Market analysis

Analysis of the current market situation and future market perspectives of maize and cassava cultivated by farmers in the Western Region, Ghana.

Report

June 2007

Market analysis

Analysis of the current market situation and future market perspectives of maize and cassava cultivated by farmers in the Western Region, Ghana.

Report

June 2007

MSc Thesis	**MCB-80430**
Student:	Femke van der Geer
Email:	femke.vandergeer@wur.nl
Registration number:	820820-252-070
Study:	Management Economics and Consumer Studies
Commissioner:	**ISCOM**
Accompaniment:	Dr. T. Wolters
Email:	twolters@iscom.nl
University:	**Wageningen University and Research Centre**
Chair group:	Marketing and Consumer Behaviour
Graduate advisors:	Dr. A. van Tilburg
Email:	aad.vantilburg@wur.nl
	Dr. Y. van Dam
	ynte.vandam@wur.nl

Preface

In the framework of my present study at Wageningen University I am accomplishing my MSc thesis. A HBO study, Commercial Economics and a route of Bachelor and Master subjects preceded this. In that time much attention has been spent to increase my knowledge of the literature and the analysis of this information both individually as well in a team with fellow students.

This study is an integrated research about the competitive power of a part of the Ghanaian agriculture sector; the products and processed variants of maize and cassava.
It is the company ISCOM that offered me the possibility for this thesis. I am very grateful the director Dr. T. Wolters for this nice task "Analysis of the current market situation and future market perspectives of maize and cassava cultivated by farmers in the Western Region, Ghana".
Through my research and study of literature and journals, I like to present the case regarding this research as real and practically as possible.

I am grateful to many people who have helped me with my thesis. Special thanks go to:

- Dr. A. of Tilburg; during the process of my MSc thesis writing, I have benefited from his valuable supervision. He not only guided my thesis writing throughout but also inspired me from time to time with his insights in the field of marketing. I am also thankful for his encouragement and caring to me, which led me away from the depressing moments when things went wrong.
- Manager Dr. T. Wolters; the director of ISCOM, for the support and the opportunity to have a look in the Ghanaian supply chain of maize and cassava. He followed me during the field work and study on a stimulating and critical manner.
- Mercy Enchill; assistant project manager of the Berea Social Foundation, for her support, knowledge and hospitality during my residence in Ghana.
- Dr. Ynte van Dam; the study coordinator of the Marketing and Consumer Behaviour Group, for his suggestion on topic selection, help during the information collection and the encouragement during the project.

Further I wish to extend my thanks to all instructors of the Management, Economics and Consumer Behaviour group of Wageningen University. I learned to enrich my marketing and management knowledge from the lectures they have given during my Master study.
Finally I would like to thank my father and mother. Thank you very much for providing me with an opportunity to study and for your continuous support!

The only thing that remains me is whishing you pleasure during the reading of this report.

Wageningen, June 2007

Femke van der Geer

Table of contents

Summary

This report has been written as a thesis for the study Management, Economics and Consumer studies at Wageningen University and serves as a closing off of the specialization Management studies at the chair group Marketing and Consumer Behavior. The subject of this thesis has been offered by Dr. T. Wolters, director of the company named ISCOM. In this summary the main results of the research will be presented.

Ghana has suitable soils and the climate is favorable to produce high-quality agricultural products like maize and cassava. However, when there is no market for these products, there will be no volume of trade and no income will be created. This lack of sufficient understanding of the market opportunities for maize and cassava was the cause of ISCOM to start this research. Through the analysis of the current market situation and future market perspectives of maize and cassava cultivated by the farmer group of the Western Region, ISCOM wants to contribute to the development of a sustainable market strategy.

This research will give insight in the current market situation and future market perspectives which will result in a strategic marketing planning for ISCOM. A planning for the mid term, 3 till 5 years and for the long term, 5 till 10 years. The SWOT analysis will give this strategic insight in the development of the different markets. A SWOT analysis exists of an internal and an external part. Those two parts deliver respectively, strengths and weaknesses compared to the major competitors and opportunities and threats concerning all external factors of the enterprise. The essence of the SWOT analysis will be the confrontation of the internal elements with the external elements; the confrontation matrix. This matrix will show intensified aspects and will lead to a number of strategic options. The choice of these strategic options has three criteria; they need to be suitable, feasible and acceptable.

The data collections in Ghana could not begin without a good orientation about Ghana, the Ghanaian market and the products maize and cassava. After this orientation, there is started with the collection of secondary data to leave well prepared. After the secondary data research delivered enough insight, there is started with the primary data collection; 12 qualitative semi-structured interviews which took place in Ghana. The analysis will begin from the moment that the interviews are reported. The interview reports will be combined, counted, discussed and further analysed in the internal and external analysis.

The internal analysis discusses the structure, conduct and performance of the current and future supply chain. In the current situation the farmers of the Western Region producing maize and cassava, which mainly will be consumed at home or will be market at the local market. In the expected future situation, these farmers producing to consume at home, market at the local market or the products will be transported to other actors of a possible supply chain. The internal analysis results in internal strengths and weaknesses.

The most important strengths which were derived are; the farmers own a relatively large amount of land, the soil and climate are favourable and the farmers will get access to better planting material. The most important weaknesses which originate are: the infrastructure is weak and there is a lack of resources, cooperation and market information.

The external analysis discusses the external environment, with the macro environment and the micro environment. This analysis shows the position of the supply chain within the environment which results in opportunities and threats.
The most important opportunities are; the agricultural sector is important, there are cooperative opportunities and there is a high potential of local and regional markets. The most important threats are; the inadequate infrastructure, no market orientation and little trust and willingness.

The strategic significance of the external and internal analysis on its own is limited. The essence of the SWOT analysis is the combination of the internal strengths and weaknesses with the external opportunities and threats in a confrontation matrix. The confrontation matrix gives a clear view of the most promising options. After generating these options, they are ranked at feasibility and period of time.

All the information and results of the analysis are combined and processed to strategies. The 3 generated strategies are;

1. Continuing the current situation
2. The access to good resources and by better market orientation, market information and cooperation, the farmer group will produce and market more maize and cassava for the local chicken feed sector in Ghana.
3. The access to good resources and by better market orientation, market information and cooperation, the farmer group will produce and market more maize and cassava to neighbouring countries.

To get more insight and master the improvements of the second option, it will be recommended to organize some future research.

- How to improve the market orientation and information systems for the farmers and other actors in the supply chain?
- How to improve and encourage the cooperation between the farmer group and other actors in the supply chain?

A marketing plan sets out the specific actions to put the second strategy into action.

Unfortunately there are also some limitations of this research project;

- The primary data collection covered a period of one month and took place in a early phase of the total research. The research proposal and interview framework were not completely finished at that time but because of travel and logistic arrangements there was no later possibility to travel to Ghana.
- The qualitative part of the research exists of just 12 depth interviews with actors of a possible supply chain. Anyhow, during the analysis it appeared that the answers of the respondents which include all actors of a possible supply chain do correspond with each other.

Introduction

Marketing touches every person in one way or another. Innovation and marketing are perhaps the only two significant engines for the growth of any economy. Successful growth of a company, an organization, an industry and an economy depends heavily on insightful, systematic, and scientific application of marketing principles and methods (Rao and Steckel, 1998).

Formulating a marketing strategy is a difficult task. ISCOM does not have all the information that it would like to have at its disposal to make the required decisions. Through this analysis of the current market situation and future market perspectives of maize and cassava cultivated by the farmers in the Western Region and its market environment, ISCOM wants to contribute to the development of a sustainable market strategy.

The aim of this research

The satisfaction of human needs and aspirations is the major objective of development. The essential needs of numbers of people in developing countries for food, clothing, shelter, jobs are not being met and beyond their basic needs these people have legitimate aspirations for an improved quality of life. A world in which poverty and inequity are endemic will always be prone to ecological and other crises. Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life (Brundtland, 1987).

This report is structured around the figure below.

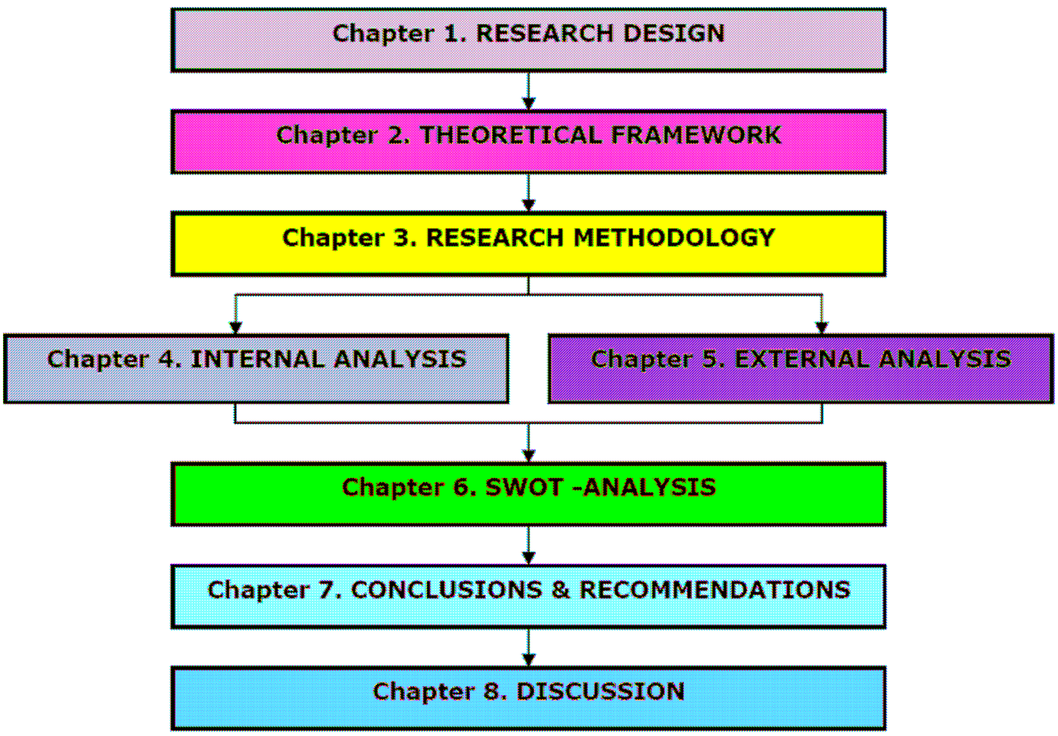

Figure I.1 Framework of this report

Chapter 1 will explain the research design. Designing a research project involves two parts. The first has much to do with the logical design of the research: the conceptual design of the research. The second set of activities concerns the question of how to realize all this: the technical research design.
In the second chapter the theoretical framework for this research will be presented. There will be defined what marketing planning is. Then the theory of the SWOT analysis will be discussed including the internal and external analysis. After these analysis the confrontation matrix will be explained which makes it possible to generate and select some strategic options. Finally, chapter 2 will contain the theory about the development of a strategic marketing plan.
The research methodology will be discussed in chapter 3. The methodology to be used in this study and the application of this methodology will be discussed in three phases; orientation phase, phase of data collection and plan for analysis.
Chapter 4 presents the internal analysis of the supply chain given the current market situation and the market perspectives of maize and cassava cultivated by farmers in the Western Region, Ghana. This internal analysis will discuss the internal strengths and weaknesses of the supply chain from producer level to consumer level.
The external analysis, chapter 5, discusses the external environment, with the macro environment and the micro environment. Together, these analyses are the non-controllable elements of marketing, which are outside the supply chain, but which do influence its performance. The analysis shows the position of the supply chain within the environment which results in opportunities and threats.
The strategic significance of the external and internal analysis on its own is limited. It is important to look for a connection between the conclusions in the development of the environment as well as the development of the supply chain. This will be presented in chapter 6, the SWOT – analysis, the essence of the SWOT analysis is the combination of the internal strengths and weaknesses with the external opportunities and threats in a confrontation matrix. In this way it is possible to have a clear view of the market.
Chapter 7 will present the conclusions derived from the generated options; the generated strategies and recommendations. The recommendations will exist of two parts; first, the recommended strategy and second the recommended future research for the recommended strategy.
The last chapter, chapter 8 discussion, will discuss the limitations of this research project and will give a short personal reflection.

1. Research design

This chapter will explain the research design. Designing a research project involves two parts. The first has much to do with the logical design of the research: the conceptual design of the research. The second set of activities concerns the question of how to realize all this: this is called the technical research design (Verschuren and Doorewaard, 1999).

This means that an answer is given to the next questions:

- What is the motive of this research?
- What is the research objective?
- What are the accompanying research questions?
- Which research material is usable?
- What are the research strategies?
- What is the time span of this research?

This chapter begins with a short introduction of Ghana, the company ISCOM and the link between both. Then, the conceptual design will be clarified; the research objective, definitions of the problem, research questions and the research model will be explained. After this the technical research design will be explained; the research material and research strategies will be clarified. This chapter will end with the research planning of this thesis.

§ 1.1 Ghana[1]

Ghana is a small West African country; the official name is Republic of Ghana. The country borders on the Gulf of Guinea, between Côte d'Ivoire and Togo. The surface is 239.460 km² (of which 8.520 km² water) and the coastline is 539 km long. The climate of Ghana is tropical and hot and humid in the Western Region.

Ghana uses English as the language of commerce and government, although some 75 other languages and dialects are spoken. This diversity in languages and traditional usages in the country are the effect of the huge ethnical diversity. Many of the ethnical groups are connected to each other. The habits and other cultural expressions of the Ghanaians are ethnical based. These Ghanaians are also very proud at their own origin. Very important is the role of their parents and family, this are people which will be treated with much respect.

The people in Ghana are sending out their joy of life, happiness, hospitality and enterprising spirit. They are proud at their own culture, their own music, their own food and their own clothes. At the same time they like to adopt the international trends. In most of the regions people have radios, televisions, internet café's and mobile phones.

[1] All information in § 1.1 Ghana is derived from Landenreeks Ghana (Dijksterhuis, 2005)

'Tomorrow everything will be better', is the idea of the always optimistic Ghanaian. Years of political stability and economic growth throw off their fruits in Ghana. The traffic-jams of Accra are being handled and there is invested everywhere in the country in adequate infrastructure. The neglected railroads are being repaired and the chaos of private buses is tackled. The Ghanaian does not let his mood be spoiled by all these activities. This attitude to life contributes to the image of cheerful chaos, loud, colorful and also dirty: the waste problem is one of the biggest priorities.

Large regional differences exist on social economic issues. North Ghana is underdeveloped and in the south of Ghana the economical situation is more developed. The main economic activities concentrate in the triangle Accra, Kumasi and Sekondi.

Ghana is a safe country. The criminality is less than in the neighboring countries, also because the social control is large. In Ghana women can safely walk over street. Traditionally women take a strong position in the Ghanaian society, in the trade as well as behind the screens in all important family and clan matters. Already for decades long, the country counts as a beacon of stability between chaotic countries. Ghana's first president, Kwamw Nkrumah, led Ghana to the independence in 1957. "The black rigid of Africa" (Ghana) the guide country was for many Africans.

The problems that many African countries afflicted after independence did not only touch Ghana. Many citizen governments and military juntas followed each other at high speed. In the nineteen eighties, a new period of stability began. From 1992 onwards, in Ghana only democratic chosen governments were in charge; the economy of the country developed very well. The positive radiation of Ghana's stable development is in West Africa of large interest.

The most important threat to Ghana's stability is the growing gap between poor and rich people. This is, amongst others, the basis of the conflicts in neighboring countries as Côte d'Ivore and Nigeria. Ghana will really take its role as African guide country, as it manages to recover this antagonism successful.

§ 1.2 ISCOM[2]

ISCOM, institute for Sustainable Commodities, is a small not-for-profit organization. It was founded in 2000 by its present director Dr T. Wolters.

ISCOM aims to make a substantial contribution to the development of sustainable modes of production and sustainable chain management. They will do this by giving support to companies in developing a sustainability strategy. This may imply bringing producers and their clients together in order to serve a common interest in sustainable business.

[2] All information in § 1.2 ISCOM is derived from ISCOM (www.iscom.nl, September 2006)

The most common definition of sustainable development is that by the Brundtland commission, i.e. 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland commission, 1987). This new pattern of development contains a demand of equity in the satisfaction of future and present generations' needs. It aims to reconciliate and to integrate economic, social and environmental policies. The implementation of this sustainable development concept implies not only to reconsider numerous political decisions, but also to redefine the classical mechanisms of decision making processes and to draw on specific decision making aid tools.

A sustainable strategy can be characterized by the triple P: People (social), Planet (environmental) and Profit (economic). This sustainability can only be created if there is a market for sustainable products. Therefore, consumers have to change as well, both in thinking and in doing. ISCOM can help to sensitize the market for sustainable products and, in this context, is available to mediate between producers and potential clients.

ISCOM does not only consider strategy but also appreciates action and a willingness to take certain risk for the sake of reaching one's goals. This applies at different levels: (inter)national, regional, local; and is directed to different fields: organizational and technological.

Sustainability depends on innovations. ISCOM can give support to companies that wish to implement sustainable enterprise and sustainable chain management, for instance by giving support to:

- Defining the goals that can be reached step by step
- Formulating a course of action that brings the goals within reach
- Defining a coherent management approach and leadership based on continuous improvement
- Conducting market research and defining a focused market approach
- Formulating sustainability indicators to monitor whether current practices develop in the right (i.e. sustainable) direction
- Developing scenarios for the long range involving a company's different stakeholders

<u>The SUSCAP program</u>

ISCOM aims to contribute to the implementation for the SUSCAP program. SUSCAP stands for Sustainable Chain Management and the Abatement of Poverty. It belongs to the Thematic Co-Financing program (TMF) of the Ministry of Foreign Affairs.

Improvements smallholders in West Africa

The goal of the SUSCAP program is to make a structural contribution to the improvement of the living conditions of the farmers (People) in West Africa by means of reinforcing the capacity to earn a living by good entrepreneurship and business development (Profit). Within this framework ISCOM considers the supply chain and the creation of partnerships with people and organizations interested in sustainable development and supporting the farmers.

Figure 1.1 Tarkwa and Seyerano marked on the map of Ghana

In Ghana the ISCOM activities have been developing in the villages of Tarkwa and Sayerano, in the Western Region from 2005. Before the farmers are advised to grow certain crops, there will be a market research to discover the prospects. Through cooperation and professionalisation it will be possible to produce on a fairly large scale and take care of effective logistics. Because of this, sales opportunities are developed which would not exist otherwise. This is the key to the generation of a sustainable flow of income and reduction of poverty. Recently, it was confirmed that inspecting the soil before making the decision about what to grow is extremely important. For instance, in many places there is quite some erosion causing a very thin top layer of fertile soil (Planet).

In February 2005 the first workshops took place in Ghana, which made it possible for ISCOM to make concrete arrangements with Berea Social Foundation (BSF) in Takoradi. Berea Social Foundation is the main partner of ISCOM in Ghana. In principle, the project activities will be discussed and agreed with BSF. BSF takes responsibility for selecting co-workers and project management for the projects in the Western Region.

In the Western Region, an association of local farmers will be established, to combine the farmers' interests and give them leverage in negotiations. A company will be established, that will market the products and that will sell them to wholesalers, national processors and/ or exporters.

§ 1.3 Conceptual design

The conceptual design determines what, why and how much will be studied (Verschuren and Doorewaard, 1999). This conceptual design consists of four elements: formulation of the problem, research objective, research questions and research model.

§ 1.3.1 Formulation of the problem

The lack of sufficient understanding of the current market situation and future market perspectives for maize and cassava or processed variants were cause of ISCOM to start this research. ISCOM likes to know the current market situation and likes to look at the internal and external market opportunities at several levels; 1. local market, 2. regional market (West Africa) and 3. world market. ISCOM also wants a comprehensive view on the Ghanaian position on the international markets.

Ghana has suitable soils to produce agricultural products such as maize and cassava. The soil and the climate are favorable to deliver high-quality products. However, when there is no usable market for these products, there will be no volume of trade and thus also no income will be created. Interviewing participants in the whole supply chain, from producer (farmer) to consumer, will give a clear view of the current situation and market possibilities of maize and cassava or a processed variety.

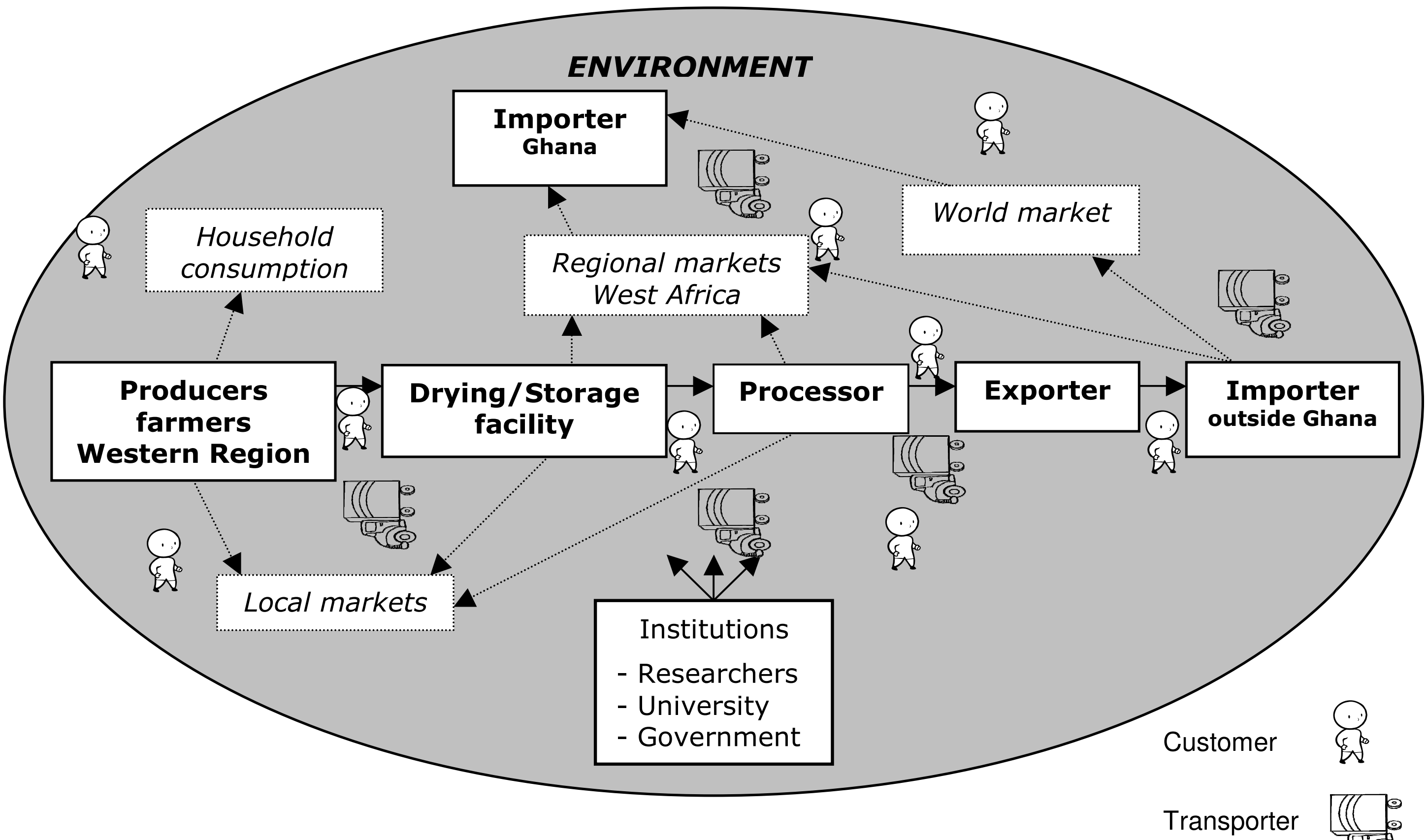

Figure 1.2 Graphical presentation of the subject of research

Figure 1.2 gives a graphical presentation of the subject of research: the supply chain (from producer to the consumers) and its environment. This shows the various routes that maize, cassava or processed maize and cassava products can follow on their way to the market or the consumer and its environment.
During this flow there are several customers and transporters who are part of the supply chain. The supply chain, its actors and the environment, there is another relevant group; institutions. Institutions are organizations or mechanisms governing the behaviour of two or more individuals. For example, research institutions have a critical and analytical view in general and the governmental institutions develop rules and legislations for the participants of the supply chain and its environment.

§ 1.3.2 Research objective and the approach to this problem

Through the analysis of the current market situation and the future market perspectives of maize and cassava cultivated by the farmer group of the Tarkwa area, ISCOM wants to contribute to the development of a sustainable strategy in terms of economic results and sustainable use of the soil, for the farmer group and their supply chain.

More specifically; the aim of the study is to:

A. Examine the product characteristics of maize and cassava of the harvest and examine the research area in terms of culture, climatic and soil characteristics with respect to these products.

   The first objective of this research does not concern a scientific contribution; however it provides the necessary background to start the research. This information can therefore be found in appendix 1. Background information.

B. Examine the current market situation of maize and cassava cultivated by the farmer group of the Western Region.

C. Examine the future market situation of maize and cassava cultivated by the farmer group of the Western Region.

D. Examine the market perspectives of maize and cassava cultivated by the farmer group of the Western Region.
   The markets can be in Ghana, in surrounding countries (West Africa), or elsewhere in the world. These markets will be evaluated separately.

E. Determine strategic options (mid term and long term) for ISCOM and the farmer group of the Western Region, to create sustainability in terms of economic results and sustainable use of the soil.

§ 1.3.3 Research questions

In this paragraph some central research questions are generated, derived from the research objective and some sub-questions from the central question. These questions help to answer the objective and fit each with a part of the involved research.

The central research questions are defined as:
1. What is the current market situation of maize and cassava cultivated by the farmer group of the Western Region?
2. What could be the future market situation of maize and cassava cultivated by the farmer group of the Western Region?
3. What are the market perspectives of maize and cassava cultivated by the farmer group of the Western Region?
   The markets can be in Ghana, in surrounding countries (West Africa), or elsewhere in the world. These markets will be evaluated separately.
4. Which strategic options (mid term and long term) are available for ISCOM and the farmer group to create sustainability in terms of economic results and sustainable use of the soil?

There are a number of sub-questions which are derived from the central questions.

What is the current market situation of maize and cassava cultivated by the farmer group of the Western Region?
<u>Internal</u>
1.1 What is the current structure of the supply chain?
1.2 How is the current conduct of the actors in the supply chain?
1.3 How is the current performance of the individual actors and the total supply chain?
1.4 What are the current strengths and weaknesses of the farmers and their supply chain?
<u>External</u>
1.5 Which factors of the current marketing environment can influence or disturb the market?
1.6 What is the effect that these factors have on the farmers and its supply chain?
1.7 What are the current environmental opportunities and threats for the farmers and their supply chain?

What can be the future market situation of maize and cassava cultivated by the farmer group of the Western Region?
<u>Internal</u>
2.1 What can be the future structure of the supply chain?
2.2 How can be the future conduct of the actors in the supply chain?
2.3 How can be the future performance of the individual actors and the total supply chain?
2.4 What can be the future strengths and weaknesses of the farmers and their supply chain?

<u>External</u>

2.5 Which factors of the future marketing environment can influence or disturb the market?

2.6 What can be the effect that these factors will have on the farmers and its supply chain?

2.7 What are the future environmental opportunities and threats for the farmers and their supply chain?

What are the market perspectives of maize and cassava cultivated by the farmer group of the Western Region?

<u>SWOT- analysis (confrontation matrix)</u>

3.1 Which strengths can be used to build upon opportunities?

3.2 Which strengths can be used to minimize threats?

3.3 Which strategies developed need to overcome weaknesses if opportunities are to be exploited?

3.4 Which strategies pursued must minimize weaknesses and cope with threats?

Which strategic options (mid term and long term) are available for ISCOM and the farmer group to create sustainability in terms of economic results and sustainable use of the soil?

<u>Strategic options</u>

4.1 Which strategic options (mid term and long term) are available for ISCOM and the framer group?

4.2 What is the optimal strategy for ISCOM and the farmer group?

§ 1.3.4 Vision

The goal of this research is to get a clear view of the current market situation and the future market perspectives for maize and cassava. Next can be considered which channels are most profitable/ attractive for the farmers and their supply chain. With the help of this information, ISCOM will compose a sustainability strategy in terms of people, planet and profit, for the farmers in the Western Region, Ghana. So, the farmer group with their supply chain and ISCOM will be working together for sustainable chain management in terms of economic results and sustainable use of the soil.

§ 1.3.5 Research model

The research model is developed on basis of the research objective and will reproduce the research objective schematically (figure 1.3). Also, it indicates which steps are required to realize the research objective.

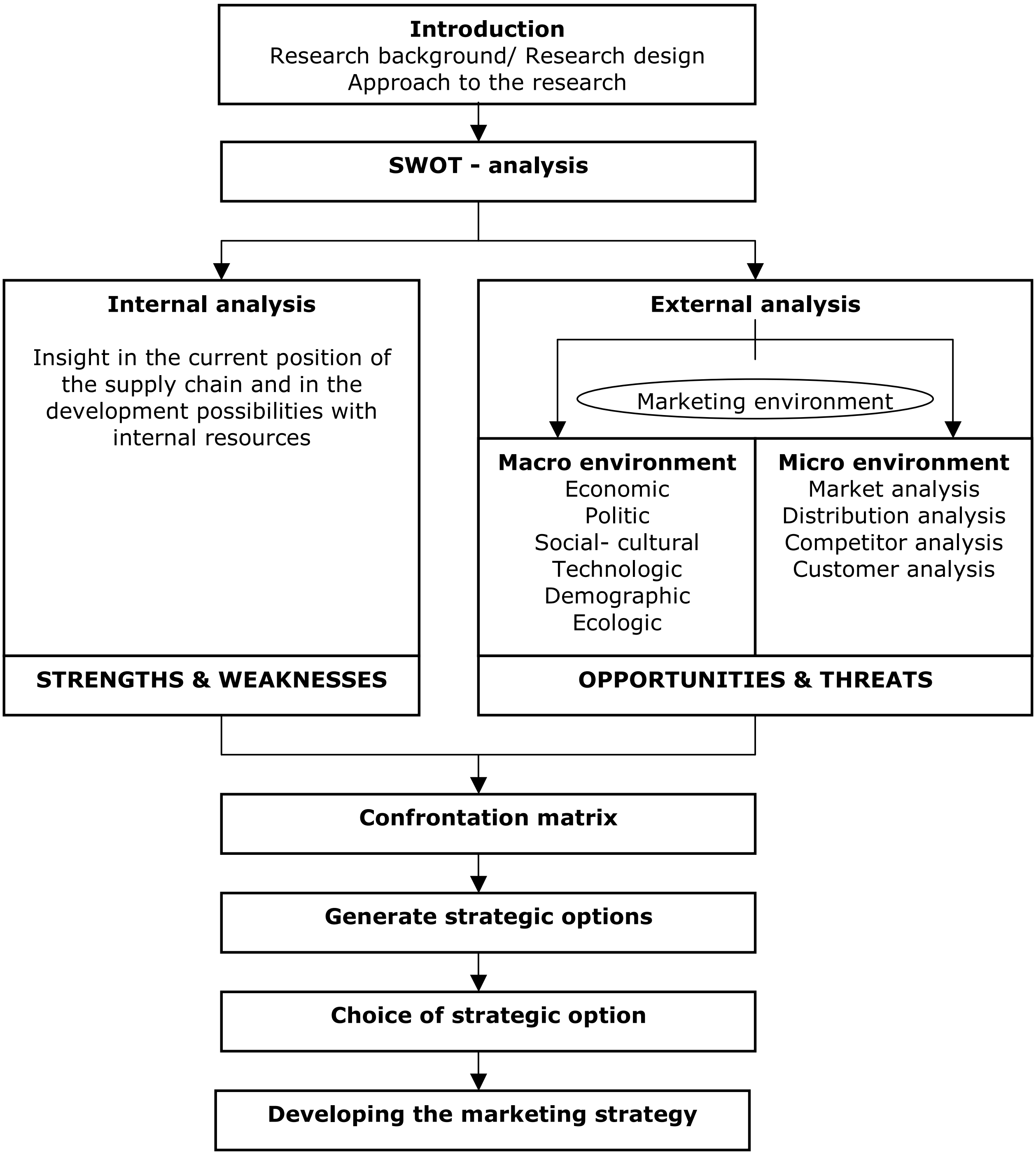

Figure 1.3 Research model (adapted from: Frambach en Nijssen, 2005)

§ 1.3.6 Definitions

To prevent misunderstanding the central subjects of this research are defined below.

Commodities: Commodities are products - both from agriculture and industry - that are produced in great quantities, wherever on earth, also in developing countries (Website ISCOM, October 2006).

Supply chain
A supply chain is a partnership of organizations sharing a common goal of delivering products to an end-customer.

Sustainable development:
Sustainable development is development that meets the needs of the present without compromising the ability of the future generations to meet their own needs. It contains within it two key concepts:

- The concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given, and
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present en future needs (Brundtland, 1987).

Sustainable chain management: Sustainable chain management is ISCOM's special field and is an essential part of its mission. Many food commodities are the final output of a European or international product chain. There is quite some European and national legislation and regulation in the context of international trade.
Throughout the entire product chain, in many ways sustainability depends on individual decisions to make changes for the better at different levels of responsibility. Therefore, for all links in the product chain it is of great importance to gain insight in the opportunities to implement sustainable business (Website ISCOM, October 2006).

Mid term: In this research when we speak of the mid term this will be 3 till 5 years.

Long term: In this research there will be spoken of the long term. In this case, the long term will be 5 till ten years.

§ 1.4 Technical research design

A further step in the design process is the transition from conceptual to technical research design. This technical design has to answer the question how, where and when to realize the research (Verschuren and Doorewaard, 1999). This technical research design consists of four elements: research material, research strategies, composition of the thesis and research planning.

§ 1.4.1 Research material

One of the first things to consider when constructing the technical research design is the kind of material required and how and where to gather this material.

There are primary and secondary sources to find information to accomplish the research questions.

- Primary sources

Primary sources are the materials on a topic upon which subsequent interpretations or studies are based, anything from firsthand documents such as records and interviews to research results generated by experiments, surveys and so on.
Primary sources are records of events as they are first described, without any interpretation or commentary. They are also sets of data, such as census statistics, which have been tabulated, but not interpreted (Hairston, 1996).
Primary sources of information allow the researcher to access original and unedited information and to interact with the source and extract information.

- Secondary sources

Secondary sources offer an analysis or a restatement of primary sources. They often attempt to describe or explain primary sources (Hairston, 1996).

Secondary sources

- Internet

The internet can give the statistics of the amounts of production, consumption, export and import and the prices of the agricultural products of this research.

- Journals

Journals which contain information about maize and cassava markets in general and of those in development countries.

- Trade statistics

Trade statistics will give actual information about the amount of products produced, consumed, imported, exported and waste, divided by region or sub region.

- Sector reports

Sector reports on management, marketing and agriculture. They should be used to get a better insight in the aspects of the market perspectives for maize and cassava cultivated by Ghanaian farmers.

This research starts with investigating and processing of the secondary information. After the processing of the data it is possible to see which information is missing to answer the research question. A primary research can help to fill these gabs with specific firsthand information.

Primary sources

- Interviews

Semi-structured interviews with all actors of a possible supply chain; producer (farmers), transporter, traders, processor, importer, exporter, consumer, governmental authorities and researchers as a crops research institute and agricultural department of the university.

The methods to unlock the sources of information are:

- Reading: the relevant literature including study books, scientific literature, internet, journals and also the information received from ISCOM and Berea Social Foundation to get a better insight in the subjects of the research.
- Interpretation of the materials: in order to get an insight in the theoretical and empirical parts of the research and to obtain good understanding of the topic of the research and about each subject of the research.
- Interviews: to get a better understanding of the current market situation and future market perspectives for maize and cassava cultivated by Ghanaian farmers.
- Analysis of the available materials and information: to understand them and to make the necessary conclusions and recommendations.

§ 1.4.2 Research strategies

The most significant decision, when constructing a technical research design is what kind of approach will be taken. The research strategy is the coherent body of decisions about the way in which the research project will be carried out. It is collecting relevant material and processing this material into answers to the research questions of the research issue.

An important part of this research is based on desk research. Desk research is a research strategy in which the researcher uses material produced by others (= secondary sources). There are three categories of existing material that can be used for doing a desk research, these are: Literature, secondary data and official statistical data (Verschuren and Doorewaard, 1999).

The empirical part of this research will be based on the interviews in Ghana with the actors of a possible supply chain of maize and cassava, cultivated by the Ghanaian farmers of the Western Region. The views on the market from the producer (farmers), transporter, traders, processor, importer, exporter, consumer, governmental authorities and researchers as a crops research institute and agricultural department of the university will be collected.

§ 1.4.3 Composition of the thesis

Table 1.1 shows the composition of this thesis. This table describes which subjects will be treated in each chapter.

Table 1.1 Bookmarker

Chapter	Short explanation
1 Research design	▪ Introduction Ghana and ISCOM ▪ Conceptual design ▪ Technical design
2 Theoretical research framework	▪ What is (strategic) marketing planning? ▪ SWOT analysis ▪ Confrontation matrix ▪ Generate strategic options ▪ Choice of strategic option ▪ Developing the marketing strategy ▪ Application of the literature
3 Research methodology	▪ Methodology to be used in this study ▪ Orientation ▪ Data collection ▪ Analysis ▪ Planning Ghana
4 Internal analysis	▪ Current market situation ▪ Future market situation ▪ Strengths and weaknesses
5 External analysis	▪ Micro environment ▪ Macro environment ▪ Opportunities and threats
6 SWOT-analysis	▪ Confrontation matrix ▪ Generated options ▪ Rank strategic options
7 Conclusions & recommendations	▪ Generated strategies ▪ Recommendation of a strategy ▪ Recommended future research ▪ Marketing strategy
8 Discussion	▪ Limitations of this research project ▪ Personal reflection

§ 1.4.4 Research planning

This paragraph discusses the final part of the design process; the planning of the research project.

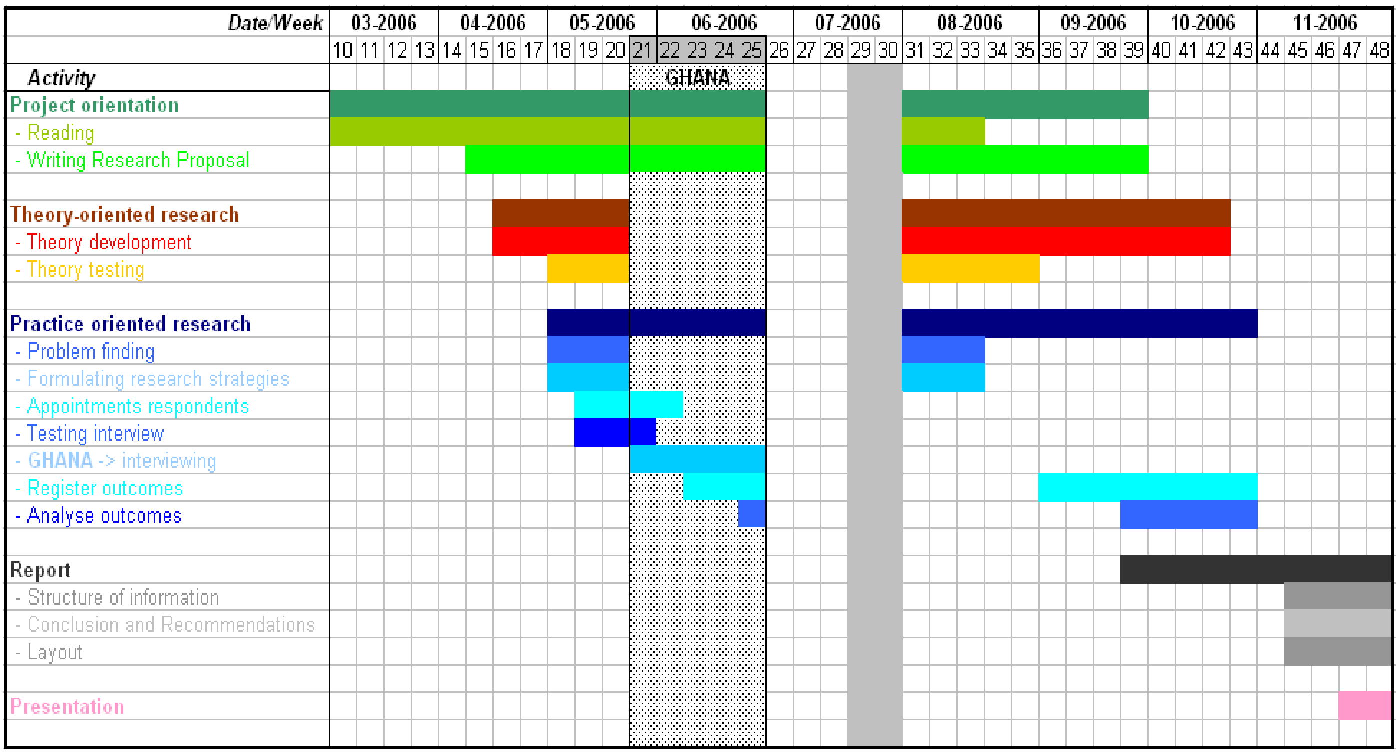

Figure 1.4 Research planning

The actual planning of the research can be found in appendix 8. Final research planning.

2. Theoretical framework

In this chapter the theoretical framework for this research will be discussed and presented. To get a clear view of the future market perspectives of maize and cassava cultivated by the Ghanaian farmers it is important to know more about the current market situation and the future perspectives.

The first paragraph defines what marketing planning is. Then the SWOT analysis will be discussed included the internal (§ 2.3) and external analysis (§ 2.4). After this analysis the confrontation matrix will be discusses in the fifth paragraph. The confrontation matrix will make it possible to generate some strategic options (paragraph 2.6); the selection of the strategic options will be discussed in paragraph 2.7. The last paragraph of this chapter will contain the development of a strategic marketing plan.

§ 2.1 What is (strategic) marketing planning?

There are some distinctions between marketing planning (seen as being an annual exercise) and strategic planning (seen as being of a long-term nature). These differences indicate that strategic planning logically precedes marketing planning by providing a framework within which marketing plans might be formulated. It is an essential starting point in developing a marketing strategy to understand the strategic situation confronting the supply chain. This understanding can be derived from an assessment of:

- Capabilities
- Threats from environmental forces
- Competitors' strengths and weaknesses
- Customers' needs (Wilson and Gilligan, 2005)

Table 2.1 Differences between strategic planning and marketing planning

Strategic planning	**Marketing planning**
Concerned with overall, long-term organizational direction	Concerned with day-to-day performance and results
Provides the long-term framework	Represents only one stage in the development
Overall orientation needed to match the supply chain to its environment	Functional and professional orientations tend to predominate
Goals and strategies are evaluated from an overall perspective	Goals are subdivided into special targets
Relevance of goals and strategies is only evident in the long term	Relevance of goals and strategies is immediately evident

(Wilson and Gilligan, 2005)

§ 2.2 SWOT – analysis

The SWOT–analysis stands for a complete analysis of the situation of a business. The SWOT–analysis is an analysis of the strengths and weaknesses of the supply chain and its external opportunities and threats. The strong and weak points concern the actors of the supply chain and the supply chain self; it is about the question whether the business has sufficient knowledge about raw materials, production possibilities, investments possibilities and has built up a trustworthy name at the buyer's level. The opportunities and threats concern all external factors of the supply chain. Each of these factors will be judged on their (favourable or unfavourable) influence on the business.

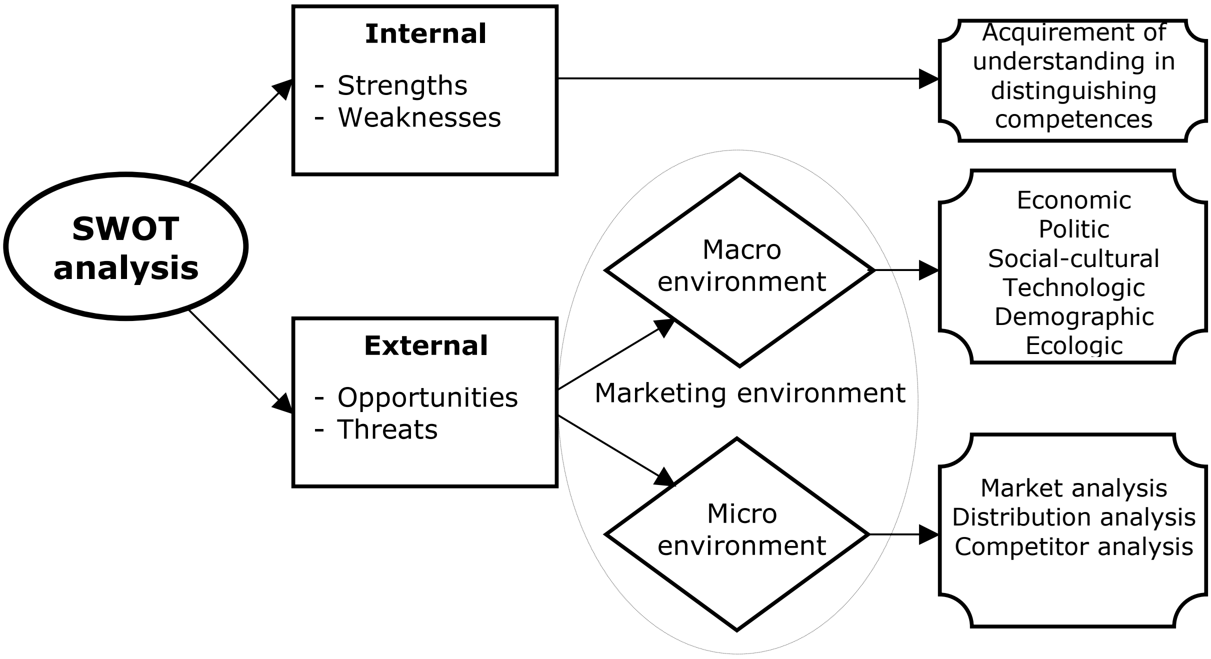

Figure 2.1 Research framework SWOT-analysis

§ 2.3 Internal analysis

The internal analysis is a research into the internal strengths and weaknesses in relation to the major competitors. This research will help to get insight in the current position and future perspectives of the supply chain and the development possibilities with internal resources. Aspects that are important are; the knowledge on technical and commercial aspects, or the availability of seeds, (production) machines, logistic possibilities, investments possibilities and the trustworthy name in the eyes of the buyers. The aim of the internal analysis is the acquiring of understanding of distinguishing competences which can give competitive advantages.

The three elements of the internal analysis are:

1. Structure of the supply chain

"Market structure: the organisational characteristics of a market which determine the relations of sellers to the buyers, including potential new organizations which might enter the market (Bain, 1959)".

2. Conduct of the actors in the supply chain

Market conduct: the patterns of behaviour which actors of the supply chain follow adjusting to the markets in which they buy or sell (Bain, 1959).

3. Performance of both the individual actors and the supply chain

"Market performance: the economic results flowing from the industry as an aggregate of firms (Clodius and Mueller, 1961)".

The performance or the supply chain can be measured along different dimensions and at different levels. Because performance is a multidimensional construct, it is important to recognize what good performance means for channel effectiveness, channel equity and channel efficiency.

- Effectiveness

Effectiveness is the first element of channel performance; it is the ability of the farmer group to deliver the service outputs required by end users as cost effectively as possible.

- Equity

Equity is the second element of channel performance; it is the degree to which every actor of the supply chain has the same opportunities and ability to access the existing market channels.

- Efficiency

Efficiency is the last element of channel performance; it refers to how cost effectively resources are being used to accomplish specific outcomes (Stern, 1996).

The internal analysis leads to:

<u>Strengths</u>: competences which are useful to utilize chances and to defend against threats

- Must always be looked at relative to the competition
- If managed properly, are the basis for competitive advantage
- Derive from the marketing asset base

<u>Weaknesses</u>: shortcomings that obstructs a competitive position

- Indicate priorities for marketing improvement
- Highlight the areas and strategies that the planner should avoid

(Wilson and Gilligan, 2005)

§ 2.4 External analysis

The external analysis is a research of the developments in the external business environment to get insight in the current and future success factors and the position of the supply chain within this environment. These external effects are activities which are from outside the supply chain, but which will influence their performances. Each of these factors needs to be criticized on their positive or negative influences on the supply chain. The two main elements of the marketing environment of the external analysis are:

- MACRO environment ~ Marketing environment (PEST)
  The factors of the macro environment can influence or disturb each market.

- MICRO environment ~ Current market situation: "total market"
  ~ Current competition: "market shares"
  ~ Current suppliers and customers
  Elements which are close to the farmer group and their supply chain and that exert the most direct influence over their ability to deal with their market.

The external analysis leads to:

<u>Opportunities</u>: developments which can restrain some competition advantages

- Highlights new areas for competitive advantage

<u>Threats</u>: developments which can deteriorate some competition advantages

- Increase the risk of a strategy
- Hinder the implementation of strategy
- Increase the resources required
- Reduce performance expectations (Wilson and Gilligan, 2005)

Opportunities and threats in relation to the market's overall attractiveness:
Ideal business: high opportunities and low threats
Speculative business: high in both opportunities and threats
Mature business: low in both opportunities and threats
Troubled business: low opportunities and high threats.

§ 2.4.1 Marketing environment

The marketing environment exist of the players and forces outside the own marketing department. These players and forces decide in which size the actors of the supply will develop and maintain successful transactions with the customers. This marketing environment provides opportunities and threats (Groot, 2000).

The environment changes continuously and rapidly. The supply chain and their customers wonder what the future will bring. For the actors of the supply chain it is important to notice significant changes in the environment and to go along with these changes. There are several ways to collect information about the environment. By collecting this information systematically it will be possible to renew strategies, in order to manage new threats and opportunities that the environment will offer (Kotler, 2003).

The marketing environment consists of a macro environment and a micro environment. The micro environment is made up of those elements that are closed to the actors of the supply chain and that exert the greatest and most direct influence over its ability to deal with its markets. This includes the actors theirself, its suppliers, its distribution network, customers, competitors and the public at large. The macro environment consists of the rather broader set of forces that have a bearing upon the supply chain, including economic, demographic, technological, political, legal, social and cultural factors. Together, these elements of the environment combine to form what we can loosely refer to as the non-controllable elements of marketing (Wilson and Gilligan, 2005).

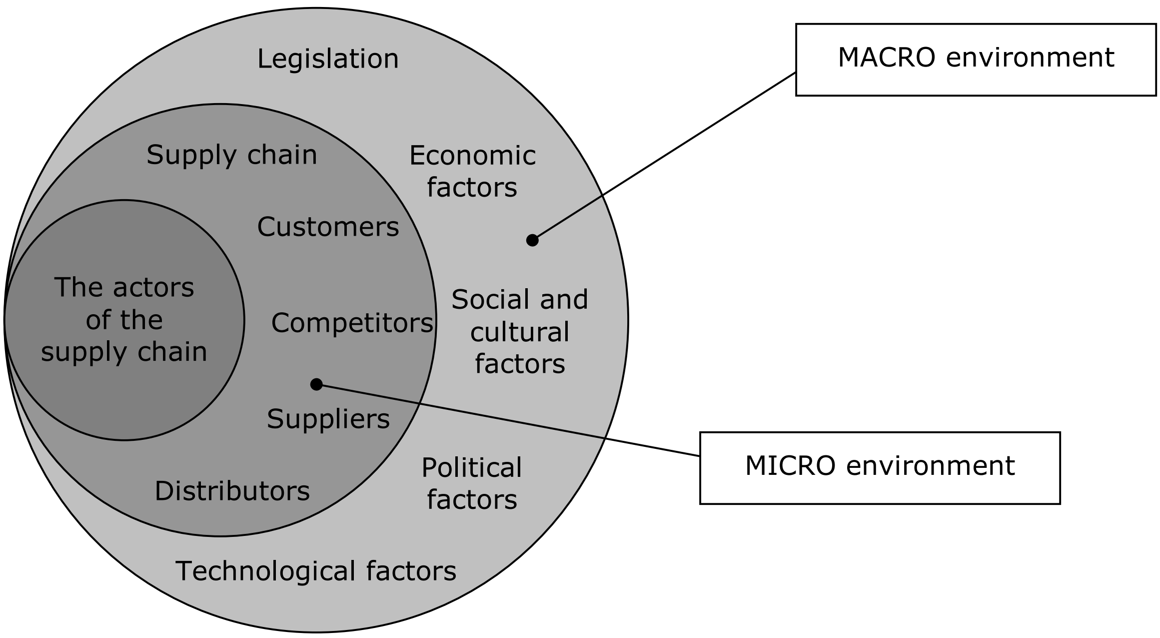

Figure 2.2 The organization's marketing environment (adapted from Wilson and Gilligan, 2005).

§ 2.4.2 Macro environment

The factors of the macro environment can influence or disturb each market, this implicates that every actor in the supply chain needs to be aware of these factors. An actor needs to know them to formulate their policy. Although it is hard to influence these factors, with the help of research it is possible to predict the effect that they can have on the actors and the whole supply chain. On this way the actors of the supply chain can get insight in the future threats and also in possibilities to go along with the macro developments.

The factors of the macro environment can be classified in several ways:

- Political factors
- Economic factors
- Social and cultural factors
- Technological factors
- Legislation

The political (and legal) environment

Marketing decisions are typically affected in a variety of ways by developments in the political and legal environments. This part of the environment is composed of laws, pressure groups and government agencies, all of which exert some sort of influence and constraint on organizations and individuals in society. This legislation has been designed to achieve a number of purposes, including:

- Protecting organizations from each other so that the size and power of one organization to damage another is limited
- Protecting consumers from unfair business practice by ensuring that certain safety standards are met, that advertising is honest, and that generally companies are not able to take advantage of the possible ignorance, naivety and gullibility of consumers.
- Protecting society at large from irresponsible business behavior (Wilson and Gilligan, 2005).

The economic and physical environments

For organizations there is a need to understand how the economic environment is likely to affect performance. More specifically, however, the sorts of changes that are currently taking place in the economic environment can be identified as:

- An increase in real income growth
- Continuing inflationary pressures
- Changes in the savings/ debt ratio
- Concern over levels of Third World debt
- Different consumer expenditure patterns

The significance of changes such as these should not be looked at in isolation, but should be viewed instead against the background of changes in the political/ economic balances of power and major changes in the physical environment (Wilson and Gilligan, 2005).

The level of income and the income classification strongly differ from country to country. Some countries are living on the minimum of existence. They acquire the biggest part of their own production. On the other side, there are industrialized economies, which exist of rich markets with a variation of products. The actors of the supply chain must observe with great accuracy the expense pattern of the consumers and their markets (Kotler, 2003).

The social, cultural and demographic environments
The analysis of short-term and long-term economic patterns is important. The most useful and logical starting point is that of demography, since demographic change not only is readily identifiable, but it is the size, structure and trends of a population that ultimately exert the greatest influence on demand. A detailed understanding of the size, structure, composition and trends of the population is of fundamental importance for a good insight in the market development. The implications of these factors are of significance and have the advantage of being reliable and largely predictable (Wilson and Gilligan, 2005).

The technological environment
The technological implications for the existing industry are often straightforward: change or die. The significance of technological change should be viewed not just at the corporate or industry level, but also at the national level, since an economy's growth rate is directly influenced by the level of technological advance. Technology does provide both opportunities and threats, some of which are direct while others are far less direct in their impact. Careful technological monitoring in order to ensure that emerging opportunities are not ignored or missed is important. This should lead to more market-oriented, rather than product-oriented, research and to a generally greater awareness of the negative aspects of any innovation (Wilson and Gilligan, 2005).

§ 2.4.3 Micro environment

A organization needs to attract customers and construct relations by creating value for the customer to make and keep them satisfied. The micro environment is made up of those elements that are close to the actors of the supply chain and that exert the greatest and most direct influence over its ability to deal with its markets. This includes the organization itself, its suppliers, its distribution network, customers, competitors and the public at large.

Market analysis
Knowing the market's needs and how it is currently serviced provides key information that is essential in developing a product/service and marketing plan. First it is important to get a clear view of the concerning market which need to be analyzed. There are several levels of markets:

Product	: maize and cassava
Product category	: cereal and root crop
Generic level	: agricultural products

When the market is defined it is necessary to answer the next questions:
- Which main market segments can be distinguished?
- What is the size of the total market and the market segments?
- What are the expectations of the market growth (total and in segments)?
- What are the critical success factors in this market?
- Are there differences between the market segments?

Distribution analysis

Intermediaries and mediators are organizations that will assist with the delivery, promotion activities, trading and distribution. For instance;
- Suppliers

Suppliers are an important link in the system in what the company gives value for the customers' money. They supply the sources that a company needs to develop and produce its products. Developments at the supplier can have serious consequences for a organization. There has to be a good control over the supply of products. Shortage, suspension, strikes and other incidents can have negative influences on sales activities and in a worst case scenario, the organization can lose customers in this way. The actors of the supply chain must also keep in mind that price fluctuations can occur. Increasing costs may lead to price increases which affect the turnover negatively.
- Retailers

Retailers are organizations in the distribution channel that will help the other actors of the supply chain in finding potential customers and sell the products to these customers. By this, wholesalers will act as retailers, which purchase and trade the commodities.
- Logistic service providers

Logistic service providers will help an organization with the depository and transport of goods from the point of production to the destination. The logistic service provider will research what are the best options in depository and transport of goods. Crucial factors are costs, delivery, speed and safety.
- Financial service provider

Financial service providers are investors, insurance companies, banks and other companies which arrange financial transactions or warrant the risk in a transaction. Most of the actors of the supply chain and customers are subordinated of financial services providers to finance their transactions (Groot, 2000).

Questions which correspond with the previous subsections are for example:
- What does the distribution channel look like for this particular trade market?
- Which parties are active in here and in which phase?
- What is the added value of the different links of the distribution?
- Is there a shift in activities or profit possibilities between the different chain parties?
- What is the power of different chain parties?
- Is it a matter of concentration or de-concentration?
- What are the critical success factors for the trading- and distribution parties?
- Which claims and wishes do they have in the products?
- What is the size of the market volume that passes the different distribution channels?
- What degree are distribution parties dependent of the products from this business?

Competitor analysis

In formulating a strategy, managers must consider the strategies of the competitors. A competitor analysis has two primary activities:

1. Obtaining information about important competitors
2. Using that information to predict competitor behaviour

Common information about competitors usually is insufficient in competitor analysis. Rather, competitors should be analysed systematically to compile a wide array of information so that well informed strategy decisions can be made (Porter, 1998).

The goal of competitive analysis is to understand and consider the next five questions:

1. Against whom are we competing?
2. What are their objectives?
3. What strategies are they pursuing and how successful are they?
4. What strengths and weaknesses do they possess?
5. How are they likely to behave and to react to offensive moves?

The five forces model of Porter (1998) is an outside-in business unit strategy tool that is used to make an analysis of the attractiveness (value) of an industry structure. The competitive forces analysis is made by the identification of five fundamental competitive forces; this is showed in figure 2.3 Porters five forces of competition.

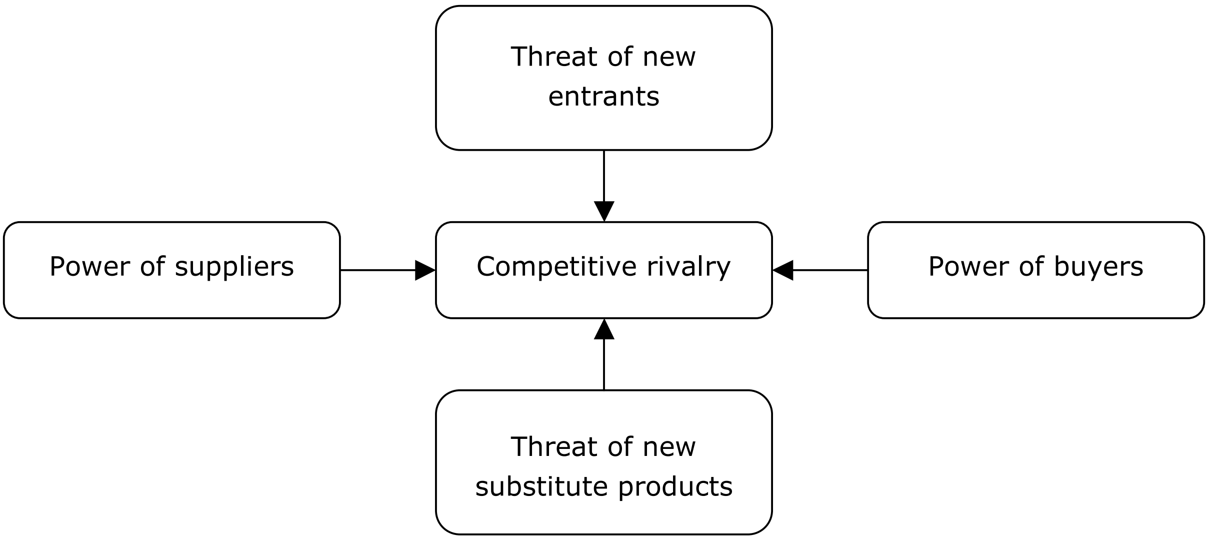

Figure 2.3 Porter's (1998) five forces of competition

- *Threat of new entrants*
  How easy or difficult is it for new entrants to start competing?
- *Threat of new substitute products*
  How easy can a product or service be substituted, especially made cheaper?
- *Bargaining power of buyers*
  How strong is the position of buyers? Can they work together in ordering large volumes?

- *Bargaining power of suppliers*
  How strong is the position of sellers? Do many potential suppliers exist or only few potential suppliers, monopoly?
- *Rivalry among the existing players*
  Is there a strong competition between existing players? Is one player very dominant or are all equal in strength and size (Porter, 1998).

Customer analysis

It has been recognized that marketing planning is ultimately driven by the perception of how and why customers behave as they do, and how they are likely to respond to the various elements of the marketing mix.

Buyers differ enormously in terms of their buying dynamics. In consumer markets, for example, not only do buyers typically differ in terms of their age, income, educational levels and geographical location, but more fundamentally in terms of their personality, their lifestyles and their expectations. In the case of organizational and industrial markets, differences are often exhibited in the goals being pursued, the criteria employed by those involved in the buying process, the formality of purchasing policies, and the constraints that exist in the form of delivery dates and expected performance levels (Wilson and Gilligan, 2005).

There are eight questions which underpin any understanding of buyer behavior:

1. Who is in the market and what is the extent of their power with regard to the organization?
2. What do they buy?
3. Why do they buy?
4. Who is involved in buying?
5. How do they buy?
6. When do they buy?
7. Where do they buy?
8. What are the customers' 'hot' (elements that are important and reassuring to the customer) and 'cold' (elements that alienate the customer) spots?

It is the answers to these questions which should provide an understanding of the ways in which buyers are most likely to respond to marketing stimuli. It then follows from this that the organization that makes the best use of the information should be in a position to gain a competitive advantage (Wilson and Gilligan, 2005).

§ 2.5 Confrontation matrix

The strategic significance of an external and an internal analysis on its own is limited. It is important to look for a connection between the conclusions in the development of the environment as well as the development of the actors of the supply chain. The essence of the SWOT analysis will be the confrontation of the strengths and weaknesses (internal elements) with the opportunities and threats (external elements) in a 2 x 2 matrix: the confrontation matrix. On this manner it is possible to have a clear view of the market possibilities and where the dangers lie. The strategy will be looking for intensifying aspects and will lead to a number of strategic options (Frambach and Nijssen, 2005).

This confrontation matrix will be composed with the help of the following four steps:

1. Define the most important strengths/ weaknesses and opportunities/ threats
2. Make the confrontation matrix where the strengths/ weaknesses and opportunities/ threats will be confronted
3. Evaluate these confrontations: if strengths A matches opportunity A ++ and if not –
4. After the filling of the matrix and the matching of strengths and weaknesses with opportunities and threats some strategic options will be generated.

Table 2.2 Example of a confrontation matrix

		Strengths			Weaknesses			
		S 1	S 2	S 3	W 1	W 2	W 3	*Total*
Opportunities	O 1	++	++	+++	+		+	*9*
	O 2	++	+++	++	-	+	+	*8*
	O 3	+	++	+				*4*
Threats	T 1	-	+			-	-	*-2*
	T 2	+	+	+	--	--	-	*-2*
	T 3		+		-	-	-	*-2*
	Total	*5*	*10*	*7*	*-3*	*-3*	*-1*	

Important factors with regard to the confrontation of the external and internal analysis are:

- Correct labels
- Comprehensible labels
- Complete view of all the competences
- Avoid unspoken theories
- Unite the results of the confrontation matrix with the problem of the research

§ 2.6 Generate strategic options

The confrontation matrix from which the strategic options will be generated is the turning point in the whole strategic analysis. This is the point where the results of the external and internal analysis are combined and the results are interpreted. Table 2.3 shows briefly the interpretation of the confrontation matrix.

Table 2.3 The interpretation of the confrontation matrix

		Internal elements	
		Organizational Strengths	Organizational Weaknesses
External elements	Environmental Opportunities	**TAKE ADVANTAGE** Strengths can be used to capitalize or build upon existing or emerging opportunities	**CO-OPERATE OR IMPROVE** The strategies developed need to overcome organizational weaknesses if existing or emerging opportunities are to be exploited
	Environmental Threats	**USE** Strengths in the organization can be used to minimize existing or emerging threats	**AVOID** The strategies pursued must minimize or overcome weaknesses and, as far as possible, cope with threats

(Adapted from: Weihrich, 1982)

The strategic options are used as a basis to indicate new strategic ways for a company. This makes it important to search for relevant strategic alternatives; options which are serious possibilities to achieve the goals and objectives of the actors of the supply chain.

Important suggestions for the successful generation of options:

- Brainstorming; to generate options in a creative way ('thinking out of the box')
- Aggravation to serious and attractive options
- Conscientiously and meticulously analyzing the SWOT matrix
- Concretize the options
- Level of the strategic problem and the option need to be the same
- No early fundamental decisions are taken (Frambach and Nijssen, 2005).

§ 2.7 Choice of strategic option

Choice is at the centre of strategy formulation. If there are no choices to be made, there can be little value in thinking about strategy at all. On the other hand, there will always be limits on the range of possible choices.

After formulating the objective and the ways to reach this objective, the difficult task is to make the strategic choice. The goal is to select the optimal option out of the relevant options. This will be accomplished by evaluating and ranking the formulated options. Mostly, there are three categories of criteria mentioned in the literature:

- Suitability - do the proposed actions address the key issues and will they be able to deliver desired outcomes?
- Feasibility - can the proposed actions be delivered with the potential system capabilities and resources?
- Acceptability - is there sufficient political and public support to legitimise the proposed actions? (Frambach and Nijssen, 2005)

Essentially is that sufficient review takes place to prevent that the evaluation and ranking of options and the selecting of choice criteria fits within the organization's mission. If the options have been generated in the mind of an organization's mission, there are no problems to anticipate (Frambach and Nijssen, 2005).

§ 2.8 Developing the marketing strategy

With an understanding of a business´ internal strengths and weaknesses and the external opportunities and threats, it is possible to develop a strategy that utilize the own strengths and matches them to the emerging opportunities. It can also identify your weaknesses and try to minimise them.

When the options have been generated and chosen in the mind of an organization's mission, it is important to develop a marketing strategy for the chosen option. It is important to organize further research to draw up a detailed market plan that sets out the specific actions to put that strategy in action.

Element of the marketing mix are:

- Product - An object or a service that is produced on a large scale with a specific volume of units.
- Price – The price is the amount a customer pays for a product. It is determined by a number of factors including market share, competition, product identity and the customer's perceived value of the product.
- Place – Place represents the location where a product can be purchased. It is often referred to as the distribution channel. It can include any physical store as well as virtual stores on the Internet.

- Promotion – Promotion represents all of the communications that a marketer may use in the marketplace. Promotion has four distinct elements - advertising, public relations, word of mouth and point of sale. A certain amount of crossover occurs when promotion uses the four principle elements together.
- Personnel – All people directly or indirectly involved are an important part of the marketing mix, they are the most important element of any service. Services tend to be produced and consumed at the same moment, and aspects of the customer experience are altered to meet the needs of this customer (wikipedia, 2006).

Optimizing the marketing mix is the primary responsibility of marketing. This plan needs to fit with the objective of the research and the organization's mission and vision. By offering the product with the right combination of the P's marketers can improve their results and marketing effectiveness.

§ 2.9 Application of the literature

In this paragraph, the framework discussed will be applied to the supply chain of maize and cassava cultivated by the farmers of the Western Region. The SWOT–analysis stands for a complete analysis of the situation of a business. In this case the situation of the supply chain of maize and cassava cultivated by the Ghanaian farmers of the Western Region. It will show the chances which ISCOM should seize to give a clear standing of the market perspectives. This is relevant to have insight, to give advice and to help those farmers. The internal analysis will be applied to the actors of the supply chain of maize and cassava. The external analysis will be applied to the environment of this supply chain. The data from both analyses will be collected and combined in the SWOT analysis. Then it is possible to make a confrontation matrix and to generate a few options for ISCOM. Together with ISCOM there will be one strategic option chosen. Perhaps it will be necessary to organize further research or to develop a strategic marketing plan for the chosen option.

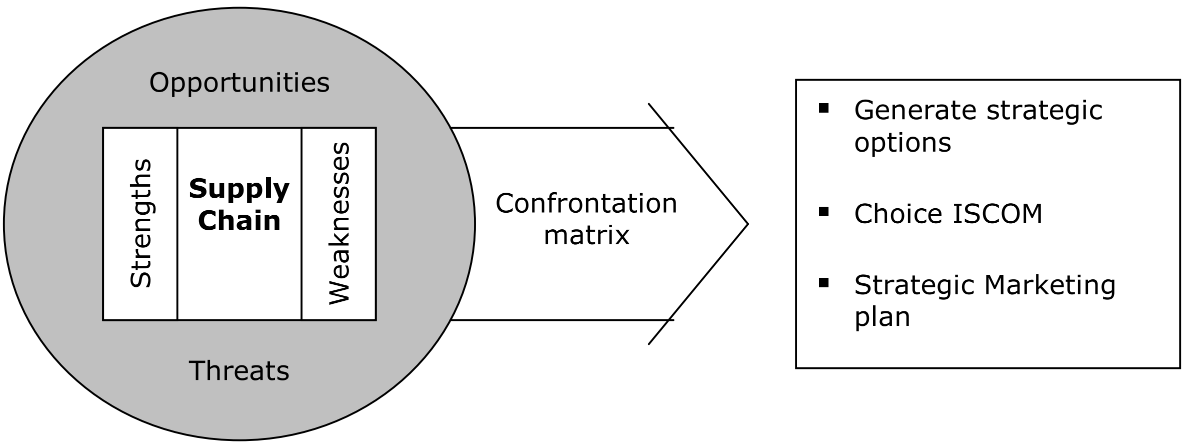

Figure 2.4 Application of the literature

3. Research methodology

In this chapter the research methodology will be discussed. Paragraph 3.1 will give the methodology to be used in this study and paragraph 3.2 will give the application of this methodology. In both paragraphs the discussion is split into three phases; orientation phase, phase of data collection and plan for analysis.

§ 3.1 Methodology to be used in this study

In a research, a significant decision to make is what kind of approach will be followed. This paragraph presents methodology to be used in this study. To get a structured overview, this paragraph is divided into three phases; § 3.1.1 orientation, § 3.1.2 data collection and § 3.1.3 plan for analysis.

§ 3.1.1 Orientation

Before the start of the field research it is important that the researcher is well prepared. Especially when the research needs to be done in an area the researcher is not familiar with. It can be that there is only one of the subjects unknown but also that the relative context of the subjects is unknown. Both are valid in my case.
During the orientation phase it is important to get information about:

- The principal theme of the research
- The main subject(s) of the research
- The key concepts of the research
- The operational procedure during the research

§ 3.1.2 Data collection

In a research it is important to gather relevant material and to process this material into answers on the research questions.
The data collection starts with three central decisions:

1. Breadth versus depth
   Does the researcher want to gain a broad overview of the discipline that is selected (breadth) or is the researcher more interested in a thorough investigation of all aspects of a phenomenon spread out over a period of time and space (depth)?
2. Qualitative versus quantitative research
   Quantitative research is a research where the researcher lays down the findings in tables, charts, numbers and calculations. A qualitative research is a qualitative and interpreting approach where the reporting is mainly verbal and contemplative.
3. Empirical versus desk research
   Desk research is carried out mainly in the office, in the library and/ or in archives. In an empirical research the researcher must go out into the field personally, in order to gather or generate relevant material (Verschuren and Doorewaard, 1999).

There are four major strategies to collect information, which are:
Secondary data
1. Desk research
   Desk research is characterised by: the use of existing material, the absence of direct contact with the research object and looking at the material being used from a different perspective than at the time of production.

Primary information
2. Survey
   A survey tends to be characterized by: a large number of research units or respondents, more breadth than dept, quantitative data and analysis, a random sample and closed data generation.
3. Experiment
   An experiment is characterized by the formation of two or more groups, randomizing, the researcher determines which groups are subjected to the intervention and what happens further within the groups, with as few influences from outside as possible.
4. Case study
   A case study is characterized by: a small number of research units, labor intensive data generation, more depth than breadth, a selective sample, qualitative data and research models and an open observation on site (Verschuren and Doorewaard, 1999).

Traditional, there are two basic types of data collecting in a qualitative research.
- The first is about fieldwork with the focus on "participating observation". At an improvising way will information be collected, especially by working together and observing what people are doing.
- In the second basic type it is mainly information collection with the help of a qualitative interview, types of interviews are 'open' interview, 'unstructured' or 'semi-structured' interview, 'depth-interview' of 'intensive interviewing' (Baarda, 2001).

The interview technique, semi-structured interview, is an essential technique in many cases. A semi-structured interview combines a highly structured agenda with the flexibility to ask subsequent questions. The questions for a semi-structured interview are ideally constructed some time before the interview starts and can be sent to the expert so he/she can start to think about or prepare responses. For an interview lasting 1 hour, around 10-15 questions would typically be asked. This allows some time in between the questions for the researcher to ask supplementary questions to clarify points and ask for more detail where necessary. An important aspect of the technique is that the interview is tape-recorded and later transcribed providing a protocol for detailed analysis.

Major benefits of a semi-structured interview are:

- Less intrusive to those being interviewed as the semi-structured interview encourages two-way communication. Those being interviewed can ask questions to the interviewer.
- Confirms what is already known but also provides the opportunity for learning. Often the information obtained from semi-structured interviews will provide not just answers, but also the reasons for these answers.
- When individuals are interviewed they may more easily discuss sensitive issues.

§ 3.1.3 Plan for analysis

Before a researcher starts with the collection of the data it will be helpful to know how to analyze these data. The plan of analysis will show the data which need to be collected. This is important to make sure that the data collection and the analysis are covering the whole research area.

The analysis is a complete overview of a research situation.

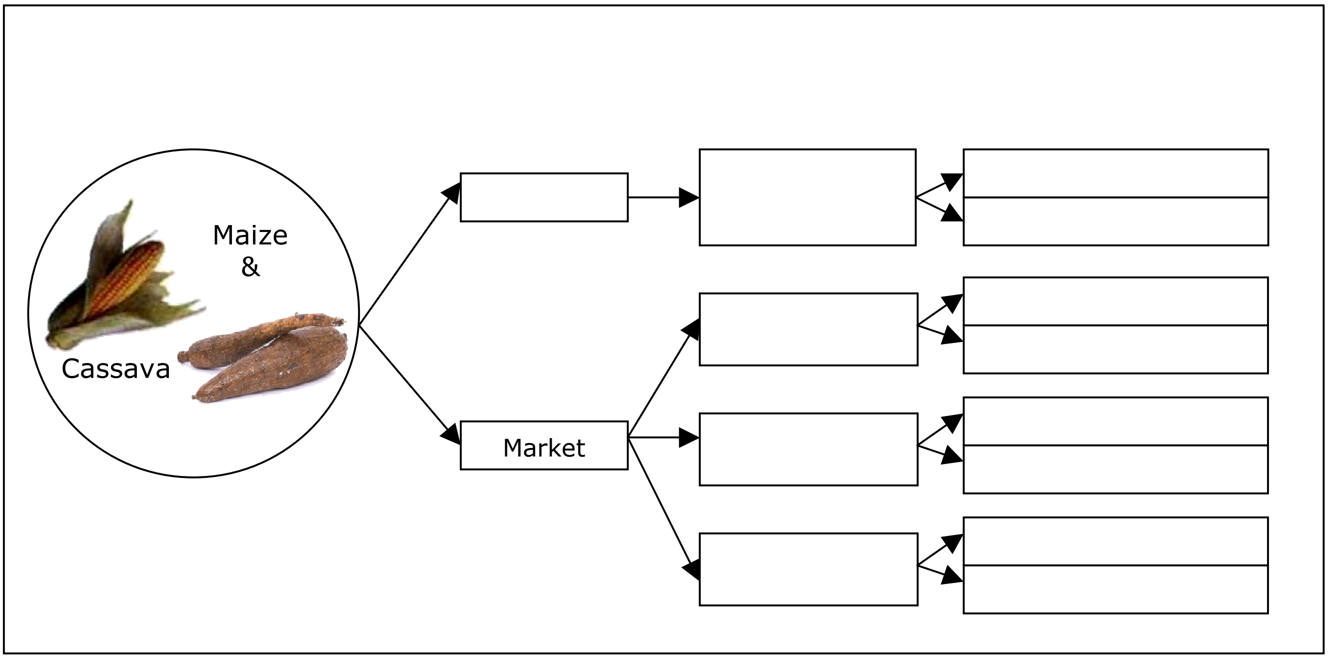

Figure 3.1 Scheme of analysis

This example of the scheme of analysis shows the main research subject, with three consecutive categories which cover the whole research area. These three categories are divided to make it more concrete. In this research the main research subject is the supply chain of maize and cassava produced by the farmers in the Western Region. The three categories are; 1. usages of the products, 2. location of consumption or sale and 3. the expectations. Each of the categories have their own subdivisions as shown in figure 3.1. This scheme provides a good structure to analyse the semi-structured interviews.

In this example the semi-structured interview will be a highly structured agenda with the three main categories and their own divisions. This scheme of analysis covers the same three main categories with the same divisions as the corresponding interview. During the interviews the researcher has the flexibility to ask subsequent questions but at the analysis stage it is necessary to organize all the answers, reasons and information on a well structured manner; information out of the whole interview combined and structured for each category and subdivision.

After structuring all the information of the interviews it is possible to start analysing the collected data. Every category and division will be analysed separately, the data of each of the interviews will be collected, combined and counted. The most mentioned, most important or most exceptional answers will be discussed and analysed further in the SWOT- analysis. Finally, the strengths, weaknesses, opportunities and threats will be analyzed and used to construct the confrontation matrix, which will deliver some strategic options.

§ 3.2 Application of methodology

This paragraph shows the application of the methodology that is used in this study. This paragraph is divided in phases: orientation phase, data collection phase with secondary data and primary data, the planning phase for analysis and finally the research planning.

§ 3.2.1 Orientation phase

The primary data collection in Ghana can not start without a good orientation. A large part of this orientation took place in the Netherlands. The first phase of the orientation existed of studying information about Ghana, the Ghanaian market, the products maize and cassava or its processed variants. This information was gathered by reading and processing literature, articles, sector reports and trade reports. Besides, it was possible to obtain extra information about the topics from graduate advisor, Dr. van Tilburg and Miss Nooij who did a traineeship (Women and children first, 2004) in Ghana. This secondary information was essential to prepare for the actual research, the trip to Ghana and the field work there.

The second part of the orientation was intended to take place at the research location, Ghana. It was envisaged to have an orientation week in Ghana; to get acquainted with the country, the culture, the business culture and to make appointments with the right contact persons out of the supply chain. However, it was necessary to start immediately with collecting of the data because of the availability of transport.

§ 3.2.2 Phase of data collection: secondary data research

After the orientation phase the collection of secondary data can be started. Before the departure to Ghana; the information of the research area, the products maize and cassava and the processing possibilities of these products became familiar. This phase of secondary data research was important before the departing the Netherlands to go well prepared to the research area; Ghana.

For the orientation in this study desk research is chosen.

- Existing material such as literature, journals, trade statistics and sector reports are used for the orientation.
- This existing material is analyzed for orientation which had a different perspective than at the time of production
- There was no direct contact with the research project

The following information was collected before departure:

Research area

- The geographic location, size, soil and climate of the research location; Ghana, Western Region
- The culture and cultural differences within Ghana

Products

- The characteristics of maize and cassava
- The processing possibilities of these products
- The several variants of the products
- The production of maize and cassava

External data

- Economical situation
- Political situation
- Social and cultural situation of Ghana
- Technological situation
- Legislation

- Characteristics of the diverse actors in the supply chain

This information helped formulating the interview guide for the primary research in Ghana.

§ 3.2.3 Phase of data collection: primary data research

After the secondary data research delivered enough insight, started the preparation of the primary data collection. The primary data research took place in Ghana, although the preparation was done in the Netherlands.

In this research the chosen strategy is an interview.

- In this research there are a small number of research units (12 interviews),
- Interviews are a labor intensive process of data generation,
- It is interesting to do a thorough investigation of all aspects of a phenomenon spread out over a period of time and space
- There is made a selective sample
- This research is a qualitative and interpreting approach where the reporting is mainly describing and reflective.

In this research qualitative semi-structured interviews are used. The three-level categories of the market analysis would provide a good structure for the semi-structured interview.

These three main categories and subdivisions are (Figure 3.1):

1. Usage of the products
    a. Food
    b. Market
2. Location
    a. Home consumption
    b. Sale at the local market
    c. Sale at the West African market
    d. Sale at the world market
3. Expectations
    a. Mid term (3-5 years)
    b. Long term (5-10 years)

<u>Accomplishment of the interview</u>

- *Introduction*

At the beginning of the interview the researcher started with a short introduction of the researcher and the other persons which were present. Furthermore the company ISCOM, the University of Wageningen and the definition of the problem was introduced. Before any further action was taken, there was asked whether it was allowed to record the interview. This is helpful to document the interview at a later moment.
After this short introduction from the side of the researcher there was the request whether the respondent would introduce oneself, the company, positions and companies activities.

- *Flexible layout*

The interview of this research is a semi structured interview, it is a more a checklist, a guide for the researcher to check if the respondent discussed all the elements of the interview. It could also been used as a check list of all the elements. The researcher can strike out an element after mentioned or discussed that element.

Important

Interviewing requires concentrated attention: asking questions, listening, knowing when the next question needs to be asked, keeping an eye on the progress of the conversation and taking care of any signs of emotion. The report writing during the interview would take a lot of energy, so if it was possible the interview was recorded.
There is used one hard copy of the scheduled interview to make some important notes. It was used as interview guide to check whether everything has been discussed.

- *Closing*

At the end of the interview the researcher summarized the main points of the conversation and the overall conclusions. Further, it was important to ask the respondent whether it is possible to contact him or her again telephonically of by mail, if there were some obscurities.

Writing out the notes of the interviews took place in Ghana, to use the data as recent as possible and to have the possibility to ask for extra information at the respondents if necessary. Appendix 2. Interview framework, presents the complete list of all respondents; companies and/ or contact persons with contact addresses. The third appendix, Introduction researcher and objective, was sent to all the respondents beforehand and Appendix 4. Semi-structured interview, shows the aspects discussed during the interviews.

<u>Interview framework</u>

For this research it was necessary to conduct interviews with the following actors in the supply chain of maize and cassava, cultivated by the farmers of the Western Region:

- Producers of the products (Farmers of the Western Region)
- Customers of the products or a processed variant
- Processors of maize and cassava
- Transporters of the products
- Importer of maize and cassava into Ghana
- Exporter of maize and cassava
- Wholesaler/ Retailer
- Institutions: Researchers, university and government

There was no file available with names and addresses of actors in the supply chain of maize and cassava cultivated by the farmers in the Western Region. So, before the journey to Ghana it was necessary to find some contacts with actors in the supply chain of maize and cassava which be interviewed. The other contacts in the supply chain were selected with the so-called 'snowball method'. This research started with three contacts which were already known before the trip, and those provided additional contact(s).

Figure 3.2 presents the respondents of the primary data research, which are selected with the help of the snowball method. The first 3 contacts, left side, are known contacts from Dr. A. van Tilburg and Dr. T. Wolters. Those are extended with others which are mentioned by those first three contacts. The arrows in the figure show the development of the interviews.

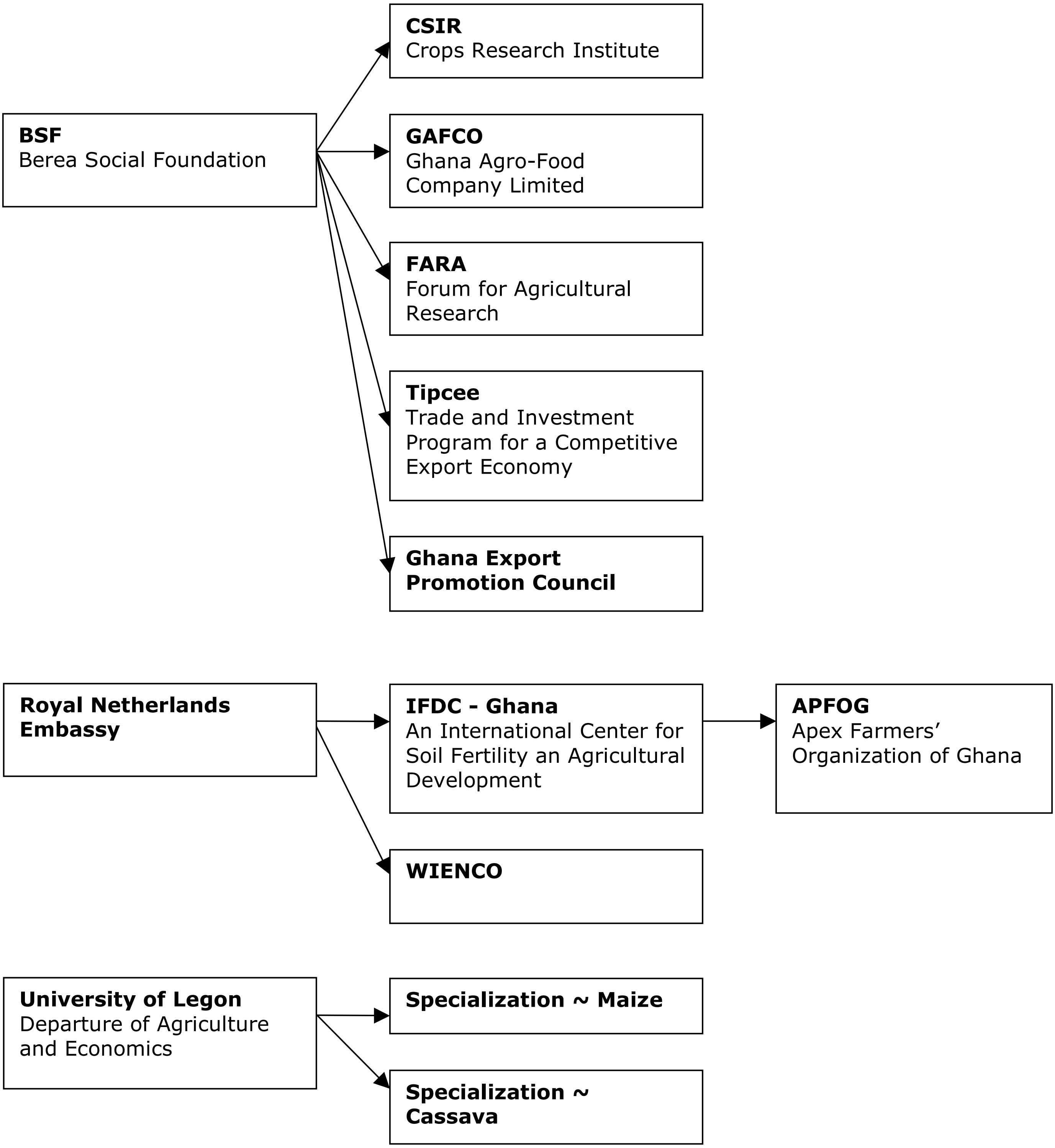

Figure 3.2 Graphical presentation of the respondents of the primary research

De respondents of the primary data research can be subdivided into several actor types in the supply chain. This subdivision is:

Producers of maize and/ or cassava
- Farmers in the Western Region

Processors of maize and cassava
- GAFCO Ghana agro-food company limited

Transporters of the products or a processed variant
- (Farmers in the Western Region)

Importer into Ghana
- GAFCO Ghana agro-food company limited

Exporter
- WIENCO

Researcher
- University of Legon
- CSIR, Crops Research Institute
- Ghana Export Promotion Council
- Fara, Forum for Agricultural Research in Africa
- APFOG, Apex Farmers' Organization of Ghana
    - (Crop Life Ghana)
    - (GAABIC ~ Ghana Agricultural Associations Business & Information Centre)

Institutions
- Royal Netherlands Embassy
- BSF Berea Social Foundation
- IFDC An International Centre for Soil Fertility and Agricultural Development
- Tipcee Trade and Investment Program for a Competitive Export Economy

§ 3.2.4 Analysis

The analysis can start from the moment that the interviews are put on paper. The reporting and analysis of the interviews will be done with help of the figure 3.1 scheme of analysis. This scheme showed the main research subject, with three consecutive categories which were splitted up in separate divisions. In this research was the supply chain of maize and cassava produced by the farmers in the Western Region the main research subject. The three categories were; 1. usages of the products, 2. location of consumption or sale and 3. the expectations. Each of the categories have their own subdivisions.

Category 1: Usage of the products

First, there is looked whether the maize and cassava are consumed or sold at the market.

- What is the priority of the farmers? – Consuming or selling their products?

Division Food (consumption)

- Which proportion of the products will be consumed?
- Why do the farmers consume that quantity of products?

Division Market (sales)

- Which quantity of the products will be sold?
- Why do they sell these products?
- How do they sell these products?

Category 2: Location

The second step is to become aware of where the products will be consumed or sold.

- Do they sell the products at the local market, at the regional market in "West Africa" or at the world market?

- How will the products be transported?
- Are there any middlemen involved? – Who?
- Why are the products sold or not sold at the different markets?

Category 3: Expectations

Finally, the perspectives and changes of the product offer will be searched for the mid term and long term.

- What are the market perspectives for maize and cassava cultivated by farmers of the Western Region in the mid and long term?

- Will there be a relative shift between consumption and sales of the products in the future?
- What are important changes which contribute to a shift from consumption to sales of the products?
- How is the market share of the sales within the three markets; local, regional, world market?
- Which factors contribute to a shift in sales within these markets?
- Is it possible to influence these factors? – And in which way?

During the interviews with the actors in the supply chain, the interviewer had the flexibility to ask subsequent questions. Diverse information was collected about the categories and divisions from figure 3.2 and the expressions of feelings, opinions and stories of people which were involved. To analyse these interviews it was necessary to organize all the answers, reasons and information in a well structured manner; information out of the whole interview was combined and structured for each category and subdivision.

An example of the reporting and results of a semi-structured interview with one of the respondents is presented in box 3.1.

Box 3.1 Results of a semi-structured interview with one of the respondents

Introduction researcher, ISCOM, a situation sketch and the research objective

Introduction respondent X

X is an umbrella organisation which represents farmers in Ghana. At the moment they are busy for 34 farmer based organisations, each organisation includes about 300 or 400 farmers. X gives information and support to farmers, retailers, transporters and more. X takes care of farm materials, seeds and chemicals without a brand name but with a good quality. With this support it is possible to produce maize and cassava on a larger scale.

Category 1. Usages of the products

In Ghana the soil and climate are good to produce high quality products. Maize and cassava are products which are usually produced by every farmer in the Western Region. They produce the products on a small scale, mainly for their own consumption (85%). The products that they do not consume are sold at the local market (15%) **(Appendix 4, Question 1.1-1.3)**.

It is possible to produce maize and cassava on a larger scale from an economic point of view. To accomplish this, the farmers need better planting material, resources, fertilizers and education. The two most important requirements are drying and storage facilities, which are not available in the Western Region at this moment. At the harvest time there are many products, this results in a low market price, so the people sell their product for less money than they bought their seeds. In the lean season there are not enough products to feed the families in Ghana and the people have to buy these same products at a higher price. This can be solved by a drying and storage facility which will make the product available in the lean season **(1.3)**.

Category 2. Location

The farmers try to produce the right amount to feed their own families. At home the products will be processed in local dishes. For cassava products as fufu, atseke, gari and for maize wean mix, aboloo and sabo **(2.1)**. If the harvest is large, the products which are not needed for consumption will be sold at the markets. 99% of this maize and cassava will go to the local market or will be transported to surrounding countries as Niger, Burkina Faso and Ivory Coast. Just 1% of the products or a processed variant will be exported to parts in the rest of the world **(2.2)**. The local market is the most common market for the Ghanaians. They are familiar with this market, they can bring their products easily to these markets and they know the rules and prices which are applied. The West African market is well-supplied if the harvest is very good and there are surpluses, which decreases the local market prices. In the surrounding countries is more famine so they can use the products anyway. The world market is relatively hard to enter for the Ghanaians and is also not very profitable because of the relatively low world market prices. The Ghanaian prices are higher because of the lower yield per acre, uncertainty of the harvest and the expensive transport within Ghana **(2.3, 2.5)**. The difference between the Ghanaian markets and markets in another part of the world is mainly the available amount of resources. In the more developed and well organized countries having better and more resources. This results in a higher yield per acre, a better quality, more and cheaper transport possibilities and more insight in the expected results, so they can plan and communicate more effective **(2.4)**.

Category 3. Expectations

The development of Ghana will accelerate within the next years. The infrastructure will build up and more resources will become available. Also the transportation of the products will go easier and will become cheaper. This makes it easier to produce and transport products as maize and cassava on a larger scale. In the future the Ghanaian farmer will see their food crops probably more as a commercial product as that they do it now. This means more products will be marketed and from the money earned they can buy other products to consume at home. Through all these developments the standard of living will go up and the country will develop quicker **(3.1, 3.2)**.

The local market of maize and cassava will develop in the first three till five years not much; there will be mainly produced for the household consumption. Changing people's way of doing (eating more than selling) is hard so this will take a longer period of time. In the next five till ten years the production for household consumption will continue, but because of better resources and knowledge it is possible to produce more products. Not all these products will be consumed but for example the extra will be sold at the markets **(3.3)**.

West African countries such as Mali, Niger, Burkina Faso and Ivory Coast are developing countries as well but these are less developed as Ghana. In the long term, if Ghana is developing well and the quantity of producing is going up it will be easier to transport the products to those countries. The Ghanaian government also started with a marketing program for the products, which will probably give some sales increase in the next five years **(3.4)**.

At this moment Ghana is, with the production of maize and cassava a far way removed from a place at the world market. The production and transport costs are too expensive to compete at the world market against players from America which have a ten times higher yield per acre (because of better resources) and cheaper transportation possibilities. This will not change in the next ten years; Ghana must first develop further before they can compete at the world market **(3.5)**.

Internal factors which contribute to a shift within these markets. In Ghana there are fewer resources as farm machinery, workers, money, land, planting materials, transport, drying and storage facilities available than in more developed countries. Also the environmental influences are giving some insecurity where the actors of the supply chain can not deal with. This causes problems in providing information, the control and reliability **(3.6, 3.7)**.

Positive aspects (Strengths, opportunities and chances)

- The soil and climate are favorable to deliver high-quality products
- There is a market for the products
- Exploring the West African markets
- Government started marketing programs

Negative aspects (Weaknesses, threats and difficulties)

- The infrastructure is still very weak
- Natural conditions ~ No irrigation systems, less technology
- No or less drying and storage facilities
- No information, planning and control within the supply chain

(Appendix 4. Semi-structured interview)

The data of each of the interviews were collected, combined and counted. After structuring all the information obtained from the interviews it was possible to analyse the collected data. Every category and partition is analysed separately. The answers were discussed and further analysed in the internal and external analysis. Finally, the strengths, weaknesses, opportunities and threats were combined in the SWOT- analysis to construct the confrontation matrix, which delivered some strategic options. These analysis will be presented in the next chapters.

4. Internal analysis

This chapter presents the internal analysis of the supply chain given the current market situation and the market perspectives of maize and cassava cultivated by farmers in the Western Region, Ghana. The market has been studied at three levels; local markets within Ghana, regional markets in West Africa or the world market.

This internal analysis will discuss the internal strengths and weaknesses of the supply chain from producer level to consumer level. This will give insight in the position of the supply chain and in the possibilities for supply chain development by using the internal resources. Understanding and distinguishing the competences of a supply chain can result in the development of competitive advantages.

Paragraph 4.1 presents the analysis of the current market situation and paragraph 4.2 presents the analysis of the future market perspectives of the supply chain. These analyses run from structure, through conduct to performance. In other words a 'good' industry structure is assumed to be conducive to 'acceptable' firm conduct which, in turn, is assumed to lead to 'satisfactory' firm performance (Hill and Ingersent, 1982).
Both of the paragraphs are therefore sub-divided in;

- Structure of the supply chain
- Conduct of the actors in the supply chain
- Performance of both the individual actors and the supply chain

In Chapter 5 the external analysis will be discussed, which includes the marketing environment of the supply chain divided into the macro analysis and the micro analysis. When these two analyses are done, the external analysis and the internal analysis will be combined through the confrontation matrix as part of the SWOT-analysis.

§ 4.1.1 Current structure of the supply chain

Currently ISCOM cooperates with a farmer's group which cultivates maize and cassava in the Western Region to help them create more sustainable economic results and sustainable use of the soil. In this study it is not sufficient to analyse only the farmers as part of the supply chain because the sales opportunities of their products will depend on other actors in the supply chain. So, to help these farmers to create sustainable economic results it is important to consider the whole supply chain and to deliver suggestions about how to create sustainable chain management.

Figure 4.1 gives a graphical view of the current structure within the supply chain of maize and cassava cultivated by the farmers of the Western Region. The information about this structure is mainly collected during the period of the primary research in Ghana (May - June 2006) through interviewing actors belonging to the supply chain and through own observations and experiences in discussions with the farmers and other actors of the supply chain.

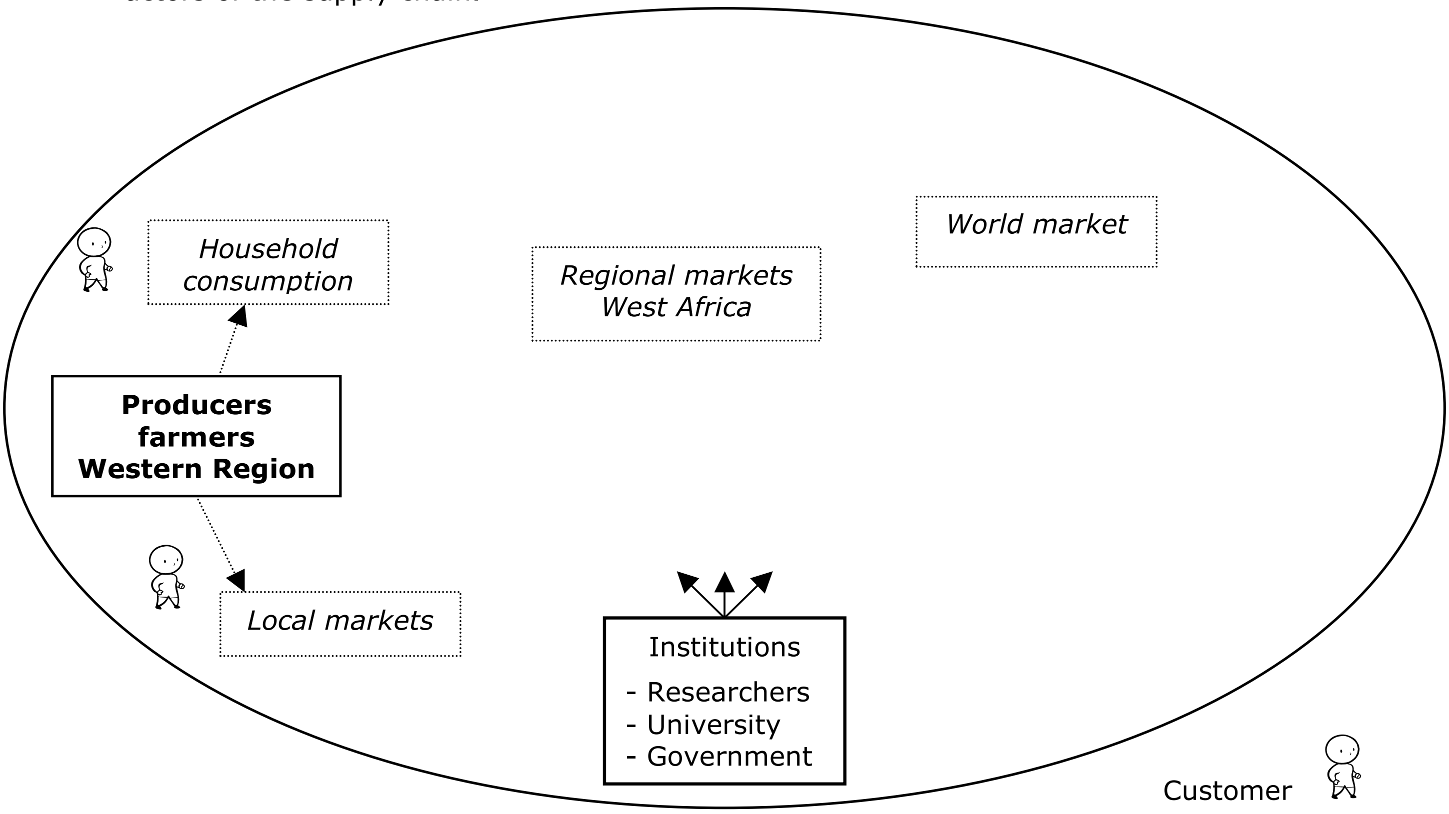

Figure 4.1 Graphical presentation of the actual structure of the supply chain

The figure above is a part of figure 1.2. This shows the current structure of the supply chain. The farmer's group of the Western Region are the producers of maize and cassava. These products are mainly used for their own family food security and some of the products which are left over will be sold at village markets. Further, the institutions mentioned in the figure are not involved in trade in the supply chain but do have a clear view of the situation. The figure shows also the local markets, regional markets and world market but in the current structure there is, apart from the local markets, no connection between the farmers and these markets.

During the interviews the respondents mentioned three main characteristics which reflect the current situation of the structure. These three characteristics of the present supply chain are:

- High proportion of the harvest consumed by the household
- High fluctuation of yields
- High transportation costs of the products to the market when sold (infrastructure)

(Appendix 7. Interview Reports)

1. High proportion of home consumption
All respondents of the interviews mentioned the high proportion of home consumption of maize and cassava cultivated by the farmers of the Western Region.
"Ghanaian farmers are producing different crops on a small scale. The yield per acre is below the average of the world but has a good quality. Most of the harvested products will be consumed at a farmer's home or within the village. This results in no or very few sales at the local markets." (Appendix 7. Interview Reports).

The farmer's group of the Tarkwa area is also producing mainly for their own family food security. The products which are not consumed at home will go to the local market. The respondents of the interviews told that 80% till 90% of the harvested products will be used for household consumption and the remaining products will be sold at a market. About 1% of the maize and cassava harvested in Ghana will go to markets outside Ghana (Appendix 7. Interview Reports). This is confirmed by statistics produced by the Chicago Board of Trade which gave the following data.

Table 4.1 Food balance sheets Ghana (1999-2003) in 1000 metric tons

MAIZE	Domestic supply					Domestic utilization				
Year	Production	Import	Stock	Export	**TOTAL available**	Feed	Seed	Waste	Other	Food
1999	1014	1	0	6	***1009***	62	21	168	0	758
2000	1013	7	0	1	***1019***	61	21	169	1	767
2001	938	12	0	0	***950***	61	28	157	1	703
2002	1400	13	187	40	***1186***	75	24	231	1	855
2003	1289	6	112	10	***1173***	75	21	214	1	862
Average	*1130.8*	*7.8*	*59.8*	*11.4*	*1067.4*	*66.8*	*23*	*187.8*	*0.8*	*789*

CASSAVA	Domestic supply					Domestic utilization				
Year	Production	Import	Stock	Export	**TOTAL available**	Feed	Seed	Waste	Other	Food
1999	7845	0	0	6	***7839***	1198	0	2355	238	4048
2000	8107	0	0	8	***8099***	1221	0	2433	243	4202
2001	8966	0	0	3	***8963***	1662	0	2691	325	4285
2002	9731	0	0	3	***9728***	2057	0	2921	391	4359
2003	10239	0	0	14	***10225***	2142	0	3073	415	4595
Average	*8977.6*	*0*	*0*	*6.8*	*8970.8*	*1656*	*0*	*2694.6*	*322*	*4298*

(Chicago Board of Trade: Ghana Food Balance Sheet 1999-2003)

The table above shows the food balance sheets of maize and cassava of the five most recent available years. This table presents the data of domestic supply and domestic utilization of Ghana in 1999 till 2003 and also the average. There are no inexplicable gaps or highlights in this table. Table 4.2 will give the summarized food balance sheet which confirms the results of the interviews about consumption and export of maize and cassava.

Table 4.2 Average quantity produced and exported in Ghana (1999 -2003)

Product		1000 Metric tons	
Maize	Average production	1130,8	
	Average quantity exported	11,4	1 % of the production is exported
Cassava	Average production	8977,6	
	Average quantity exported	6,8	0.08% of the production is exported

(Chicago Board of Trade: Ghana Food Balance Sheet 1999-2003)

An exporter explained: *"The yield per acre in Ghana is much lower than in other places of the world. In Ghana an average farmer produces 420 kilogram per acre, amongst others due to low fertilizer use. With better use of fertilizer, knowledge and resources, this can increase till 2000 kilogram per acre. This is the same as 5 ton per hectare. In America the farmers produce around the 9 ton per acre. The cost price per unit of maize is much lower when there is a higher yield per acre."* (Appendix 7. Interview Reports). Table 4.3 shows this production of maize.

Table 4.3 Production maize filed

Region	**Yield in kg/acre***	**Yield in ton/ha***
Farmers Western region		Less than 1 ton per hectare
Average farmer in Ghana	420 kilogram per acre	about 1 ton per hectare
Maximum of farmers in Ghana (incl. fertilizer use and resources)	2000 kilogram per acre	about 5 ton per hectare
America	150 bushel per acre* 3750 kilogram per acre	about 9,3 ton per hectare

* See Appendix 8. Definitions units, for definitions

(United States Department of Agriculture, 2004 and Appendix 7. Interview Reports)

2. Fluctuation of production

In the study area in Ghana there are no irrigation systems, so the farmer groups are dependent on the seasonal influences with respect to rainfall. In the processing stage, there are few drying and storage facilities for the maize and cassava. Almost all respondents mentioned this as an inconvenient characteristic of the present situation.

A representative of the Crops Research Institute said: *"It is hard to predict the harvest time, product quality and the yield. This fluctuates every time because of the unpredictable seasonal influences, which results in a market with a fluctuating internal product offer. The fluctuation results in sometimes a bumper crop and low market prices, or sometimes in a shortage of products, all products are necessary for the food security of the family corresponding with a small product offer with high market prices. Other actors of the supply chain can't rely on this variation in production; they organize other possibilities to get their products with more certainty."* (Appendix 7. Interview Reports).

Another representative of this institution added: *"In Ghana are few drying and storage facilities. The Tarkwa area is a very humid area; this makes it hard to dry the products. Without drying and storage facilities the quality of the products decreases in a short period of time".* (Appendix 7. Interview Reports).

3. High transportation costs of the products when sold (infrastructure)

The physical infrastructure of the Western Region is very weak. All respondents emphasised the weak infrastructure everywhere in Ghana. This affects the transport costs of the products.

One of the processors explained: *"In Ghana there are processors which prefer processing of Ghanaian products as maize and cassava above products from outside Ghana, but the weak infrastructure and high transportation costs result in an entry barrier to market their products."* (Appendix 7. Interview Reports).

These three factors are important causes that the supply chain from maize and cassava farmers in the Western Region to their local market remains fragmented. As long as these factors exist a substantial supply chain will not emerge.

Another important fact which influences the situation within a possible chain is the farmer's position and relationship with other actors in the supply chain. The farmer is the first actor in a supply chain. According to one of the exporters, the farmers are not only the first actors but also the central point of the supply chain. An exporter explained:

"The farmers are the first actor of the supply chain but actually also the central point of the supply chain. To create sustainable markets or chain management it is important that it is going well with the farmer. If it is going well with the farmer, it will go well with the other actors in the supply chain as well. If it is going bad with the farmer it will have a negative effect on the other actors too."

To explain this graphically he drew the next pictures:

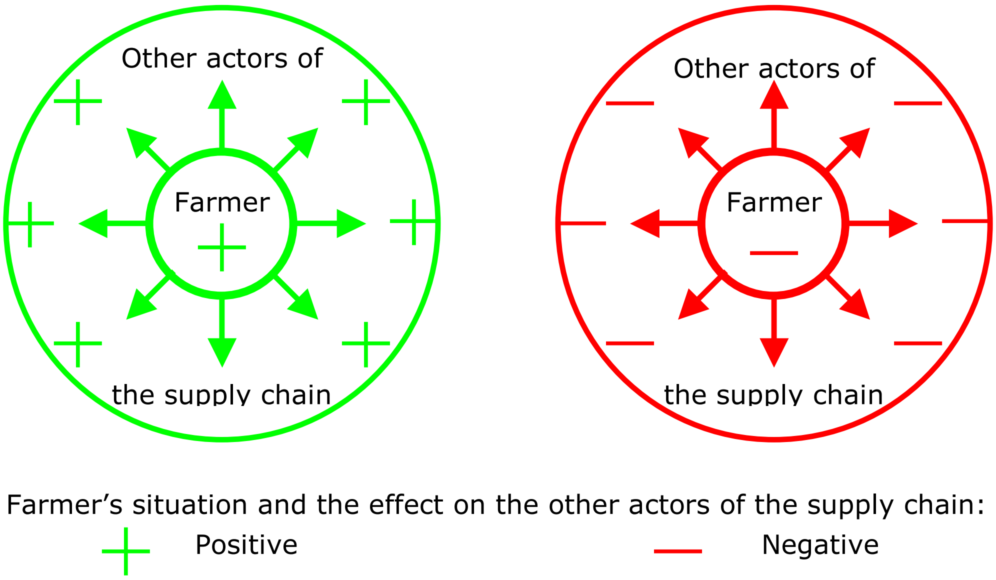

Figure 4.2 Farmers position and relationship with the other actors of the supply chain (Appendix 7. Interview Reports)

§ 4.1.2 Current conduct of the actors in the supply chain

Figure 4.1 with the present structure shows just one actor of the supply chain, the producer: the farmer's group of the Western Region which is producing maize and cassava. In this maize and cassava market, market conduct refers to how competitive practices which, individually or in a possible combination, shape the market performance characteristics. This market conduct is affected by the market structure of the industry, and is reflected in sellers' and buyers' policies and practices.

Producers: Farmer's group of the Western Region
According to the study in Ghana there are four main dimensions of market conduct of the farmer's group of the Western Region:
- Producing maize and cassava on a small scale with many other products mainly for home consumption
- Not sufficient trust in other actors of the supply chain
- Absence of strategic thinking
- Bottlenecks as: lack of working capital, apathy, and in the eyes of the farmers no incentives from the market

Producing maize and cassava on a small scale with many other products mainly for home consumption
Most respondents mentioned during the interviews the producer's conduct. One of the representatives of a governmental institution explained: *"Most African farmers produce maize, cassava, vegetables and other products to consume at home for their own food security. Ghana and the farmers in the Western Region are no exception, they produce maize and cassava on a small scale, mainly for home consumption and the products that they do not consume are sold at the local markets. They are also producing other products for their own food security (e.g. vegetables and fruit), because all the products that they produce they don't have to buy. This habit is not easy to change; even if the market is promising, the farmers are resolute to produce mainly for their own food security."* (Appendix 7. Interview Reports).

The farmers in the Western Region have, on average, the availability of 2 hectare of farming land. They produce pineapple, maize, cassava, several vegetables and fruit. They like to see their products as cash crops but in reality these are food crops. The farmers are not producing enough maize and cassava for the market to consider these products as cash crops.
It is hard to convince the farmer group to produce more of maize and cassava that can be sold at the markets to earn money that they can spent. They said, first it is hard to believe this promising forecasts that there will be a market and secondly also hard to get it done. If the farmer's group starts producing on a more commercial base, this will mean that they have to invest in fertiliser, in production and harvesting, and to deliver products to the market first before they earn money. This means that in the meanwhile the families cannot buy sufficient food, the farmers can't buy new planting material and they don't know what is coming. According to the farmers they have to invest in a new

and insecure business which brings a lot of insecurities with it. These insecurities are the reason that they keep it risk-averse and stay busy with what they are doing.

Not sufficient trust in other possible actors of the supply chain
During an interview with an exporter, he told: *"The farmers are an important link within a supply chain. As showed in figure 4.2, the farmer is the centre and around him are the facilitators; the government, the bank, the processor, the input suppliers, the transporters and the extension department. If it is going well with the farmer the rest of the chain members will benefit. But if one of the facilitators won't take up the challenge everything falls apart, and the one with the biggest loss is the farmer."* (Appendix 7. Interview Reports).

The actors in a supply chain can influence each others performance in a positive and negative way. *"In the past the farmers were harmed more than once by cheating, so the farmers haven't any trust left over. For example, the farmers harvested their maize and brought this maize to the market. At this market wholesale dealers weigh out the amount of maize. The farmers brought 100 kilogram's of maize but the balance shows just 80 kilogram's, so the farmer can sell this 100 kilogram's of maize but he only earns the money for 80 kilogram's."* told the exporter. But this happens also the other way around. *"A farmer has a contract with a processor to sell the product but if he can sell the same product at a higher price or cash money to another he will do that. At that moment he has some extra security and money to live. Of course the processor won't like this either*." (Appendix 7. Interview Reports).

This is what is going on in Ghana, people don't trust each other and can't rely on each other. This makes it hard to do make reliable agreements and to run a business together. Even if organizations conclude contracts and make agreements, it is hard to relay on these, because there are no enforcements if they won't follow these agreement. At this moment, the actors of a supply chain are entangled in a negative spiral which influenced the performance of the whole business.

Absence of strategic thinking
During the stay in Ghana and the visits to the actors of the supply chain is observed, that it seems that these actors have difficulties in formulating effective strategies. It seems to be hard for supply chain actors to examine market policy issues and to make a strategic planning with a long term perspective because of several constraints in Ghana. This makes it hard to set priorities and reach objectives which are dependent of time, money, effort and natural influences.

Furthermore, there are some factors in this 'supply chain' which influence, impair or stop the market development. These bottlenecks are: lack of working capital, farmers apathy and in the eyes of the farmers no incentives from the market.

Lack of working capital
Some of the farmers of the farmer's group of the Western Region explained the difficulty to obtain working capital. *"It is hard to farm without or with not sufficient working capital. We invest all our money in our land, seeds, planting material and equipment. After harvest we sell the products at the markets and with that earned money we buy new seeds, planting material and equipment. There is no possibility to buy better machines or fertilizer in the budget of our working capital."* (Appendix 7. Interview Reports). This small amount of working capital results in a weak position for the farmers in a growing economy. Farmers who have more working capital can buy better or more inputs and material and produce more. With these products they can earn more money and again, invest more.

Farmers apathy
During my stay in Ghana and the visits of the farmers it seems that the farmers are in a state of not caring. They showed and said that they were not really interested in another theory once more and that their motivation is low because of the often changing planting strategy. Before ISCOM came, there where some other NGO's which tried to help the farmers. These NGO's, including ISCOM together with the Berea Social Foundation, tried to help the farmers in the Western Region. Each NGO had its own theory and ideas about producing and selling some crops in particular. Because of this, the farmers changed in these years several times of strategy and crops.
Just a week before our visit to the farmer group in Tarkwa, they have got the results from an extensive soil research done by researchers from the Netherlands. These results excluded any pineapple farming on their acres. This was very disappointing for the farmers which tried to grow pineapples for more than a year. They invested time, work and money in these pineapple plantations. At the moment of my visit and interviews, they were disappointed about ISCOM because of the soil research took place after the first harvest and their motivation decreased a lot.

In the eyes of the farmers, there are no stimuli from the market
During the processing and analysis of the interviews it seemed that there are more views about incentives from the market. Two of the farmers explained very clear that they are scared that there are no markets for their products. *"We are scared that there is no market for our products. At this moment we try to sell a number of our products at the market but it seems that there is no interest in more supply. If we start producing just a few crops on a larger scale, there is a large chance that we can not sale these products and then we have a big loss and no food for our families."* This statement is conflicting with the explanation of the processors. They explained that they prefer to buy the products from the farmers. *"We prefer buying the products from the farmers but we ask for a certain volume. It is not realistic for us to go to all the markets and collect products from fifty different farmers, we want a higher quantity and some guarantees of delivering."* (Appendix 7. Interview Reports).
These two visions on market incentives are contradictory. The farmers do not trust the demand from the processors and the processors do not trust the offer of the farmers. So all actors have developed their own vision on the market situation.

As earlier mentioned, in the current market situation for the Tarkwa producers there are no other actors than farmers present in the supply chain. To give an overview about this lacking supply chain for maize and cassava it is important to get some insight in the conduct of other actors than farmers in a potential supply chain.

There are different ways of thinking between the actors of the supply chain which will influence the conduct and performance of the supply chain and the individual actors. One of the respondents, a processor of chicken feed, explained:
"We like to work together with other actors of the Ghanaian supply chain, to create some sustainability in terms of economic results and to build the country. But it is hard to rely on appointments with other actors of the supply chain. For example, if the harvest is not delivering the expected quantity and another party offers the farmer more money for the harvest as we agreed upon before, the farmer will sell it to the other. I don't want to accuse the farmer, it is happening at all levels in the supply chain. So for us it is better and more trustworthy to import the products, sometimes above the Ghanaian price but anyhow we will have the products." (Appendix 7. Interview Reports).

Another respondent, an exporter, mentioned the same problem and expects that this won't change in the next years. This exporter said:
"Even if you have a contract, you never know for sure whether the other party will handle according to this agreement. They can always change their mind at the last moment because there are no rules and guidelines for these agreements. Here in Ghana we work on a basis of trust. If the farmer has trust in me, I pay in time and if I take care of the farmer, he will probably deliver the products for the agreed price. If he won't trust me he will give the products to another who give him money straight away. Can we blame him? – No. But the most difficult is that already a lot of people related to the supply chain disappointed these farmers, so a relation with trust is hard to create." (Appendix 7. Interview Reports).

The conduct within the supply chain which is related to: the fact that farmers produce mainly for home consumption, actors do not trust each other, the absence of strategic thinking and the bottlenecks are closely related to each other and influence negatively the opportunity for a continuous product flow in the supply chain. These factors have a negative influence on the current market situation.
To link these factors back to the current situation with only one actor, the farmer's group, in the supply chain results in the following situation. The farmers producing maize and cassava, process these products, and consume them at home. This guarantees the farmers and their families food security, but they don't have to deal with others so they can not be deceived and they don't have to look for markets.

§ 4.1.3 Current performance

The performance of the supply chain can be measured along different dimensions and at different levels. Because performance is a multidimensional construct, it is important to recognize what good performance means for channel effectiveness, channel equity and channel efficiency.

It is not possible to analyse the performance of the supply chain with their mutual aspects between the actors, because the current situation is with only one actor in the supply chain; farmers, the producers of maize and cassava. This individual actor of the current supply chain will be analysed at their current performance on the following aspects.

1. Effectiveness

Effectiveness is the first element of channel performance; it is the ability of the farmer group in the Western Region to deliver the required products according to the wishes of their customers in the market. This is difficult for the local and regional players in Ghana, simply due to the inferior infrastructure.

Infrastructure

One of the biggest shortcomings that everyone in Ghana would like to solve is the interruptions in power supply. The farmer group in the Western Region have half of the time no electricity. Running a business and dealing with competition is hard without electricity, computers and telecommunication. Companies from outside Ghana and Africa have continuously and fluent power supply which results in a more organized and modernized structure. These people can organize and communicate their production schedule.

Ghana is considered to be a gateway to West Africa by creating maritime and airport hubs and opening up trade for its landlocked neighbours. The main port, Tema, and the smaller Takoradi, handle more than 85 percent of Ghana's exports and imports. These country ports are beginning to attract more business to Ghana. To expand the use of the ports, roads are being upgraded to provide better links to the rest of the country and beyond. They include the asphalting of the road from Tema and Takoradi to the north to ensure a smooth transport route to Burkina Faso (Website FAO, February 2007). At this moment, it is hard for the farmer group in the Western Region to market their product outside the region or to export their products. The infrastructure is still to weak and expensive to realize a profit.

Ben Owusu-Mensah, Ghana Ports and Harbour Authority (GPHA) Director General, says: "Our job is to make sure that the cost of doing business here in Ghana is as low as possible." His focus now is on strengthening the profile of Takoradi in the region. "There has been a big increase in traffic from Burkina Faso, Mali and Niger, and recently we have been able to wrestle traffic from Lome and Benin. Most people prefer to ship their cargo through here, so we are making real headway."

Mr. Owusu-Mensah wants Takoradi, to be the preferred port for Ghana's neighbours. "Our only problem is the rail link," he says. "If this develops we should be able to really capture the transit cargo – even cargo meant for other ports." (Website United World-USA, February 2002).

African countries have the lowest number of phones per capita of anywhere in the world. The huge distances and often extremely harsh terrain have obstructed development, but above all it has been the continent's poverty that has held back the sort of advances the western world takes for granted. Ghana is not different from many other African nations in this respect. For the past eight years, Ghana has been aggressively shifting their telecommunications market from state-controlled to shared private-public ownership. With a population of 20 million there are 265,000 fixed lines. Cellular telephony was introduced in October 2000 and the amount of customers is increasing every day. (Website Ghanaweb, February 2007). Outside the urban areas, mobile communication is not possible. Communication is necessary for running a business. Without any phones and internet it is hard to communicate with other players in the business and this makes it hard to set up and organize deals.

2. Equity

Equity is the second element of channel performance; it is the degree to which every actor of the supply chain has the same opportunities and ability to access the existing market channels.

It is hard to tell something about the degree to which every actor has a equal playing field regarding to each other. During the study there is looked at the current market situation, which contains in this study only one actor, the farmer group of the Western Region. This makes it hard to make a statement about the equity, so there is looked at which ability there is to access market channels.

The farmer group of the Western Region has the possibility to sell their products to processors or exporters. At this moment they do not use these channels because of the following reasons;

1. The farmers are producing not enough products to satisfy the complete need of the other actors of a possible supply chain. So, for the other actors it is not realistic to buy their products, for example, at 10 different farmer groups, which means 10 different agreements, 10 different ways of transportation and 10 different varieties and qualities.
2. The farmer is not convinced that there are possibilities to market their products elsewhere as the local market and earn more money at this new way. To change the whole planting strategy will cost a lot of energy and if it will not work it cost them a lot of money.

3. Efficiency

Efficiency is the last element of channel performance; it refers to how cost effectively the farmers used their resources to accomplish their outcomes. The last years, Ghana has been making real progress in increasing efficiency, mainly as the result of improvements in information technology. Even with this progress logistics remains a heavily labour-intensive activity. In less modern societies in Ghana, wholesaling and retailing are more labour intensive than in the industrialized sectors. If the gains of the industrialized sectors could be transmitted to the non-industrialized parts of Ghana, the standard of living would rise significantly.

The way of farming has a impact at the efficiency of the farmer group. As earlier discussed, the most remarkable and most mentioned aspect is the way of farming. An representative of an NGO explained this as follows: *"The farmer group is using the land to produce a lot of products which have all their own characteristics, farming practices, specifications and market opportunities. – They are planting small numbers of a lot of products. This makes it possible for the farmers to produce products to feed their families. But this way of producing is not very efficient, but brings only extra cost for buying the products at different places, different ways of planting and other equipments."* (Appendix 7. Interview Reports) All these changes take care of higher cost and a lower efficiency.

§ 4.1.4 Current strengths of the supply chain

The following list summarizes the strengths of the supply chain; these competences are useful to utilize opportunities and to keep away from threats. These strengths are based on the results of the interviews with the actors of a possible supply chain of maize and cassava, own experiences and desk research.

<u>Current strengths of the supply chain (quantity mentioned)</u>
1. The soil and climate are favorable to deliver high-quality maize and cassava (all respondents)
2. Ghana is strategically located (all respondents)
3. Enough employees (all respondents)
4. Cheap labour (9 out of 12)
5. Enough customers (6 out of 12)
6. Farm size is 100 hectares of land (6 out of 12)
7. Promotion of the private sector (5 out of 12)

The soil and climate are favorable to deliver high-quality maize and cassava

The farmer group of the Western Region has enough land to produce agricultural products as maize and cassava on a large scale. These acres have suitable soil and together with the right climate, the farmers can produce high-quality maize and cassava. The soil is not suitable for pineapple growing.

Ghana is strategically located

Ghana is strategically located within West Africa and has easy access to the ECOWAS (Economic Community of West African States) market. The location of Ghana, coupled with the relatively stability that the country enjoys make Ghana a gateway for regional trade and investment into the West African sub-region of a market of over 260 million people. These, coupled with the proximity of Ghana to EU and USA markets as well as duty and quota free access to American and European markets makes Ghana a preferable place to do business (International Trade Centre, 2006).

Enough employees

There is no insight in the number of unemployed people in Ghana because there is no registration of people in general or employment statistics. A lot of the Ghanaians are looking for jobs; those people which are unemployed have no social security or payment. In the Western Region are also enough people who like to accomplish all the work that need to be done at the land, especially when they can create some future consistency.

Cheap labour

In Ghana, the costs of labour are very low in comparison to countries outside Africa. This can make it more interesting for companies to hire labour in this low wage country. The cost of labour in the neighbouring countries is also low but these countries are less attractive because of the weaker agricultural environment and even lower infrastructure.

Enough customers

Even the farmer group in the Western Region do not see possibilities to market their products, but there are sufficient markets with customers. Neighbouring countries will buy the maize and cassava but also local processors need maize and cassava for, for example, chicken feed or potato chips. The only limitation to deliver to these markets is that they cannot deliver a larger quantity of the products.

Farm size is 100 hectares of land

The farmer group of the Western Region has more than 100 hectares of land. There are 10 hectares which are usable for maize and cassava. This is enough land to produce at least 10 ton of maize (See figure 4.3 Production of maize).

Promotion of the private sector

Ghana's Trade Policy promotes the private sector as the engine of growth, with government providing a trade enabling environment to actively stimulate private sector initiatives. The dynamic private sector is willing to collaborate with foreign partners. It also has abundant, adaptable and easily trainable labour force. This extensive and generous investment promote doing business in Ghana (International Trade Centre, 2006).

These strengths are useful to utilize chances and keep away from threats.

§ 4.1.5 Current weaknesses of the supply chain

The supply chain of the Western Region has also weaknesses. The following list summarizes the weaknesses of the supply chain; these shortcomings can obstruct a competitive position. These obtained weaknesses are also based on the results of the interviews with the actors of a possible supply chain of maize and cassava, own experiences and desk research.

Current weaknesses of the supply chain (quantity mentioned)

1. Lack of resources (all respondents)
2. Not sufficient trust among the actors of the supply chain (all respondents)
3. Weak infrastructure (10 out of 12)
4. Relatively low yield per hectare (9 out of 12)
5. Unreliability of agreements and contracts (9 out of 12)
6. Lack of information, planning and control (8 out of 12)
7. Absence of strategic thinking (5 out of 12)
8. Low reputation (3 out of 12)

Lack of Resources

The most important weakness is the shortage or bad quality of the resources as machinery, education level of the workers, working capital, irrigation systems, transport, drying and storage facilities. The farmers in the Western Region has to work much harder to realize the same work as farmers in developed countries elsewhere in the world.

Machinery: The farmers of the Western Region have just not many machines to use for a fluent flow through the production process. The machinery that they have is old and not working properly. Without machines it is hard to produce more products as a competitor from other more developed parts of Ghana or the world market who do have the right equipment.

Education level of the workers: Presently the education level of the Ghanaian people is raising but at this moment the education level of the workers is very low. Many people have not even done primary school before they started working.

Working capital: To start up a business or to contain a business or organization needs capital. In Ghana it is hard to get a loan. For the farmers and the other actors of the supply chain it is hard to run a business by themselves. They have to work together with other farmer groups, other actors in the supply chain or with NGO's as ISCOM.

Land: In Ghana, a lot of land can be used for agricultural activities, but it is difficult to buy land. For people from outside Ghana it is almost impossible to buy land and to set up a business. Also for Ghanaians it is necessary to get the permission of the land supervisor of the region before they can buy and own land.

Planting material: Cassava is growing almost everywhere in the Western region and the planting material for the cassava is not expensive. For maize it is more difficult, this crop needs more attention during cultivation than cassava. The crop needs good planting material which is uncommon and also expensive.

No irrigation system: In Ghana there are two rainy seasons which are important because there are not many irrigation systems. Because of the natural influence of the rainy season it is hard to predict the amount of rain and the time of rain.

Transport: The infrastructure in Ghana is not well developed jet. They are very busy with constructing roads but it is going slow and causes at the moment even more problems. At this moment the transport possibilities are scarce and very expensive.
The geographical location of the Western Region is also not very good; it is far away from the main ports of Tema and Takoradi. This makes it difficult to compete with other farmer groups from these regions. Transport from the farms in the Western Region to the local markets will mostly be done by feet or with old cars/ busses.

Storage and drying facilities: To guarantee a good quality of the products it is important that the products are dried or stored proper. There are just a few storages and drying facilities within Ghana, at most places in the Western Region the products are piled and vermin of moulds are spoiling this harvest. This shortage of drying and storage facilities is also one of the causes that the quality of the products gets worse in the course of time.
Another negative effect of this shortage is the abundance of products just after harvest time and a shortage of the products in the lean season. A proper storage facility can guarantee a better quality over time and covers the fluctuation of the demand and offer of the products.

Not sufficient trust among the actors of the supply chain
The not sufficient trust among the actors of the supply chain is also not contributing a good co-operation within the chain. After some bad experiences people do not trust each other anymore and to organize a business you need to trust your partner.

Weak infrastructure
Ghana is still a developing country. The roads are in construction and half of the villages have no electricity, phone connections or tap water. To organize all these activities takes time, work and money. This is improving step by step but it is not helping the business, because running a business without a good infrastructure is hard.

Relatively low yield per hectare
In the Western Region, the yield of these Ghanaian growers per hectare in on average less than other grower for example American Growers. The farmers have no accessibility to the right planting material and fertilizer. Together with the lack of resources this results in a relatively low yield per hectare.

Unreliability of agreements and contracts

The farmers and possible other actors of the supply chain have problems with the lack of reliability of agreements and contracts. This makes it very difficult to depend on each other and to do business together.

Lack of information, planning and control

It is hard for the farmers and the actors of the supply chain to plan and predict their production and sales scheme. The natural influences of the rainy season will influence the planning of harvest; because of this unpredictable influence it is hard to give in advance information about the harvest time, harvest quantity, the expected time of sales and the quality of the products.

Absence of strategic thinking

The farmer group of the Western Region can not formulate effective strategies which are consistent with the strategy of the organization in the current market. It is hard to examine policy issues and make a strategic planning with a long term perspective because of the underdeveloped situation in Ghana. This makes it even hard to set priorities and reach objectives which are dependent of time, money, effort and natural influences.

Weak reputation

The last weakness is the weak reputation of Ghana; Ghana is not a prominent player at the world markets and is also not very familiar for actors in the world market. Ghana is still developing and for that reason it seems to be hard for companies outside Ghana to do business with Ghanaian farmers of maize and cassava. This weak reputation of Ghana as a country has also a negative influence at the Tarkwa farmers.

Unfortunately these weaknesses can prevent a competitive position.

§ 4.2 Future market situation

This paragraph will analyse the expected future market situation of the supply chain and will give insight in the structure, conduct and performance of this supply chain. This will give insight into future strengths and weaknesses of the supply chain.

§ 4.2.1 Future structure of the supply chain

As earlier mentioned in paragraph 4.1 current market situation, in this study it is not sufficient to analyse only the farmers as part of the supply chain because the sales opportunities of their products will also depend on other actors in the supply chain. To help these farmers to create sustainable economic results, it is important to consider the whole supply chain and to deliver suggestions about how to sell their (increased) output in the future.

Figure 4.3 gives a graphical view of the possible future structure of the supply chain of maize and cassava cultivated by the farmers of the Western Region. The information about this structure is mainly collected during the period of the primary research in Ghana (May - June 2006) through interviewing actors belonging to the supply chain and through own observations and experiences in discussions with the farmers and other actors of the supply chain.

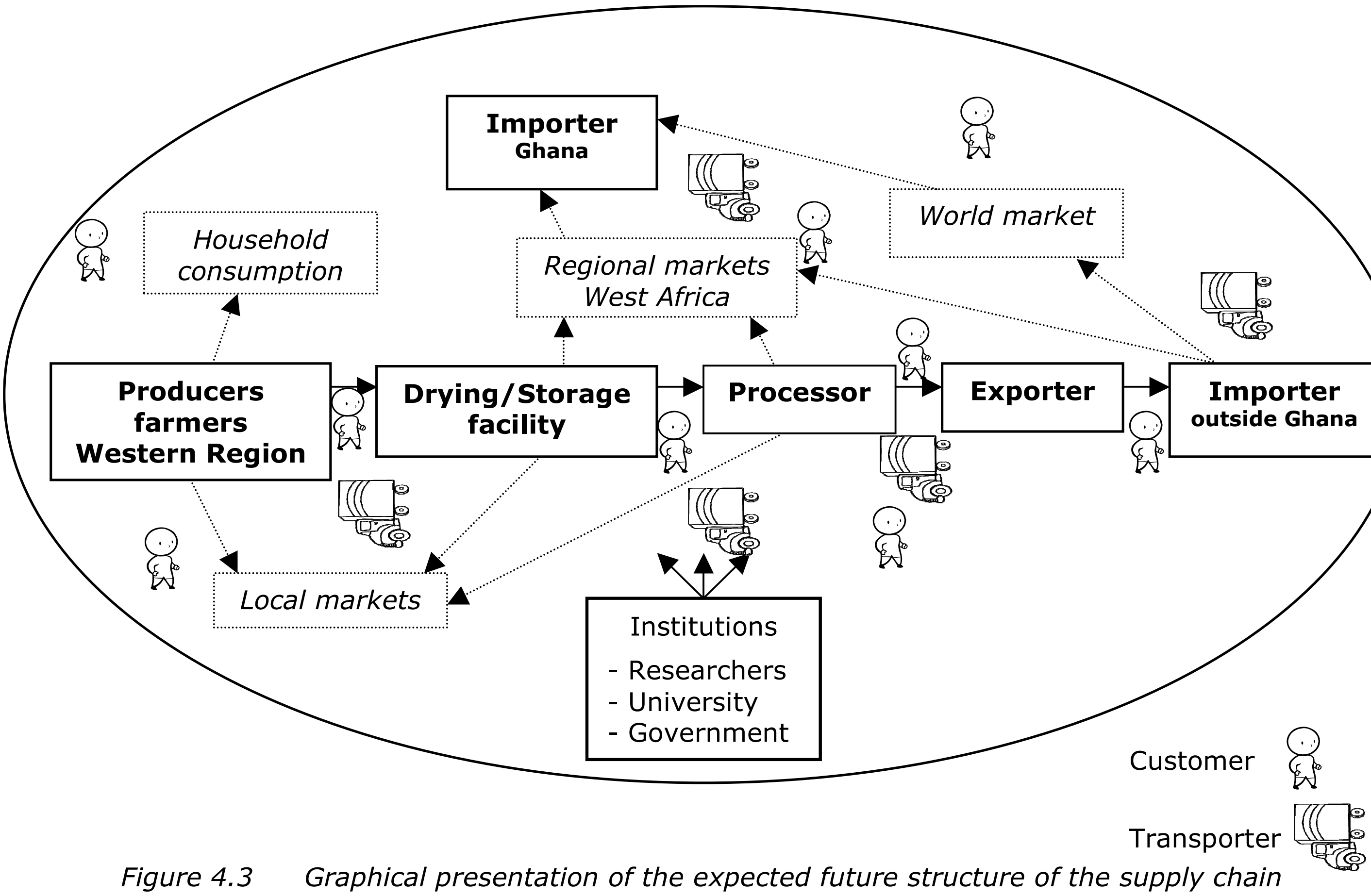

Figure 4.3 Graphical presentation of the expected future structure of the supply chain

Figure 4.3 gives a graphical presentation of the expected structure of the supply chain in the future, from producer to the customer. This figure shows the way how the maize and cassava, or a processed variant, can go before the products end at the market and consumer. The farmers group of the Western Region are the producers of maize and cassava. Other actors of the supply chain are drying and storage facilities, processors, exporters and importers. During the product flow there are several transporters and customers who are part of the supply chain. Further, there are institutions in the figure, the representatives of the institutions will not trade in the supply chain but do have a clear view of the situation. This figure shows just as figure 4.1 the local markets, regional markets and world market, but in this figure there is a connection between the farmers and other actors of the supply chain.

During the interviews the respondents mentioned four main characteristics which reflect the situation of this structure in the future. These four characteristics of the future supply chain are:

- Through better resources is it possible to produce a higher yield per acre
- A relatively smaller proportion of the harvest will be consumed by household and a relatively larger proportion will be sold
- Farmer's central position and relationship with other actors in the supply chain
- Better infrastructure -> easier to transport the products

(Appendix 7. Interview Reports)

1. Through better resources is it possible to produce a higher yield per acre

As explained in paragraph 4.1, at this moment there are no irrigation systems in the study area in Ghana. In the next 3 till 5 years this will probably not change, the farmers of the Western Region will remain dependent on the seasonal influences with respect to rainfall. But in the years following there might be the possibilities to work with irrigation systems because of foreign business people which will bring them in to increase the yield. This will provide the farmers the possibility to organize and plan their work better. Then, they can predict when the products will be harvested and have also more insight in the amount and quality of the harvest. This information will give them more insight in the farming situation which they can use to market their products.

A representative of the Crops Research Institute said: *"It is hard to predict the harvest time, product quality and the yield without the right equipment . This will fluctuate because of the unpredictable seasonal influences. This fluctuation results in sometimes a bumper crop and low market prices, or sometimes in a shortage of products, all products are necessary for the food security of the family corresponding with a small product offer with high market prices. This makes it hard for other actors of the supply chain to rely on the production of the farmers. In the future, the farmers can predict their production schedule and yield with the help of irrigation systems. This will result in a better predictable and organized market."* (Appendix 7. Interview Reports).

Another representative of this institution added: *"In Ghana are few drying and storage facilities. The Tarkwa area is a very humid area; this makes it hard to dry the products. Without drying and storage facilities the quality of the products decreases in a short period of time."* (Appendix 7. Interview Reports). Almost all respondents mentioned this as an inconvenient characteristic because it gives problems in the processing stage. If the farmers can produce more products during both the seasons it will be advantageous to build more drying and storage facilities otherwise a lot of the harvest will be lost.

2. A relatively smaller proportion of the harvest will be consumed by household and a relatively larger proportion will be sold

All respondents of the interviews mentioned the high proportion of the harvest consumed by the household in the current situation. They also emphasised the future situation where a relatively smaller proportion of the harvest will be consumed by household and a relatively larger proportion of the harvest will be sold at the markets. This is because of the higher yield per acre which is explained in the paragraph above.
Reasons: *"Ghanaian farmers will produce maize and cassava on a larger scale beside other food crops. The yield per acre will be higher as in this moment and the harvest has still a good quality. The farmers of the farmer's group will still use a high proportion of the harvest to feed their household but besides that they see the crops more as a cash crops and they will sell a higher percentage at the markets."* (Appendix 7. Interview Reports).

The respondents of the interviews told that in the mid term still 70% till 80% of the harvested products will be used for household consumption and the remaining products will be sold at a market. In the long run the percentage of household consumption will decrease till 60%. This does not mean that the people eat less but that the harvest increases, this is already discussed in more detail at number 1, Through better resources is it possible to produce a higher yield per acre. In the future a larger percentage of the harvest will be marketed, especially at the local markets and regional markets. The world market is still hardly accessible for the farmers of the Tarkwa area due to the large transportation costs and still to low production to bulk (Appendix 7. Interview Reports). The Ghana Export Promotion council confirmed this with data from the starting and growing cacao business.

An exporter explained also: *"At this moment the yield per acre in Ghana is much lower than in other places of the world. In Ghana, an average farmer produces 420 kilogram per acre amongst others due to low fertilizer use. With better use of fertilizer, knowledge and resources, the farmers of the Western Region will increase the production till 1000 kilogram per acre in the next 3 till 5 years and till 2000 kilogram per acre (5 ton per hectare) in the next ten years."* (Appendix 7. Interview Reports). Table 4.4 shows this production of maize.

Table 4.4 (Expected) production of maize

Time	**Region**	**Yield in kg/acre***	**Yield in ton/ha***
Nowadays	Farmers Western Region		Less than 1 ton per hectare
	Average farmer in Ghana	420 kilogram per acre	+/- 1 ton per hectare
Mid term 3 till 5 years	Farmers Western Region	1000 kilogram per acre	+/- 2,5 ton per hectare
Long term 5 till 10 years	Farmers Western Region	2000 kilogram per acre	+/- 5 ton per hectare

* See Appendix 8. Definitions units, for definitions

(United States Department of Agriculture, 2004 and Appendix 7. Interview Reports)

3. Farmer's central position and relationship with other actors in the supply chain

The last important fact which will influence the future situation within a possible chain is the farmer's position and relationship with other actors in the supply chain. According to one of the exporters, the farmers are not only the first actors in the supply chain but also the central point of the supply chain (see paragraph 4.1.1).

This central position of the farmers will stay unchanged in the future. Even if Ghana is much more developed the other actors will depend on the farmers. If it is going well with the farmer, it will go well with the other actors in the supply chain as well. But if it is going bad with the farmer it will have a negative effect on the other actors too.

4. Better infrastructure -> easier to transport the products

The government works hard to develop the physical infrastructure of the Western Region. This road construction work gives some hindrance and gives now serious problems for transporters. In the next 3 till 5 years the construction or maintenance of roads will give troubles but these problems will decrease in the cause of the years. In the next ten years the physical infrastructure will be improved continuously. All respondents emphasised the problems with the infrastructure in Ghana which affects the transport possibilities and transport costs of the products. One of the processors explained: *"In Ghana there are processors which prefer processing of Ghanaian products as maize and cassava above products from outside Ghana, but the weak infrastructure and high transportation costs result in an entry barrier to market their products. In the future, when the infrastructure is more developed and the transport possibilities are improved we will prefer doing business with the Ghanaian farmers."* (Appendix 7. Interview Reports).

These four factors are important causes that the supply chain of maize and cassava produced by the farmers of the Western Region will be further developed in the future.

§ 4.2.2 Future conduct of the actors in the supply chain

Figure 4.3 with the structure of the supply chain in the future shows all the actors of the supply chain, from the producer; the farmer's group of the Western Region till the markets with their customers. In this maize and cassava market, market conduct refers to competitive practices which, individually or in a possible combination, shape the market performance characteristics. This market conduct is affected by the market structure of the industry, and is reflected in sellers' and buyers' policies and practices. According to the study in Ghana, the main dimensions of market conduct of the several actors of the supply chain will be discussed in the next paragraphs.

Producers: Farmer's group of the Western Region
Most respondents mentioned during the interviews the producer's conduct. One of the professors of the Agricultural University explained: *"For ages, most African farmers produce maize, cassava, vegetables and other products to consume at home for their own food security. Ghana and the farmers in the Western Region are no exception. This habit is not easy to change; in the mid term and long term, even if the market is promising, the farmers are resolute to produce first for their own food security. During the next years will this percentage probably decrease because of the rising yield due to better resources. The farmers will also get more used to market their products which give them more faith."* (Appendix 7. Interview Reports).
The farmers produce pineapple, maize, cassava, several vegetables and fruit. In the future, they will see the products less as food crop and see some of them as cash crops. This perspective of crops will change slowly during the years.

Drying and storage facilities
Drying and storage facilities are important facilities for the Ghanaian agribusiness. As earlier mentioned, a representative of the Crops Research Institute tightened: *"In Ghana are few drying and storage facilities. The Tarkwa area is a very humid area; this makes it hard to dry the products. Without drying and storage facilities the quality of the products decreases in a short period of time."* (Appendix 7. Interview Reports). To organize a profitable maize business, the maize need to be cultivated in a larger amount. To keep this large yield of harvested maize save from maize diseases and insects they have to dry and store these products well. The expectation is to cultivate more maize in the future so there is a need for drying and storage facilities. Another important aspect is, the farmer need to become aware of the product safety skills, otherwise they will not see the usefulness of these facilities.

Processors

During the interview, two of the processors explained that they prefer to buy the products from the Ghanaian farmers. *"We prefer buying the products from the Ghanaian farmers but we ask for a certain volume. It is not realistic for us to go to all the markets and collect products from fifty different farmers, we want a higher quantity and some guarantees of delivering."* In the future, when the yield raised, it will be more likely to buy products from the Ghanaian farmers. In the midterm you will see a small but raising percentage of the processors which dealing with Ghanaian farmers. But in the longer term, when the infrastructure is better, the yield per acre raised an the farmers get used to selling their products, it will be more likely for the processors to deal with Ghanaian farmers.

Exporters

In the future, if the yield per acre raises, it will be easier to export products. It seems that this creates some profitability, but during the interviews was emphasised by the representatives of the institutions and an exporter that this will not be profitable for a long time. *"The farmers in Ghana are producing a much lower yield per acre as in America (table 4.3). Some of the reasons are no or bad fertilizer use, less equipment and the vision of farming. This aspect together with high transportation cost makes that the Ghanaian farmer can not deliver as cost effectively as others from elsewhere of the world."* (Appendix 7. Interview Reports). Even in the long term, 5 till 10 years, there will be no big export market for the Ghanaian maize and cassava. This export market will be starting at the end of this period and will expand during the time.

Importers

The importers are the next years still busy with importing maize from outside Ghana because of the large price differences with the Ghanaian maize. Especially if a processor who operates in the neighbourhood of the harbour needs maize, he will buy imported maize cheaper as the maize from the other side of Ghana, Tarkwa area. Due to this large price difference he will prefer importing maize.

Institutions

Institutions are very busy with helping all actors of the supply chain with a informing them well about all kinds of running a business. In the future they are planning to continue and even to extend these activities. Due to the better communication possibilities in the future as, telecommunication, internet and of course also the English language which the farmers understand better, this will go easier (Appendix 7. Interview Reports).

All actors in the supply chain
During the study in Ghana and the visits to the actors of the supply chain, it seems that these actors can not formulate effective strategies which are consistent with the strategy of the organization in the current market. They need learn to examine market policy issues and to make a strategic planning with a long term perspective because of several constraints in Ghana. This makes it possible to set priorities and reach objectives. All long the time there will be more educated actors within the supply chain. This well educated people can take care of the formulation of effective strategies for the organization.

The actors in a supply chain can influence each others performance in a positive and negative way. *"Diverse actors of the supply chain harmed each other more than once by cheating, so they have no trust left over. For example, the farmers had some terms of delivery with an processor or exporter. They agreed on price, quality and quantity. One day before the day of delivering the farmer can sell the harvest for twice the money to another person, he sold. The processor or exporter has no products to process or export. "* told the exporter." (Appendix 7. Interview Reports).
This is what is going on in Ghana, people don't trust each other and can't rely on each other. This makes it hard to make reliable agreements and to run a business together. Even if organizations conclude contracts and make agreements, it is hard to rely on these, because there is no enforcement possible if they won't follow these agreement. In the nearby future, this will be the same, people will not trust each other and it will be hard to run a business together. The government is already busy with legislation to facilitate transactions based on contracts. At the long term people need to follow the legislation and if they do not behave accordingly they will get a penalty.

During my stay in Ghana and visits to the actors of the supply chain it seems that some of them are in a state of carelessness. They showed and said that they are not really interested in another way of working to the benefit of all. Several actors of the supply chain working from the eye view of self interest. For them it seems only important to increase their own sales and turnover, and they do not realize that this will lead to a disadvantage of others and, indirectly, also for themselves. This self interest will obstruct the further development of a successful supply chain.

§ 4.2.3 Future performance

The performance of the supply chain can be measured along different dimensions and at different levels. Because performance is a multidimensional construct, it is important to recognize what good performance means for channel effectiveness, channel equity and channel efficiency in the future.

The potential supply chain of maize and cassava cultivated by the farmers of the Western Region consists of several actors; producers, drying and storage facilities, processors, transporters, exporters, importers, customers and governmental institutions. All these actors need to contribute to the delivering of products to the end-customer. As presented in the current situation, there are no connections between the different actors and potential markets, there is no supply chain. In the future, there will probably be a supply which is connected by markets first and later by contracts. As the importer explained: *"In the nearby future, if the farmers produce more products, we will go to farmers and buy the products direct at the farm gate or market. We will take care of the transport because of logistic circumstances. If the cooperation develops positive we will set up some agreement and later even contracts. Of course we prefer to organize it well straight away but the time is not ready for that step jet. The farmers need to develop further and together we have to built a trustful relationship".* (Appendix 7. Interview Reports).
The actors of the future supply chain will be analysed at their future performance on the following aspects.

1. Effectiveness
Effectiveness is the first element of channel performance; it is the ability of the farmer group in the Western Region to deliver products according to the wishes of their customers in the supply chain. The question is how meeting service output demands will influence the local and regional players in Ghana.

Infrastructure
One of the biggest shortcomings that everyone in Ghana will solve as soon as possible is the interruption in power supply. In the next 3 till 5 years this will change a lot and the farmer group in the Western Region will have electricity. Then they can use their computers and telecommunication continuously and this makes it more comfortable to run a business. If the power supply is running well, they will have the possibility, for example, to organize and communicate their production schedule.

Ghana is considered to be a gateway to West Africa by creating maritime and airport hubs and opening up trade for its landlocked neighbours. The main port, Tema, and the smaller Takoradi, handle more than 85 percent of Ghana's exports and imports. These country ports are already beginning to attract more business to Ghana. To expand the use of the ports, roads are already being upgraded to provide better links to the rest of the country and beyond. They include the asphalting of the road from Tema and Takoradi to the north to ensure a smooth transport route to Burkina Faso (Website FAO, February 2007). In the mid term, it is still hard for the farmer group in the Western Region to market their product outside the region or to export their products. The infrastructure is still to weak and expensive to realize profit.

It is important for Ghana to make the cost of doing business in Ghana as low as possible. For the farmers in the Western Region this means strengthening the accessibility of Takoradi. In the next three to five years the government hopes to realize the highway from the north to the south which also increases traffic and business from Burkina Faso, Mali and Niger (Website United World-USA, February 2002).

The government plans also to extend the railroad. Much of the current rail network has been poorly maintained and will require considerable investment to modernize. Developing the infrastructure is an area where growth in the economy can be expected and it possibly attracts foreign firms to locate here for production. This will increase traffic considerably. Dr. Richard Anane, the Minister of Roads and Transport, is also keen to develop Ghana as an airline hub like he wants to make the country a maritime hub. If Ghana can do this, there will be no reason why other airlines could not radiate from here to other parts of the world. Ghana is expanding the airport to ensure they can accommodate the traffic. Ghana can become the gateway to the sub-region (Website United World-USA, February 2002).

Communication is necessary for running a business. Without any phones and internet it is hard to communicate with other players in the business and this makes it hard to set up and organize deals. After the introduction of the cellular telephony in 2000, the amount of customers is increasing every day. This increasing amount will continue in the next years. The availability of networks will expand as well and in the mid term. In these years people living in the south also outside the urban areas will have connection. In the longer term this will also expand to the north of Ghana (Website Ghanaweb, February 2007).

2. Equity

Equity is the second element of channel performance; it is the degree to which every actor of the supply chain has the same opportunities and ability to access the existing market channels.

It is hard to tell something about the future situation of the degree to which every actor has a equal playing field regarding to each other. During the study there is looked at the current market situation, which contains in this study only one actor, the farmer group of the Western Region and expected future situation, with a possible supply chain. This makes it hard to make a statement about the equity of the actors of the supply chain, so there is looked at which ability there is to access the market channels.

The farmer group of the Western Region has the possibility to consume their products at home or to sell their products at the local market, regional markets; West Africa and the world market. Important factors to realize and continue a supply chain in the future are;

- The farmers need to produce enough products to satisfy the need of the other actors of the supply chain. For the other actors it is not realistic to buy their products at for example 10 different farmer groups, which means 10 different agreements, 10 different ways of transportation and 10 different varieties and qualities.
- Maize is interesting for the processors and exporters if it is bulk production. They are not interested if they have to look for fifty different farmers which supply them from a small amount.
- Cassava contains starch. This is an interesting substance for processors. The negative effect of cassava is that the percentage of starch in the cassava decreases very quick after harvest. This crop needs to be processed within 24 hours.
- The infrastructure needs to be improved to transport the products from farmers to other actors of the supply chain.

3. Efficiency

Efficiency is the last element of channel performance; it refers to how cost effectively the farmers used their resources to accomplish their outcomes. An representative of a governmental institution said: *"The last years, Ghana has been made real progress in at increasing efficiency, mainly as the result of improvements in information technology. Even with this progress distribution remains a heavily labour-intensive activity. In less modern societies such as Ghana, wholesaling and retailing are relatively labour intensive."* (Appendix 7. Interview Reports).

The way of farming has an impact on the efficiency of the farmer group. As earlier discussed, the most remarkable and most mentioned detail is the way of farming. An representative of a University explained: *"The African farmers, so also the farmers in the Western Region, are used to farm for there own food security. This is a habit which is passed on from father to son. This chain is hard to disconnect and to change in doing business and seeing the crops as cash crops. The farmers see the development all around and in the future they will see their crops as cash crops. This will take some time and investment and informing from the authority. In the next 3 till 5 years we expect some farmers which are trying to produce some cash crops. In the longer run we expect hat the farmer will choose for just one of two crops on a larger scale."* (Appendix 7. Interview Reports). If the farmers interpreting their crops more as cash crops they will experience the positive effect on their efficiency. Producing more of the same means, doing more of the same, with less expensive changes and a higher yield, so a sales opportunity in the direction of a processor or an exporter.

§ 4.2.4 Future strengths of the supply chain

The following list summarizes the future strengths of the supply chain; these competences are useful to utilize chances and to keep away from threats. These strengths are based on the results of the interviews with the actors of a possible supply chain of maize and cassava, own experiences and desk research.

Future strengths of the supply chain (quantity mentioned)

1. The soil and climate are favorable to deliver high-quality maize and cassava (all respondents)
2. Ghana is strategically located (all respondents)
3. Enough employees (all respondents)
4. Cheap labour (9 out of 12)
5. Better planting material and fertilizer (8 out of 12)
6. Dynamic private sector (7 out of 12)
7. Average education level will raise (7 out of 12)
8. Development of a supply chain (6 out of 12)

Most of the strengths are the same as in the current market situation and are already discussed in paragraph 4.1.4. This paragraph explains just the strengths which are only present in the future;

Better planting material and fertilizer

Cassava is growing almost everywhere in the Western region and the planting material for the cassava is not expensive. For maize it is more difficult, this crop needs more attention during the cultivating than cassava. The crop needs good planting material which is uncommon and also expensive. In the future it will probably more common and affordable to use fertilizer. This will result in a higher yield per acre.

Dynamic private sector

Ghana's Trade Policy promotes the private sector as the engine of growth, with government providing a trade enabling environment to actively stimulate private sector initiatives. The dynamic private sector is willing to collaborate with foreign partners. It also has abundant, adaptable and easily trainable labour force. This extensive and generous investment promote doing business in Ghana (International Trade Centre, 2006).

The average education level will raise

Presently the education level of the Ghanaian people is raising but at this moment the education level of the workers is very low. Many people have not even done primary school before they started working. In the future the average of the education level will raise; already more children are going to primary school and even secondary school. Also the government and interested parties are involved in teaching and helping the farmers to create a better yield per hectare.

Development of a supply chain
A future strength is the development of a supply chain. Because of the higher yield per acre farmers will market more of their products. Neighbouring countries will buy the maize and cassava but also local processors need maize and cassava for, for example, chicken feed or potato chips. During the years, a supply chain will exist.

These strengths are useful to utilize chances and keep away from threats.

§ 4.2.5 Future weaknesses of the supply chain

The future supply chain of the Western Region has also weaknesses. The following list summarizes the future weaknesses of the supply chain; these shortcomings can obstruct a competitive position. These obtained weaknesses are also based on the results of the interviews with the actors of a possible supply chain of maize and cassava, own experiences and desk research.

<u>Future weaknesses of the supply chain (quantity mentioned)</u>
1. Lack of resources (all respondents)
2. Weak infrastructure (10 out of 12)
3. Relatively low yield per hectare (9 out of 12)
4. Lack of information, planning and control (8 out of 12)
5. Few possibilities to borrow money (7 out of 12)
6. Absence of strategic thinking (5 out of 12)

Most of the weaknesses are also the same as in the current market situation and are already discussed in paragraph 4.1.5. This paragraph explains, the supplements of the current weaknesses and explanation of the weaknesses which are only present in the future;

Lack of resources
The most mentioned weakness is still resources. The respondents mentioned especially the shortage or lower quality of the resources as machinery, irrigation systems, transport, drying and storage facilities. The farmers in the Western Region have the negative aspect that they to deal with the same obstructions with less resources. This means that the farmers have to work much harder to realize the same work as farmers in developed countries elsewhere in the world.

Machinery: The farmers of the Western Region will have more machinery in the future but still have relatively not many machines to use for a fluent flow through the production process. The machinery that they have will be old and probably not working optimal. Without good machinery it is hard to produce more products as a competitor from other more developed parts of Ghana or the world market who do have the right equipment.

No irrigation system: As earlier mentioned, in Ghana there are two rainy seasons which are important because there are not many irrigation systems. Because of the natural influence of the rainy season it is hard to predict the amount of rain and the time of rain. In the next years, the farmers will probably start to irrigate the land. The farmers have their own water supply and they will probably use this to irrigate the land on a very simple way.

Transport: The infrastructure in Ghana will deliver problems in the next years. First, the quality of the means of transport is too low. Second, they are very busy with constructing roads but it is going slow and causes during the construction works even more problems. The transport possibilities will stay scarce and very expensive in the next five years. After these years, the road network will be better and the transport will be cheaper.
The geographical location of the Western Region is also not very good; it is far away from the main ports of Tema and Takoradi. This makes it difficult to compete with other farmer groups from these regions. Transport from the farms in the Western Region to the local markets will mostly be done by feet or with old cars/ busses.

Storage and drying facilities: To guarantee a good quality of the products it is important that the products are dried and stored proper. Even in the future there will be just a few storages and drying facilities within Ghana. This shortage of drying and storage facilities will be one of the causes that the quality of the products gets worst during the time.
Another negative effect of this shortage is the abundance of products just after harvest time and a shortage of the products in the lean season. A proper storage facility can guarantee a better quality over the time and covers the fluctuation of the demand and offer of the products.

Weak infrastructure
Ghana will develop further in the next years but will still be a developing country. The roads will be in construction and there will be some villages which have no electricity, phone connections or tap water. To organize all these activities will take time, work and money. This will improve step by step but it is not helping the business, because running a business without a good infrastructure is hard.

Few possibilities to borrow money
In the Western Region are just a few possibilities to borrow money as reasonable rates of interest. There is a high interest rates (up to 50% on short term loans).

Unfortunately these weaknesses can prevent a competitive position.

5. External analysis

This chapter presents the external analysis of the supply chain of maize and cassava cultivated by the farmers in the Western Region, Ghana. This external analysis will discuss the opportunities and threats of the external business environment of the supply chain. These external effects are the activities which are from outside the supply chain, but which do influence their performance. This analysis shows the position of the supply chain within this environment.

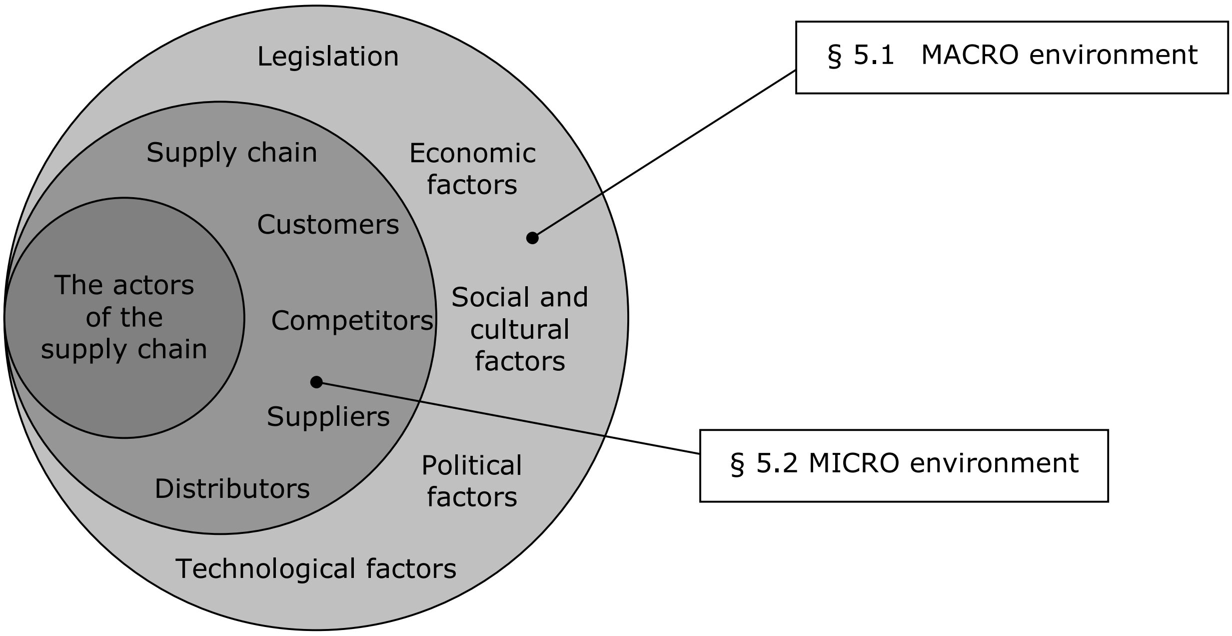

Figure 5.1 The external business environment (adapted from Wilson and Gilligan, 2005).

This chapter presents the external business environment which is shown in the figure above. Paragraph 5.1 will discuss the analysis of the macro environment and paragraph 5.2 will discuss the analysis of the micro environment. Together, these analyses of the external environment are the non-controllable elements of marketing, which results in opportunities, paragraph 5.3 and threats in paragraph 5.4.

The analysis of this chapter will be combined with the internal analysis, which includes the current and future market situation, discussed in chapter 4and results in the confrontation matrix as part of the SWOT-analysis, in chapter 6.

§ 5.1 Macro environment

The macro environment consists of the wider set of forces that have a bearing upon the company. This includes economic, demographic, technological, political, legal, social and cultural factors. All these factors can influence or disturb each market, this implies that the supply chain of maize and cassava cultivated by the farmers of the Western Region need to be aware of these factors. They need to know them to formulate their policy. Although it is hard to influence these factors, with the data of these paragraphs it is easier to predict the effect that the macro environment can have on the actors of the supply chain. On this way they get insight in the future threats and also in opportunities to go along with the macro developments.

§ 5.1.1 Political (and legal) environment

Democracy and good governance provide the foundation for the development in Ghana. Effective government, which represents the interests of the Ghanaian and is accountable and transparent, is the best insurance that the needs and desires of citizens will be met. Long-term improvements in health, education, economic growth and the environment in African countries ultimately require responsive and representative governments that can implement the changes necessary to promote and consolidate such gains. The last years, Ghana's political situation remains stable and projected economic indicators show some progress (USAID, 2006). A representative of the government clarified the current situation concerning the role of the government. *"First I like to say that we are all doing our best. We try to develop Ghana and help the farmers with a growing business. But this development takes time, money and a lot of work. Every step we make in the direction of development we fall back the half because of the barrier that we met and first have to master. In our approach, we are slowly moving in the right directing but on a very bumpy road."* (Appendix 7. Interview Reports).

In 1983 Ghana launched the Economic Recovery Programme which is trying to reduce the governmental involvement in the economy and to encourage private sector development. The current government's economic program is focusing on the development of Ghana's private sector, which has been historically weak. Roughly two-thirds of some 300 state-owned enterprises have been sold to private owners since this program started (World Bank, 2000). The government tries to divest these state-owned enterprises and to get released from a direct role in the economy. The government has maintained a minority stake in many divested enterprises but does not intend to play an active management role. This has made the country one of the most open-market economies in the sub-region.

At this moment, societies in Ghana are becoming more knowledge-based, to position itself and to play an effective role in the Ghanaian and African democratization. They want to promote sustained good governance and economic renewal. Focus areas are democratic consolidation, good governance, anti-corruption, peace-building, conflict management, democratic elections, police-community relations and the media (www.ghanaweb.com, January 2007).

One of the representatives of the governmental institution TIPCEE explained: *"Effective government, which represents the interests of the Ghanaian and is accountable and transparent, is the best insurance that the needs and desires of citizens will be met. Ghana will work for political stability and it will take a longer time to expand this position. In the next years, people will see already some differences with the situation before. Projects started years ago and will influence the market from now on. In the next years the government will even do more marketing activities for the Ghanaian farmers of maize and cassava. This will probably increase the sales of the products as well."* (appendix 7. Interview Reports)

One of the exporters explained: "When the political situation will be more stable and developed, it will attract companies to do business with or in Ghana. This will result in a better and continuous market position for Ghanaian farmers and other actors of the supply chain." (Appendix 7. Interview Reports). This is confirmed by reputable surveys which rate Ghana as one of the most attractive locations for doing business in Africa. However, in view of the Government's policy to made Ghana the Gateway to West Africa, serious efforts are still being made to make the business environment more friendly thereby reducing occupancy costs for commercial and industrial properties and the general cost of doing business in Ghana (Ghana Investment Promotion Centre, April 2007).

The political situation of a country influences all players and interested parties in that society, so also the involved actors in the maize and cassava supply chain in the Western Region. In former times, the government was not so organized and stable as at this moment. The farmers of maize and cassava still have to deal with the negative consequence of these former times. Companies from outside Ghana will see Ghana as a relatively unknown player with less legislation. This is not very encouraging and attractive to run a business.

The supply chain of maize and cassava will benefit from a government which affects the direction of a trade policy. This will stimulate the farmer group and later accompanying actors of the supply chain to raise their production and sales. It will be the responsibility of the government to facilitate trade relations. The last few years Ghana's Government already started an intensive programme to promote a larger agricultural business sector. Farmers were approached by extension workers about why and how to produce a higher yield of their products and how to market these products.

§ 5.1.2 Economic and physical environments

The contrast between the richer south and the poorer north is the basic assumption of many conflicts in countries located at the Western African coast. It is important that this contradiction is not escalating in Ghana (Dijksterhuis, 2005).
The last years Ghana is doing economically well. The world market prices for the two most important export products, cacao and gold are favourable. Tourism is becoming more attractive. One of the biggest resources of the Ghanaians are remittances, the money transfer from Ghanaians which are working in Europe, America or the Middle East. The government works active together with the international community to decrease their debts (Appendix 7. Interview Reports).

By West African standards, Ghana is well presented with natural resources; the country has twice the per capita output of the poorer countries in West Africa. However, Ghana remains heavily dependent on international financial and technical assistance. The representatives of the Crops Research Institute mentioned *"In most parts of Ghana, including the Western Region, the soil and climate (natural resources) are perfect to produce a large yield of products. The only shortcoming which obstructs this positive outcome is the lack of financial support and the shortage of technical equipment."* (Appendix 7. Interview Reports).

Agriculture dominates the economy (about 37 percent of GDP) and employs 60% of the work force, mainly small landholders (Bureau of Economics and Business, 1999). The majority of the workers are engaged in farming.

In the past, Ghana conducted most of its external trade with Europe and North America and only a relatively small amount with other African countries. Ghana's re-establishment of diplomatic and trade ties with South Africa has contributed to a new trade and investment flow with that country. However, trade with the United States is also becoming more and more significant. Greater transparency and accountability in government as well as strengthened local institutions fighting corruption have contributed towards making this a more attractive market for investors (Bureau of Economics an Business, 1999).

The generally poor quality of the Ghanaian road networks continues to have a negative effect on economic development. A processor explained: *"We prefer to purchase Ghanaian maize and cassava. But most of the time it will be cheaper to import maize from outside Africa as to buy it from farmers 200 kilometre further. The transportation costs of these 200 kilometres are more expensive because of the weak infrastructure, as to import products from another continent."* (Appendix 7. Interview Reports).

As mentioned earlier, agricultural activities dominate the Ghanaian economy. The Western Region is well presented with natural resources. The soil and climate are favourable to deliver high quality maize and cassava. The last years, Ghana is doing economically well; this is also noticeable at the maize and cassava market in the Western Region. The demand rises and the offer can not satisfy the demand.

§ 5.1.3 Social, cultural and demographic environment

Ghana has a strong civil society. First, in African vision, Ghana is relatively uniform; the rich are a bit less rich and the poor a bit less poor as in neighbouring countries as Togo, Ivory coast and Niger. Second, the economy is based on agricultural activities which imply that potentially a large part of the return can come to the farmers. Third, Ghana has big social organizations as trade unions, churches and NGO’s in almost every sector.

Most of the farmers of the farmer group in the Western Region have to live on less than a euro each day, imputed value of the own production is included in this value (Verenigde Naties, 2006). But still they are better off than many other African farmers. In most other places in sub-Saharan Africa the level of education, literacy, health care and availability of clean drinking water is much lower. In Tarkwa, the level of income is very low, but the daily life is also not very expensive.

Social progression

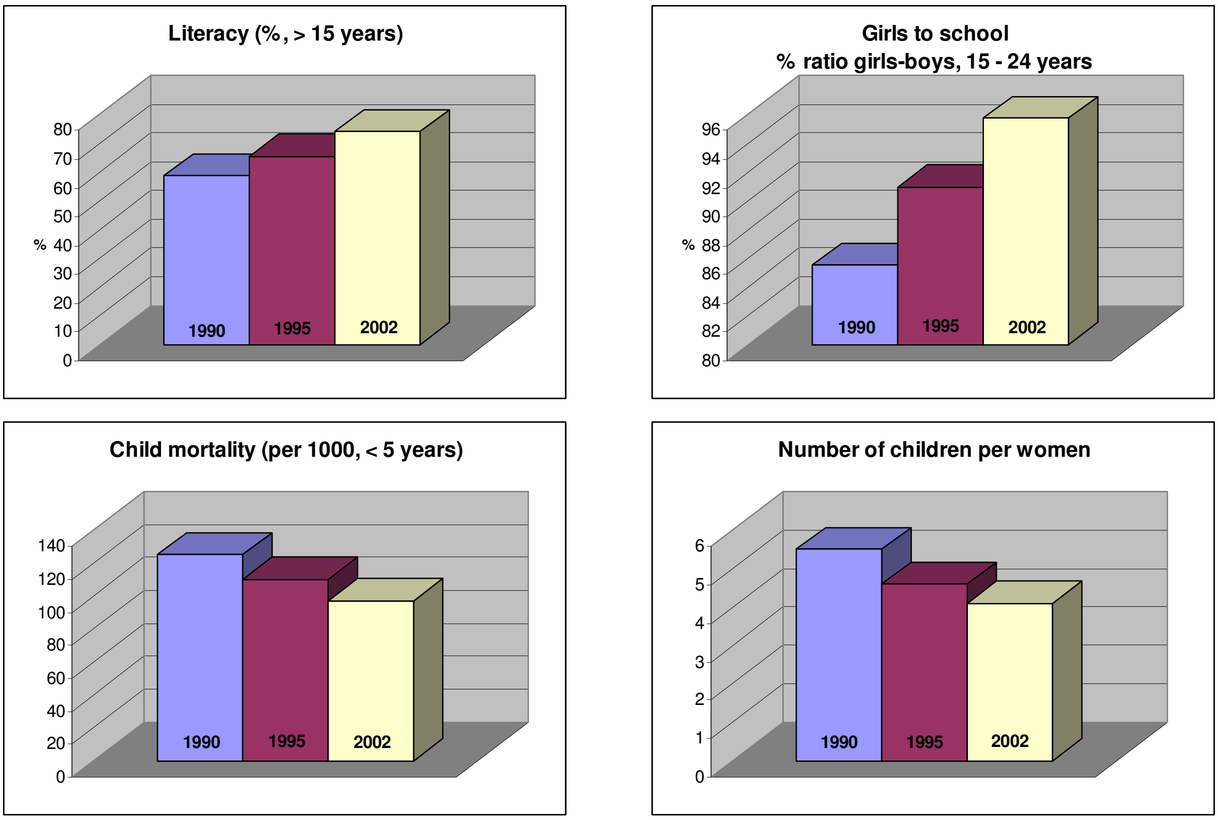

Figure 5.2 Social Progression in Ghana (World bank, 2003).

The statistics of the social progression in Ghana shows the increase of percentage of literacy and the relation ratio of girls and boys which going to school. This is the result, among others, of the investments of European and British in the educational system. The education in Ghana is universal and free. Due to the better health services and health information decreased the amount of child mortality and the number of children per women.

Country data profile
The total population in Ghana is 22.1 million people, with an annual population growth of 2%. All these people live on a surface area of 238,5 thousands sq. kilometre. The life expectancy at birth in Ghana is 57,5 years old. The people in the Western Region are living more peaceful and becoming older as others in the stressful and unhealthy areas around Accra and Kumassi.

Ethnic groups
Ghana counts more than hundred ethnic groups. A lot of traditions and other cultural expressions which determine daily life are based on ethnical aspects. Traditions will be honoured but the Ghanaian are open for renewal. The biggest ethnical group in Ghana is the Akan, for which, amongst others, belong to the Ashanti, the Brong and the Akyem. The Ashanti population is dominant in the Western Region.

Partition of the affairs
In the Tarkwa area, the men and strong women are working at the land. In the same time, most of the women are taking care of the children and taking care of the household work. The women will also transport the products which need to be sold to the market, in this area they transport it by feet.

§ 5.1.4 Technological environment

Technology is a key resource of corporate profitability and growth, as well as being a prime determinant in Ghana's wealth, and hence its standard of living. The technological impact on the farmers of the Western region is such that it can be considered as the prime driving force in the environment of the supply chain. This is not only because of its direct impact, but also because of its indirect impact trough shaping changes in the social and natural environment. For example, uninhibited population growth, poverty and famine are products of a bad technological mix in poor nations as Ghana.

The farmers in the Western Region have less equipment to organize their business effectively. They have few machinery to plant maize and cassava, they have to do all the work in the farm by hand. If the farmers had the right equipment it was not optimal either, the producer of the equipment and the repair shop are not around the corner. So, if there is something wrong with the material it can not or hardly be repaired or replaced.

The farmer group in Tarkwa, is not using any fertilizer. This result in a lower yield per acre compared to when they use fertilizer. One representative of the company Wienco, the core business of this company is importation and distribution of fertilisers and other agricultural inputs, clarified: *"The yield per acre in Ghana is much lower than in other places of the world. In Ghana an average farmer produces 420 kilogram of maize per acre, amongst others due to low fertilizer use. With better use of fertilizer, knowledge and resources, this can increase till 2000 kilogram of maize per acre. This is the same as 5 ton per hectare. In America the farmers produce around the 9 ton per acre. The cost price per unit of maize is much lower when there is a higher yield per acre."* (Appendix 7. Interview Reports). The low use of fertilizer is not only blamed on the high price, which some of the farmers can not afford. But also because of the relative hard way to obtain these fertilizers. For example, Wienco is located in Accra and Tarkwa is a more as a day drive.

Most technological equipment such as tractors and irrigation systems are not available in the western Region. One of the reasons is once again, they do not have the money to acquire the equipment, but another important fact is, if you have the technological equipment someone have to work with it. The technical education about this equipment will be taught at the technical university which is located in Kumassi, more as a day drive.

§ 5.2 Micro environment

The actors of the supply chain need to attract customers and construct relations by creating value for the customer to make and keep them satisfied. The micro environment is made up of those elements that are close to the supply chain and that exert the greatest and most direct influences over its ability to deal with its markets. This includes the actors of the supply chain, its suppliers, its distribution network, the customers, competitors and the public at large.

§ 5.2.1 Market analysis

Traditional Ghanaian exports include cocoa, timber, and gold. While cocoa production is highly dependent on weather conditions, the mining sector has experienced vigorous growth in recent years as new mining technology has permitted the profitable exploitation of lower grade ores. The recent decline in gold prices has had a negative impact on Ghana's foreign exchange earnings (Bureau of economics an business, 1999).

Ghana's largest traditional trading partner has been the United Kingdom. Nigeria is second, and the U.S is third. The last three years have seen an increase in the U.S. share of Ghana's total imports, and that trend is expected to continue (Bureau of economics an business, 1999).

The last five years the economy grew with an average of 5 percent each year. This is primarily a result of the growth in agricultural and industrial sectors. The growth in the agricultural sector had an average growth rate of 6 percent each year (US Department of State, 2004). This will likely to continue in the medium term, but inflationary pressures and the slow tempo of government economic changing present risks to the long term growth. A greater transparency and accountability in government as well as strengthened local watchdog institutions fighting corruption have contributed to making Ghana more attractive to do business with.

Maize and cassava are agricultural products which are not traditional Ghanaian export products such as cocoa and gold. Due to the average growth rate of 6 percent in the agricultural sector, the percentage of the maize which can be exported will probably increase in the next years as well.
There are no data available for the export of cassava. As earlier mentioned cassava is a product which can hardly be exported before it is processed. The only export possibility is to neighbouring countries, but unfortunately the export of these products is not or hardly registered.

In the last 10 years almost 70% of the Ghanaian export of cereals was maize (see figure 5.3 Average Ghanaian export of cereals).

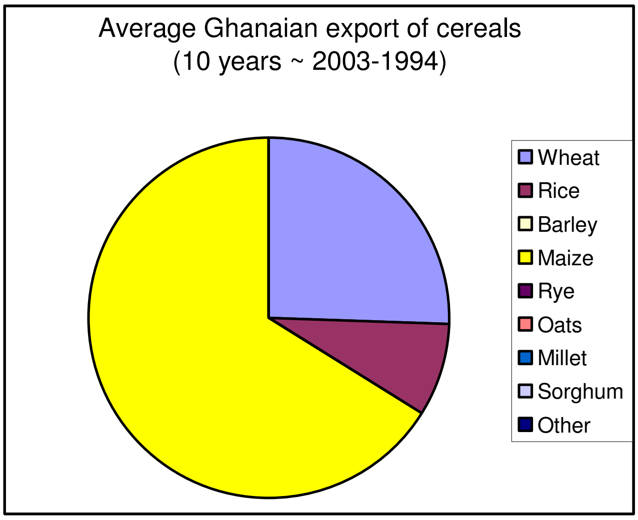

Figure 5.3 Average Ghanaian export of cereals (Chicago Board of Trade).

Out of the information above and the explanation of a representative of the governmental institution Tipcee, "*The last years Ghana went on a few important steps. The government is promoting and stimulating the agricultural sector in Ghana and at the same time the Ghanaian are working together to built Ghana. These to factors together result in a rising economy for everyone in it.*" (Appendix 7. Interview Reports) it can be assumed that the maize and cassava sector in the Western Region will expand as well.

The farmer group of the Western Region can produce a lot of maize, the demand is big enough. As earlier mentioned there is a local market for maize (chicken feed) but also a regional market (neighbouring countries) and an export market.
There are also possibilities to market cassava. In Ghana they consume many products which contain processed cassava, for example fufu. This means that there is a opportunity to sell the cassava at the local market. Also surrounding countries (regional market), in this case especially Côte d' Ivoire, which is located less than 150 kilometre to the west is a possibility to market the products. It is not possible to export the cassava over a long distance without processing.

First, the production of maize and cassava need to be on a larger scale before other actors of a possible supply chain will appear. This will take some time, but from that moment the farmer group needs other actors as for example transporters, processors and exporters to add value to the product.

§ 5.2.2 Distribution analysis

In the past, infrastructure shortcomings have created substantial impediments to domestic productivity and discouraged foreign direct investment. However, improvements continue to be made at most levels, especially in the telecommunications sector as a result of the privatization of Ghana Telecom. The availability of wireless services is expanding and there has been much growth in voice traffic and data transmission systems (Bureau of economics an business, 1999).

As mentioned earlier, the road and train network in Ghana is very weak. The best roads and railway-line are located in the triangle of the three big cities; Accra, Kumasi and Takoradi. The part of the Western Region, where the Tarkwa farmers work and live, is located just at the outside of this triangle. This is positive for these farmers because they can use these better roads when they want to transport their products to nearby markets or even to the harbour of Takoradi.
The location of the farmers has also positive aspects for accomplishing a possible supply chain. Other actors of a supply chain as, suppliers, processors or middleman can visit the farm on a relatively easy way.

In this same triangle, the telecommunication network is stable and people have even the availability of wireless communication systems. In this way, the farmer group can stay in contact with possible customers and markets and can be sure that they are informed. Communication is an important factor in running a valuable business.

The government of Ghana has committed substantial resources to road building efforts, although the generally still poor quality of Ghanaian roads slows down the delivery of goods, especially during the rainy season (Bureau of economics an business, 1999).

§ 5.2.3 Competitor analysis

Most farmers in Ghana cultivate various products on their land. This is characteristic for countries in Africa. The farmers cultivate products mainly as food crop, to feed their household and family. In more developed parts of the world, farmers cultivate products mainly as cash crops, they produce to sell and with the earned money they buy other crops.
The farmers in the Western Region cultivate various products. At this moment they consider their products as food crops. This is not because of a lacking planting area, but more a habit, the farmers are used to produce to live.

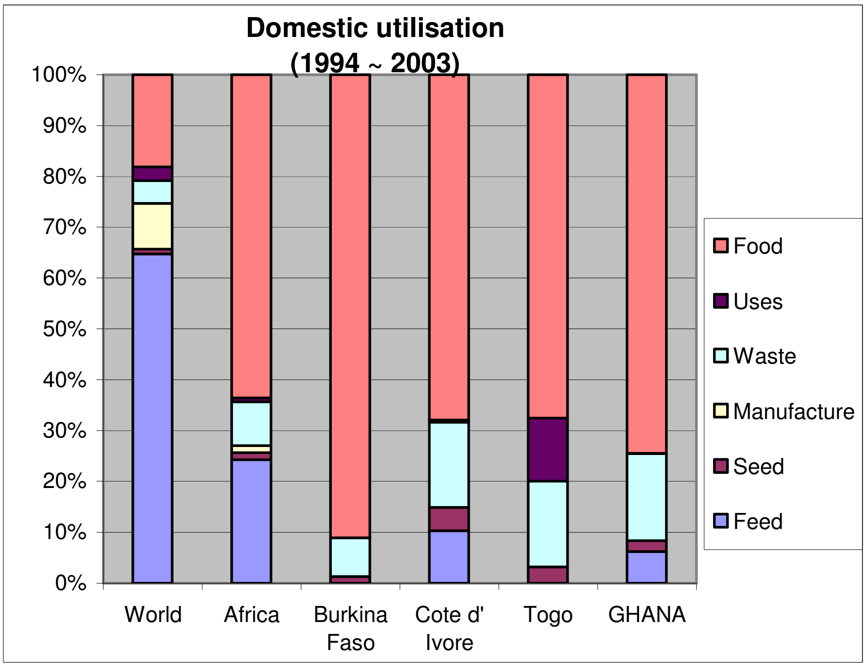

Figure 5.4 Domestic utilisation at World, African, regional and Ghanaian level (Chicago Board of Trade).

The farmer group has enough land to produce maize and cassava on a large scale. The demand for maize is large. Ghanaian people are eating maize, use it for their animals and they can sell it to processors, for example Gafco a processor of Chicken feed additions or breweries. The demand for cassava is also above average because of the multiple uses of cassava in local dishes as fufu and gari. Both products, maize and cassava, are products on their own, these products can not be replaced by other products in the Ghanaian culture.

§ 5.2.4 Customer analysis

In more developed countries buyers differ enormously in terms of their buying dynamics. In these markets do buyers differ in terms of their age, income, educational levels geographical location, personality, their lifestyles and their expectations (Wilson and Gilligan, 2005).

At this moment the demand of maize and cassava is high in Ghana. In this market the buyers do not differ much, most of these products will bought for the same reason, feeding the families.
If the farmers sell their products, they will sell it to the highest bidder. At this moment the most important buying party is the processor of chicken feed. They will try to make an agreement on forehand and they will hope that the farmer will follow this agreement and deliver the products according the agreement.

§ 5.3 Opportunities of the supply chain

The following list summarizes the opportunities for the actors of the supply chain of maize and cassava; these external effects are opportunities which are from outside the supply chain, but which influences their performance in a positive way. These opportunities are based on the results of the interviews and desk research.

<u>Opportunities of the supply chain (quantity mentioned)</u>
1. Agricultural sector is important for Ghana (All respondents)
2. Cooperative opportunities in order to be able to offer more volume (All respondents)
3. Political instability of surrounding countries (All respondents)
4. High potential of local and regional markets (8 out of 12)
5. Short distance to the European market (6 out of 12)
6. More tourism makes Ghana more known by potential investors (5 out of 12)
7. Investments from especially American and European companies (3 out of 12)

Agricultural sector is important for Ghana
The agriculture sector of Ghana contributes about 35% of the country's gross domestic product (GDP), employs about 55% of its workforce, and provides livelihood to about 70% of the population. It also accounts for some 30% of the country's export earnings and approximately 12% of tax revenue. The sector therefore is aptly described as the mainstay of the Ghanaian economy. The government has put in place strategies to transform the sector through formulation and implementation of policies and programmes to make it attractive to both local and foreign investors (International Trade Centre UNCTAD/WTO, 1994-2006).

Cooperative opportunities in order to be able to offer more volume
Other actors of the supply chain prefer to buy a larger quantity of maize and cassava as that most of the farmers in the Western Region can offer. If the farmer group of the Western Region starts cooperate together, to produce and deliver a higher quantity, they can offer for example the processor or exporter a higher quantity.

Political instability of surrounding countries
The West African region comprises a number of relatively small and less populated countries. There are some conflicts within these counties, mainly based on the difference between poor and rich people. In Ghana this difference between both groups is smaller, which take care of a more stable environment.
The Ghanaian government is relatively stable. This is attractive for foreign enterprises to do business with. An healthy political climate offers better guarantees of trade. In the view of the political instability of surrounding countries, there are opportunities to take over the role of meeting the European demand.

High potential of local and regional markets
At this moment, the local demand is higher as the production of maize and cassava by the farmers of the Western Region. The demand at the local is mainly meant for consumption of the household and family. Processors are also interested in the Ghanaian maize and cassava and are willing to pay.
The regional market, neighbouring countries exist of a lot of famine. Institutions and community workers are interested in especially maize from surrounding countries. This is an opportunity for the farmers, if they are producing enough products.

Short distance to the West European market
The maize and cassava which the farmers of the Western Region produce are agricultural products which are perishable, so a short transport will be favourable. For the customers in the west of Europe the distance to Ghana will be relatively short. If the infrastructure has been improved in the next years it will be cheaper and quicker to import the Ghanaian products than products from America of Asia.

More tourism makes Ghana more known by potential investors
Tourism is one of the fastest growing sectors of the economy. Ghana is home to historic forts, castles and monuments which are visited daily by a large number of tourists. The Ghanaian people do respect and encourage these visitors, which gives these tourists a positive awareness of Ghana. These tourists can make Ghana more known in other countries and by potential investors.

Investments from especially American and European companies
Large foreign parties as American and European companies are really interested to produce high agricultural products in a low wage country as Ghana. This makes the cost price of the products lower. These wealthy foreign parties can bring about changes by means of investment.

These opportunities are developments which can restrain some competition advantages.

§ 5.4 Threats of the supply chain

The following list summarizes the threats for the actors of the supply chain of maize and cassava; these external effects are threats which are from outside the supply chain, but which influences their performance in a negative way. These obtained threats are also based on the results of the interviews and desk research.

Threats for the supply chain (quantity mentioned)
1. Inadequate infrastructure in the road sectors (All respondents)
2. Lack of market information (All respondents)
3. Few financing possibilities for the farmers (8 out of 12)
4. Little access to high quality plant material (7 out of 12)
5. Ghanaian farmers do not appear to be very market-oriented (6 out of 12)
6. For export of maize or maize products, sea freight is the only option (6 out of 12)
7. There is little trust, and therefore little willingness to work together (5 out of 12)

Inadequate infrastructure in the road sector
Inadequate infrastructure is a hindrance to domestic productivity and discourages foreign investment. Improvements are continuous made at most levels, especially in the road construction sector. The government has committed substantial resources to road building efforts, although the generally poor quality of Ghanaian roads still slows down the delivery of goods, especially during the rainy season.

Lack of market information
The farmer group of the Western Region are at a disadvantage in terms of market information, in contrast with European and American customers. They do not have all the required market information, whereas the European customers are generally well informed.

Few financing possibilities for the farmers
It is hard to get some financing opportunities for the farmer group of the Western Region. The farmers have to work for their own money from which they can invest again. The working capital of the farmers is small which makes it hard to invest money in expensive technological equipment or to organize future investments. This makes that the farmers stay at the position where they are at this moment. With a small investment from for example a third party, they can invest in an expanding organisation.

Little access to high quality plant material
The production of most of the farmers in Ghana is far under the average of the production of the world. Other farmer groups have better access to high quality plant material and fertilizer. In Ghana it is hard to get access to this essential plant material because the information and offer of these products is uncommon. Even if these suppliers are found, it will be hard for the farmers in the Western Region to get the supply at the right location, because of the weak infrastructure.

Ghanaian farmers do not appear to be very market-oriented
The farmers in the Western Region are living in their own world. They are working seven days a week at their own land, eating their own products at home in their own village. They have no insight in what is going on outside their village or region. This is a threat for those farmers and the supply chain because of this situation they do not know what is going on at the market. So these farmers are not oriented at the market and not aware of the current and future market developments.

For export of maize or maize products, sea freight is the only option
For export to Europe of maize from Ghana, especially the Western Region, the most prominent and efficient way of transport is sea freight. Other transport possibilities as by road, airplane and train are not possible because of the high cost (airplane) or they are insufficient. So the customers are assigned to transport by sea freight.

There is little trust, and therefore little willingness to work together
In Ghana is little trust between potential players in a supply chain and therefore little willingness to work together. This makes it hard to start and run a business together. In the past are all parties disappointed by other potential parties in a future supply chain. This makes it hard to trust them again and gives the actors of a possible supply chain in the Western Region little willingness to invest in a relation ship together and work together.

These threats are developments which can deteriorate some competition advantages.

6. SWOT-analysis

The strategic significance of the external and internal analysis on its own is limited. It is important to look for a connection between the conclusions in the development of the environment as well as the development of the supply chain. The essence of the SWOT analysis is the combination of the internal strengths and weaknesses with the external opportunities and threats in a confrontation matrix, this will be discussed in § 6.1. The most promising options out of the confrontation matrix will be explained in § 6.2 generated options and these will be ranked in paragraph 6.3.

Table 6.1 SWOT-Matrix

	Strengths	**Weaknesses**
Current situation	1. The soil and climate are favourable to deliver high-quality maize and cassava 2. Ghana is strategically located 3. Enough employees 4. Cheap labour 5. Enough customers 6. Farm size is 100 hectares of land 7. Promotion of the private sector	1. Lack of resources 2. No sufficient trust among the actors of the supply chain 3. Weak infrastructure 4. Relatively low yield per hectare 5. Unreliability of agreements and contracts 6. Lack of information, planning and control 7. Absence of strategic thinking 8. Low reputation
Future situation	1. The soil and climate are favourable to deliver high-quality maize and cassava 2. Ghana is strategically located 3. Enough employees 4. Cheap labour 5. Better planting material and fertilizer 6. Dynamic private sector 7. Average education level will raise 8. Development of a supply chain	1. Lack of resources 2. Weak infrastructure 3. Relatively low yield per hectare 4. Lack of information, planning and control 5. Few possibilities to borrow money 6. Absence of strategic thinking
	Opportunities	**Threats**
Current situation	1. Agricultural sector is important for Ghana 2. Cooperative opportunities in order to be able to offer more volume 3. Political instability of surrounding countries 4. High potential of local and regional markets 5. Short distance to the European market 6. More tourism which gives Ghana more awareness 7. Investments from especially American and European companies	1. Inadequate infrastructure in the road sectors 2. Lack of information 3. Few financing possibilities for the farmers 4. Little access to high quality plant material 5. Ghanaian farmers do not appear to be very market-oriented 6. For export of maize or maize products, sea freight is the only option. 7. There is little trust, and therefore little willingness to work together

§ 6.1 Confrontation matrix

The confrontation matrix is the turning point in the whole strategic analysis. This is the point where the results of the external and internal analysis are combined and the results needs to be interpreted. Table 6.2 shows the filled confrontation matrix.

Table 6.2 Confrontation matrix

			Important agricultural sector	Cooperative opportunities	Political instability of neighbours	Good local and regional markets	Short distance to European market	More tourism	American / European investments	Inadequate infrastructure	Lack of information	Few financing possibilities	Little access to plant material	Farmers are not market oriented	Few alternatives to sea freight	Little trust and willingness to work
			OPPORTUNITIES							THREATS						
WEAKNESSES	FUTURE	No strategic thinking							+I		I	I		I I		I
		Hard to borrow money										I I				
		No market information	+I	+I		+I	+I			I I	I		I	I I		I I
		Low yield per hectare	+I	+I		+I							I I	I		I
		Weak infrastructure					+I			I I	I			I	I I	
		Lack of resources	+I	+I		+I					I I		I			
	CURRENT	Low reputation		+I				+I	+I							I
		No strategic thinking									I I	I		I I		
		No market information	+I	+I		+I	+I			I I	I		I I	I I		I I
		Unreliability			+I					I				I		I I
		Low yield per hectare	+I	+I		+I					I		I I	I I		I
		Weak infrastructure					+I			I I	I		I	I	I I	
		Not sufficient trust		+I		+I			+I		I					I I
		Lack of resources	+I	+I		+I					I I		I	I	I	
STRENGTHS	FUTURE	Development SC	++	++		++	+			+I	+I			+I	+I	+I
		Education level	+	+		+	+				+I			+I		
		Dynamic private sector	++	+		+			+			+I				
		Better planting material	++			++					+I		+I	+I		
		Cheap labour	++	++		++	+		+			+I				
		Enough employees	++	++		++								+I		+I
		Strategically located	+	+	++	++	++	+	+	+I					+I	
		Soil and climate	++			+	+				+I		+I	+I		+I
	CURRENT	Promotion private sector	+	+		+					+I					
		Farm size (100 ha)	+	+		++			+			+I				
		Enough customers	++	++		++					+I			+I		+I
		Cheap labour	++	++		+	+		+			+I				
		Enough employees	++	++		+								+I		+I
		Strategically located	+	+	++	++	++	+	+	+I					+I	
		Soil and climate	++	+		+					+I		+I	+I		+I

Table 6.1 SWOT- matrix, gave a graphical presentation of the most important tool of this research; the SWOT analysis. This makes it possible to take a look at the strengths, weaknesses, opportunities and threats of the actors of the supply chain and their environment. In table 6.2, confrontation matrix, the results of the external and internal analysis are combined. It will be complex to explain all the 406 cells from the confrontation matrix and will be very useless and insufficient as well. To generate good options, strategies and recommendations it is important to seek to capitalize on the strengths, eliminate the weaknesses, seize the best opportunities and counter the threats.

§ 6.2 Generate strategic options

This paragraph will present and discuss the most promising options out of the confrontation matrix. These options are separated in § 6.2.1 the most relevant options derived from S-O, § 6.2.2 the most relevant options derived from W-O, § 6.2.3 the most relevant options derived from S-T and § 6.2.4 the most relevant options derived from W-T. All these generated options will be ranked in § 6.3.

Table 6.3 The interpretation of the confrontation matrix

	STRENGHTS	**WEAKNESSES**
OPPORTUNITIES	**S-O options** **TAKE ADVANTAGE** Strengths can be used to capitalize or build upon existing or emerging opportunities	**W-O options** **CO-OPERATE** The strategies developed need to overcome organizational weaknesses if existing or emerging opportunities are to be exploited
THREATS	**S-T options** **USE** Strengths in the organization can be used to minimize existing or emerging threats	**W-T options** **AVOID** The strategies pursued must minimize or overcome weaknesses and, as far as possible, cope with threats

(Adapted from: Weihrich, 1982)

In table 6.2 Confrontation matrix, the results of the external and internal analysis are combined. The table above shows briefly the interpretation of this confrontation matrix. Table 6.4 shows the most remarkable results of the confrontation matrix. The most relevant strengths and opportunities where the farmers and their supply chain can take advantage of are marked by a green circle and the most relevant weaknesses and threats, which need to be avoided, are marked in red. The relevant W-O options and S-T options are marked by an orange circle.

Table 6.4 Remarkable results of the confrontation matrix

<table>
<tr><th></th><th></th><th></th><th colspan="7">OPPORTUNITIES</th><th colspan="7">THREATS</th></tr>
<tr><th></th><th></th><th></th><th>Important agricultural sector</th><th>Cooperative opportunities</th><th>Political instability of neighbours</th><th>Good local and regional markets</th><th>Short distance to European market</th><th>More tourism</th><th>American / European investments</th><th>Inadequate infrastructure</th><th>Lack of information</th><th>Few financing possibilities</th><th>Little access to plant material</th><th>Farmers are not market oriented</th><th>Few alternatives to sea freight</th><th>Little trust and willingness to work</th></tr>
<tr><td>WEAKNESSES</td><td>FUTURE</td><td>No strategic thinking</td><td></td><td></td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td>|</td><td>|</td><td></td><td>| |</td><td></td><td>|</td></tr>
<tr><td></td><td></td><td>Hard to borrow money</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>| |</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>No market information</td><td>+|</td><td>+|</td><td></td><td>+|</td><td>+|</td><td></td><td></td><td>| |</td><td>|</td><td></td><td>|</td><td>| |</td><td></td><td>| |</td></tr>
<tr><td></td><td></td><td>Low yield per hectare</td><td>+|</td><td>+|</td><td></td><td>+|</td><td></td><td></td><td></td><td></td><td></td><td></td><td>| |</td><td>|</td><td></td><td>|</td></tr>
<tr><td></td><td></td><td>Weak infrastructure</td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td></td><td>| |</td><td>|</td><td></td><td></td><td>|</td><td>| |</td><td></td></tr>
<tr><td></td><td></td><td>Lack of resources</td><td>+|</td><td>+|</td><td></td><td>+|</td><td></td><td></td><td></td><td></td><td>| |</td><td></td><td>|</td><td></td><td></td><td></td></tr>
<tr><td></td><td>CURRENT</td><td>Low reputation</td><td></td><td>+|</td><td></td><td></td><td></td><td>+|</td><td>+|</td><td></td><td></td><td></td><td></td><td></td><td></td><td>|</td></tr>
<tr><td></td><td></td><td>No strategic thinking</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>| |</td><td>|</td><td></td><td>| |</td><td></td><td></td></tr>
<tr><td></td><td></td><td>No market information</td><td>+|</td><td>+|</td><td></td><td>+|</td><td>+|</td><td></td><td></td><td>| |</td><td>|</td><td></td><td>| |</td><td>| |</td><td></td><td>| |</td></tr>
<tr><td></td><td></td><td>Unreliability</td><td></td><td></td><td>+|</td><td></td><td></td><td></td><td></td><td>|</td><td></td><td></td><td></td><td>|</td><td></td><td>| |</td></tr>
<tr><td></td><td></td><td>Low yield per hectare</td><td>+|</td><td>+|</td><td></td><td>+|</td><td></td><td></td><td></td><td></td><td>|</td><td></td><td>| |</td><td>| |</td><td></td><td>|</td></tr>
<tr><td></td><td></td><td>Weak infrastructure</td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td></td><td>| |</td><td>|</td><td></td><td>|</td><td>|</td><td>| |</td><td></td></tr>
<tr><td></td><td></td><td>Not sufficient trust</td><td></td><td>+|</td><td></td><td>+|</td><td></td><td></td><td>+|</td><td></td><td>|</td><td></td><td></td><td></td><td></td><td>| |</td></tr>
<tr><td></td><td></td><td>Lack of resources</td><td>+|</td><td>+|</td><td></td><td>+|</td><td></td><td></td><td></td><td></td><td>| |</td><td></td><td>|</td><td>|</td><td>|</td><td></td></tr>
<tr><td>STRENGTHS</td><td>FUTURE</td><td>Development SC</td><td>++</td><td>++</td><td></td><td>++</td><td>+</td><td></td><td></td><td>+|</td><td>+|</td><td></td><td></td><td>+|</td><td>+|</td><td>+|</td></tr>
<tr><td></td><td></td><td>Education level</td><td>+</td><td>+</td><td></td><td>+</td><td>+</td><td></td><td></td><td></td><td>+|</td><td></td><td></td><td>+|</td><td></td><td></td></tr>
<tr><td></td><td></td><td>Dynamic private sector</td><td>++</td><td>+</td><td></td><td>+</td><td></td><td></td><td>+</td><td></td><td></td><td>+|</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>Better planting material</td><td>++</td><td></td><td></td><td>++</td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td>+|</td><td>+|</td><td></td><td></td></tr>
<tr><td></td><td></td><td>Cheap labour</td><td>++</td><td>++</td><td></td><td>++</td><td>+</td><td></td><td>+</td><td></td><td></td><td>+|</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>Enough employees</td><td>++</td><td>++</td><td></td><td>++</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td>+|</td></tr>
<tr><td></td><td></td><td>Strategically located</td><td>+</td><td>+</td><td>++</td><td>++</td><td>++</td><td>+</td><td>+</td><td>+|</td><td></td><td></td><td></td><td></td><td>+|</td><td></td></tr>
<tr><td></td><td></td><td>Soil and climate</td><td>++</td><td></td><td></td><td>+</td><td>+</td><td></td><td></td><td></td><td>+|</td><td></td><td>+|</td><td>+|</td><td></td><td>+|</td></tr>
<tr><td></td><td>CURRENT</td><td>Promotion private sector</td><td>+</td><td>+</td><td></td><td>+</td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>Farm size (100 ha)</td><td>+</td><td>+</td><td></td><td>++</td><td></td><td></td><td>+</td><td></td><td></td><td>+|</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>Enough customers</td><td>++</td><td>++</td><td></td><td>++</td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td></td><td>+|</td><td></td><td>+|</td></tr>
<tr><td></td><td></td><td>Cheap labour</td><td>++</td><td>++</td><td></td><td>+</td><td>+</td><td></td><td>+</td><td></td><td></td><td>+|</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>Enough employees</td><td>++</td><td>++</td><td></td><td>+</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td>+|</td></tr>
<tr><td></td><td></td><td>Strategically located</td><td>+</td><td>+</td><td>++</td><td>++</td><td>++</td><td>+</td><td>+</td><td>+|</td><td></td><td></td><td></td><td></td><td>+|</td><td></td></tr>
<tr><td></td><td></td><td>Soil and climate</td><td>++</td><td>+</td><td></td><td>+</td><td></td><td></td><td></td><td></td><td>+|</td><td></td><td>+|</td><td>+|</td><td></td><td>+|</td></tr>
</table>

§ 6.2.1 Most relevant options derived from the S-O

The following strengths and opportunities need to be applied because they address a competitive position, opportunities and advantages for the actors of a possible supply chain;

- Strengths
    - The soil and climate are favourable to deliver high-quality maize and cassava
    - Ghana is strategically located
    - Enough employees
    - Cheap labour
    - Farm size is 100 hectares of land
    - Better planting material and fertilizer
    - Development of a supply chain
- Opportunities
    - Agricultural sector is important for Ghana
    - Cooperative opportunities in order to be able to offer more volume
    - High potential of local and regional markets

Strengths can be used to capitalize or build upon existing or emerging opportunities. The list above leads to the following options:

A. <u>Employ available cheap labour for obtaining higher quantity maize and cassava</u>

A lot of the Ghanaians are looking for jobs; those people which are unemployed have no social security or payment and like to create some future consistency. The costs of labour are very low, which makes it possible to employ available cheap labour of obtaining higher quantity maize and cassava. Cheap labour is also interesting for companies from outside Ghana to hire labour in this low wage country.

B. <u>The farm size of the farmers group is 100 hectares of land, use the farmers group as the beginning of a new sustainable supply chain</u>

The farmer group of the Western Region owns more than 100 hectares of land. If the farmer group of the Western Region starts to cooperate together, to produce a higher quantity, they can market a higher quantity which is preferred by potential processors. In the cause of the years, a sustainable supply chain will be developed.

C. <u>Ghana is strategically located and able to supply the local and regional market with maize and cassava products</u>

Ghana is strategically located within West Africa. The location of Ghana, coupled with the relatively stability that the country enjoys makes Ghana a preferable place to do business. At this moment, the local demand is higher as the production of maize and cassava cultivated by the farmers of the Western Region. The demand at the local market is mainly meant for consumption of the household and within the poultry sector as chicken feed. The regional markets, neighbouring countries have a lot of famine. Institutions and community workers are interested in especially maize from surrounding countries. If the infrastructure has been improved in the next years it will be cheaper and quicker to import the Ghanaian products than products from America of Asia.

§ 6.2.2 Most relevant options derived from the W-O

The following weaknesses and opportunities need to be applied because they can address a competitive position, opportunities and advantages for the actors of a possible supply chain;

- Weaknesses
  - Lack of resources
  - Relatively low yield per hectare
  - Lack of market information, planning and control
- Opportunities
  - Agricultural sector is important for Ghana
  - Cooperative opportunities in order to be able to offer more volume
  - High potential of local and regional markets

The option need to overcome organizational weaknesses or emerging opportunities are to be exploited. The list above leads to the following option:

D. <u>Improve the yield per hectare of the farmer's group</u>
The agriculture sector is important for Ghana, it contributes about 35% of the country's gross domestic product, employs about 55% of its workforce, and provides livelihood to about 70% of the population. The agricultural sector therefore is described as the mainstay of the Ghanaian economy. The acres have suitable soil and together with the right climate, the farmers can produce high-quality maize and cassava.
Because of a lack of resources as machinery, fertilizer, irrigation systems and drying and storage facilities it is hard to produce a high quality and quantity of maize and cassava. In the future it will hopefully more common and affordable to use these resources, which will result in a higher yield per acre.

§ 6.2.3 Most relevant options derived from the S-T

The following strengths and threats need to be applied because they can address a competitive position, opportunities and advantages for the actors of a possible supply chain;

- Strengths
  - The soil and climate are favourable to deliver high-quality maize and cassava
  - Ghana is strategically located
  - Enough employees
  - Cheap labour
  - Farm size is 100 hectares of land
  - Better planting material and fertilizer
  - Development of a supply chain
- Threats
  - Lack of information
  - Ghanaian farmers do not appear to be very market orientated
  - There is little trust and therefore little willingness to work together

Strengths in the organization can be used to minimize existing or emerging threats. The list above leads to the following options:

E. Improve market information and market orientation possibilities

It is hard for the farmers and the actors of the supply chain to plan and predict their production and sales schemes. The causes are, first, lack of market information systems and second, the natural influences of the rainy season will influence the planning of harvest. Because of the causes it is hard to give in advance information about the harvest time, harvest quantity, the expected time of sales and the quality of the products. This makes that the actors of the supply chain can not formulate effective strategies and do not set priorities and reach objectives which are dependent of time, money, effort and natural influences.

There are also less market orientation possibilities. The actors of the supply chain are living in their own world. They have no insight in what is going on outside their village or region. So they are not orientated at the market and not aware of the market developments.

F. Built trust relationships which makes it easier to cooperate within the farmers group and between other actors of the supply chain

At this moment, there is little trust between players of a potential supply chain and therefore little willingness to work together. The farmers and other actors of a potential supply chain have problems with the lack of reliability of agreements and contracts. This makes it very difficult to depend on each other, the willingness to invest in a relationship and to run business together. To produce and deliver a higher quantity and quality, it is important to cooperate together.

§ 6.2.4 Most relevant options derived from the W-T

The following weaknesses and threats need to be avoided because they obstructing the competitive position, chances and advantages of the strengths and opportunities;

- Weaknesses
    - Lack of resources
    - Low yield per hectare
    - Lack of market information, planning and control
- Threats
    - Lack of information
    - Farmers are not market oriented
    - Little trust, and therefore little willingness to work together

The options pursued must minimize or overcome weaknesses and, as far as possible, cope with threats. The list above leads to the following option:

G. Improve access to resources and inputs
An important problem is the shortage or bad quality of the resources as machinery, education level of the workers, working capital, irrigation systems, transport, drying and storage facilities. Further, the farmers have little access to high quality plant material and fertilizer. This shortage of resources and good plant material has a negative influence at the yield per hectare and the quality of the products. It important to improve the access to resources and inputs; to produce and deliver a higher quantity of high quality maize and cassava products.

§ 6.3 Rank strategic options

After generating the options out of the confrontation matrix, the difficult task is to make a strategic choice. The goal is to organize and rank earlier mentioned options. This will be accomplished by evaluating and ranking of the formulated options on two aspects: feasibility and period of time.
Feasibility ranks the options on the opportunities to deliver the proposed actions with the potential capabilities and resources. The period of time ranks the options on the necessary time to realize the generated options.
Two other criteria; suitability and acceptability are not relevant. All options address the key issues and there is support to accomplished the proposed action so they are not ranked on suitability and acceptability.

Table 6.5 Ranking options

Options	**Feasibility**	**Period of time**	**Total**
A. Employ available cheap labour for obtaining higher quantity maize and cassava	3	4	7
B. The farm size of the farmers group is 100 hectares of land. Use the farmer's group as the beginning of a new sustainable supply chain	7	7	14
C. Ghana is strategically located and able to supply the local and regional market with maize and cassava products	5	5	10
D. Improve the yield per hectare of the farmer's group	4	3	7
E. Improve market information and market orientation possibilities	1	2	3
F. Built trust relationships which makes it easier to cooperate within the farmers group and between other actors of the supply chain	6	6	12
G. Improve access to resources and inputs	2	1	3

Table 6.5 presents the ranking of the earlier generated options. These options are ranked with 1 till 7; where 1 is the most feasible and 7 the least feasible, and 1 realizable in a short period of time till 7 realizable longer period of time.

Explanation of the ranked options

<u>A. Employ available cheap labour for obtaining higher quantity maize and cassava</u>
3 Feasibility; The labour costs of hiring employees are relatively cheap comparing to other countries outside Africa. Anyhow, there is still a lot of work to be done before the farmers can generate a higher yield in order to extend the quantity.
4 Period of time; Employers are the human capital in which you have to invest before you get the profit out of it. They need to work on a basis of trust and willingness, it will take a while before the employers have this trust and are willing to work.

<u>B. The farm size of the farmers group is 100 hectares of land, use the farmers group as the beginning of a new sustainable supply chain</u>
7 Feasibility; In order to develop a cooperation between the farmers group and other actors of the supply chain, it is necessary that the other options are already gained. It is hard to get the beginning of a new sustainable supply chain feasible.
7 Period of time; The option above is hard to realize and this translates itself also in the longest period of time. Before the farmers group can be used as the beginning of a new sustainable supply chain, the foundations for this reestablishment need to be solid, which will take a longer period of time.

<u>C. Ghana is strategically located and able to supply the local and regional market with maize and cassava products</u>
5 Feasibility; First, the farmers has to be aware of how the way of "supply and demand" works. Now they only are aware of feeding themselves and families, and the products which are left over will go to the local market. When the yield rises the farmers can market their products at the local market, for example the chickenfeed sector. If this is running well this can expand to the regional markets.
5 Period of time; It will take a longer period of time to make the farmers aware that they can market their products at the local and regional markets. They have less market information which guarantees them the demand.

<u>D. Improve the yield per hectare of the farmer's group</u>
4 Feasibility; At the time the quantity is higher after positive results from option A, it is now up to the farmers group to improve the yield per hectare. So, quantity is one, but the next step is to generate a higher yield per hectare. This yield management can only be done if there is enough human capital and knowledge about the products, harvesting and agriculture.
3 Period of time; After realizing the accessibility of resources and better market information, the yield per hectare will improve as well.

E. Improve market information and market orientation possibilities

1 Feasibility; The Western Region is a relatively developed location. The villages have water and electricity. The farmers have mobile phones to communicate. The farmers only have to learn how to get market information and to get market orientated.

2 Period of time; If the resources are improved it will also be possible to improve the market information systems as well.

F. Built trust relationships which makes it easier to cooperate within the farmers group and between other actors of the supply chain

6 Feasibility; Starting cooperating between the farmers of the farmers group and other actors of the supply chain is the foundation of a solid player within a supply chain. Because of the bad experiences out of the past, it will be hard to built trust relationships.

6 Period of time; Relationships are very important in running a business. Without a good relation the actors of the supply chain can not cooperate together. Building and maintaining of relationships will take a very long period.

G. Improve access to resources and inputs

2 Feasibility; To improve the access to resources and inputs is a relatively feasible option, but which will cost money.

1 Period of time; This option can also be realized in a short period of time. If the farmers have money they can buy the right equipment and built for example some storage facilities.

It is important to summarize and cluster the strategic options into a few relevant strategies; strategies which are serious possibilities to succeed the goals and objectives of the farmers group and other actors of the supply chain of maize in cassava, cultivated by farmers in the Western Region. These strategies will be explained in chapter 7.

7. Conclusions and recommendations

The previous chapter; chapter 6, presented the combined strengths, weaknesses, opportunities and threats in the confrontation matrix and the generated options. This chapter will present the conclusions derived from the generated options; the generated strategies and recommendations. The recommendations will exist of two parts; First, the recommendation of an option, and second, the recommended future research. In the last paragraph of this chapter, the marketing strategy for the recommended option will be explained.

§ 7.1 Generated strategies

The generated options, generated in chapter 6, can be combined which will result in strategies. These strategies can help to realize the objective of ISCOM to contribute to the development of a sustainable market strategy.

Generated strategies derived from the options

1. Continuing the current situation

Strategy for the local market derived from options C,D,E and G

2. The access to good resources and by better market orientation, market information and cooperation, the farmer group will produce and market more maize and cassava for the local chicken feed sector in Ghana.

Strategy for the regional market derived from the options B,C,D,E,F and G

3. The access to good resources and by better market orientation, market information and cooperation, the farmer group will produce and market more maize and cassava to neighbouring countries.

§ 7.2 Recommendation of an option

This paragraph will discuss the 3 generated strategies of the previous paragraph. There will be looked at which option is suitable with the research questions and feasible with the potential resources. For this option, a brief marketing plan will be presented.

1. *Continuing the current situation*

   A long year ago ISCOM started up this market analysis. They invested money, time and energy in this project to contribute in the development of a sustainable market strategy for the farmer of maize and cassava, in the Western Region. Continuing the current situation, after finishing this research with interesting results, is not an option for ISCOM.

2. *The access to good resources and by better market orientation, market information and cooperation, the farmer group will produce and market more maize and cassava for the local chicken feed sector in Ghana (Local market).*
   At this moment of time, this second option is the best and only option. It will be possible to realize this within a timeframe of 3 till 5 years. In the next years this will expand further. It will be possible to realize this, through to the accessibility of market information and proper communication possibilities.

3. *The access to good resources and by better market orientation, market information and cooperation, the farmer group will produce and market more maize and cassava to neighbouring countries (Regional market).*
   Presently, this is not a realistic option. The production is not large enough and the infrastructure is not sufficient either, to market the products to neighbouring countries. But if option 2, aimed at the local market, is running well, it will be an option to expand this market regional, to neighbouring countries.

§ 7.3 Recommended future research

Paragraph 7.2 presented the recommended option as motive of the market analysis of the current market situation and the future market perspectives of maize and cassava cultivated by the farmers in the Western Region, Ghana;

The access to good resources and by better market orientation, market information and cooperation, the farmer group of the Western Region will produce and market more maize and cassava for the chicken feed sector in Ghana.

To realize this option within a timeframe of 3 till 5 years it is important to get insight in the improvements; better market orientation, market information and cooperation. To get more insight and master these improvements it will be recommended to organize some future research.

- How to improve the market orientation and information systems for the farmers and other actors in the supply chain?

- How to improve and encourage the cooperation between the farmer group and other actors in the supply chain?

The outcomes of these researches will give more insight in the market information systems and cooperation possibilities. Which will give a more realistic timeframe to implement the strategies.

§ 7.4 Marketing strategy for the recommended strategy for ISCOM

At this moment, the strategies have been generated and chosen in the mind of an Iscom's mission. Now, it is important to develop this marketing strategy in more detail. It is important to organize the earlier mentioned further research and to draw up a detailed market plan that sets out the specific actions to put the second strategy in action.

Marketing mix

- Product
  Ghana has suitable soils to produce agricultural products such as maize and cassava. The soil and the climate are favorable to deliver high-quality products. The farmers group of the Western Region own 100 ha of land which they can use and optimize to produce maize and cassava on a larger scale.

- Price
  The farmers of the Western Region producing have a relatively low yield per hectare. This makes that the prices are not competitive with the world market prices, America is producing a much higher yield per hectare. In the future, if the farmers are producing more, the cost prices of the Ghanaian maize and cassava will drop.
  The prices of the maize and cassava will go up and down, twice a year, because of the harvest times. In the high season the prices will drop but in the lean season the prices will rise. The farmers group will create all advantages when they can store the products proper to sell them later.

- Place
  Tarkwa is located in the Western Region, which it is located at the side of the economic triangle of Accra, Kumasi and Takoradi. The drive from the acres to the harbour of Takoradi is less than a day. At this moment the roads in that region are under construction, which gives a lot of hindrance. When they finish this road works it will be easier to transport products to local markets to the harbour or eventually to neighbouring countries.
  The Western Region is an relatively developed location, the villages have water and electricity. The farmers have mobile phones to communicate.

- Promotion
  At this moment the maize and cassava products can be market at the local markets. The government is promoting cash crops instead of food crops, which improves the amount of maize and cassava of an acre. If the farmers start cooperating they can market the products to other actors of the supply chain and start building a supply chain.

- Personnel
  There are many unemployed people in Ghana, the labour costs are relatively low. This makes it interesting for foreign companies to organize their business in Ghana.
  The unemployed people are willing to work because they do not have any social security or payment. The Ghanaian people are prepared to work hard, especially when they can create some future consistency.
  The average education level of the Ghanaian people is raising. This will result in higher educated people. These people can help to set up and maintain a suitable supply chain.

8. Discussion

This chapter will discuss the limitations of this research project and will give a short personal reflection.

§ 8.1 Limitations of this research project

The “trustworthiness” of research depends on “What counts as knowledge?” (Lincoln & Guba, 1982). The general purpose of this research is understanding the current market situation and give prediction of the future market perspectives.

Unfortunately there are also some limitations of this research project;

- The primary data collection covered a period of one month
- Qualitative research with 12 depth interviews

The primary data collection covered a period of one month
The primary research had a duration of one month and took place in a early phase of the total research. The research proposal and interview framework were not completely finished at that time. But because of travel and logistic arrangements there was no later possibility to travel to Ghana.
The actual research time in Ghana was 14 days, which were also the first 14 days of the stay. It was hard to get acclimatized and to organize decent appointments so quickly. In these 14 days, two researchers with a different subject had to accomplish their depth interviews together at different locations in Ghana.

Qualitative research with 12 depth interviews
The qualitative part of the research exists of 12 depth interviews with actors of a possible supply chain. All these respondents of the interviews have their own specialties and knowledge. During the interviews it seemed that some of the respondents could not answer all the questions of the interview. Most of them had problems with one or two parts in one of the categories. Anyhow by interviewing 12 respondents, which are all different actors in the possible supply chain, it was tried to create an overlap in the research data. During the analysis it appeared that the answers of the respondents which include all actors of a possible supply chain do correspond with each other.

§ 8.2 Personal Reflection

The three most important things I have learnt during this research project is the use of literature, the critical thinking process as well as interview techniques.

Literature

I always perceived literature as something inevitable that needed to be summarized before the actual empirical research could start. During this research project I have learnt to truly value the existence of books and articles as you can use them to describe the expectation of how things are most likely to be in reality. This I have attempted to do in this thesis.

Critical Thinking

Particularly during the writing process of the actual thesis document I experienced an extremely critical thinking process and I iteratively changed many of the original research chapters. I am now convinced that a perfect research cannot exist because there are so many choices a researcher has to make during his research that there will always be a lot of "what if…?" questions left.

Interview techniques

- Learning from the interviews that I can derive from the tapes are: not to ask more than one question at a time. In the first interview I caught myself asking a question and then going on about the question asking three different questions in the same sentence. Obviously no answer was given to the actual question and this took time. In the next interviews I really focused on asking one question at a time.
- Another learning was that I raised my question and when I saw the respondent nodding I tend to mumble away the rest of my sentence. This may or may not influence the interview, because perhaps the interviewer did not completely grasp what I wanted to know or perhaps he/ she was just being polite. I discovered this as annoying and tried to improve myself on this, by clearly finishing all the questions every time.

References

Baarda D.B., M.P.M. de Goede, J. Teunissen, 2001.
Basisboek kwalitatief onderzoek, Wolters-Noordhoff, Groningen/Houten
Bain J.S., 1959
Industrial Organization, Chapman and Hall
Briggs P., 2004
Ghana, The Bradt Travel Guide, Legoprint SpA, Trento, Italy
Brundtland G.H., 1987
Report: Report of the world commission of environment en development
"Our common Future" The Brundtland commission
Bureau of Economics and Business, 1999
Report: Fiscal Year 2000 Country Commercial Guides: Ghana, US Department of state
Bureau of Economics and Business Affairs, 2002
Report: Country reports on Economic Policy and Trade Practices, US Department of state
Clodius R.L. and Mueller W.R., 1961
"Market structure Analysis and an Orientation for Research in Agricultural Economics"
Dijksterhuis H., 2005
Landenreeks 2005 Ghana, Koninklijk instituut voor de tropen – NOVIB, KIT Publishers Amsterdam
Frambach R.T. en Nijssen E.J., 2005
Marketingstrategie, Wolters-Noordhoff bv Groningen
Groot W.G. de, 2000
Basisboek Marketing, Wolters-Noordhoff B.V., Groningen
Hairston M. and Ruszkiewicz J.J., 1996
The Scott, Foresman Handbook for Writers, HarperCollins College Publishers, New York
Hill B.E. and Ingersent K.A., 1982
An economic analysis of agriculture, Heinemann educational books, London
Kotler P., 2003
Principes van Marketing, Pearson Education Benelux
Moris M. L. (CIMMYT), 2002
Impacts of international maize breeding research in developing countries, Mexico
Porter M.E., 1998
Competitive Strategy: Techniques for Analyzing Industries and Competitors, United States of America
Rao V.R., Steckel, 1998
Analysis for Strategic Marketing, Addison Wesley Longman, Inc
Stern L.W., El-ansary A.I., Coughlan A.T., 1996
Marketing Channels, Prentice Hall-International, Inc.
US & Foreign Commercial Services and US Department of State, 2004
Report: Doing Business in Ghana: A country commercial guide for U.S. Companies, Washington D.C.
Verschuren P., H. Doorewaard, 1999
Designing a Research Project, Uitgeverij Lemma, Utrecht

Weihrich H., 1982
'The TOWS Matrix: A Tool for Situational Analysis', Long Range Planning Vol.15, No.2
World Bank, Lawson and Salpietro, 2000
Report: "Report and Recommendation of the President of the /international Development Association to the Executive Directors on a Proposed Second Economic Reform Support Operation Credit of SDR 132.7 Million (US$ 180 Million Equivalent) to the Republic of Ghana", Report No. P-7311 GH, World Bank, Washington D.C.
Wilson R.M.S. and Gilligan C., 2005
Strategic Marketing Management – planning, implementation and control,
Elsevier Butterworth-Heinemann, Oxford

Websites

- Encyclopedia
  http://www.wikipedia.nl (March 2006)
- Food and agriculture organization of the united nations
  http://www.fao.org (April 2006 – March 2007)
- Ghana.com
  http://www.ghana.com (April 2006)
- Ghana Investment Promotion Centre
  http://www.gipc.org.gh (April 2007)
- Homepage Ghana
  http://www.ghanaweb.com (April – December 2006)
- International Maize en wheat improvement centre
  http://www.cimmyt.nl (March 2006)
- International Trade Centre UNCTAD/ WTO (1994 -2006)
  http://intracen.org (May 2007)
- ISCOM
  http://www.iscom.nl (March - October 2006)
- OECD
  http://www.OECD.com (March 2006)
- United World-USA (report 17 0ctober 2002)
  http://www.unitedworld-usa.com (February 2007)
- USAID
  http://www.usaid.gov (April 2007)
- USDA United States Department of Agriculture
  http://usda.mannlib.cornell.edu (February 2007)

- **Bede N. Okigbo**, International Institute of Tropical Agriculture, Ibadan, Nigeria
  The United Nations University, 1980
  The case for cassava in the humid tropics of West Africa
  http://www.unu.edu/unupress/food/8F024e/8F024E01.htm (August 2006)
- **Stephen K. O'Hair**, Tropical Research and Education Center
  University of Florida ,1995.
  http://www.hort.purdue.edu/newcrop/default.html (August 2006)

Market analysis

Analysis of the current market situation and future market perspectives of maize and cassava cultivated by farmers in the Western Region, Ghana.

Appendix

June 2007

Market analysis

Analysis of the current market situation and future market perspectives of maize and cassava cultivated by farmers in the Western Region, Ghana.

Appendix

June 2007

MSc Thesis	**MCB-80430**
Student:	Femke van der Geer
Email:	femke.vandergeer@wur.nl
Registration number:	820820-252-070
Study:	Management Economics and Consumer Studies
Commissioner:	**ISCOM**
Accompaniment:	Dr. T. Wolters
Email:	twolters@iscom.nl
University:	**Wageningen University and Research Centre**
Chair group:	Marketing and Consumer Behaviour
Graduate advisors:	Dr. A. van Tilburg
Email:	aad.vantilburg@wur.nl
	Dr. Y. van Dam
	ynte.vandam@wur.nl