a clear market leader, (2) The structure of industry costs: industries with high fixed costs encourage competitors to manufacture at full capacity by cutting prices if needed, (3) Little product differentiation between competitive products, (4) Low switching costs. Rivalry is reduced when buyers have high switching costs, (5) Strategic objectives. If competitors pursue aggressive growth strategies, rivalry will be more intense. If competitors are merely "milking" profits in a mature industry, the degree of rivalry is typically low, (6) Exit barriers. When barriers to leaving an industry are high, competitors tend to exhibit greater rivalry.

4.6 Use of the information from the Five Forces Analysis.

The Analysis can provide valuable information for three aspects of corporate planning:

1. It allows determining the attractiveness of an industry and provides insights on profitability. Thus, it supports decisions about entry to or exit from an industry or a market segment. Moreover, the model can be used to compare the impact of competitive forces on the own organization with their impact on competitors.
2. In combination with a PEST- Analysis, which reveals the drivers for change in an industry, it can reveal insights about the potential future attractiveness of the industry. Expected political, economical, socio-demographical and technological changes can influence the five competitive forces and thus have impact on industry structures.
3. With the knowledge about intensity and power of competitive forces, organizations can develop options to influence them in a way that improves their own competitive position. This could result in a new strategic direction of the organization (Recklies, 2001).

After the analysis of current and potential future state of the five competitive forces, managers can search for options to influence these forces in their organization's interest. The objective is to reduce the power of the competitive forces (Recklies, 2001).

CHAPTER 5 RESEARCH FINDINGS

In this chapter the findings of the chain analysis and the analysis using the model of Porter are presented and visualized.

5.1 Map of the chain actors, supporters, enablers and relations.

In the chain several players can be distinguished. These are:

1. Chain operators: Farmers, traders/ middlemen, *Muslim* butchers and importers of mutton.
2. Chain supporters: Ministry of Agriculture including extension and veterinary officers, *Surbeef* (private Abattoir in Paramaribo), the public Abattoirs in the rural areas, UCBS, importers of farm inputs and private vets.
3. Chain enabler: NABS.

The different chain players and their linkages are visualized in fig. 5.1. In figure 5.1 and 5.2 the chain operators are visualized by the red blocks, supporters by pink blocks and the enablers by blue blocks.

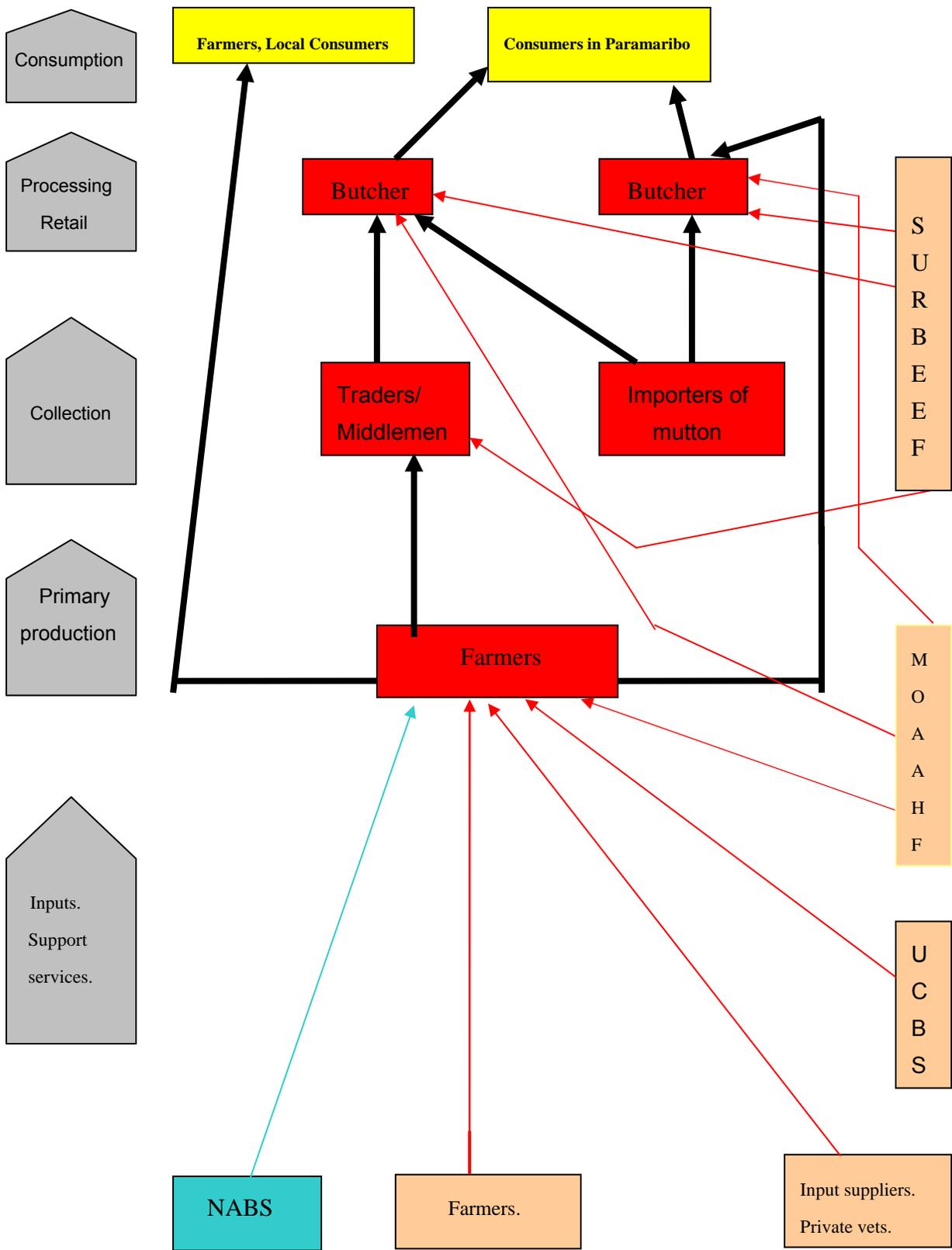


Fig. 5.1: Value chain map of the sheep and goat sub sector in Suriname.

Domestic market for Mutton and Goat meat.

Small holder respondents are claiming to market a total number of 50 sheep and goat per annum. An equal fraction of the production is marketed through local consumers, farmers as through butchers/ middlemen. As consumers seem to be offering a better farm gate price than the butchers and traders, the respondents only sell their animals to the last mentioned, in urgent cases: when animals are culled due to age, disease etc. or when the farmer is in financial crisis.

Large holder respondents are claiming to market a total number of 750 sheep and goat per annum. The majority of the production is marketed through butchers and middlemen, while a smaller part is sold to farmers and local consumers. In table 5 the average annual market figures of the respondents who participated in the research is presented.

Table 5: Respondents average annual market volumes (August 2008).

Chain actor	Market volume of respondents (animal units per annum).
Butcher/ retailer	1300
Small holders	50
Large holders	750

Factors determining consumption pattern of consumers.

These factors differ among the clientele of the butchers participating in the research. Butchers with a clientele for mutton and goat meat of 25% to 30%, a predominantly Muslim clientele, identified other factors determining the consumption pattern than those with smaller clienteles for mutton and goat meat. The last mentioned are predominantly clienteles consisting of mixed ethnic groups.

The butchers with the bigger clienteles identified the following factors and ranked them in the following order according to importance: (1) ethnicity, (2) income level and price of the product, (3) quality, (4) price of substitute products and (5) seasonality. From this ranking it can be concluded that ethnicity and religion are the most important factors for the Muslim consumers for consuming sheep and goat meat. The ranking also reveals that these consumers are not influenced by the price and availability of substitute products. Sheep and goat meat is an important part of their culture and can't be substituted.

Butchers with an average clientele of 10%, identified and ranked according to importance the following factors: (1) income level and price of the product, (2) quality, (3) price of substitute products, (4) ethnicity and (5) seasonality. For this clientele, consisting of mixed consumers, income level and price of the product are factors determining consumption. The marketing of sheep and goat meat is influenced by the price and availability of substitute products. The price of sheep and goat meat vs. price and quality of substitute products is influencing the marketing figures of sheep and goat meat. Since it concerns consumers with a smaller budget and for whom the product has no priority it is easily replaced for something cheaper.

5.2 Map of the relation types among the chain actors and supporters.

In the chain several relations can be distinguished. These are exchange of information, money and live animals, credit, veterinary, processing and extension services. These relations are visualized in fig. 5.2.

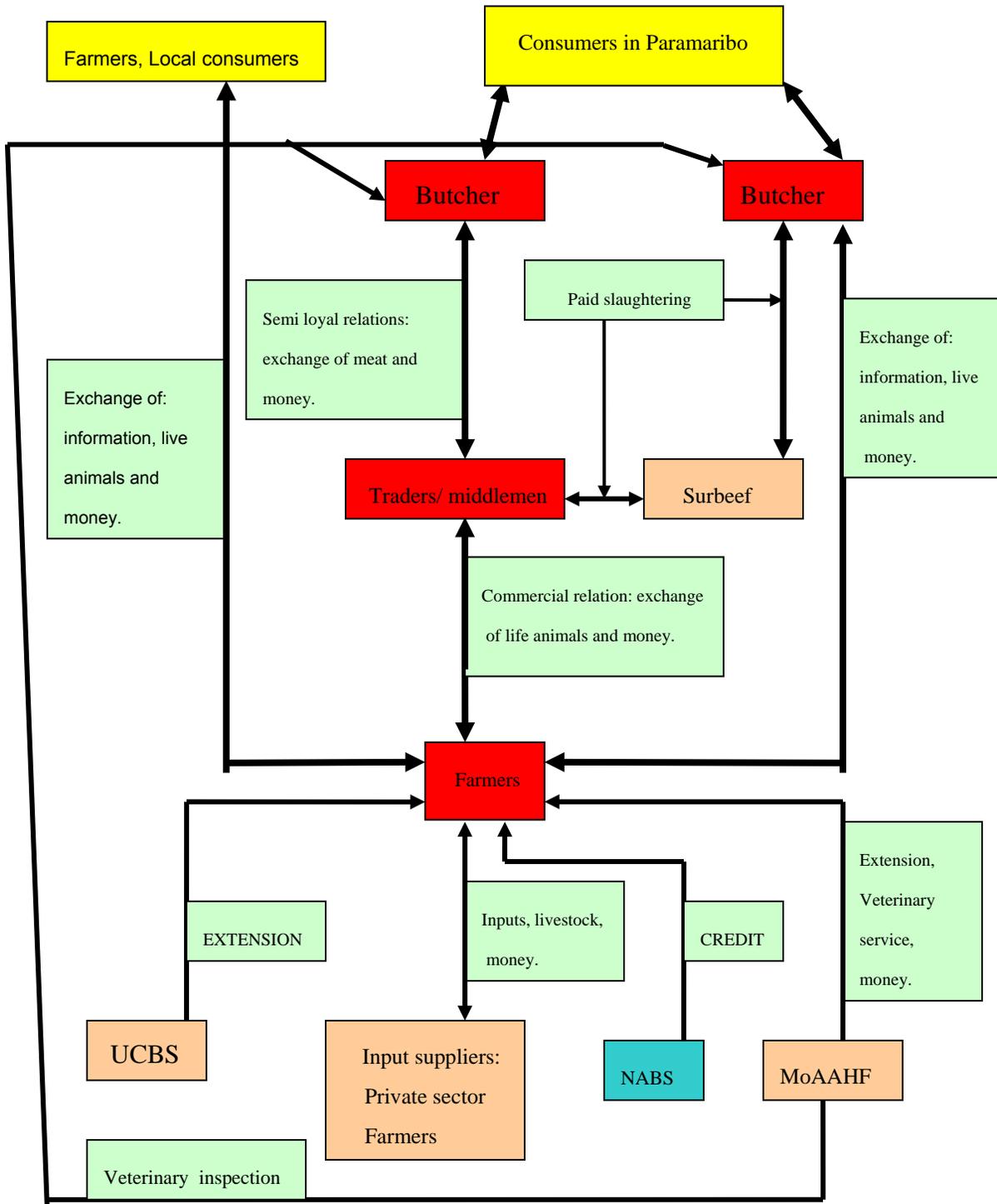


Fig. 5.2: Relationship among the chain actors.

5.3 Mapping the chain volumes.

In this chapter the volume flows through the chain between the different actors will be visualized. The volume flows in percentage or animal units is visualized by the green blocks in fig. 5.3.

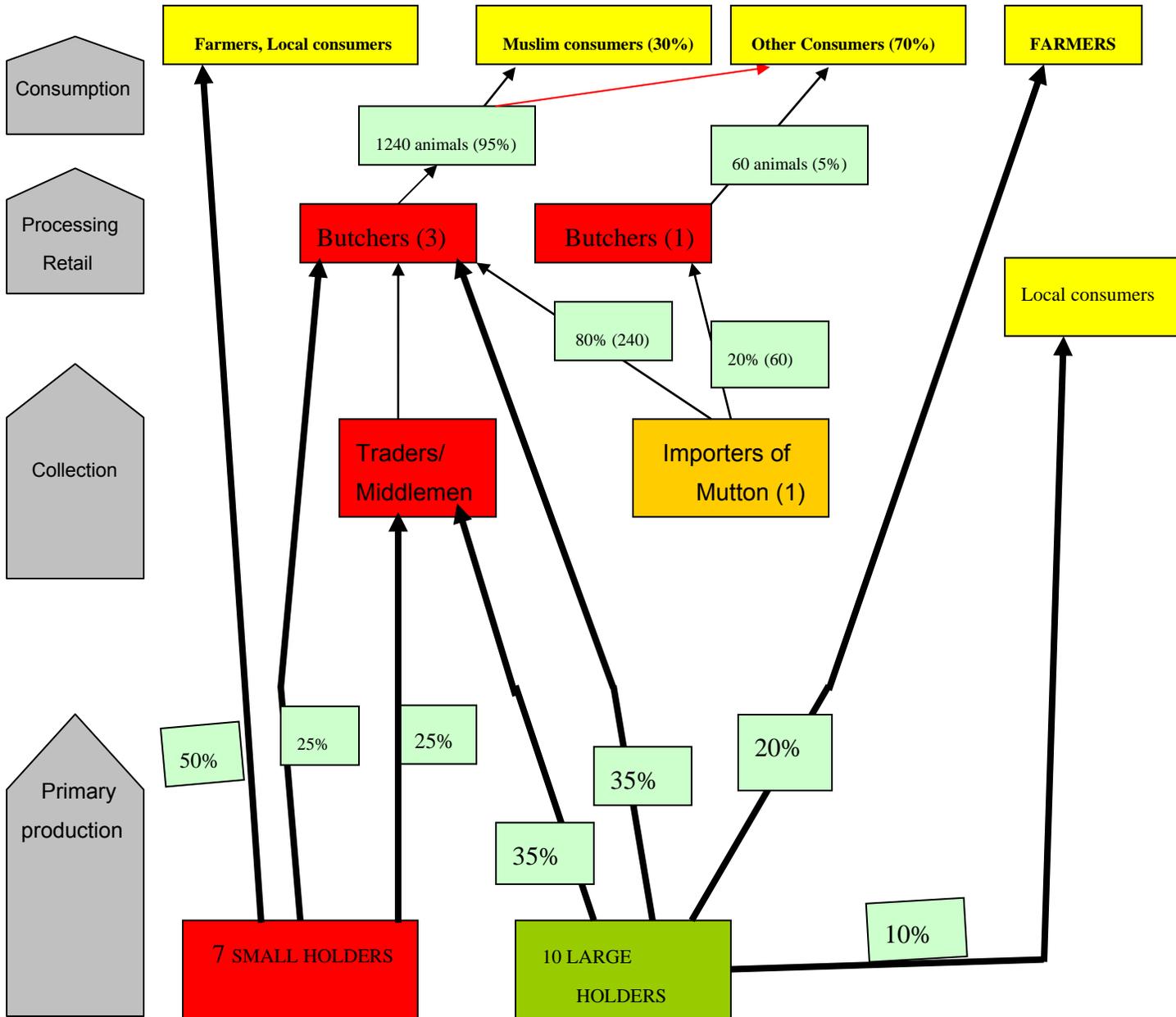
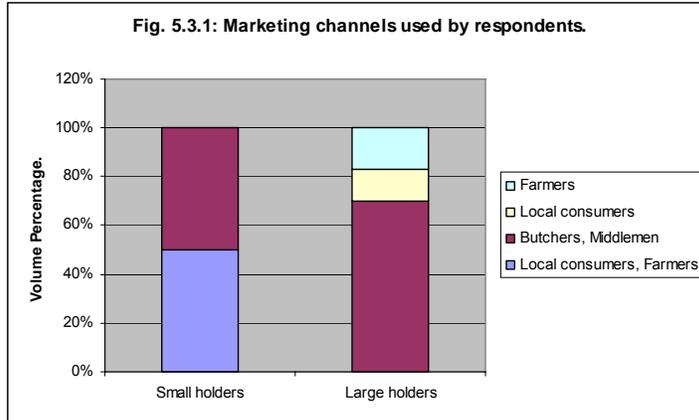


Fig. 5.3: Marketing volumes involved in the chain of the sheep and goat sub sector in Suriname.



From fig. 5.3 and 5.3.1 it can be understood that there are 3 main marketing channels in the sector: through the butchers and traders/ middlemen and through farmers and local consumers. The majority of the produce (60%) is marketed through the middlemen and butchers.

5.4 Chain actors, functions and relations.

Chain actors can be distinguished in: chain operators, supporters and enablers.

Chain operators. Include all those private enterprises performing productive, processing, logistic and commercial activities (GTZ, 2007). In the scope of this research chain actors that can be distinguished are: (1) farmers as primary producers, (2) traders/ middlemen and (3) the *Muslim* butchers.

Chain supporters. All those actors performing services of common interest and providing collective goods for groups of chain operators or for the entire chain or sub sector, such as joint marketing or joint research for technical solutions (GTZ, 2007). In the scope of this research chain supporters that can be distinguished are the ministry of Agriculture, extension and veterinary officers, *Surbeef* (private Abattoir in Paramaribo), the public Abattoirs in the rural areas and the Union of Cattle breeders.

Chain enablers. Comprise governmental institutions active in economic development, whose responsibility is creating favorable conditions for economic development (GTZ, 2007). In the scope of this research chain enablers that can be distinguished are the National Agriculture Bank in Suriname.

1. MoAAHF: Ministry of Agriculture, Animal husbandry and Fisheries.

The ministry of Agriculture, department of Animal husbandry is responsible for providing farmers with extension and veterinary services, technical assistance and credit facilities. For developing a value chain, support mechanisms among which financial, capacity building and an enabling business and policy environment should be in place.

Veterinary and extension services.

Currently the activities of the department, related to sheep and goat farming, are mainly in the area of provision of veterinary services. Extension and promotion of the sub sector is to a much lesser extent, since the sub sector for a long time used to be of lesser priority for the MoAAHF and the shortage of staff of the dept. of Animal Husbandry. The

offered extension and technical services are free of charge, contrary to the veterinary services, which include preventive and curative treatment of animals by the veterinary officers of the MoAAHF. The field officers are also able to provide farmers with technical and management information, free of charge. With the project *“Encouraging the production of small ruminants”*, the MoAAHF is making efforts to prioritize and promote the sub sector. The project will focus on:

1. Providing market information to reveal the market opportunities on domestic and international level
2. Training the farmers, providing them with the necessary technical and management skills
3. Establishing demonstration farms
4. Providing breeding stock of superior quality to the farmers.

Extension services.

In the Wanica district the department of Animal husbandry of the MoAAHF has 3 regional offices which farmers can address for information and technical assistance. General and specific technical and management information are available at the department offices in the form of publications, leaflets and brochures. This information can also be obtained verbally from the staff of the department. Indicative farm gate prices per kg. live weight can also be obtained verbally from the dept. of Statistics or from the Veterinary and extension officers, who are also able to link the customers to the farmers or the other way around. According to the respondents the ministry is not making much effort to stimulate and promote the sub sector: the extension service needs improvement, while farmers should be provided with incentives.

Agriculture Credit Fund.

To provide farmers with financial incentives and for stimulating the private business environment, the fund was operationalized by the MoAAHF in April 2008.

The fund, 2.3 million Euros, with a revolving character is intended for financing viable and innovative investments in small- scale and medium- sized enterprises in agriculture, with exception of rice farms. The maximum amount per loan amounts 50,000 Euros with a minimum personal contribution of the applicant of 10% of the loan sum. Repayment of the loan starts 6 months after receiving the loan, depending on the product and farm type. The repayment period of a loan is maximum 10 years with an annual interest percentage of 6.75% over the loan sum.

The applicants for a loan should be able to provide solvability, profitability and liquidity to guarantee repayment of the loan. Other aspects that are considered when granting a loan are (1) the quality of the management and organization structure of the enterprise, (2) environmental impact of the intervention, (3) business plan, (4) Risk analysis and (5) SWOT analysis.

The Board of the Fund, installed by the MoAAHF, determines the policy. The exploitant of the Fund, the National Agriculture Bank in Suriname, is responsible for executing this policy. Farmers have to apply for a loan at the exploitant of the Fund, who checks every application on the specified criteria and recommends the Board about her findings of the applications. The Board decides whether the application will be honored or not.

2. Farmers. In the chain the farmers are responsible for the primary production. The relation of the farmers with the other chain actors is not only limited to the exchange of life animals for money. It also includes exchanging market and technical information with other chain actors and providing local customers and farmers with respectively stock for slaughter and breeding purposes. Other chain actors are claiming that farmers are

demonstrating several short comings which might be held responsible for the stagnating production. Lack of knowledge of the production and unwillingness to invest in techniques to improve production, are some which can be mentioned. A plausible explanation for the latter can be the fact that farmers have lost faith in the sub- sector and a government who is not providing them with the necessary incentives. One of the butchers explained: *“Farmers are not properly rearing and taking care of the animals. The management of the farm and animals is weak, resulting in inefficient production, scarcity and low quality meat”*. Comparing the average carcass weight of 10 kg for sheep with the regional standards of 18 to 20 kg (MoAAHF, 2007), is confirming the weak management practices of the farmers.

A survey conducted by the ministry of Agriculture in 2003 revealed that in the Wanica district 722 farmers are actively rearing sheep and goats. During field work these data have proved to be outdated and unreliable, in the sense that farmers are no longer active in production and the number of animals they are rearing.

Table 6: Overview of the sheep and goat farmers in the Wanica district (2003).

Number of animals	Number of farmers
≤ 10	622
10 to 30	91
> 30	9

Source: MoAAHF, 2008.

3. Butchers. Mutton and goat meat is generally sold for a more favorable price at the Muslim butchers. For the other butchers, who have a clientele, shop lay out and meat presentation that is more western oriented, selling the meat is not attractive. The consumer price to recover the expenses of the butcher would be too high for the consumer, making it unattractive for the butcher to sell.

These actors are primarily responsible for processing and retailing the produce in forms and quantities that are convenient to the consumer. Other chain functions implemented are the provision of farmers with marketing information namely the consumer price, technical information and a purchasing function. A general remark from the respondents in this research which regards the purchasing function of the butchers is that the prices they are offering to the farmer are low.

“Butchers and middlemen are all just the same.... Exploiting the farmers. They want to buy very cheap from the farmer and resell with high profit. This is not favorable for developing the sub- sector ”.

On the other hand butchers are claiming that farmers are supplying them low quality animals and they are paying them a fair price accordingly. In table 7 the farm gate prices paid by different clients are presented.

Table 7: Farm gate prices paid in SRD per kg. live weight (August 2008).

Client	Farm gate price (SRD)
Butcher	8,- to 10,-
Middlemen	8,- to 10,-
Consumer	10,- to 15,-

Table 7 shows that it is more profitable for the farmers to sell direct to the consumer. The research revealed that whenever possible, meaning that the farmer has the contacts and

clientele, he/ she is selling direct to the consumer to get a better value for his/ her product.

To supply the customers with meat, butchers have different options. They can purchase live animals direct from the farmers and/ or carcasses from the middlemen and/or purchase imported meat. The amount of live animals butchers are buying direct from farmers depends on their availability of labor, transportation and willingness to travel to the field to purchase the animals. It can range from 3% to 40%, resulting in a greater dependency on the middlemen in the first case. Butchers also rely on imports to supply in their needs, ranging from 10% to 100%.

Table 8 provides an overview of the average annual market volumes of the butchers who participated in the research.

Table 8: Average annual market volumes of sheep and goat meat (August 2008).

Volume (animal units)	Source
1000	Local production
300	Imports

According to data of the Ministry of Agriculture (MoAAHF, 2008) approximately 30 butchers selling mutton and goat meat are active in Suriname. The majority is located in the capital Paramaribo, while a few are located in the districts Wanica and Para.

Table 9: Overview of the total number of slaughtering of sheep and goat in Suriname (2007).

District	Number of slaughtering
Paramaribo	1327
Para	24
Nickerie	4
Coronie	2

Source: MoAAHF, 2008.

4. Middlemen/ traders. These actors are primarily responsible for buying and collecting the livestock from the farmers and transporting it to the Abattoir. The relation with the farmers can be described as a purely commercial, spot market relation: price and/ or weight of the product are the main factors determining the relation, while its duration is limited to that specific negotiation and transaction.

After slaughter the carcasses exchange ownership and become property of the butcher. This relation can be described as a semi- loyal relation, since the middlemen generally sell their product to the same retailers. A general remark from the respondents in this research which regards the purchasing function of the Middlemen/ traders is that the prices they are offering to the farmer are low.

5. Consumers. The consumer's function in the chain consists of exchanging market information with the farmers, namely the consumer price, purchasing live animals for consumption from the farmer as well as purchasing processed meat from the butcher. Interviews with butchers/ retailers learned that an average of 22% of their clientele is purchasing mutton and goat meat. In this group a clear distinction can be made between regular consumers (7%) and special occasion consumers (15%). Regular consumers

are those who are maintaining their consumption habit. Although the consumption can be slightly reduced they keep on consuming, regardless of the price. This in contrast to the special occasion consumers. These are willing to substitute with cheaper alternatives, based on their budget and economic position.

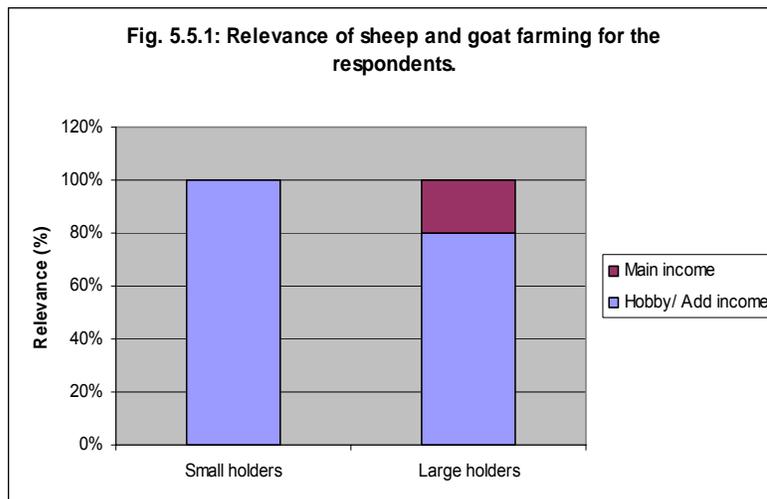
6. Union of Cattle breeders. The main focus of the Union has always been on dairy farming. The sheep and goat farming sub sector had low priority for the organization since in the majority of the cases farmers are just hobbyists, earning an additional income. Despite this low priority the organization is focusing on the dissemination of knowledge and information in the form of publications, although market information and production support systems are not available for farmers. The publication “*Suriname Livestock guide: Ruminants*” (1995) provides the farmers with technical and management information.

7. Surbeef. The function of this chain supporter is providing slaughter services at a fee to the butchers, traders and other individuals. Other paid services offered are cooling and storage facilities of carcasses.

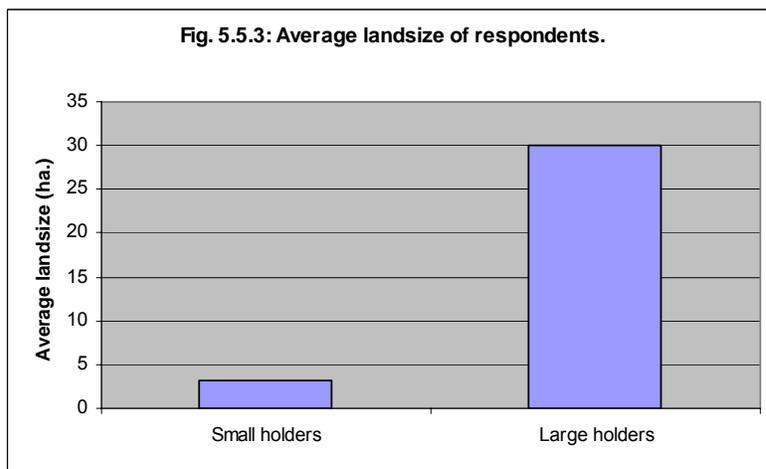
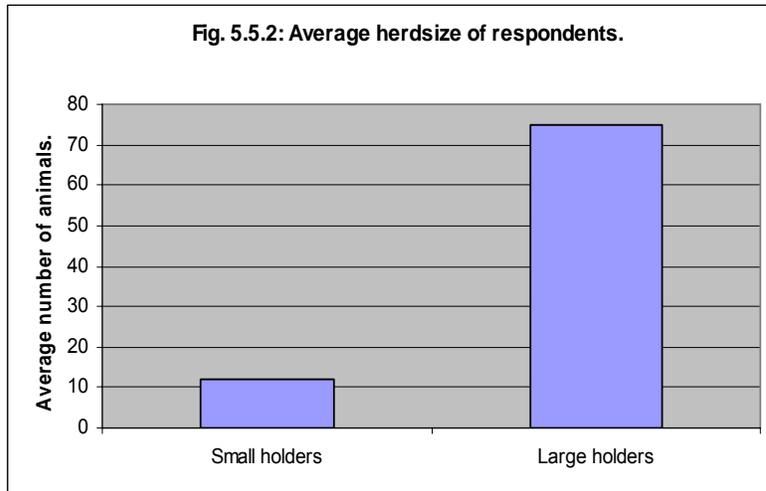
5.5 Existing farming systems.

The research revealed a clear description of both systems of small and large holders, which is visually presented in figure 5.5.1 up to figure 5.5.

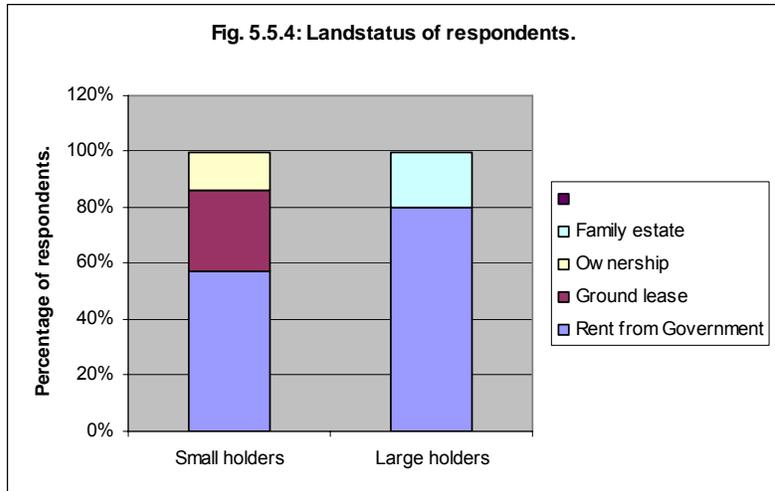
The main characteristic of 100% of the small holder respondents is the fact that sheep and goat farming is not the main source of income, but a hobby and for earning an additional income. While the same concerns 80% of the large holders, only 20% of these category respondents earn their main income from sheep and goat farming (fig. 5.5.1).



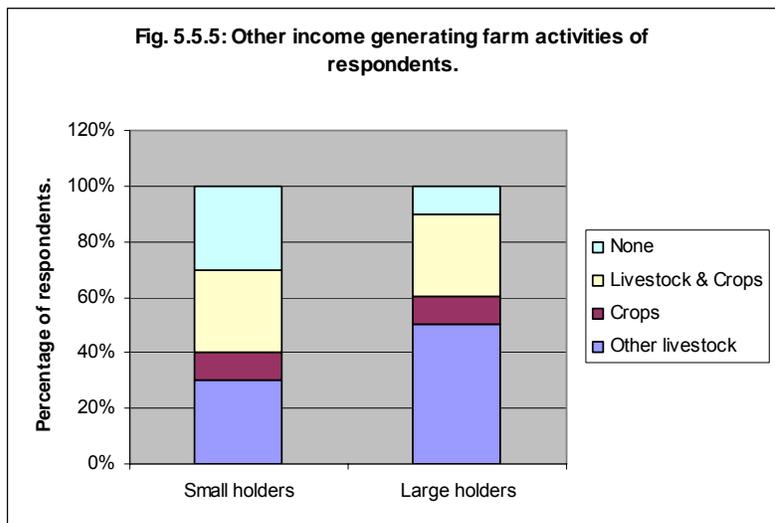
Farms of small holders are small units with an average farm and herd size of respectively 3 ha. and 10 mature animals. On the other hand, farms of large holders have an average farm and herd size of respectively 30 ha. and 75 mature animals (fig. 5.5.2 and 5.5.3).



The majority (60% to 80%) of the farm land is rented for agriculture purposes from the Government for a period of 40 years (fig. 5.5.4). Less than 20% of the farmland of small holders has the title of ownership. In this case it concerns farms of less than 0.5 ha. in size.

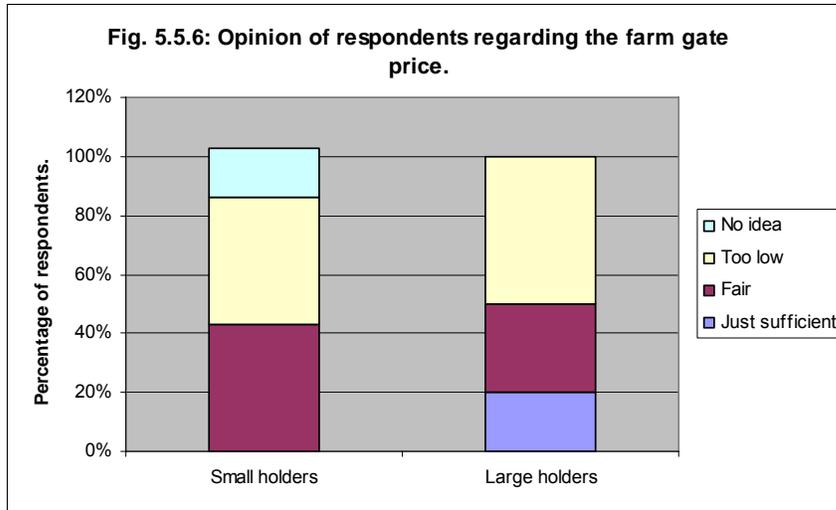


Both small and large holders have other sources of income which seem of higher importance than sheep and goat farming, since in the majority of cases the latter is just a hobby. These sources of income are ranging from on- farm income: cattle and poultry rearing, horticulture, to non- farm income (fig. 5.5.5).

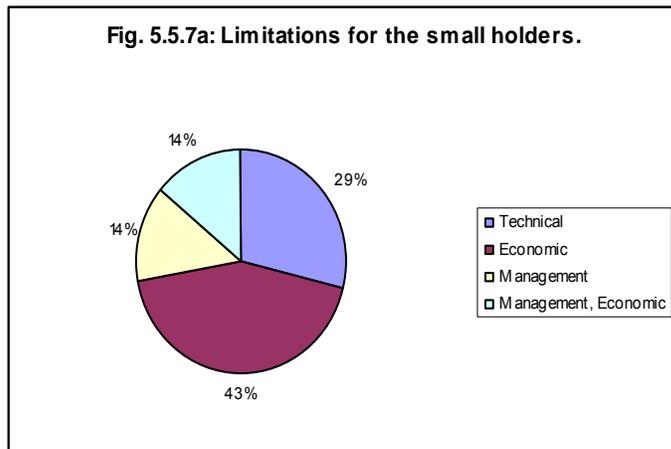


Although for more than 40% of small and large holder respondents the farm gate price is considered too low (fig. 5.5.6), still the majority of the respondents (60%) indicated they have planned for future investments in the sheep and goat farming activities. These investments are mainly in improving the breeding stock and general farm and herd management. Respectively 40% and 30% of small and large holders consider the farm gate price a fair price. For 20% of the large holders the price is just sufficient (fig. 5.5.6).

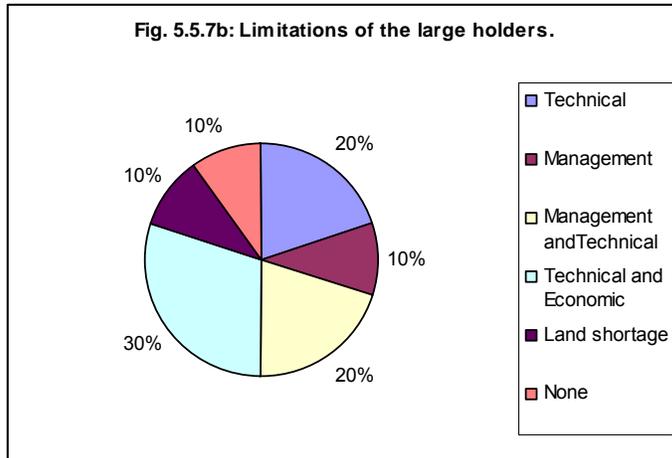
By respondents assumed low farm gate price which is making it difficult for them to recover the investments can be a plausible explanation for the unwillingness to make future investments in the farming activities concerned.



In general problems limiting small and large holders can be categorized in: technical, economic and management limitations. Technical limitations imply lack of farming skills and quality breeding stock and control over diseases. Labour shortage and low priority for sheep and goat farming are the management limitations concerned. Economic limitations are the high input and low farm gate price. In fig. 5.5.7a the limitations for the small holders are visualized. According to the research findings presented in this figure the majority (43%) of small holder respondents are limited by economic problems, followed by technical problems (29%). Only 14% of the small holder respondents are indicating management problems.

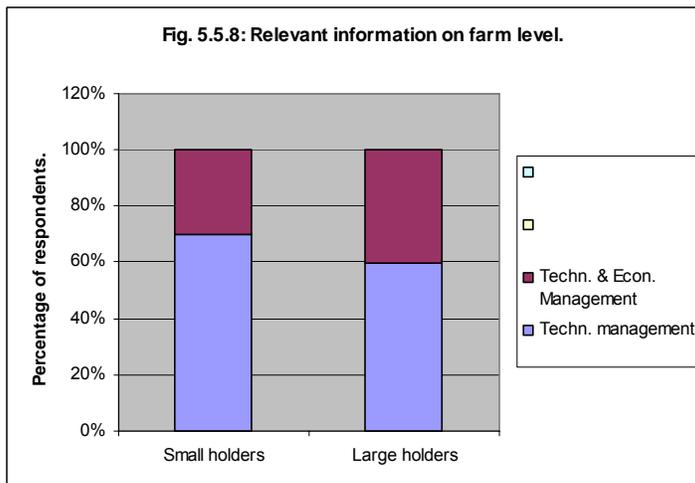


For the large holders the problems are more complex and are a combination of factors (fig. 5.5.7b). The problems faced by this category are ranging from technical and economic (30%), management and technical (20%) to technical (10%) and shortage of suitable land (10%).

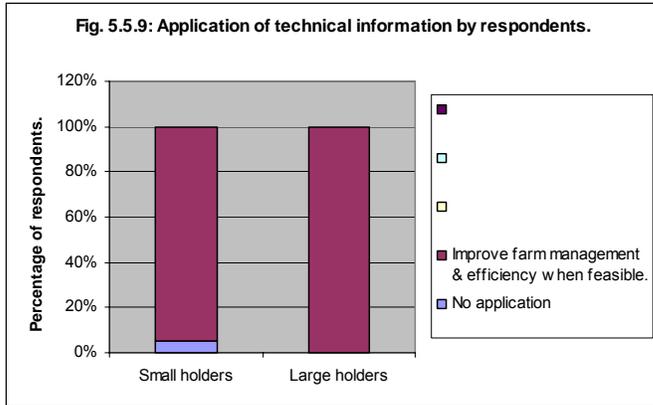


Relevant data for farmers in decision making.

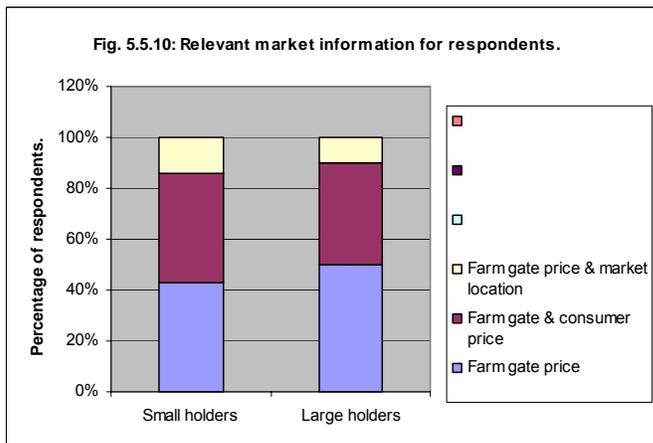
For more than 60% of the small and large holder respondents the technical aspects of rearing animals, including animal husbandry, feeding, pasture, knowledge about diseases etc., are important. 30% and 40% of respectively small and large holder respondents are paying attention to the economic part of farming e.g. on keeping a proper farm administration, besides the technical aspects (see fig. 5.5.8).



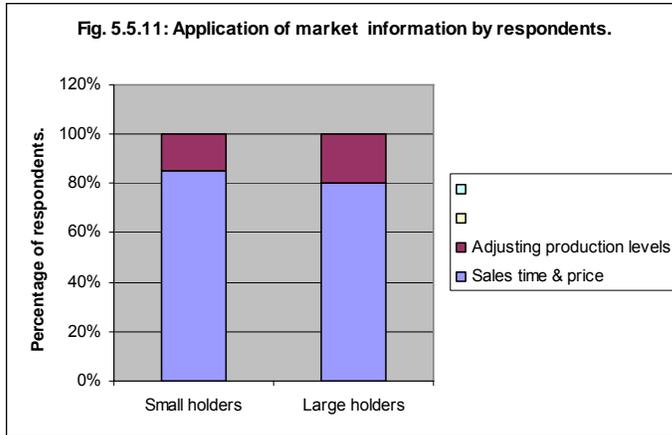
The majority of respondents are indicating that, when feasible, the technical knowledge is utilized for improving the overall technical management of the farm (fig. 5.5.9).



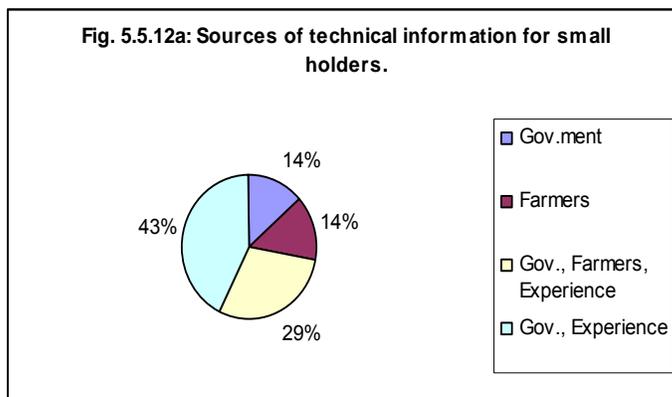
Regarding market information both farm gate price and consumer price are important data for 40% of the small and large holder respondents. For another 40% the farm gate price is the only important parameter, while a small percentage (15%) is interested in market locations and export (fig. 5.5.10).



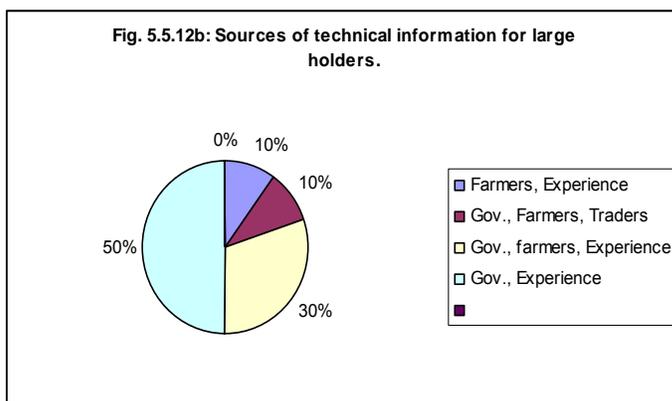
80% of small and large holder respondents, besides determination of the farm gate price, are using the consumer price for timing the sales. Around 20% of small and large holder respondents are also anticipating on the expected farm gate and consumer prices by adjusting the production levels (fig. 5.5.11).



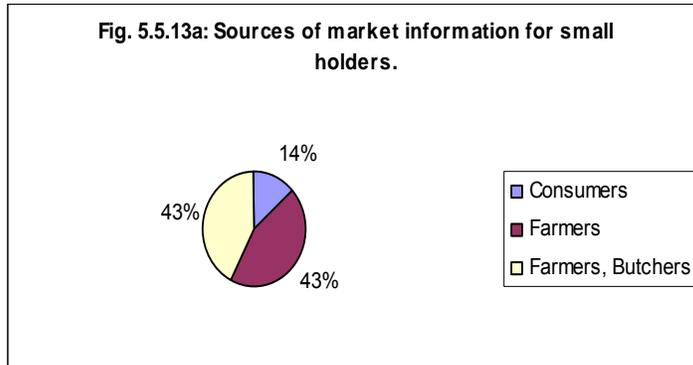
Provision of technical information can be through different sources, ranging from personal experience and other farmers to the government officials and traders. The small holders are utilizing a combination of the sources government and experience (43%) and government, experience and other farmers (29%) (fig. 5. 5.12a).



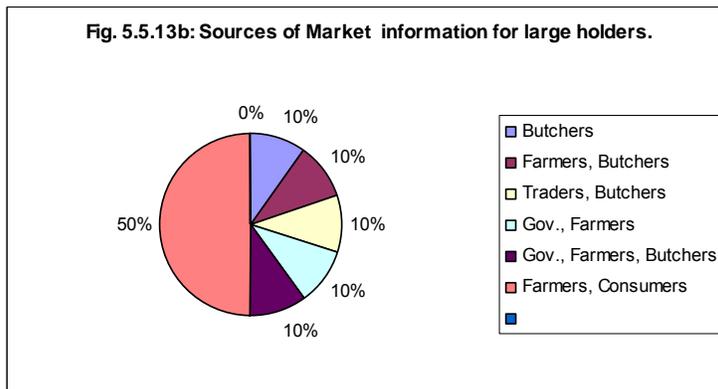
Large parts of the large holders (50%) are depending on the government and personal experience for technical information, followed by 30% utilizing a combination of the sources government, experience and other farmers (fig. 5.5.12b).



According to the research farmers are using different sources of market information. For market information the majority of small holder respondents (43%) are depending on both farmers and a combination of farmers and butchers. Consumers are another source of information for the small holders (fig. 5.5.13a).

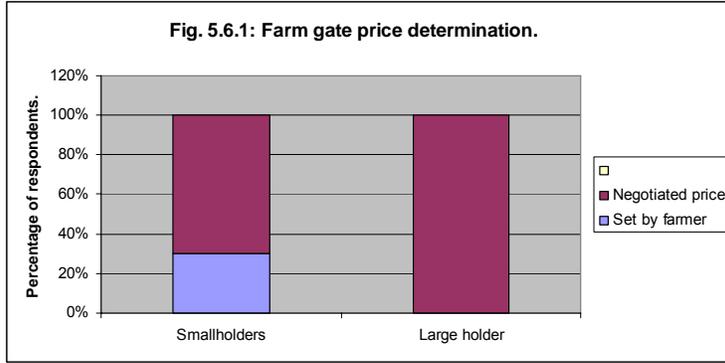


Large holder respondents are in the majority of cases (50%) using the consumers and other farmers as sources for market information. Other information sources are the government, traders and butchers (fig. 5.5.13b).

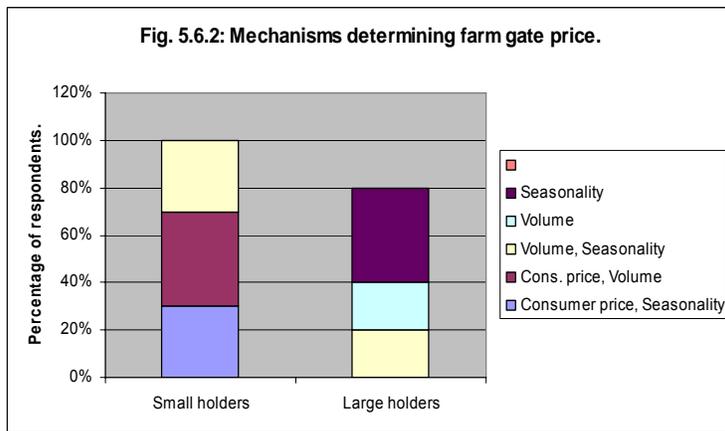


5.6 Mechanisms and institutes determining farm gate and consumer price.

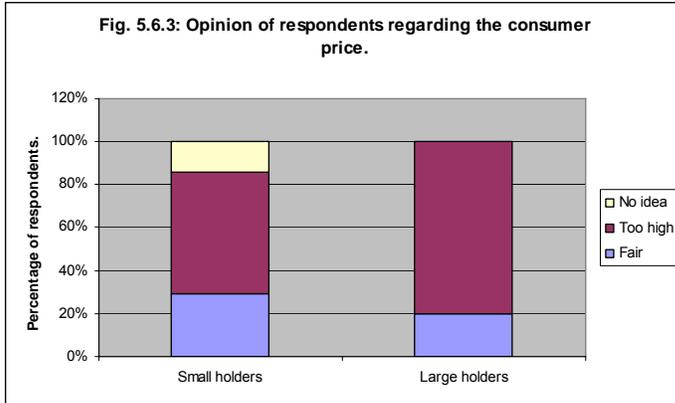
The research among sheep and goat farmers learned that in the majority of the cases the final farm gate price is the result of negotiation between farmer and buyer (fig. 5.6.1).



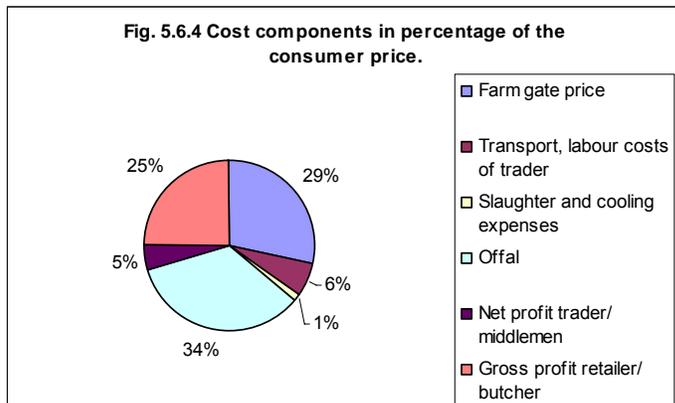
The negotiation process is influenced by the bargaining power of the farmer. A low to medium bargaining power of the farmer will result in a lower farm gate price. In the category small holders the initial farm gate price determined by the farmer is in the majority of cases (40%) related to the consumer price, from which it comprises about 30%, and volume. Other factors that also have influence on the price are seasonality, which is for 40% of the large holder respondents an important mechanism (fig. 5.6.2).



Respectively 50% and 80% of small and large holder respondents consider the consumer price as too high and not attractive for new consumers (fig.5.6.3).



In fig. 5.6.4 the different cost components of the consumer price are visualized. Striking is the high profit margin of the retailer as compared to the traders/ middlemen. The consumer price is determined by supply and demand. Factors of influence on the supply are the actual farm production levels and climatic conditions. In most cases natural conditions imply shortage of grass due to drought or flooding, forcing farmers to sell part of their stock, resulting in a high supply on the market and lower prices. The demand is strongly influenced by seasonality: Tourist season (July to August), Christmas (December), Ramadan and other religious events etc. In case of seasonality the demand and the price are somewhat higher.



5.7 Porter's model on farm level.

Force 1: Threat of entry of competitors

Barriers determine the ease of entry for new entrants into the industry. In this industry the following entry barriers can be distinguished: (1) capital investments, (2) access to technology and (3) economies of scale.

**Capital investments.* High investments in land and pasture preparation, management, breeding stock, housing etc. are essential for new entrants in order to be competitive. The investment costs can be a barrier for new entrants if the current farm gate price is unsatisfactory to recover the capital investments. Since the farm gate price is considered as low by the majority of respondents, the capital investments can be a barrier for new entrants.

**Access to technology.* The access is not considered a barrier for new entrants, since technology and technical assistance are freely available at the Ministry and/ or other farmers. Managing the technical skills is considered a barrier. Farmers often demonstrate knowledge gaps, the lack of essential management skills needed for successful management. Managing the technical skills comprises a major and inevitable barrier for new entrants. Among these are disease control and prevention, reproduction etc., important aspects determining the success of sheep and goat farming in the tropics.

**Economies of scale.* Entry of new competitors is discouraged since they are forced to enter on a large scale to be competitive with the existing players. Large scale operations require higher capital investments.

High entry barriers for new competitors in the industry are resulting in a low threat from new entries.

Force 2: Threat of substitutes

The majority of respondents have other farm activities besides sheep and goat farming. These activities constitute the main source of income of the respondents, in contrast to the industry. It can be concluded that the other farm activities are apparently more attractive and lucrative. They earn larger revenues for the farmer and therefore have more priority. Since in most cases sheep and goat farming is just a hobby and an additional income source, the other activities mentioned can easily replace the industry. These substitute activities imply a high threat of substituting the industry.

Force 3: Bargaining power of buyers

In the chain the buyers, namely traders and butchers, have high bargaining power putting them in a favorable position for pressing the farmers. The level of pressure applied depends on: (1) the concentration of buyers, (2) low costs of switching from supplier and (3) price sensitive customers.

Consumers, another category of buyers are more willing to pay the farm gate price set by the farmer. Although they still have some amount of power to negotiate with the farmer about the price. According to the majority of respondents consumers pay a better price as compared to the traders and butchers. From this can be concluded that consumers have lower bargaining power than the other category buyers.

**Concentration of buyers.* The industry is characterized by a few traders and butchers vs. many sellers. The result is a few powerful buyers dominating the scene. Combined with farmers being very price sensitive, the buyers are in the majority of cases able to force farmers to agree with the low farm gate price offered.

**Low costs of switching from supplier.* The larger number of suppliers, compared to the few buyers in the chain, and the low costs of switching are making it very easy for the buyers to change suppliers. This is placing the buyers in the favorable position of forcing farmers to agree with the low farm gate prices offered.

**Price sensitive customers.* The majority of respondents stated that the industry is a hobby or for earning additional income and that they are not keeping a farm account. Making an accurate calculation of the cost price without proper farm account is practically impossible. Being unaware of the real cost price of the product is making them vulnerable for being seduced to accept the price offered by buyers.

Force 4: Bargaining power of suppliers

Under suppliers having bargaining power in the chain are those supplying farm inputs, breeding stock, credit and veterinary services. Suppliers of veterinary services are both public and private bodies. The pressure suppliers are able to place on the farmer depends on: (1) concentration of suppliers, (2) no substitutes for the product and (3) role of quality and service.

The industry is characterized by a few suppliers vs. many buyers. As the services and supplies they deliver can not easily be substituted, suppliers have a certain monopoly position in the chain. Besides the extreme importance of these services and supplies to most buyers, they can often not easily be substituted.

The power of the suppliers is demonstrated in their ability to raise prices of services and supplies, deliver services and supplies at high prices to the farmer. Inferior services or supplies are often delivered at high prices to the farmers.

Force 5: Intensity of rivalry among existing firms

Rivalry among existing firms in the industry is characterized by:

(1) The presence of many small or equal sized competitors. However since there are clear market leaders, large farms providing the market on a continuous base with large quantities of animals, the rivalry among existing firms is reduced.

(2) No product differentiation between competitors.

(3) Low costs of switching from supplier.

(4) No aggressive growth strategies between competitors. Most farmers are hobbyist and not pursuing aggressive strategies.

(4) Low exit barriers making it easy for rivals to withdraw from the industry resulting in low rivalry.

Given that there are clear and dominant market leaders reducing the rivalry among competitors, no aggressive growth strategies between rivals and low exit barriers in the industry it can be assumed that the rivalry among the existing firms in the industry is relatively low. Low rivalry among the players is demonstrated in inefficient production, low production levels and bad product quality.

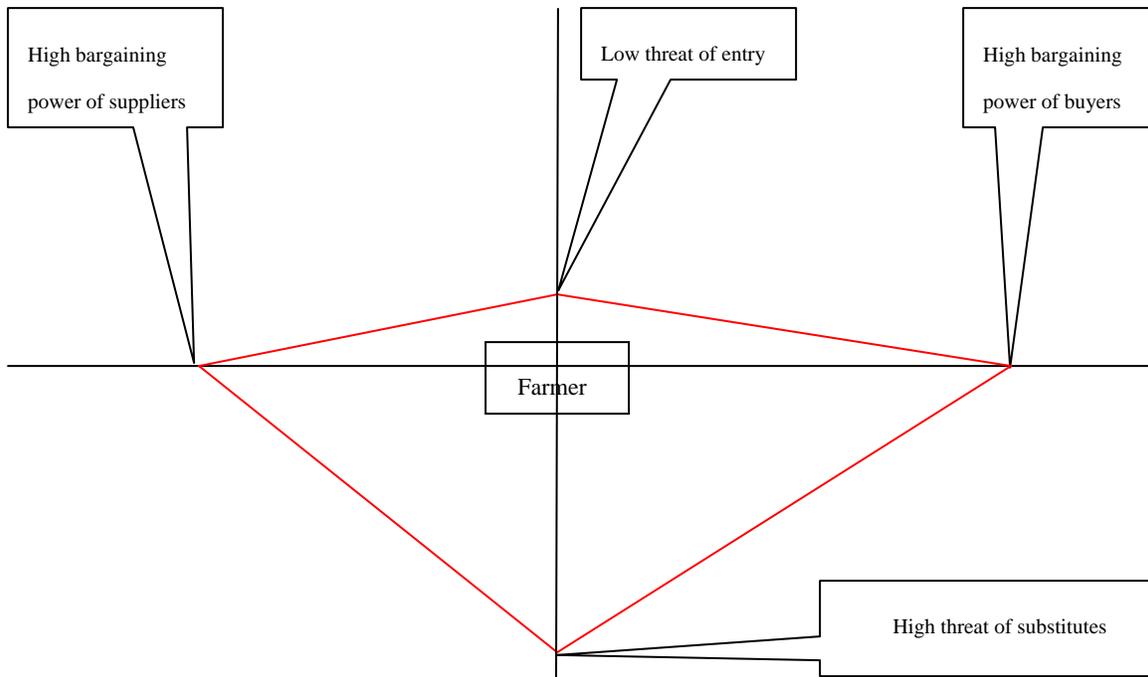


Fig. 5.8.1: Schematic overview of the 5 competitive forces on farm level.

Summary:

From the figure can be concluded that the farmer is in a disadvantaged position due to low bargaining power and high threats of substitutes. The unattractiveness for new entrants results in low threat from this group. Although the high barriers are hindering new entry of competitors resulting in scarcity, on the other hand these guarantee a more favorable price for the existing farmers. According to the principle of supply and demand higher supplies on the market, in this case due to larger numbers of producers, will result in declining prices

5.8 Porter’s model on butcher’s level.

Force 1: Threat of entry of competitors

Barriers determining the ease of entry for new entrants into the industry are: (1) capital or investment requirements, (2) access to industry distribution channels, (3) brand loyalty of the customers and (4) government policies.

New entrants preparing for entering the meat processing and retail sector have to make high capital investments in facilities, equipment and for complying with regulations set by the government for meat processors and retailers. Other aspects determining the entry of competitors are the access to market and distribution channels and loyalty of consumers to existing firms. Loyalty of the consumers creates barriers by forcing new entrants to make high expenses for gaining the loyalty of the consumers: advertising, quality, service and product differences.

Force 2: Threat of substitutes

The ease of substituting the product depends on quality or similarity of the substitute product, buyers' willingness to substitute and relative price and performance of substitutes.

Mutton and goat meat are compared to other meat types in the retail shops the most expensive while the quality is relatively lower. These factors and others related to the budgetary and economic position of the consumer are making substitute products an attractive alternative for occasional consumers who constitute the majority of the consumers of these meat types.

For regular consumers substitutes are not an alternative. They are willing to maintain their consumption habit regardless of the price of mutton and goat meat. The consumption can however be slightly reduced for reasons of the high consumer price. With current consumer prices and the weak economic position of consumers, substitutes can pose a high threat for marketing and market expansion, since the clientele is limited to the small group of regular consumers.

Force 3: Bargaining power of buyers

Bargaining power of the buyers at retail level is generally low. Consumers don't have the power to negotiate with the retailer to adjust the consumer price.

Force 4: Bargaining power of suppliers

This indicates the pressure that suppliers, in this case farmers and middlemen, can place on the business. The industry is characterized by many suppliers and few retailers, no substitutes for the product which is extremely important to the retailer and low costs of switching from supplier.

The dominant position of the retailers in the chain and the low cost of switching from supplier are giving them high bargaining power. The suppliers still have some power to negotiate with the retailer about the price.

Force 5: Intensity of rivalry among existing firms

Rivalry among existing firms in the industry depends on structure of the industry costs, low switching costs for the buyers and exit barriers.

Structure and height of the industry cost determine the competitiveness of the firm. For this reason the non Muslim butchers are encountering higher rivalry from the Muslim butchers, who have lower industry costs. Height of industry cost, low switching cost for the buyer and low exit barriers are resulting in more intense rivalry among the existing firms.

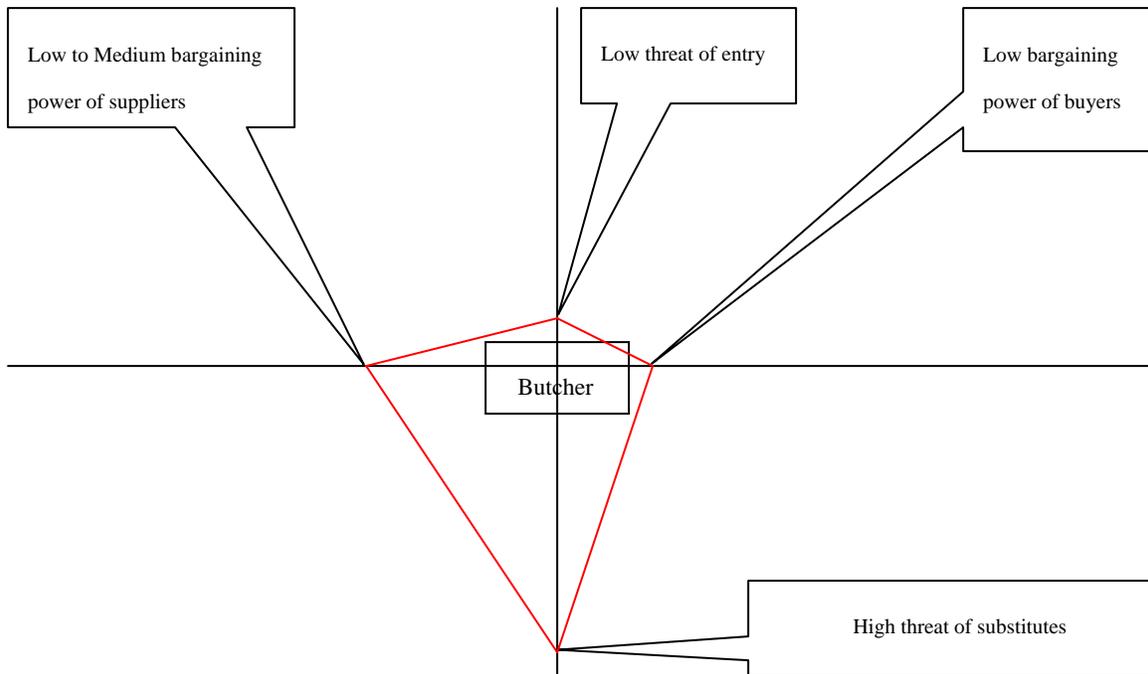


Fig. 5.8.2: Schematic overview of the 5 competitive forces on retailer's level.

Summary:

From the figure it becomes clear that the butcher is in a more advantaged position due to low threats of new entrants and the dominant bargaining position vs. suppliers and buyers. The high threat of substitute products and internal rivalry are the only serious threats on this level.

CHAPTER 6 CONCLUSION AND DISCUSSION

The research learned that the sector has the following characteristics:

- For the majority of the farmers the sector has the character of a hobby and for earning additional income. For all the small holders the sector is a hobby activity. Only 20% of the large holders earn their main income from sheep and goat farming.
- The total production of the respondents amounts to 800 live animals per year. For supplying the local needs of 1300 animals per year, mutton is imported to supply the needs of certain respondents among the butchers. Roughly 25% of the annual marketing volume is imported.
- Due to the hobby character most respondents are not commercially managing the farm. Only 30% to 40% of the respondents are paying attention to economic aspects of the management, besides the technical aspects.
- In the chain the farmers, traders/ middlemen, Muslim butchers and MoAAHF are key players. The farmer has a relatively low bargaining power vs. traders and butchers, resulting in the low farm gate prices received. The dissatisfaction of the farmers with the farm gate price can be an explanation why the sector remains on hobby level. Profitability can be mentioned as a factor determining the adoption of a sector by farmers (Singh, 2000 and Ashraf et al., 2008).
- In most of the cases the farm gate price is not determined on the basis of farm data, but derived from the consumer price. The farm gate price constitutes approximately 30% of the consumer price, which is related to factors as availability (supply) and demand. Demand is influenced by Seasonality: Tourist season, Christmas, Ramadan etc. While supply is determined on factors and decisions on farm level.
- For determining the factors influencing the marketing of meat a distinction has to be made between occasional consumers and the smaller group of regular consumers, predominantly Muslims. Regarding the Muslim group ethnicity and religion are determining the consumption and marketing. For the other category it is more budgetary related: income level and price of the product, price and quality of substitute products.
- The following 3 main market channels can be distinguished:
 1. Through Middlemen. 25% of the production volume of small holder respondents and 35% of that of large holder respondents is marketed through the middlemen.
 2. Through Butchers. Identical production volumes as mentioned above by small holder and large holder respondents are marketed through the butchers.
 3. Farmers and local consumers are also an important channel for the respondents. 50% of the production volume of small holders is marketed through this channel compared to 20% of the large holders' volume. In this case it concerns marketing of breeding stock to farmers.

The research revealed the following key limiting issues:

- High entry barriers for new comers. High financial investments, technical and management barriers, assumed low farm gate price and limited domestic market are factors making it unattractive for new entrants to step into the industry. The limited domestic market which is restricted to a certain ethnic consumer group is adding an extra dimension of marketing uncertainty. Although the high barriers are hindering new entry of competitors resulting in scarcity, on the other hand

these are guaranteeing a favorable price for the existing farmers. According to the principle of supply and demand higher supplies on the market, in this case due to larger numbers of producers, will result in declining prices.

- For years it had been very difficult for farmers to obtain credit, due to difficult procedures and high interest rates. To solve this problem, recently the Agriculture credit fund was established by the ministry.
- The interviews with respondents revealed in the majority of cases that the MoAAHF is not promoting the sector sufficiently and that the extension service also needs improvement.

Despite the high farm gate price the sheep and goat industry is remaining at hobby level, with little or no developments. From the results of the research it can be suggested that profitability motives are the main factors influencing farmer's decisions. In this case profitability factors include the farm gate price received by the farmer and the price of inputs. Other motives that also have influence on developments in the sector are: high financial risks involved, inadequate management skills and personal preferences. With a shift in preference of the farmers toward more lucrative income generating activities, raising sheep and goat is reduced to a hobby for the majority of respondents. This can be a plausible explanation why developments in the industry failed to occur.

It can be suggested that for making farmers adopt for the sector and bringing new developments, efforts should be focused on improving the profitability factors mentioned. This can be by improving both the farm management and farm gate price, but also efforts for reducing the price for inputs can be mentioned. Improving the farm gate price and lowering the price for inputs can be achieved by improving the bargaining position of the farmers through corporate marketing and corporate purchase of inputs.

CHAPTER 7 RECOMMENDATIONS

The recommendations resulting from this research are addressed towards the employer of the researcher, the Ministry of Agriculture, Animal husbandry and Fisheries. They concern the project *Encouraging Small Ruminant Production*.

In phase 3 of this project, it is in the line of planning to train farmers in different aspects of rearing sheep and goat. The topics will focus on technical and management/ economic aspects. Since the focus of the trainings is not on promoting farmers organizations, it would be recommended to make them aware of the advantages of organizing themselves.

From the research it has become clear that farmers are facing several problems, restraining development and initiatives from their side. The biggest problem is related to farmers not being organized: high input prices and low bargaining power resulting in low farm gate prices.

In an increasingly commercialized and globalized value chain for agriculture products, it is necessary that small holders and poor farmers become more actively involved in the chain. This implies that they should organize themselves in to groups and coordinate their actions. Collective action can be an important strategy for the poor to take advantage of economic opportunities. Collectivity of farmers has the advantage of achieving economies of scale, increasing the ability to purchase inputs at reasonable prices and increasing bargaining power, finally resulting in more attractive prices for their products (Anon, 2006).

After the trainings it is in the line of expectations that farmers will realize the advantages of being organized and organize themselves into groups or cooperatives for bringing development in the sector.

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APPENDIXES

Appendix 1: Interview list sheep and goat farmers.

Number of interview

Date: / /

Address/ location

Telephone:

Are you the farm manager? Yes / No

N.b. Please circle the correct answers.

1. How long have you been raising **sheep/ goat**?years.
2. Number of sheep Number of goats
3. Is rearing sheep/ goat your main source of income? Yes / No
4. Why do you rear sheep/ goat?
Hobby / Additional income / Main income source
5. What other sources of farm - income do you have?
Growingarea
- Raising with flock of.....
6. What is the land size?.....
7. Are you the legal owner of the land? Yes / No,
Own: Rent: from
8. What technical information do you consider important for your business?
 - a. Animal husbandry b. Feeding c. Breeding
 - d. Pasture development and management
 - e. Farm management
 - f. Other
9. Who provides you with technical information?
 - a. Government: extension officers / veterinary officers
 - b. Private veterinarians
 - c. Other farmers
 - d. Trader/ middlemen
 - e. Butcher/ retailer
 - f. Other
10. What marketing information do you consider important for your business?
 - a. Farm gate price b. Consumer price
 - c. Location of markets (export) d. Other
11. Who provides you with marketing information?
 - a. Government: extension officers / veterinary officers
 - b. Private veterinarians
 - c. Other farmers

- d. Trader/ middlemen
 - e. Butcher/ retailer
 - f. Other
12. In what ways does availability of marketing information affects your decision making regarding the farm?
 13. In what ways does availability of technical information affects your decision making regarding the farm?
 14. What is according to you the contribution of the other actors and supporters in the chain?
 - a. Butchers/ retailers
 - b. Traders/ Middlemen
 - c. Transporters
 - d. Ministry of Agriculture
 - e. Abattoirs
 - f. Other (Financial and research institutes, etc)
 15. How many sheep / goats do you sell per year?
 Sheep Goats
 16. To whom and how much (numbers) do you usually sell to?
 - a. Middlemen/ trader ()
 - b. Butchers ()
 - c. Farmers ()
 - d. Consumers ()
 17. What is the reason for selling to them? (E.g. higher price, relation, good quality product etc.)
 18. What farm gate price do you receive per kg?
 Middlemen/ trader: Sheep Goat
 Butcher: Sheep Goat
 Farmer: Sheep Goat
 Consumer: Sheep Goat
 19. How is the farm gate price determined?
 - a. Negotiation b. By the buyer c. By the farmer
 - d. By volume e. By seasonality* f. Other
 (* Seasonality: Christmas, Ramadan etc.)
 20. Do you know what the consumer price of sheep and goat meat is?
 Yes / No. If Yes, how much?
 21. Do you consider these prices as high? Yes / No
 22. Do you consider the consumer and farm gate price as fair for developing the sector?
 Yes / No. And why?
 23. Do you have plans to make investments in your sheep /goat farm?
 Yes, which?
 No, why?
 24. What do you consider as the biggest problems constraining your sheep/ goat farming? Rank these according to importance.
 25. What are according to you possible solutions for improving sheep and goat farming in Suriname? Rank these according to importance.

Appendix 2: Interview list Butchers/ retailers.

Number of interview **Date:** / /

Address/ location

Telephone:

1. Which chain function (s) are you implementing?
 - a. Buying livestock
 - b. Processing and marketing meat
 - c. Technical advice to d. Marketing information to e. Other
 -
2. How many sheep/ goats do you market per year?
Sheep Goats
3. Where do you usually buy your **livestock** / **meat** and how much (numbers)?
 - a. Middlemen/ trader ()
 - b. Farmer ()
 - c. Other ()
4. Which factors are according to you determining the consumption of sheep and goat meat?
 - a. Ethnicity
 - b. Price
 - c. Quality
 - d. Income level
 - e. Price of substitute products
 - f. Other
5. Rank these factors according the importance.
6. How many of your customers are buying sheep and goat meat?
Sheep%
Goat%.
7. What is the consumer price of sheep and goat meat?
Sheep
Goat
8. What are the current farm gate and whole sale price for sheep and goats (meat)?
Sheep
Goat
9. Do you consider the consumer, whole sale and farm gate price as fair for developing the sector and meat consumption? Yes / No. And why?
10. What are the causes for the price difference between farm gate and consumer price?
11. Is the consumer willing to pay more for meat? Yes / No
12. Which factors and actors are involved in determining farm gate, whole sale and consumer price?
Which are most important?
13. Which marketing information is available for farmers via your organization?
14. And technical information?
15. Sheep and goat meat can be substituted with other protein sources.
Do you think that your customers are willing to substitute it?
Yes / No. And why?
16. What is the influence of substitute products on the marketing of sheep and goat meat?

17. What is according to you the contribution of the other actors and supporters in the chain?
1. Farmers
 2. Traders/ Middlemen
 3. Transporters
 4. Ministry of Agriculture
 5. Abattoir
 6. Other (Financial and research institutes, etc)
18. What do you consider as the main problems related to the marketing of sheep and goat meat? Rank these according to importance.
19. What are according to you possible solutions for improving the supply of sheep and goat meat? Rank these according to importance.

Appendix 3: Interview questions Staff Ministry of Agriculture and other stakeholders.

1. Which chain supporting function(s) related to sheep and goat farming is your organization implementing?
2. What is the number of sheep and goat farmers in the district Wanica?
3. What is the number of butchers in Suriname selling sheep and goat meat?
4. What production support systems are available to farmers via your organization?
5. What marketing information is available to farmers via your organization?
6. What technical information is available to farmers via your organization?
7. What is according to you the contribution of the other actors and supporters in the chain?
 1. Butchers/ retailers.
 2. Traders/ Middlemen.
 3. Transporters.
 4. Farmers.
 5. Abattoirs.
 6. Other (Financial institutions, research institutes etc)
8. Do you consider the consumer and farm gate price as fair for the farmer, meat consumption and for developing the sector? Yes / No
Why?
9. What do you consider as the biggest problems constraining the sector?
Rank these according to importance.
10. What are possible strategies for improving sheep and goat farming in Suriname? Rank these according to importance.
11. Which factors and actors are involved in determining farm gate and consumer prices? Which are most important?

Appendix 4: Invitation letter to farmers.

Paramaribo, 14 July 2008

Geachte heer/ mevrouw

In de periode 15 July t/m 20 augustus 2008 zal ondergetekende in het kader van zijn afstudeeronderzoek aan de Larenstein universiteit (Wageningen, Nederland), ter verkrijging van de Masters graad een onderzoek doen onder producenten van schapen en geiten in Suriname.

Het doel van dit onderzoek is om beter inzicht te krijgen in de zwakke en sterke punten van de sub sector en om zodoende mijn bijdrage te leveren aan de ontwikkeling van de sub sector.

Uw vrijwillige medewerking aan dit onderzoek dat een geheel discreet karakter draagt, wordt zeer op prijs gesteld.

Hoogachtend,

Winston Fernandes
Masters student Larenstein universiteit
Wageningen, Nederland
Tel: (597) 08819461

Appendix 5: Summary of interview results with Staff of the Ministry of Agriculture(MoA).

1. Which chain supporting function(s) related to sheep and goat farming is the MoA implementing?

Currently the activities of the MoA are mainly in the area of provision of veterinary services. Extension in this area and promotion of the sub sector is to a much lesser extent, because of the priorities of the MoA and the shortage of field staff of the dept. of Animal Husbandry. With the project *Stimulering kleine herkauwes*, the MoA is making efforts to promote the sub sector. Promoting the sub sector will focus on:

- a. Providing market information to reveal the market opportunities on domestic and international level
- b. Training the farmers, providing them with the necessary technical and management skills
- c. Establishing demonstration farms
- d. Providing breeding stock of superior quality to the farmers.

2. Number of sheep and goat farmers in the district Wanica.

According to the most recent data of the MoA (2003), in the Wanica district 722 farmers are active. In practice these data have proved to be outdated and unreliable, in the sentence that farmers are no more active in production and the number of animals they are rearing.

Number of animals	Number of farmers
≤ 10	622
10 to 30	91
> 30	9

Table a: Overview of the sheep and goat farmers in the Wanica district (MoA, 2003).

District	Number of slaughterings
Paramaribo	1327
Para	24
Nickerie	4
Coronie	2

Table b: Overview of the number of slaughtering of sheep and goat (MoA, 2007).

3. Number of butchers in Suriname selling sheep and goat meat.

According to the MoA (2007) approximately 30 butchers/ retailers are active in Suriname. The majority is located in the capital Paramaribo, while a few are located in the districts Wanica and Para.

4. *Available production support systems for farmers via the MoA.*

For developing a value chain certain support mechanisms should be in place. These mechanisms are financial, capacity building and an enabling business and policy environment.

Agriculture Credit Fund. To provide farmers with financial incentives and for stimulating the private business environment, the fund was operationalized by the MoA in April 2008.

The fund, 2.3 million Euro, with a revolving character is intended for financing viable and innovative investments in small-scale and medium-sized enterprises in agriculture, with exception of rice farms.

The maximum amount per loan amounts 50,000 Euro with a minimum personal contribution of the applicant of 10% of the loan sum. Repayment of the loan starts 6 months after receiving the loan, depending on the product and farm type. The repayment period of a loan is maximum 10 years with an annual interest percentage of 6.75% over the loan sum.

The applicants for a loan should be able to provide solvability, profitability and liquidity to guarantee repayment of the loan. Other aspects that are considered when granting a loan are (1) the quality of the management and organization structure of the enterprise, (2) environmental impact of the intervention, (3) businessplan, (4) Risk analysis and (5) SWOT analysis.

The Board of the Fund, installed by the MoA, determines the policy. The exploitant of the Fund, the Agriculture Bank in Suriname, is responsible for executing this policy. Farmers have to apply for a loan at the exploitant of the Fund, who checks every application on the specified criteria and recommends the Board about her findings of the applications. The Board decides whether the application will be honored or not.

Veterinary services. This consists of preventive and curative treatment of animals by the veterinary officers of the MoA. In the field the officers are also able to provide farmers with technical and management information.

Extension services. In the Wanica district the department of Animal husbandry of the MoA has 3 regional offices which interested farmers can address for information and technical assistance. General and specific technical and management information are available at the department offices in the form of publications, leaflets and brochures. This information can also be obtained verbally from the staff of the department.

Indicative farm gate prices per kg. live weight can also be obtained verbally from the dept. of Statistics or from the Veterinary and extension officers, who are also able to link the customers to the farmers.

5. *Available marketing information for farmers via the MoA.*

- Indicative farm gate prices per kg. live weight can be obtained from the dept. of Statistics or from the Veterinary and extension officers.

- Other marketing services provided by these officers are linkage of customers to farmers. This information is available verbally.

6. *Available technical information for farmers via the MoA.*
- General and specific technical and management information are available at the department in the form of publications, leaflets, brochures. This information can also be obtained verbally from the staff of the department.
7. *The contribution of the other actors and supporters in the chain.*
1. Butchers/ retailers. When buying direct from the farmers, butchers are offering a low price, which is still better than the price offered by the middlemen.
 2. Traders/ Middlemen. Generally it can be said that these actors are exploiting the farmers. They are offering very low prices to the farmers, while on the other hand are making a big profit margin when selling to the butcher/ retailer. This can be one of the possible causes for the high consumer prices.
 3. Transporters. Are the same function as that of Traders/ Middlemen.
 4. Farmers. Since the majority of farmers can be described as hobbyists, they are not investing time and energy to increase production levels and efficiency. Farmers are not producing what the market is requesting: quality meat. This can be another possible cause resulting in low farm gate prices.
 5. Abattoirs. Slaughtering service of animals, cooling and storage of carcasses.
 6. Other (Financial institutions, etc)
 - Research institutes: currently no research in this area, also no farms producing breeding stock.
 - Financial institutes: Conditions to obtain loans are not easy for farmers and the interest rates are very high. For these reasons farmers are not often making use of the services of financial institutes.
8. *Do you consider the consumer and farm gate price as fair for the farmer, meat consumption and for developing the sector? No*
- Why? The consumer price is too high to promote and boost consumption at the moment. Since this price is greatly determined by supply and demand, the consumer price can be reduced if the supply is increased. The efficiency of the farmer will determine if the height of the farm gate price is fair to bring development in the sub-sector.
9. *What do you consider as the biggest problems constraining the sector?*
- Rank these according to importance.*
1. Farmers lack know- how and technical skills of the production.
 2. Exploitation of farmers by traders and middlemen.
 3. Lack of quality breeding stock.

10. *What are possible strategies for improving sheep and goat farming in Suriname? Rank these according to importance.*

1. Assess the domestic and export market potential.
2. Provide farmers with technical and management skills.
3. Provide farmers with quality breeding stock.
4. Establishment of demonstration farms.
5. Organization of farmers.

11. *Which factors and actors are involved in determining farm gate and consumer prices? Which are most important?*

- Farm gate price is derived from the consumer price. The latter is determined by the butcher/ retailer and is based on supply and demand.

Appendix 6: Summary of interview results with the representative of the Union of Cattlebreeders in Suriname.

1. *Which chain supporting function(s) related to sheep and goat farming is the Union implementing?*
The Union is mainly focusing on dairy farming. The sheep and goat farming sub sector has low priority for the organization because in the majority of the cases it is just a hobby for the farmers. Despite the low priority the organization is still focusing on dissemination of knowledge and information in the form of publications. These publications are providing the farmers with technical and management information. The organization does not provide the farmers with marketing information and production support systems.
2. *Availability of production support systems.* These systems are not available to the farmers.
3. *Availability of marketing information.* This information is not available to the farmers.
4. *Availability of technical information.* This information is available to the farmers in the form of the publication: Suriname Livestock guide: Ruminants (1995).
5. *The contribution of the other actors and supporters in the chain.*
 1. Butchers/ retailers. Have a dominant position in the chain. Are offering low prices to the farmers and are making bigger profit margin compared to the farmers.
 2. Traders/ Middlemen. Are offering low prices to the farmers, but are making a big profit margin when selling to the butcher/ retailers.
 3. Transporters. Same as Traders/ Middlemen.
 4. Farmers. Since the majority of farmers can be described as hobbyists, they are not investing time and energy to increase production levels and efficiency.
 5. Abattoirs. No idea of the contribution to the chain.
 6. Other (Financial institutions, etc)
 - Research institutes: currently no research in this area, also no farms producing breeding stock.
 - Financial institutes: Conditions to obtain loans are not easy for farmers and the interest rates are very high. For these reasons farmers are not often making use of the services of financial institutes.
6. *Do you consider the consumer and farm gate price as fair for the farmer, meat consumption and for developing the sector? No,*
Why? Consumer price is too high, does not stimulate consumption.
Farm gate price is too low, not attractive for the farmer to invest.
7. *What do you consider as the biggest problems constraining the sector? Rank these according to importance.*
 1. Inadequate farm management.
 2. Marketing.
8. *What are possible strategies for improving sheep and goat farming in Suriname? Rank these according to importance.*
 1. Establishment of professional farms under supervision of MoAAHF.
 2. Establishment of a good disease monitoring system.
 3. Export to the Caribbean region.
 4. Import of improved breeding stock.
9. *Factors and actors determining the farm gate and consumer price.*
The consumer price is determined by supply and demand, the consumer and butcher determine this price. High supplies, which can be the result of surplus in production, climatologic conditions forcing farmers to sell their stock, correspond with lower consumer prices. The farm gate price is derived from the consumer price.