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**PROFITABILITY ANALYSIS AND STRATEGIC PLANNING OF COFFEE  
PROCESSING AND MARKETING IN RWANDA: A CASE STUDY OF A  
COFFEE GROWERS' ASSOCIATION**

**By**

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## **ABSTRACT**

# **PROFITABILITY ANALYSIS AND STRATEGIC PLANNING OF COFFEE PROCESSING AND MARKETING IN RWANDA: A CASE STUDY OF A COFFEE GROWERS' ASSOCIATION**

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**Abdoul Karim Murekezi**

International coffee prices are at their lowest levels due mostly to a supply surplus. In order to respond to this coffee crisis, Rwandan coffee stakeholders are trying to target coffee niche markets that provide price premiums. This research paper investigates the profitability of investing in producing for the specialty coffee market, using the Maraba Association as a case study. The paper also develops a strategic analysis and plan for the same association.

The study finds that investing in coffee processing and marketing by coffee growers' associations such as the Maraba Association is profitable as long as there is a market for high quality coffee. In addition, strategic analysis and planning identify key success factors as well as action strategies that should be implemented to enable the Maraba Association to be successful in the future.

The major policy implication of the research paper is that putting in place coffee washing stations, which are necessary to produce high quality coffee, can contribute positively to improving coffee productivity at the farm level. Price premiums associated with high quality coffee will provide economic incentives for farmers to maintain coffee trees and increase their productivity.

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## **KEY TO ABBREVIATIONS**

IFAT:	International Federation for Alternative Trade
EFTA:	European Fair Trade Association
FLO:	Fair Trade Labeling Organization International
FOB:	Free On Board
GCA:	Green Classification Association
ITC:	International Trade Center
OCIR Café:	National Coffee Board
PEARL:	Partnership for Enhancing Agriculture through Linkages in Rwanda
SCAA:	Specialty Coffee American Association
SWOT:	Strengths, Weaknesses, Opportunities and Threats

## **CHAPTER 1: INTRODUCTION**

### **1.1 Problem statement**

Coffee is the biggest foreign currency earner in Rwanda, in some years accounting for over 70 % of all exports (Schluter et al., 2001). Around 470, 000 small holders grow coffee in Rwanda on approximately 37, 000 hectares. Since 1992, production and quality of coffee have been adversely affected as a result of war and the subsequent abandonment of coffee areas (Walker, 2001). Production is currently approximately at 15,000 tons, down from 35,000 tons in 1992 (National Coffee Census, June 1999). Furthermore, world market prices for ordinary coffee have been low since early 1990 due to the suspension of coffee quotas by the international coffee organization (ICO) resulting in a world glut. As a result, farmers are not motivated to maintain their plantations.

Despite low world market prices, there is a growing market in the US, Europe and Japan for high quality coffees. The current demand is for quality and taste. These coffees are marketed not only as providing a unique and outstanding drinking experience but also as positively impacting the social and physical environment in the origin countries. They are typically grown on small, high altitude plantations. The gourmet coffee types are Arabica varieties of the bourbon family. Care must be taken during the coffee processing stage to produce the highest level of quality at the cup. Only a handful of countries have the environment necessary to produce these types of quality coffees. Rwanda is one of these fortunate countries and should take advantage of this recent trend in coffee consumption. Current market prices for gourmet types are from 3 to 15 times the price for “ordinary” coffee (Olivieri, 2001). These prices provide potential profit levels that can provide the

economic motor needed in rural areas that will contribute to national economic growth. The potential profits will be achieved if it is worth investing in equipment such as building a washing station to produce the required coffee quality.

Until now, Rwanda has not targeted the specialty coffee market. There is thus a lack of experience and knowledge concerning the production of that high quality product. In order to produce consistently high quality coffee, the producer and processor must understand the factors that affect coffee quality. Given the oversupply of average quality coffee coupled with low prices, and in an increasingly competitive coffee world, both productivity and quality of coffee from Rwanda should be increased in order to enable small coffee growers to maintain their plantations in a sustainable basis (Schluter et al., 2001).

To assess the possibility of bringing high quality coffee to the international market, the PEARL project has been providing technical and financial assistance to the Maraba Coffee Growers' Association, hereafter called the Maraba Association, since 2002. In addition, the project has established a pilot coffee washing station and a coffee milling factory. The activities of the association have been fully integrated from the purchase of coffee cherries to the exportation of the fully washed green coffee. With the liberalization of coffee industry since 1994, there is much interest from the private sector to undertake investment in coffee washing stations. However, such investment will depend on profitability of such business. No profitability studies of coffee washing stations have been done in Rwanda. The present study will use data from the association to assess the profitability of investing in coffee processing and marketing. Furthermore, the association has been mainly supported by the PEARL project in their activities. Therefore, the aim of the study is to know

whether investing in coffee processing and marketing of high quality coffee is likely to be financially feasible or is only profitable because it is being subsidized.

Beside the profitability analysis, in order to fully understand the internal and external environment of specialty coffee marketing, which affects the profitability of the association, this study will perform a strategic analysis and plan for the association. Since the association that forms the case study of this research does not have a strategic plan to implement, the strategic plan will determine what action strategies must be taken by the association for the next five years. The strategic plan is based on the results of the strategic analysis, which is drawn from the market analysis of the specialty coffee market since the viability of Rwandan coffee industry will depend on the premiums that will be achieved.

## **1.2 Objectives**

The general objective of the study is to assess the profitability of investing in coffee processing and marketing in order to enter in the specialty coffee market.

Specific objectives are the following:

- Analyze the global specialty coffee market, particularly by focusing on niches where Rwanda could have a comparative advantage.
- Analyze the strengths, weaknesses, opportunities and threats of the Maraba Association in the era of marketing of high quality coffee.
- Undertake a financial appraisal of coffee processing and marketing for a time frame of six years.
- Carry out sensitivity analysis to identify the major determinants of profitability.
- Suggest a strategic plan that the association should implement during the next five years.

### **1.3 Research paper outline**

The paper will be organized in six chapters. Chapter one will provide some background and justification of the research topic and identify objectives of the study. Chapter two will give an overview of the Rwandan coffee subsector. The focus will be on the performance of the subsector and current policies to address some of the constraints of the coffee industry. Chapter three will present analytical models that will be used in the following chapters, together with a brief overview of related studies. Chapter four will start by analyzing the dynamics and features of some high value niches of the specialty coffee market. It will then present a strategic analysis for Maraba Association. Chapter five will assess the financial profitability of coffee processing and marketing of high quality coffee by coffee growers' associations similar to Maraba Association. It will also suggest a strategic plan with specific recommendations for the association. Finally, chapter six will summarize the results and make policy implications about investing in processing and exporting specialty coffee for Rwanda.

## **CHAPTER 2: OVERVIEW OF RWANDAN COFFEE INDUSTRY.**

### **2.1 Coffee subsector description**

#### **2.1.1 History**

Coffee was introduced in Rwanda in 1905 by German missionaries (Graaff, 1986). Between 1909 and 1914, colonial authorities undertook intensive extension services to increase coffee production and provide cash income to farmers. From 1927 onwards, growing coffee was mandatory. During the colonial period, aggressive coffee policies were enforced. Coffee growers were obliged to mono-crop and mulch their coffee plantations.

After independence, which occurred in 1962, a public agency named OCIR was created under the Ministry of Agriculture and Livestock. Its mission was to manage all activities related to industrial crops such as coffee, tea and pyrethrum. From 1978, the agency has been restructured. OCIR Café was now a separate agency from the initial organization focusing only on coffee. The following services were performed by the agency: input supply, extension services and coffee pulping. In addition, the Government always fixed the farm gate price at the beginning of each coffee season.

In 1995, the government of Rwanda started the liberalization of the coffee sector. Farmers could now decide whether or not to grow coffee (Schluter et al., 2001). In addition, there was much interest from private investors and donor agencies to invest in coffee processing and marketing. Under the privatization environment, the new role of OCIR Café includes the coordination of coffee functions performed by stakeholders. More specifically, the new activities of the coffee agency are to:

- Monitor the marketing mechanism.

- Provide information on daily world market prices and the reference price in the local coffee market. The reference price is based on the international coffee prices and shares of the FOB prices among coffee stakeholders (table 1).
- Determine coffee quality standards.
- Provide certification documents to coffee exporters.
- Represent the country in international coffee organizations.
- Provide technical assistance to farmers' associations, millers, extension agents and traders.
- Provide financial support for coffee research and seed multiplication for varieties identified by researchers.

#### 2.1.2 Coffee subsector organization

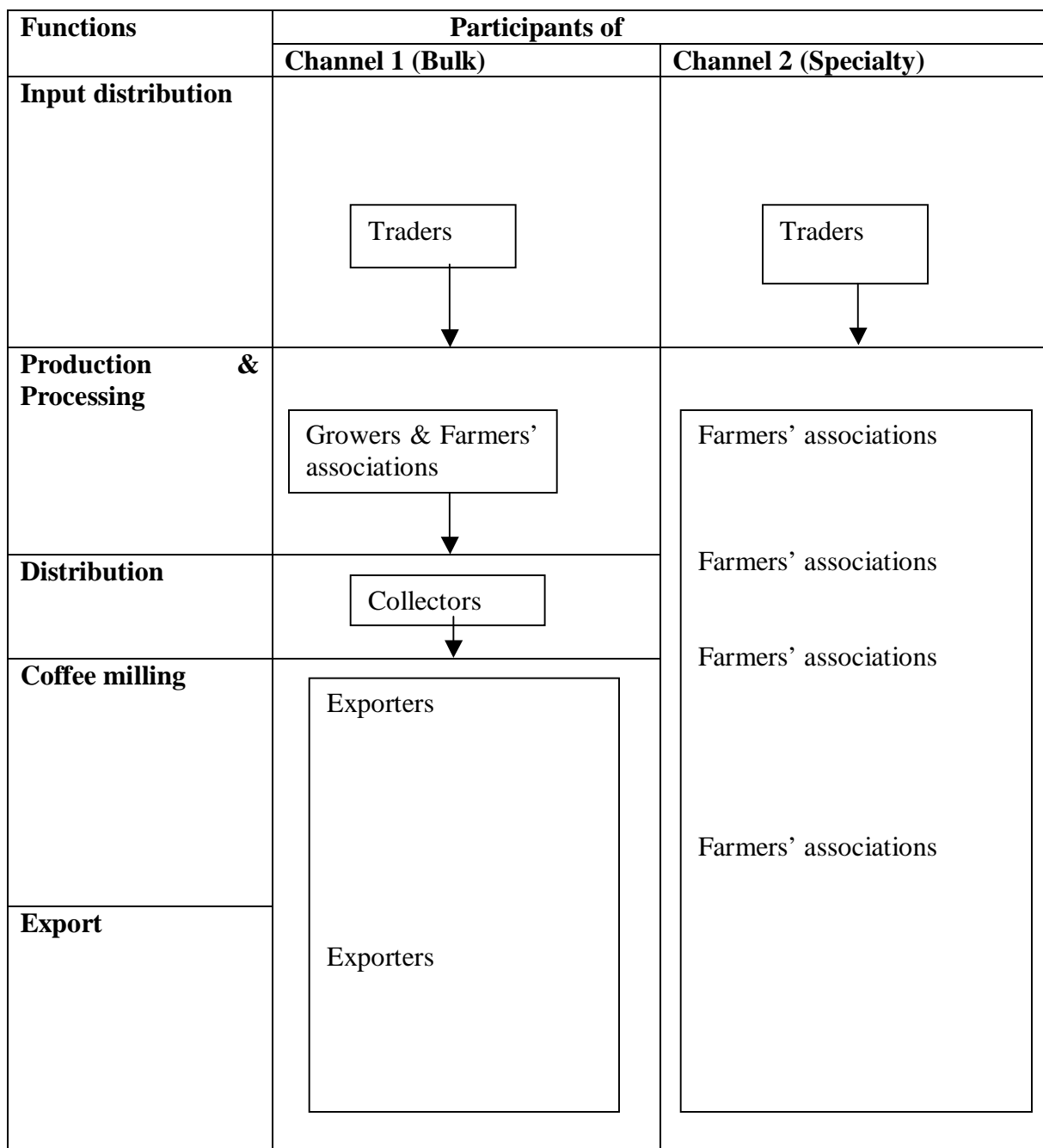
Coffee is mostly grown by smallholders. On average, a coffee field consists of 150 trees in less than 1 hectare (Loveridge et al., 2002). Rwanda is mostly producing the Arabica type of coffee. After harvesting, farmers bring coffee cherries to a pulping center or washing station. In the past, the processing equipment was managed by OCIR Café. With the liberalization of the coffee sector from 1995, all processing facilities are privately owned. Farmers are encouraged to create associations so that they can easily obtain extension services and technical assistance to undertake the processing function.

After the processing stage, small growers sell the parchment coffee to merchants, also named collectors, who bring it to hulling factories. In addition, some coffee growers' cooperatives bring the parchment coffee directly to coffee millers without passing through the middleman traders. Besides the two ways of getting parchment coffee, some coffee growers' associations have started undertaking all the functions from the production stage to the exportation of the green coffee (Channel 2 in figure 1). Among them, the association that



forms this case study has supplied high quality coffee to coffee buyers. Figure 1 gives the organization of Rwandan coffee subsector. The functions describe the transformation that takes place. The participants indicate who performs the functions. Channels describe how products flow among participants.

Coffee is sold mainly in the export market; the domestic market is insignificant, accounting for less than 1 % of coffee production (Graaff, 1986). A large part of Rwandan coffee exports passes through the bulk market, which is the mainstream coffee market (channel 1). Channel 1, which is the major mechanism in Rwanda, is undertaken through spot markets. In this channel, only coffee milling and export are performed by the same participants whereas other functions such as primary processing and distribution are performed by independent participants. Channel 2, called specialty coffee channel, represents a partially integrated coffee processing and marketing mechanism. Under this channel, beside the input distribution function, other functions in the chain are performed by only one participant, namely farmers' associations. A small amount of high quality green coffee from this new channel has been sold in 2002 in the specialty market such as the fair trade market (Associated Press, 2003).



**Figure 1: Rwandan Coffee subsector map**

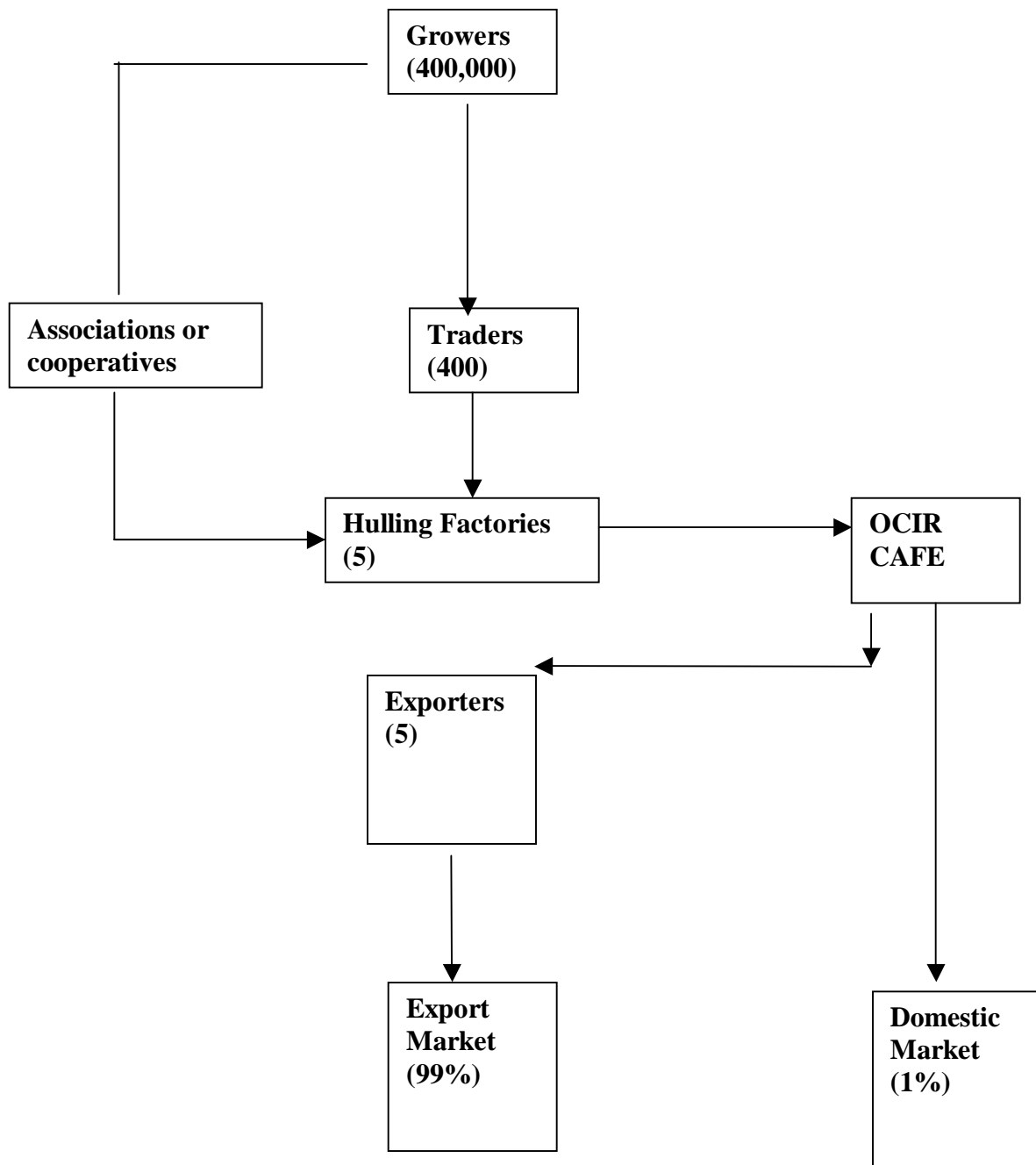
### 2.1.3 Coffee marketing

Two companies, RWANDEX and ETIRU, handled exports before 1988 and the government had a high capital share in those companies. From 1988 until 1991, OCIR Café was authorized to commercialize coffee. With the liberalization of coffee industry, the local market trade has been undertaken by private operators and coffee growers' associations, which bring the parchment coffee to milling factories. Until 1994, the farm gate price was fixed by the government and remained constant for the whole coffee season. There was a stabilization fund designed to avoid the fluctuation of farm gate prices. In 1994, the fund was cancelled; the price is currently based on the international coffee market. OCIR Café meets once per week with exporters who are also coffee millers to fix the weekly reference price of parchment coffee. The role of this price is to provide market information to coffee growers who are selling parchment coffee to collectors. The farmers, however, have no role or voice in fixing the reference price. Due to the low level of production, the milling factories operate under capacity and exporters tend to lower the reference price in order to cover their relatively high milling costs.

From the factory, coffee samples are sent to the OCIR Café warehouse and the agency classifies different qualities from the sample and provides the export certification. As Rwanda is a land-locked country, coffee is transported mostly by road to Mombasa, where coffee reaches international buyers. Figure 2 shows the flow of bulk coffee from farmers to the market. The liberalization of the industry has stimulated private investment and changes at the firm level. Exporters are now looking for specific niches in the U.S and Europe for specialty coffee, as the bulk market does not offer interesting prospects due to the high world coffee supply. The challenge for Rwanda is how to be competitive with other producers in

this new market. The analysis of opportunities for Rwanda to target the specialty market will be discussed in chapter 4.

### **Production and Marketing**



**Figure 2: Flows of Bulk Coffee from Farmers to the Market**

Another regulation was to remove the coffee export tax, which constitutes a disincentive for exporters. The goal of tax removal was to ensure that Rwandan exporters could pay high prices to farmers. The distribution of the export market value among participants of the bulk coffee channel is shown in table 1.

**Table 1. Model of Sharing Bulk Coffee Export Value between Coffee Subsector Participants in Rwanda on June 3, 2002 a/**

Item	Value (FRWA)
Exchange rate (FRWA / \$US)	467.98
New York Price for green coffee (US Cents/pound)	50
Differential <sup>a</sup> (US cents/ pound )	-15
Price FOB Mombasa (US cents/ pound)	35
Price FOB Mombasa	360,345
1.Port charge	24,335
2. Insurance (0.25 % of FOB)	903
3.Transporter (from Rwanda to Mombasa)	51,478
4. Exporter margin (3 % of FOB)	10,833
5.Bank charge (for 60 days)	8,426
6. OCIR café fee (3 % of FOB)	10,833
7. Processing cost	70,000
8. Collector	35,000
Producer price for one ton of green coffee = FOB Mombasa – $\Sigma$ (1 + ... + 8)	148,537
Conversion rate from green parchment coffee to parchment coffee (%)	68
Producer price for one ton of parchment coffee	101,005
Share of the Farm Gate Price FOB Mombasa (%)	28

a/ All calculations are in FRWA per metric ton unless otherwise indicated

**Source:** OCIR Café, 2002

**Note:** - <sup>a</sup> Differential represents the freight and insurance (including unloading at import point).

Table 1 shows the distribution of the FOB Mombasa price of coffee exported from Rwanda as of June 3, 2002. It reflects how participants in channel 1 of figure 1 are sharing

the price of coffee. The model can be used to assess the advantage of the new channel and to identify points of leverage of the Rwandan coffee sector.

#### 2.1.4 Supporting services of the coffee industry

##### 1) Research

Coffee research is undertaken by ISAR, the National Research Institute, a governmental agency under the Ministry of Agriculture and Livestock. Research activities include the identification of coffee cultivars adapted to the Rwandan environment, crop management practices, pests and diseases. The institution is hampered by budget problems and inexperienced and poorly trained researchers.

##### 2) Credit

Financial institutions support traders by providing loans to purchase parchment coffee from growers. Exporters borrow money from banks to support the export function. At the production level, farmers' associations receive loans from the local banks to purchase inputs. They also provide working capital to some associations during the coffee campaign for coffee pulping and grading. The cost of capital is relatively high, the reason being the lack of securities that can be guaranteed by small coffee producers. Private exporters are also making credit advances to farmers who will in turn sell their coffee cherries to them (Schluter et al., 2001).

## 2.2 Coffee in Rwandan Economy

After independence, coffee acreage increased tremendously. For instance, the acreage increased three-fold from 19,191 hectares in 1962 to 53,746 hectares in 1987. By the same token, coffee production has followed the same trend: 9,525 tons of green coffee in 1962 to 43,026 tons in 1987 (OCIR, 2000).

Coffee marketing activities make coffee one of Rwanda's most important sources of farm income and government revenues. Table 2 illustrates the evolution of foreign exchange earnings as contributed by coffee and the injection of cash towards coffee growers in the last ten years. The table shows that from 1990 until 2001, coffee's share of total exports and farm income from coffee have decreased continuously over time.

**Table 2. Share of Coffee export earnings and their contribution to farm income**

Year	1990	1991	1992	1993	1995	1996	1997	1998	1999	2000	2001
Total export value(\$ millions)	103.0	95.6	69.0	67.7	51.2	61.7	93.0	64.4	62.0	69.0	73.0
Coffee share of total exports (%)	63.8	60.3	50.5	54.0	74.6	69.7	48.7	40.2	49.4	32.5	26.6
Money injected in rural area(\$ millions)	47.6	- -	- -	45.7	27.7	- -	26.8	17.9	19.1	17.06	12.9

**Source:** OCIR Café, 2002.

**Note:** - - means missing data

## 2.3 Performance of the Rwandan coffee subsector

Brandow (1976) defines performance as how well an industry does the things that society might reasonably expect it to do. This section is not intended to go through all possible dimensions of coffee subsector performance. The focus will be on the trends in coffee quality and quantity that affect farmers' revenues. During the last decade, there were

tremendous declines in quantity and in quality. The following table illustrates the trends of coffee production and quality, and the area under production (OCIR, 2002).

**Table 3. Evolution of coffee producing area, coffee production and coffee quality in Rwanda**

Year	1985	1987	1990	1993	1995	1997	1999	2001
Acreage(ha)	44,505	49,093	49,093	50,604	52,000	50,944	26,727	28,500
Production(tons)	35.54	43.03	38.49	28.5	21.83	14.84	18.25	19.00
Standard <sup>a</sup> Grade (%)	25.7	31.3	7	4.3	2.4	7.4	4.9	18.5
Ordinary <sup>b</sup> Grade (%)	67.8	61.1	86.9	88.7	92.8	80.5	78.4	75.0

**Source:** OCIR café, 2002

**Note:** <sup>a</sup> Standard grade is the fair average quality (FAQ) using the International Trade Center classification

<sup>b</sup> Ordinary grade is the lowest quality category of Arabica coffee

### 2.3.1 Causes of the decline of coffee production

Several factors may explain the overall decline of coffee production.

1. Political instability: The war that started in 1990 caused a reduction in maintenance of coffee plantations. Furthermore, the political instability discouraged both private and public sectors from making long-term coffee investments.
2. As farm gate prices continued to decrease, farmers did not have sufficient purchasing power or the incentive to acquire inputs such as pesticides and fertilizers.
3. The 1998 coffee census revealed that 14.2 % of all the coffee trees needed to be replaced (OCIR, 1998). From an agronomic view point, coffee trees with more than 7 years of production need to be replaced, otherwise the production starts declining.
4. Using the regional yields as benchmarks (0.77 to 1.15 kg of dry parchment coffee per tree and per year), Rwanda's figures show a low level of productivity with only 0.33 kg of



parchment coffee per tree and per year (Loveridge et al., 2002). Low yields can be explained in part because the trees currently planted are low-yield varieties, but also because they are poorly maintained.

5. Decline of coffee prices in international markets: In 1989, there was a suspension of coffee quotas by the International Coffee Agreement, which resulted in low world coffee prices and low farm gate prices. As a result, there was lack of interest among coffee growers to take care of their plantations, resulting in low productivity.

### 2.3.2 Causes of decline of coffee quality

Different factors explain why the quality has been negatively affected over the last decade.

1. Insufficiency of coffee washing stations. The results of a national farm-level survey conducted in 2002 found that de-pulping techniques have improved since 1991 when a similar survey occurred. However, the survey found that most of the farmers do not de-pulp their harvest the same day (Loveridge et al., 2003). The following table gives the distribution of processing systems in coffee intensive zones (77 districts).

**Table 4. Distribution of processing systems in Rwanda**

Type of processing	Washing station	Disc pulper	Drum pulper	Imitation drum	Pestle system
Existing number	2	1,380	2,070	2,102	- -
% of output	< 1	58	17	10	14

**Source:** Schluter et al., 2001

**Note:** Number of pestle systems is unknown, but the share of output processed with that system is known.

Among the coffee produced by above processing methods, the quality of the coffee from a washing station, usually called “fully washed coffee”, is higher than the quality

obtained from other processing systems. The fully washed Arabica also obtains a price premium in the international Arabica market. Unfortunately, less than 1 % of the total output is processed in washing stations.

## 2. Low level of maintenance of coffee plantations.

Similar to on-farm processing methods (pulping, fermenting, washing, drying and storing of parchment coffee), the agronomic factors of coffee production including cultural practices and types of varieties grown account for 40% of quality (Schluter et al., 2001). As farmers are not motivated to maintain their coffee fields due to low farm gate prices, the coffee quality is becoming poor. For instance, the 2002 survey found that only few farmers are planting new trees. In addition, there was a decrease of farmers using pesticides and pruning their trees compared to the situation of 1991.

## 3. Lack of price incentives for high quality parchment coffee.

The current pricing mechanism is a pooling system, which is based on constant prices regardless of the coffee quality. The mechanism does not encourage farmers to take quality into account in their daily coffee activities. Without price incentives on quality, farmers tend to mix light and heavy coffee cherries, dried and wet parchment coffee, therefore leading to low quality.

## 4. Over-rivalry among exporters for insufficient quantity.

With the liberalization of the coffee sector, the number of exporters has increased but coffee production has declined. As a result, since their milling capacity is underutilized and they need to cover the processing costs, exporters are more concerned with quantity than with quality. The share of the dry processing costs in total costs has increased from 17% in 2001 to 25% in 2002 (Niyonsaba, 2002). As a result, farm gate prices continued to decrease

because of the persistent international coffee surplus and the political power of exporters to decrease the reference price.

#### **2.4. Current policy for the development of coffee sector**

This section will describe some actions the Government is trying to implement in order to tackle problems associated with coffee subsector performance. This policy adopted in 1998 has three main objectives (OCIR, 1998):

##### **2.4.1. Increase production**

To achieve this objective, the current policy takes into account the international coffee price and coffee growers are paid accordingly. The removal of the coffee export tax will facilitate this. This will enable farmers to be paid high prices giving them incentives to increase production if world prices are not low. In addition, coffee extension services will focus on regions suitable for the crop. The number of extension workers is planned to be increased with an average of one extension agent equipped with transport facilities for two communes. Research results highlight 77 communes that need more extension services to get the highest pay off. Other priorities include on-going research on high yield varieties, disease and pests, and mulching of coffee. OCIR Café is planning to increase their financial support to research activities of ISAR. In addition, loans will be given to farmers' associations to purchase pruning equipment for the maintenance of coffee trees.

##### **2.4.2. Improve coffee quality**

The challenge is to put in place an economic environment that will support the production of a high value crop. The marketing system is planning to install a differential local price so that incentives are given to produce high quality coffee. The policy does not,

however, mention the creation of grades and standards to implement the new price structure.

To improve coffee quality, the following actions are to be conducted:

- Provide coffee producers with pulping machines to be used in processing the harvest;
- Make available coffee drying trays, materials to repair existing pulping machines and new pulping machines to be paid by coffee producers through a credit program;
- Offer extension services on how to better process coffee cherries.

#### 2.4.3. Better distribution and increase of coffee revenues through the promotion of coffee growers' associations

The creation of farmers' associations can enable farmers to get bargaining power, leading to a higher share in the coffee export value. Moreover, they may easily obtain technical assistance to produce a high value coffee. Furthermore, they are likely to invest more in coffee when they are able to sell their product at high prices. The following actions are expected to be conducted:

- Sensitize coffee growers to the formation of their associations;
- Train members of the associations;
- Support associations in receiving loans;

The existence of such organizations will also facilitate extension activities, hence allowing coffee production to increase. The provision of marketing information by OCIR Café to coffee stakeholders is another policy instrument to achieve transparency in distributing revenue from coffee sales.

## **CHAPTER 3: LITERATURE REVIEW AND METHODOLOGY**

This chapter provides a literature review about preparing and marketing high quality coffee. A brief summary of coffee market channels is also provided with specific recommendations of what niche markets the coffee growers' association that forms the case study should target. Finally, the chapter gives data collection sources and analytical models that were used to achieve the objectives of the study.

### **3.1 Literature review**

#### **3.1.1 Coffee processing and quality of Arabica coffee**

##### **a. Coffee processing**

There exist two main processing methods: dry process or unwashed and wet or washed processing methods. In the dry process, the ripe coffee beans (coffee cherries) are dried in the skin after which the skin is removed to produce the green beans. In the wet process, coffee cherries are pulped and fermented to get rid of the mucilage that adheres to the beans. After the fermentation, beans are washed and dried. Figure 2 shows a general scheme of processing of coffee cherries and preparation of the coffee usually exported, the green coffee beans from the two methods of processing. There is another processing technique called semi-washed coffee where the ripe coffee cherries are pulped and dried but with the mucilage still attached to the bean. This semi-washed technique is the most popular in Rwanda with the use of hand-pulpers.

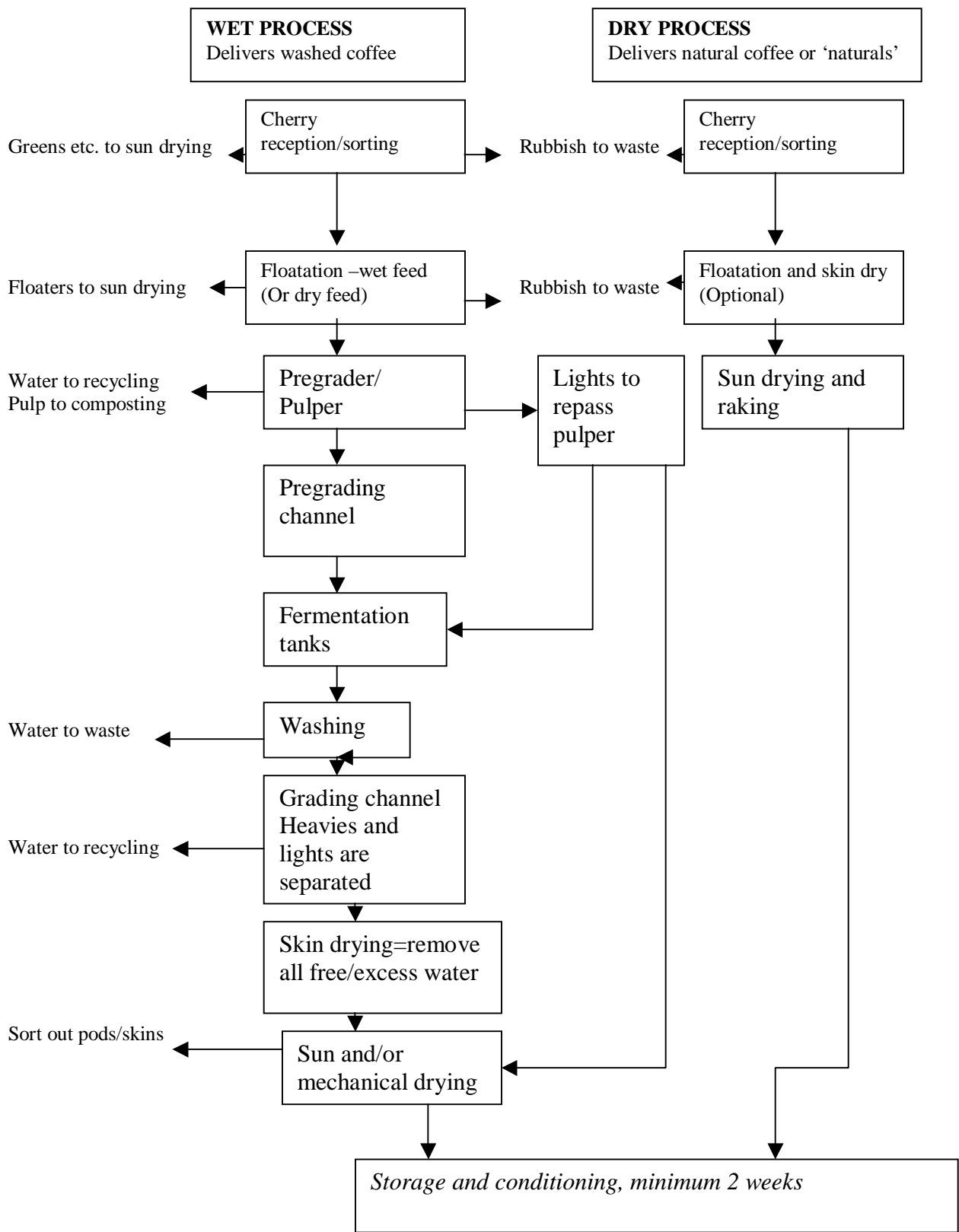
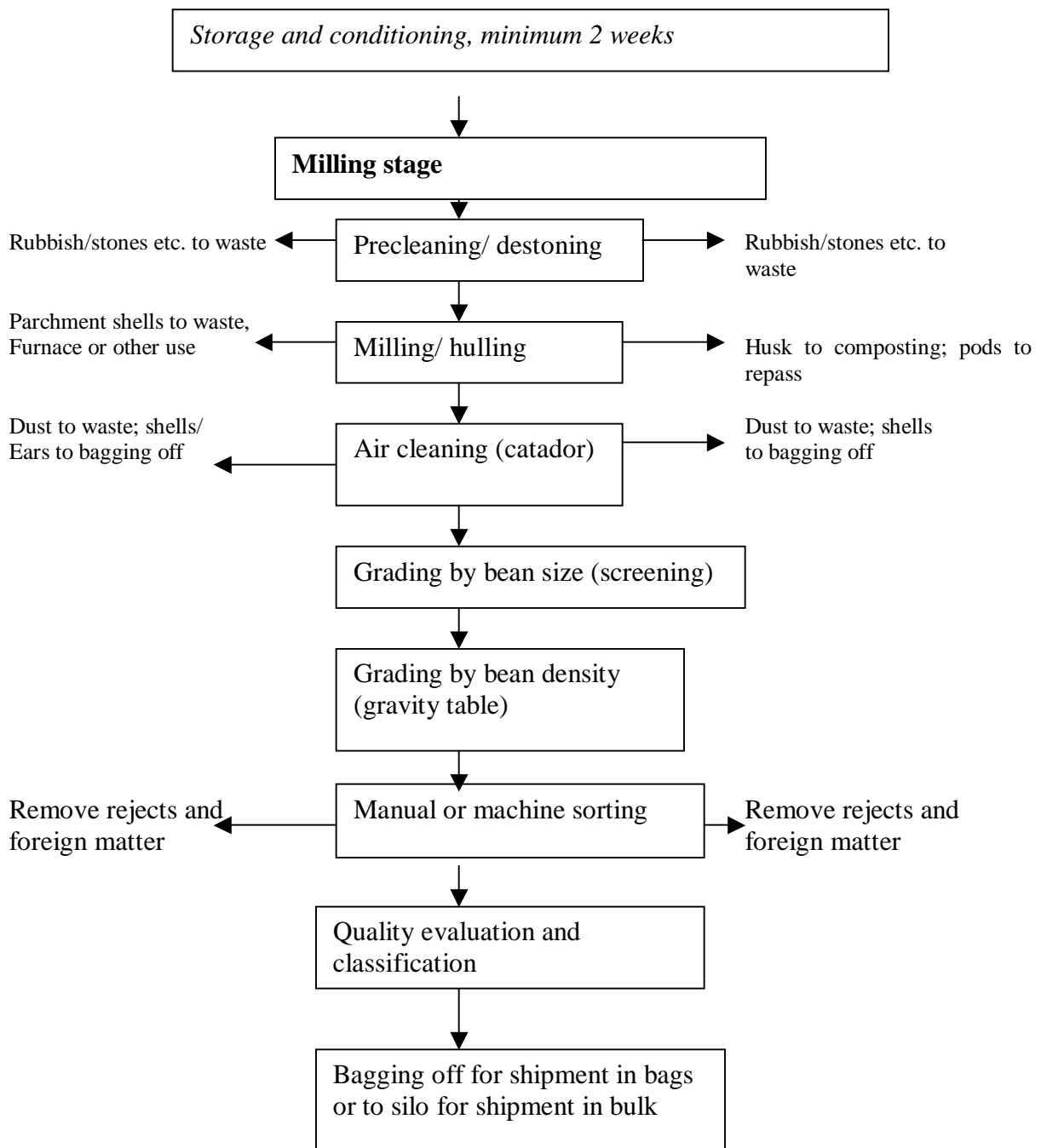


Figure 3 continues on the next page.



**Figure 3: General scheme of coffee processing and preparation of green coffee beans**

## b. Quality of Arabica coffee

Coffee quality depends on a combination of many factors, including the botanical characteristics of the variety grown, topographical conditions, weather conditions, and the care taken during growing, harvesting, processing, storage, export preparation and transport. Growing, harvesting, processing, storage and export preparation are the most variable factors that can influence the determination of quality since the varietal and topographical conditions are constant (ITC<sup>1</sup>, 2002). This section will focus on export preparation functions. These activities start with the reception of coffee cherries and sorting until the preparation of the green coffee, ready to be exported (figure 3).

Coffee must be suitable for human consumption and not contain foreign matter such as moulds and live pests. In addition, the coffee exporter must comply to the contract description with the coffee buyer and the coffee quality must be uniform for the entire shipment. Furthermore, the coffee should have an excellent cup, which means that it should not present obnoxious flavors. Respect to the coffee quality and the contract description should be a marketing strategy for any exporter aiming to target the high quality coffee market. Moreover, solid business reputations of the exporter and the trust from the buyer are sustained by improving the quality or at least complying with coffee buyers' expectations.

## c. Categories of coffee quality

From the highest to the lowest quality of coffee, four categories form different types sold in the coffee market (ITC, 2002).

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<sup>1</sup>International Trade Center



### 1) Exemplary quality

The exemplary quality forms the true niche coffee market and has a high excellent unique cup. They include well-presented washed coffees, some superior washed Robusta, and some organic top coffees. The conditions of exemplary quality coffee encompass the following criteria (Howell, 2001): absolutely uniform attractive appearance, “whistle” clean cup, no traces of taints, exceptional sweet taste and after taste, absolute uniformity cup to cup, and a unique flavor and aroma reflecting a special terroir.

### 2) High quality

They are sold as straight estates or blends. The straight estate coffee is produced in a similar region or farm. They have also a good cup but are not more visually perfect than the exemplary quality. However, they constitute a large market share of the specialty coffee market. In this category fall Arabica good quality, well-prepared organic coffees, and washed and dried Robusta.

### 3) Mainstream quality

This category consists of the fair average quality (FAQ) that does not provide an impressive cup. The standard coffee from the classification of the Rwandan Coffee Board, mentioned in table 2, fits in this category. Nevertheless, the mainstream quality accounts between 85% and 90% of the world coffee consumption (Ponte, 2002). The exemplary and the high quality coffee account for less than 15 % of the world coffee market.

### 4) Under-grades or low grades coffees

They include everything that does not fit in the three other categories. The ordinary coffee from table 2 also enters in this category. In the US coffee market, an under-grade coffee is any coffee that grades below GCA type (120 defects per 370 grams) (ITC, 2002). In

order to reduce the glut of coffee exports in the short run and increase the overall coffee quality in the long run, the International Coffee Organization has put in place Resolution 407 of February 2002. The resolution lays out the coffee quality improvement program. Under that resolution, minimum grading standards and maximum moisture content for coffee exports are explained (ICO, 2002).

#### d. Preparing high quality coffee

Before deciding which quality grade of coffee to produce, an exporter should have some information on markets that provide price incentives for quality; otherwise the exporter may not afford to invest the cost required to produce such quality. In addition, since the coffee buyer, who can be the importer, the roaster or the retailer, is the final judge of the quality, the seller needs to know what the buyer is considering when purchasing his or her coffee. Such information would help the coffee exporter to know what actions should be taken care of in the production of the export coffee. The quality requirements for the green Arabica are the following:

##### 1) The aspect or style and the color must be even

Uneven greens tend to produce low liquor quality and pose problems during roasting. Moreover, uneven color highlights the mixing of immature and ripe coffee cherries during the harvesting stage, which negatively affects the quality of the cup. Furthermore, greens of uneven color can be caused by poor processing, incorrect moisture content during the fermentation, premature aging of the coffee, poor drying techniques, harvesting of overripe cherries, keeping cherries a long time before pulping and/or insufficient washing after natural fermentation (ITC, 2002).

The process of producing the green coffee of high quality needs the best management expertise. If this skill is lacking, potential coffee candidates can fail to meet the requirements of the high quality coffee. For instance, coffee cherries start fermenting immediately after being harvested. A maximum of 12 hours between picking coffee cherries from the trees and the primary (wet) processing is allowed (Walker, 2001). If that is not respected, the start of the fermentation within the skin will reduce the flavor of the cup. The success to the quality of Arabica coffee bean lies mostly in the wet processing operations (Ngaruiya, 1994).

## 2) Moisture content and drying

The level of moisture content varies from country to country. However, 11% is a general target for most coffee and the International Coffee Organization recommends the prohibition of moisture content below 8%. Furthermore, un-dried beans lead to a loss of cup quality but can also produce fungi and moulds. On the other hand, over-dried beans not only are a loss of weight but are also accompanied by a decrease in acidity and flavor. Over-dried beans also translate in increasing milling costs because as the beans break up easily, so there is an increase of waste beans.

## 3) Avoid obvious defects

Coatedness is the phenomenon where the silver skin has adhered to more than half of the bean's surface. Coatedness can be caused by drought, trees overbearing and under-fermentation of unripe cherries. All these shortcomings will not produce an excellent cup of coffee. Moreover, light and heavy greens should be separated; if this not performed, they will offer an uneven style. Furthermore, good green beans should not contain foreign matter that makes the coffee appearance undesirable.

#### 4) Insects and pests damage

The damage from insects and pests should be controlled on the field. However, they can also be eliminated during the floatation of coffee cherries before pulping in the case of the wet processing. The danger of such beans is that they can produce fermented cups.

#### 5) Bean size

Coffee exporters should consider also the buyer requirements of the coffee bean size. A mix of different sizes of the bean does not produce adequate appearance. The roasting of such beans is also not homogenous.

#### 6) Bean density

The mixing of light and broken beans with heavy beans can reduce not only the appearance but can also reduce the flavor and acidity of coffee. This leads to the importance of adequate density separation of different types of coffee beans.

#### 7) Sorting

Bean size determination and density grading techniques cannot replace the importance of sorting. Sorting takes care of other pitfalls such as bleached, mottled and discolored beans that cannot be removed by the previous methods. Sorting can be undertaken manually or electronically depending on the quantity to be sorted and the labor wage rate. Small-scale specialty coffee producers will sort the coffee by hand when the cost of labor is cheap.

Regardless of the factors affecting the quality of coffee discussed previously, exporters need to comprehend the requirements of their target coffee market. The knowledge of price premiums is also important. In addition, the exporter should consider the motivations that are essential for consumers in order to trust his or her product (Ponte, 2002). If all

recommended measures of cleanliness are taken into account during all the stages of the wet processing, one should expect at least an ordinary or acceptable cup since there is no naturally bad coffee (ITC, 2002).

### 3.1.2 Coffee market channels

#### a. Mainstream market

The mainstream quality market accounts for more than 85 % of world coffee imports. The US is the largest importing country of Arabica coffee (Ponte, 2002). Quality of the entire shipment should be the same and should meet the blending expectations of the roaster. Furthermore, no premiums are offered for this quality.

In this commodity coffee market, price is an important business factor. The New York Market Price Exchange leads in determining coffee prices for Arabica whereas the London Market Exchange deals with Robusta. Since prices of the mainstream quality are usually well known, the competitive advantage of a coffee exporter depends on efficiency, reliability and consistency of the production processes. Lack of scale economies for small producers do not allow them to be competitive in this bulk coffee market.

Coffee roasters prefer to sign contracts with coffee exporting countries that can guarantee a reliable minimum quantity of supply. For Arabica coffee, the required quantity is about 60,000 tons (Ponte, 2001). Rwanda, which cannot provide such quantity in the short and medium run, will not have a competitive advantage in the mainstream market (Loveridge et al., 2001).

#### b. Specialty coffee market

The term “specialty” was first used by the Norwegian coffee connoisseur and roaster Erna Knutsen in 1978 (Ponte, 2002). Specialty coffee meant that coffee beans from special

geographic environments provide specific flavor characteristics and should be protected in their identity. Since then, the term has been broadened to encompass higher quality coffees, both single origins, i.e., estate coffees or blends and unconventional coffees like flavored coffees.

In addition, the use of the specialty coffee definition differs from country to country. For instance, due to the fact that European countries drink more high quality coffee than in the US, quality standards for coffee will be more stringent in Europe than in US where the specialty coffee is a nascent industry. This happened as a response to poor quality offered to consumers by roasters (Ponte, 2002). While price was the main business factor for the bulk market, quality is the most important criterion in the specialty market and price premiums are offered for high quality coffees.

#### c. Sustainable coffees

Sustainability has been defined as meeting the needs of the present generation without compromising the ability of future generations to meet their needs (WCED, 1987). In the specialty coffee literature, sustainability needs to meet two basic criteria (Giovannuci, 2001): protection of the environment and social fairness. Social fairness refers to economic viability for farmers, focusing on institutions or contracts that permit producers to be paid price premiums for a specific level of coffee quality (Ponte, 2002). Sustainable coffees mean that these coffees are grown in ways that reflect the criteria of environmental protection and socio-economic fairness. Within the specialty coffee market, three segments of sustainable coffee have been developed even though there is no unique definition of sustainable coffees (Gionannuci, 2001). They are known as organic coffee, shade-grown coffee and fair trade

coffee. Appendices 1 and 2 provide standards for coffee related to environmental and socio-economic issues and quality respectively.

#### 1) Organic coffee

Organic coffee is produced under a system that protects the soil fertility and biodiversity. It is based on the use of agricultural practices that maintain and enhance the environmental ecology of the coffee field, with little use of off-farm inputs. There are certification agencies that set up organic standards of production, processing and handling organic coffee. However, the cost of the investment for the certification is excessively high for most small producers.

#### 2) Shade grown coffee

Also known as “bird friendly” coffee, shade grown coffee is grown under the shade of various types of trees. The advantage of such types of coffee is that they offer a good ecosystem for birds and other small forest animals. In addition, the system reduces soil erosion and/or water run off through mulching from the trees. To be certified, shade grown exporters must first of all be organic.

#### 3) Fair trade coffee

Fair trade coffee relies on partnerships between fair trade organizations also called alternative trade organizations and producers’ associations or cooperatives. Two important organizations are the International Federation for Alternative Trade (IFAT) and the European Fair Trade Association (EFTA). Their role is twofold: to facilitate the exchange of information on markets and sources for fair trade products and to lobby public institutions in order to raise public awareness of fair trade issues. The partnerships are mediated by independent certification organizations, of which there are around 17 all over the world.

Examples include Max Havelaar Netherlands, Transfair Canada and Transfair US. The national certification agencies are under the umbrella of Fair Trade Labeling Organization International (FLO).

Fair trade coffee is sold directly by small producers' associations or cooperatives to an importer or a fair trade organization, and the producer is guaranteed a minimum price for his or her coffee. Unlike organic and shade grown coffee, the certification process for fair trade coffee is not too costly for small producers. The association that forms the case study of this research is already registered by FLO. Table 4 gives the minimum fair trade coffee prices taking into consideration the type and the origin of the coffee.

**Table 5. Minimum fair-trade coffee prices, in cents per pound**

Type of coffee	Regular		Certified organic	
	Central America, Mexico, Africa, Asia	South America, Caribbean area	Central America, Mexico, Africa, Asia	South America, Caribbean area
Washed Arabica	126	124	141	139
Unwashed Arabica	120	120	135	135
Washed Robusta	110	110	125	125
Unwashed Robusta	106	106	121	121

**Source:** ITC, 2002

**Note:** Prices are FOB port of origin, net shipped weight.

The previous section was a brief overview of different coffee channels, producers or exporters can sell to. A detailed market analysis for the fair trade coffee, the potential coffee segment the coffee growers' association could target in the next five years, will be done in chapter four of the study.



## **3.2 Methodology**

### **3.2.1 Data sources**

Data used in this research were collected from various sources. The association's record keeping data were gathered during the coffee season of 2001. They are in the form of monthly expense reports. Data include: cost of purchasing coffee cherries, wet and drying processing costs including personnel (labor) expenses, packaging expenses, transport costs and other miscellaneous expenses. The revenues from selling the coffee output for 2001 are also available.

During field visits, primary data were also collected. These are transport costs they would have incurred if the PEARL project did not provide transport facilities to bring the cherries from the collection centers to the washing station. The shipment costs of the parchment coffee from the coffee washing station to the milling factory are also included. Grants received by the association covered the investment cost of the processing equipment, i.e., the coffee washing station and the milling factory for the coffee milling process (Figure 2). It was assumed that a similar association will be able to borrow the same value of the investment cost to set up processing facilities. These primary data together with the secondary data from the association will be the basis of the investment analysis in chapter five.

Other secondary data were collected from the Rwandan Coffee Board, OCIR Café. OCIR Café provided invaluable information related to the coffee industry trends. In addition, to gain a deep understanding of the Rwandan coffee subsector, informal interviews have been carried out with private and public stakeholders. On the public side, interviews were done with the general director of OCIR Café and two directors of the agency: the director of

production and the director of coffee marketing. On the private side, interviews were conducted with two officers of exporting companies. These are AGROCOFFEE and RWACOF. Furthermore, in-site interviews were conducted with other farmers of the NKORA washing station, the largest washing station within Rwanda. The information from these interviews and secondary data from OCIR Café were the basis of chapter two.

The greatest amount of internal information about the association was received through contacts with some members of the association and project managers who worked closely with the association in providing the technical assistance of producing and marketing high quality coffee. Non-structured interviews were carried out with the in-country Director of the PEARL project, the Country Representative of ACDI VOCA and the Initiatives and Training Specialist of the Agribusiness Center project. Moreover, e-mail contacts with last year's coffee buyers provided information about their assessment of the quality coffee from the association and their coffee purchasing requirements. The internal and external assessments of the capabilities of the coffee growers' association will be the basis of chapter four.

### 3.2.2 Analytical models

To undertake the strategic planning of the association, the SWOT (Strengths, Weaknesses, Opportunities, and Threats) framework will be the main method used in the analysis. The SWOT results will be based on the market analysis of fair trade coffee. Moreover, to assess the financial feasibility of investing in coffee processing and marketing, an investment analysis will be performed drawing assumptions from the market analysis done in chapter four. A present value model will be developed in order to determine the

attractiveness of the investment to a Coffee Growers' association. A detailed description of the two frameworks will be discussed respectively in chapters 4 and 5.

### 3.2.3 Description of the case study

The Maraba Association, also called “Abahuzamugambi” was created in 1999. In Kinyarwanda, the national language of Rwanda, the association's name means “people working together for a common goal”. The main objective of the association is to produce and market a high quality coffee in order to increase revenues for its 450 members. In 2001, the association constructed a washing station with the support of a USAID-funded Project called PEARL (Partnership for Enhancing Agriculture through Linkages in Rwanda). With a capacity of producing 100 tons of parchment coffee, they were able to produce 39 tons in 2002.

The association buys coffee cherries from member growers. The cherries pass through the wet and dry processing. This system is fully integrated so that the quality of the product is monitored along the chain. The focus is put in producing a high quality coffee that is able to compete in the coffee international market. Rwandan coffee farmers usually pulp or peel the husks off their coffee at home but do not wash due to the lack of clean water. The coffee washing station gets its water from a spring in a nearby mountain.

Of the 27 metric tons of specialty coffee produced by the Maraba Association in 2002, Britain's Union Coffee Roasters bought 9 tons at \$1.26 per pound, while Community Coffee of Baton Rouge, Louisiana bought the other 18 tons at \$1.36 per pound. The association has a lifetime of 10 years, which can be extended. It can also be stopped before 10 years if it is not successful in fulfilling its objectives.

## **CHAPTER 4: STRATEGIC ANALYSIS AND PLAN OF THE MARABA ASSOCIATION**

### **4.1 Strategic analysis**

#### **4.1.1 Introduction**

This chapter presents the strategic analysis of the Maraba Association, which is located in Maraba district. The chapter will start by giving an overview of the global coffee market. It will then move to the market analysis of the fair trade coffee. This strategic analysis is based on a SWOT (strengths, weaknesses, threats, and opportunities) framework, and identifies the critical issues, which derive from the determination of key success factors that will enable the association to be a successful business in the future.

#### **4.1.2 Brief overview of the global and specialty coffee markets**

Coffee is the second largest export crop in terms of value in the world after oil, and is exported from 52 southern hemisphere countries, mostly in Latin America and Africa. World coffee production currently surpasses world coffee consumption. Estimated production for 2002/2003 was about 117 million bags, whereas world coffee consumption was only about 108 million bags<sup>2</sup>. The main reason for such an imbalance between the demand and the supply is the production increase of the two biggest production countries, which are Brazil and Vietnam. These two countries also have a large number of coffee trees in development which leads to the conclusion that the overproduction is expected to remain at least for the next four years (Sorby, 2002).

Furthermore, the composite price indicator of the international coffee organization has fallen from \$ 1.80/ pound in May 1997 to \$ 0.48/pound in September 2002 (ICO, 2003). Appendix 2 shows the average monthly composite price for twenty years. With a supply surplus of 9 million bags together with commercial coffee prices at their lowest level, there is

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<sup>2</sup> One bag contains 60 kilograms.

an incentive of investing in sustainable coffees because of the price premiums they are capturing. Appendix 3 gives the monthly averages of ICO indicator prices in US cents per lb for the last nineteen years.

The 1999 coffee market summary of the SCAA found an increase in the consumption of specialty coffee products compared to the year before. The reports showed that in 1999, there were 108 million Americans (47% of the population) drinking specialty coffee beverages compared to 80 million (35% of the population) in 1998. The increasing consumption of specialty coffee was due mainly to changes in consumer preferences. Consumers are buying more value added products provided by the specialty coffee industry. The trend is towards product variety and quality. “The quality conscious purchasing trend has evolved coffee from a beverage of pseudo-commodity characteristics to one with cultural and sensory ties” (SCAA, 1999).

A survey conducted by the SCAA for North America found an increasing rate of growth in demand of organic coffee, shade-grown and fair trade coffee. In the case of fair trade coffee in the U.S., 1.5 million pounds of fair trade certified coffee was sold in 1999. The consumption was expected to grow up to 12 million pounds in 2003 (Oxfam America, 2001). The rate of growth in Europe is about 5% per year while the overall growth in coffee consumption was 1.5% in 2001 (Auroi, 2000).

A recent study that complements the survey conducted by SCAA for North America assessed the characteristics, quantities and the trends of each of the sustainable coffees in 11 most important consumer markets in Europe and in Japan. The study found that European sustainable markets are dominated by fair trade and organic coffee. Germany and Netherlands are the largest markets for sustainable coffees. The sales growth for these

coffees has been found to be 5 times greater than for conventional coffee in the 11 markets. Another interesting finding from the study was that double-certified coffee, i.e., coffees which are both certified as fair trade and organic, showed significant rates of growth.

The estimated size of the sustainable coffee market is less than 1 % of the global coffee market and 1% of the Northern America coffee market. Moreover, certified sustainable coffee sales are estimated at 2 % of the whole specialty coffee market channel in North America. As the specialty coffee market continues to grow at an average of 5 to 10% per year (SCAA, 1999), one would expect an increase of sustainable coffee sales in coming years.

As I mentioned at the end of chapter three, this paper will focus on the fair trade coffee segment.

#### 4.1.3 Origin and principles of fair trade

##### a. Origin of the fair trade movement

It is difficult to determine where and when the concept of fair trade started. The concept originated with small groups of consumers increasing their awareness about differences in standards of living between developing and developed countries. The movement aimed to create a parallel system beside conventional trading practices that would open market opportunities to disadvantaged producers from the southern hemisphere (Waridel, 2002).

When the fair trade movement started, export products from developing countries were sold in small shops called “Third World Shops”. As the movements grew, small-scale shops became professional franchise organizations, also named alternative trade

organizations. Today, such organizations are known worldwide. Examples in the Northern America include companies such as Ten Thousand Villages, Equal Exchange and Just Us.

b. Goals and principles of fair trade

The fair trade movement aims to create market opportunities for producers from developing countries. The system gives small-scale producers of crops, such as coffee, cocoa and tea, the possibility to improve their access to international trade. In addition, fair trade arrangements provide the opportunity for producers to sell their products at relatively high prices. Coffee accounts for more than 50 % of the fair trade sales (ITC, 2002). The prices paid by consumers from developed countries reach producers through a combination of premiums and guaranteed minimum prices. These prices and premiums incorporate different components such as the cost of production, the cost of environmentally friendly agricultural practices, and the cost of providing basic services, including drinking water, health and education. While the initial goal of fair trade concept was to facilitate access to the international market, the movement has, over time, included additional requirements such as environmental criteria. Fair trade labeling administered by the FLO is built upon a certification structure that assures that economic, social and environmental criteria are respected throughout the coffee supply chain.

Only small farmers' associations and cooperatives are authorized to sell fair trade coffee. The fair trade certification criteria for coffee (Waridel, 2002) are the following:

1) Small-scale production

Members of the group must produce on a small scale. They must depend mostly on the family for labor, and not on external sources.

## 2) Democratic management

Members must participate in the decision-making process of their group. They decide what projects the group will undertake, and what to do with the profits of the fair trade.

## 3) Transparency

The board of directors, elected by the members, must ensure transparent operations in order to minimize the risk of fraud.

## 4) Values based upon solidarity

The motivation underlying the organization's existence must be the practice of solidarity. There can be no political, racial, religious, or sexual discrimination. The organization must be open to new members.

## 5) Political independence

The organization cannot be the instrument of a political party or other political interest.

## 6) Sustainable development

The group must share the following values and objectives with Fair Trade Label Organizations and other members certified by fair trade agencies:

- Use of agricultural techniques that are environmentally friendly and contribute to the conservation of natural resources in an effort to prevent or eliminate the use of any chemical products.

- Favor an integrated economic development strategy that seeks to improve production techniques and diversify production in order to reduce dependence upon a single product as the source of all income.



- Promote integrated social-development projects using a variety of means to improve the living conditions of members and the community as a whole. For example, such projects may focus on personal hygiene, housing conditions, education, clean water supplies, or any issue that the members identify as an important need in the community.
- Improve production quality so that the group can develop its market within the conventional network, in addition to the fair trade network.

#### 4.1.4 Market analysis of fair trade coffee

##### a. Demand for fair trade coffee

North America and Europe are the biggest importers of coffee. The US contributes 25% of the world coffee imports (Giovannuci, 2002) while Europe consumes around 50% of the production (Kramer, 2002). The remainder is consumed in emerging markets in East Asia and also in domestic markets.

Between 1998 and 2000, sales of fair trade coffee multiplied by 37 fold in the US and quadrupled in Canada. Consumers' responsiveness to fair trade coffee has been bigger in Europe although it is said that the fair trade movement got its start in North America. Between 75% and 80% of the world's certified fair trade coffee is distributed in Europe (Waridel, 2002).

The sustainable coffee survey of the North American specialty coffee industry conducted in 2001, indicated that fair trade coffee had shown a growth rate of 115% since 2000. In addition, respondents who predict an increase in the growth of the sustainable coffees expect an average growth of 26.5% over the next two years. Organic coffee has led the other two segments, perhaps due to its longer existence in the coffee market.

In 2002, Transfair US conducted a survey showing that 49% of the specialty coffee drinkers would select fair trade coffee. During the same survey, 50% of the specialty coffee drinkers stated that they would pay \$1 or more extra per pound of fair trade coffee. In Europe and Japan, sales of fair trade products, including coffee, showed an average volume growth of 20 % per year from 1999 and 2002 (Giovannuci, 2003). The reason of such high growth rate is the increasing awareness among consumers and buyers of how their purchasing power when related to ethical trade can impact both producers from developing countries and social responsibility of firms in consuming countries.

Table 5 shows the sale of fair trade roasted coffee between 1999 and 2001 in seventeen importing countries.

**Table 6. Sales of fair trade roasted coffee in importing countries between 1999 and 2001**

<b>Market/Year</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>Total( in kilograms)</b>	<b>11,816,363</b>	<b>12,817,973</b>	<b>14,396,353</b>
Austria	283,843	299,484	332,261
Belgium	477,236	547,853	582,203
Canada	77,600	154,224	258,124
Denmark	695,361	742,437	697,070
Finland	35,600	90,648	97,000
France	270,300	495,425	945,000
Germany	3,332,237	3,098,440	3,127,650
Ireland	40,490	55,000	62,000
Italy	353,347	398,511	457,000
Japan	6,200	6,600	6,569
Luxembourg	69,319	64,129	77,320
Netherlands	3,185,513	3,101,923	3,104,681
Norway	54,700	125,313	178,851
Sweden	218,005	216,886	253,569
Switzerland	1,424,584	1,381,860	1,306,415
United Kingdom	1,237,060	1,332,240	1,647,640
United States	54,971	707,000	1,263,000

**Source:** ITC, 2002

Overall, the table shows that sales of fair trade coffee increased during the last three years in coffee-consuming countries. Canada, France, Norway, U.S and Finland exhibit the fastest rate of growth over the three years.

#### b) Supply of fair trade coffee and the size of the market segment

Colombia, Costa Rica, Guatemala and Mexico are the biggest suppliers of fair trade coffee to North America, specifically in US and Canada (Giovannucci, 2001). In European and Japanese markets, two countries from Latin America, Mexico and Peru, were major suppliers.

The production capacity of the 300 certified organizations was globally estimated at 165 millions pounds in 2000 (Ponte, 2001). Much of the fair trade coffee produced is also organic (36 % in 2000). Out of the production capacity of fair trade coffee estimated in 2000, only 29.1 million pounds of coffee were sold as fair trade products during the same year. Sales in North America were only 4.7 million pounds. This again confirms the vast market share of fair trade in Europe (Ponte, 2002). There are, however, limited empirical data on the fair trade coffee market, which makes it difficult to examine the dynamics of the fair trade coffee market.

#### 4.1.5 SWOT analysis of the Coffee Growers' Association

This section presents the internal strengths and weaknesses, as well as external opportunities and threats of the association. The goal of the strategic analysis is to identify the strengths that the association should rely on, the weaknesses that should be avoided and the opportunities and threats the association will face in order to sustain its activities. Table 7 presents a summary of the strengths, weaknesses, opportunities and threats.

**Table 7. Summary of the SWOT analysis**

<b>Strengths</b>	<b>Opportunities</b>
-Required assets and resources available -Vertical integration to ensure coordination -Women's participation in the association	-Growth trend of the specialty coffee market -High barriers to entry for other participants -Eligibility for technical assistance -New product introduction in the specialty coffee market.
<b>Weaknesses</b>	<b>Threats</b>
-Insufficient throughput -Lack of skills and knowledge in the specialty coffee business -Lack of experience in the management of an association	-Small size of the specialty and particularly of the sustainable coffee market. -Rivalry with national and international competitors -Improvement of blending technologies by coffee roasters -Risk of consolidation of big specialty companies

#### **a. Internal analysis**

##### **a.1) Strengths**

The analysis of strengths determines key success factors that enable the association to build competitive advantages and core competencies in the processing and marketing of coffee.

1) Required assets and resources.

-Variety grown by coffee growers

Members of the association are growing Arabica coffee of almost 100% bourbon variety. The Arabica species is preferred over Robusta coffee in producing a good flavor. In addition, the bourbon variety is one of the two Arabica varieties known for producing a high quality (Oxfam Canada, 2001). The other variety is caturra. Bourbon variety when well processed is also admired by roasters because it has a desirable sweet fruity flavor (Primer, 2003). As farmers of the Maraba Association grow only a single origin, this represents a strength; single origins represent one of the main features of the specialty coffee industry

because they tend to produce an excellent taste in a cup (Ponte, 2002). According to the co-director of the Union Roasters' Company, consumers who are "experienced" coffee drinkers are happy to discover a new origin and have found Maraba coffee to be delicious.

#### -Geographical conditions

Coffee trees of the association are located in a district which has ideal growing conditions for Arabica coffee. These conditions include high altitude (1200- 1800m), rich volcanic soils, and rainfall and temperatures adequate for coffee production.

#### -Certification of the association by the fair trade organization and market networks.

The Maraba Association had been certified by the fair trade labeling organization. This gives the growers opportunities to sell the coffee at fair trade prices, higher than current conventional prices. Coffee certified according to sustainable standards is one of the most promising and successful ways to harness consumer willingness to pay for the environmental and social values (World Bank, 2002). Coffee certification is therefore a risk management strategy against low prices, although there is no guarantee that the premiums will be paid (Giovannuci, 2001).

Furthermore, the association receives ongoing technical assistance from PEARL project and other institutions interested in the coffee sector. As the first Rwandan association to produce and sell high quality coffee, the association has obtained first mover advantages by creating market networks with specialty buyers in Europe and the US.

## 2) Vertical integration

In order to produce high quality coffee, care must be taken in the field by only harvesting adequately ripe coffee cherries. Any mistake during the wet and dry processing

stages will result in an undesirable flavor. The secret of getting an excellent taste is to make sure that all wet and dry processes have been carried out properly.

The export green coffee is an asset that has a premium value if coffee cherries are harvested and processed correctly. If little care is given in producing coffee for the specialty coffee market, the premium value can be lost. The costliness of a coordination error that may occur during the production of green coffee is therefore high. The vertically integrated coordination minimizes the risk associated with the high asset specificity of producing high quality coffee. The vertical coordination mechanism also ensures continuity in trade relationships (Karanja, 2002).

Unlike the conventional market in which coffee is sold by description, the marketing of specialty coffees is based on the approval of coffee samples sent to the buyer by the exporter. The buyer decides whether to buy it or not after cupping it. This marketing mechanism reduces transaction costs by the fact that the negotiation of selling the green coffee is only between association representatives and the buyers. There is, however, an increase in cupping costs because buyers need to perform individual verification of coffee samples.

### 3) Effective participation of women

The Maraba Association has many women members, mostly widows from the 1994 genocide. This is a story to market to consumers, along with educating them about the role of women in poverty reduction strategies. Furthermore, having women as growers and members of the management committee of the association highlights the democratic structure of the organization, therefore opening opportunities to the association to sell coffee to fair trade organizations.

## **a.2 Weaknesses**

Without the technical assistance of the PEARL project and other partners, the association would not have been able to engage in the specialty coffee industry.

### **1) Insufficient throughput**

The washing station has a capacity of producing 100 tons of parchment coffee. In the 2002 crop season, the association produced only 39 tons that were sold as specialty coffees. This figure shows that the association is far from reaching full capacity. In addition to the low level of production, the washing station is in operation for only a three-month season. The time lag of the coffee production together with the idle capacity of the coffee washing station results in high processing costs due to lack of scale economies. Moreover, coffee trees grown by members of the association are very old. One-third of the trees are more than 30 years of age, leading to low yields. This problem is hard to solve in the short run because coffee trees require three years before going into the production stage (OCIR, 1999).

### **2) Lack of knowledge and skills in the specialty coffee business**

During the first year of operation, members of the association have learned the technique of washing, fermenting and drying the coffee. However, the downstream functions of the coffee subsector such as marketing are carried out by mostly the PEARL project. While the upstream functions are important in order to produce high quality coffee, marketing research skills are also critical in building strong relationships with buyers (be they importers, roasters or retailers). For instance, the association has no cupping laboratory to test the green coffee before selling it.

Without market information and cupping skills, the long-term sustainability of the association will be in jeopardy. For instance, the association needs to know the preferences of

consumers before targeting specific niches. All these tasks require a skillful manager, which the association does not currently possess.

### 3) Lack of experience in the management of an association

Most of the members of the association are illiterate or have finished no more than the primary education level. It is therefore difficult to handle daily operations efficiently such as keeping records of coffee cherries sales.

## **b. External analysis**

### **b.1 Opportunities**

#### 1) Growth trend of the specialty channel

The analysis of the specialty coffee market undertaken in previous sections has shown a significant growth of the specialty coffee channel and particularly the positive trends in sales of sustainable coffees. The Maraba Association can take into account these opportunities to increase its market share not only in the fair trade coffee market but also in other specialty coffee segments.

#### 2) High barriers to entry in terms of new competitors

There are barriers to entry in the coffee processing and marketing. The preparation of high quality green coffee requires financial resources in order to acquire necessary facilities. In addition, in order to sell to the specialty market, coffee exporters will need to carry out market research, which will be hard to achieve without any technical assistance.

#### 3) Rwandan coffee is new in the specialty coffee market

Coffee specialty buyers started to test Rwandan coffee in 2002. The first results of the cupping tests were encouraging. Maraba coffee scored 87% of the Specialty Coffee Association of America (SCAA) green coffee classification. In 2003, the score was 89%



(Leonard, 2003). Similar results were found by the Union of Roasters of London. When the score is greater than 80% of the SCAA classification, coffee is classified as specialty. From then, other specialty buyers are interested in this new product. According to the product life cycle, demand for the product is low when the product is newly introduced. After that phase, the demand of the product grows rapidly until the demand is no longer driven by sales to new customers (Bosanko et al., 2000). In the short to medium term, the product life cycle theory predicts increasing sales of the specialty coffee from Rwanda. The sustainable coffee survey conducted in 2001 found that 70.5% of respondents would like to get information about new sources of sustainable coffees; this can reflect the willingness to buy more sustainable coffees. Another survey carried out by the Onthefrontier project on coffee from Rwanda found that 64% of importers and roasters are not aware of the level of quality of Rwandan coffee.

#### 4) Eligibility for technical assistance

The association is eligible to obtain financial and technical support from the alternative fair trade organizations because it has been certified by the International Fair Trade Label Organization. This confers an advantage over private operators and non-certified coffee associations. One of the principles of the fair trade coffee is the possibility of coffee buyers to offer a line of credit at the low rates of interest available in developed countries. Low interest rates would represent an advantage over other coffee exporters who will rely on the high cost of debt available in developing countries.

## **b.2 Threats**

### **1) Fair trade coffee industry is a thin market**

The market analysis of the fair trade coffee revealed that although the consumption of the fair trade coffee is growing, sales of fair trade coffee still represent about one percent of the global coffee market (Ponte, 2001). In addition, the same analysis showed that the capacity of production by certified fair trade coffee associations or co-operatives was greater than the demand. There is thus a risk of flooding the market, which could be followed by an erosion of price premiums.

### **2) Rivalry with national and international competitors**

There are other coffee producing associations and private investors in Rwanda and elsewhere who would like to enter into the specialty market. Some of them are in geographical conditions that can produce a higher quality coffee than the Maraba type. If they can succeed in targeting the high quality coffee channels, they could take over some of the current market share of the Maraba Association.

With the supply surplus of coffee in the global market, the specialty coffee represents also an opportunity for other coffee producing operators from other countries. High prices and premiums on quality make the specialty coffee attractive for coffee farmers seeking to avoid low international prices. There is, however, a danger of producing a large surplus of high quality coffee without simultaneous expansion of consumer demand.

### **3) Blending technologies by coffee roasters**

Selling high quality coffee was the main feature of the specialty coffee industry. Over time, quality features that constitute competitive advantages for some coffee exporters to sustain their business is threatened by blending technologies of roasters and the consolidation

of specialty coffee chains. These change forces, which are the key driving changes influencing the coffee industry, will be discussed separately.

### 3) a) Blending technologies by coffee roasters

Commercial roasters have the technical capabilities of selling manipulated products where the freshness of coffee roasted is more preferred than the intrinsic quality of the green coffee (Ponte, 2002). To provide these products, roasters can use average quality green coffee and sell the final product to consumers at cheap prices. For instance, espresso-based drinks can be made from cheap non-washed Arabica and Robusta. These drinks generate profit margins that cannot be achieved when purchasing high quality washed Arabica.

Having flexibility in the blending formulas, roasters have also become less dependent on particular origins. For example, steam-cleaning Robusta allows coffee manufacturers to increase the quality of Robusta, usually low, and be able to replace some Arabica with high grade Robusta (Ponte, 2001).

### 3) b) Risk of consolidation of specialty chains

Specialty coffee companies would not take the quality as their major concern when they expand their businesses because the simplification of sourcing strategies will mean that companies will tend to no longer focus on single origin coffees. Higher sales will require more centralized procurements, thus putting small-scale producers in a competitive disadvantage due to the lack of scale economies.

#### 4.1.6 Strategic issues synthesis

The strategic issues synthesis is an element of the strategic analysis. It is built on the strategic analysis and is composed by five elements (Peterson, 2002). The first two elements, which are competitive advantages and core competencies, identify the main strengths that

will position the association ahead of its competitors. The third element is scenario analysis, which explores how changes in the external analysis together with the association's strengths and weaknesses could lead to either a dramatic decline or an improvement of the firm's performance. The other element is the change grid which locates the company's position and finds how much change is needed. Finally, the critical issues lay out challenges that the association should face to succeed in the future.

### **Competitive advantages**

- 1) Resources and assets capable of producing high quality coffee.

Geographical conditions, single origin varieties, facilities and equipment to produce the required product put the Maraba Association in a competitive advantage.

- 2) Vertically integrated system

The entire process from the purchase of coffee cherries to the exportation of green coffee is coordinated by one participant, namely the association. This enables the association to control any coordination error that may happen during the preparation of green coffee and correct it before it is too late.

### **Core competencies**

- 1) Produce a higher-quality coffee

The ability to create the reputation of the Maraba origin within the specialty industry constitutes the core competency for the success of the Maraba Association. By being able to produce a high quality taste, this will attract consumers and lead to the long-term contracts between the association and coffee buyers.

## 2) Offering incentives to coffee growers

Since there is a growing number of washing stations in neighboring areas of the Maraba Association, another core competency is to provide market incentives to coffee growers so that they are committed to supply the high quality raw coffee to the washing station. The price and premiums paid to farmers will need to be competitive in the region, which can guarantee the association to continuously process sufficient and high quality coffee cherries.

### **Scenario analysis**

#### A. Dramatic decline

The following factors were identified to be potential causes of a dramatic decline of the association's business:

- 1) Glut in the specialty and fair trade coffee markets: An oversupply of the sustainable coffees could result in lower prices and in a decrease in coffee sales from the association.
- 2) Low customer satisfaction: A failure to satisfy coffee buyers, particularly roasters and retailers, would lead to a decline in performance of the association. For instance, coffee growers need to deliver high quality cherries and within the required time; otherwise the wet and dry processing will not produce the green coffee that meets the specialty coffee standards. Likewise, even if raw coffee meets quality standards, errors made during the processing stages could result also in a low quality. The same scenario can also happen if the association is unable to supply a minimum quantity of coffee to buyers.
- 3) Lack of expertise in the high quality coffee market: The Maraba Association was fortunate to obtain the technical assistance in order to enter in the specialty coffee business. Lack of

ongoing support of this kind, before the association develops these skills would result in the incapacity of the association to access the market.

#### B. Same but better

From the SWOT analysis, a gradual extension and enhancement of the association performance can be reached by undertaking the following action strategies:

1) Further increase of coffee quality: The interviews conducted with last years' buyers confirmed that Maraba coffee meets the classification of the specialty coffee association of America as the score was higher than 80%. If that quality level can be maintained or exceeded, importers will trust the product and establish long-term contracts with the association.

2) Growth of the specialty and sustainable coffee markets: If the specialty coffee market continues to grow, the association would expect to increase its market share. Furthermore, as the Maraba coffee is still in the introduction phase, the association could also target other specialty coffee buyers.

#### C. Fundamental change

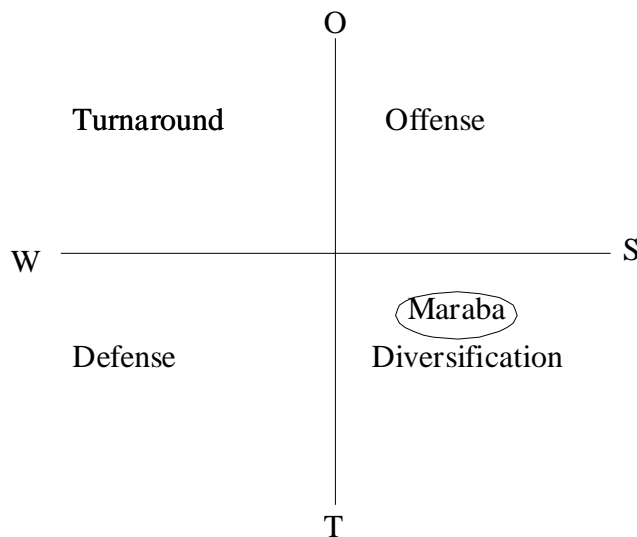
1) Creation of a brand-label name: Given the financial and technical support the association has received since 2002, the organization can move forward by creating a specific niche. For instance, establishing a brand-label name could enable the association to position itself in the specialty market and increase their net income.

2) Diversification in other niche markets: Assuming that the association can maintain the fair trade label, it can also look for opportunities to invest in organic, shade-grown and high quality niches. The diversification of market niches will enhance the strategic position of the association and be a risk management tool for the long-run financial sustainability.

3) Acquiring management and marketing skills: The previous analysis has shown that the Maraba Association is eligible to obtain technical assistance from fair trade organizations. The training of the management team of the association in the areas of market access, coffee cupping and business management will hopefully enhance the performance of the association. The key factor for the association's success is to have a strong committee team with strong management and marketing skills.

4) Strong member commitment: If the association continues to pay current prices to farmers, which are higher than local market prices for parchment coffee, these price incentives will attract current and new members to respectively stay and join the association. The financial sustainability of the association will depend on the number of members and their capability to deliver coffee cherries at the washing station. The association will, therefore, be able to increase its production capacity and an increase of the overall members' profits.

#### Change grid



**Figure 4. Change grid for Maraba Association**

The association operates in a growing sustainable and specialty coffee market but with only a small market share compared to the global coffee market. The Maraba Association is located on the right side of the vertical line (O-T) and below the horizontal line (W-S) of the change grid. Strengths (S) are greater than weaknesses (W) and threats (T) outweigh market opportunities (O). Maraba Association's position on the lower right quadrant of the change grid reflects the magnitude of its strengths as well as the threats it faces. The association will need a diversification-oriented strategy which takes advantages of strengths and opportunities and tries at the same time to overcome weaknesses and threats.

### **Critical strategic issues**

The goal of the strategic analysis was to examine capabilities of the association to succeed in the specialty coffee industry and identify the strategic issues it faces. The critical strategic issues that must be addressed to assure a successful future are the following:

1) How will the association deal with the thin market nature of the fair trade coffee market?

The thin market nature of the fair trade market is a serious threat for the association. It will be essential for the association to overcome this threat by building a high level of customer satisfaction. The creation of a strong trust with coffee buyers will enable the association to gain competitiveness in the market place.

2) How will the association overcome the lack of skills and expertise in the specialty coffee business? The ability to have skillful people to run the association's activities will lead to enhancing the strengths and taking advantage of opportunities in order to ensure a successful future.



3) How will the association manage the national and international competitors?

The association has embarked on a highly competitive market with well-established and experienced players. The association will have to diversify its products by serving multiple coffee niches.

4) How will the association manage its high total costs?

The decrease in profitability of Maraba Association would be primarily due to insufficient throughput given the size of their facilities.

The previous questions will be answered by the strategic plan of the association that will be performed in the next section.

## **4.2 Strategic plan for the association**

In this section, the strategic objectives from the existing business plan of the association (Sihimbiro, 2001) are reviewed and a new strategic plan is proposed to address the previous critical issues with the aim of improving the association's performance. The strategic plan will be composed of four elements (Peterson, 2002).

### **4.2.1 Vision and mission statement**

The association strives to enhance its position as the pioneer coffee Growers' Association in Rwanda committed to produce high quality coffee for the specialty coffee market. Its mission is to be recognized worldwide for accomplishment as an exporter of single-origin coffee that provides increasing revenue to members and sells green coffee directly to coffee roasters and retailers. The mission statement reflects priority given by the association to members' returns and consumers' satisfaction.

The association's vision reflects how the association foresees its future success. It aims to enhance its first mover advantage of being the first association to produce and export specialty coffee from Rwanda.

#### 4.2.2 Setting objectives

The objectives contained in the existing business plan of the association are the following:

- Capture high coffee prices by selling coffee to the specialty coffee market.
- Advise coffee growers on requirements of the specialty coffee industry in order to deliver appropriate raw coffee
- Provide short-term credits to members of the association
- Minimize the cost of cherry buying subject to paying a high enough price to provide farmers a satisfactory profit.

The previous objectives are not specific enough to monitor the performance of the association. They also show some confusion about the means and ends, and should therefore be revised to base the strategic objectives on measurable performance benchmarks. Since the mission of the association is to increase returns to its members and sell the high quality coffee, the operation management and coffee buyers' satisfaction are important issues. The strategic objectives proposed are the following:

- Increase the number of members of the association at an average of 150 new members per year for the next five years.
- Increase throughput to operate at full capacity after 3 years

-Achieve at least a 90% score on the SCAA classification during the next five years and create a brand-name for Maraba coffee. A 90% score of SCAA cupping standards means that the coffee meets the high quality grades of the SCAA classification (Leonard, 2003).

The proposed objectives reflect the outcomes the association should look for and help the association in taking the right direction in achieving its mission and vision.

#### 4.2.3 Core strategy

The current and proposed core strategy of the Maraba Association is summarized in the figure 3.

**Table 8. Summary of the core strategy**

<b>Elements of strategy</b>	<b>Current core strategy</b>	<b>Proposed core strategy</b>
<b>Customer value/ competitive advantage</b>	Differentiation strategy	Differentiation strategy
<b>Strategic initiative</b>	Growth strategy	Growth strategy
<b>Strategic scope</b>		
a. Product/industry scope	Single business	Diversification
b. Geographic scope	Global	Global
c. Resource development	Internal	Internal
<b>Industry Role</b>	Adopter	Adaptative leader
<b>Vertical coordination</b>	Vertical integration	Vertical integration

The current core strategy differs from the proposed core strategy at two levels: the product/industry scope and the industry role.

#### a) Current strategy

##### a.1) Customer value/competitive advantage

The association has adopted a quality features advantage strategy. Their focus is on selling a high quality green coffee. Adopting a quality features advantage strategy will satisfy customers of the specialty industry and reduce the competition with other coffee exporters. It will also capture price premiums the market is providing, hence increasing returns to the members of the association.

##### a.2) Strategic initiative

The association aims to keep first buyers with whom it has established market networks. Moreover, it seeks to grow by expanding the sales to other new buyers. The size of the facilities provides also some processing capacity to increase its output.

##### a.3) Strategic scope

- Product industry scope: Around 100% of their sales come from the specialty coffee market segment. The association is producing and selling its green coffee in only one segment.
- Geographic scope: In 2002, sales were made to the Union Roasters' Company of London and the Community Coffee Company of Louisiana. None of the output was sold domestically.
- Resource development: The association is using an internal resource development strategy. The management team of the association receives ongoing training related to producing high quality coffee and the overall management of the association. The internal resource development strategy will enhance the learning process of members of the association and improve their capabilities to respond to expectations of the specialty coffee industry.

#### a.4) Industry role

Although the association was the first organization in Rwanda to process and market to the specialty coffee market, it is trying to follow successful stories in neighboring countries such as Kenya. For instance, the marketing of its output is relying on the Kenyan image to convince buyers that coffee from Rwanda is similar to that from Kenya (Ottaway, 2003). The association is thus playing the role of an adopter in the specialty coffee industry. An adopter also called “follower” is a small firm that adopts and adapts successful strategies of others.

#### a.5) Vertical coordination

After buying the cherries, the coordination in downstream functions is undertaken through vertical integration. The asset specific nature of the investment in the specialty coffee industry requires a greater control along the chain in order to avoid the cost of coordination errors. These errors can occur during the coffee processing chain, leading to a low level of quality during coffee cupping. The results of a lack of care or mistakes committed along the chain will result in value-loss of the green coffee, jeopardizing the whole investment. Furthermore, the sale of the specialty coffee is carried out through approval of samples. Specialty coffee exporters need to make sure that all the steps in obtaining the right green coffee are respected because only one substandard bean can disqualify a coffee container.

#### B) Proposed strategy

The core strategy the association is implementing is not different from the one suggested here except for the industry role and strategic scope choices. The association is a single business focusing on the production of a high-quality green coffee. The strategic

analysis showed, however, that the association is operating in a threatening environment. To be successful in the future, the association would need to diversify its product line in order to overcome the threats. Regarding the industry role, the adoption of one's success will also raise market competition, which can impact negatively the sustainability of your business. The association will compete with experienced coffee exporters in the specialty coffee market. Unless the Maraba Association increases its overall coffee quality compared to its competitors, it will be difficult for it to expand market share in a thin market.

#### C) Evaluation of the core strategy

The association's current strategy is consistent with the vision and mission statement suggested. This will be reviewed if the association decides to diversify. The evaluation of core strategy includes the analysis of the overall pros and cons for the entire strategy. The pros and cons for each element of the core strategy will be addressed in the following paragraphs.

For the customer value, Maraba Association can maintain the differentiation strategy while diversifying its product lines. The strategy could enable the association to gain competitiveness by selling high quality products to multiple coffee market niches. The constraints of the strategy would be that other coffee exporters may increase their output in the specialty coffee market without a proportional increase in demand, leading to a decrease of coffee market share for the association.

The strategic initiative that focuses on growth will enable the association to increase the membership and handle sufficient volume of coffee cherries. Total operating costs and the proportion of fixed costs would be low while sales and profits will increase. The

disadvantage would be that transaction costs may increase as a consequence of a large number of members.

Regarding the strategic scope, the product industry scope of a single business has the advantage of specific focus. It is easy to follow the trends of a narrowed business. However, it carries the risk of limiting market opportunities for new products. Focusing on one product enables exporters to devote more time in searching consumers' preferences and monitoring the dynamics of the product's demand. The suggested strategic scope of diversification carries the disadvantage of losing focus and requires a lot of capital resources.

For the geographic scope, the association will export green coffee as the domestic market is still very thin. The disadvantage of being global is the risk of losing its market share through competition. The association will confront other exporters aiming to capture buyers in the specialty coffee market.

Within the resource development scope, the internal resource development will enhance the capacity building of its members by providing them adequate skills to respond to customers' expectations at least in terms of producing the required coffee quality.

Regarding the role of the association in the industry, the association should move from being a follower and play instead the role of "adaptive" leader. An "adaptive" leader's goal is to increase market share and adopt the successful strategies of others. The disadvantage of being an "adaptive" leader is the lack of innovation and the high competition the association will encounter.

Lastly, coordination will be ensured through vertical integration of the downstream functions of the specialty coffee subsector from the purchase of coffee cherries. This will reduce the likelihood of coordination errors. However, transactions costs can escalate

because the management team will be dealing with a large number of farmers who supply coffee cherries to the washing station as the number of association' members increases.

#### D) Action strategies and required resources

Based on the core strategy proposed, action strategies and needed resources will be analyzed for the future success of the association. Action strategies are steps that should be carried out to build and strengthen the key success factors of the association. Those factors will enable it to continue to increase market share in the specialty coffee industry. The challenge will be to sell high quality products to the right targeted markets. The following paragraphs set out four action strategies the association could implement.

##### D.1) Control of production of high quality coffee cherries

The production of good coffee cherries, the necessary condition to produce a high quality coffee, starts in the field. To continue to produce a high quality coffee, the association needs to put in place an assessment committee, which should be elected among members of the association, to evaluate coffee cherries. To achieve that strategy, the following activities will be necessary:

- work with the extension services and coffee stakeholders that provide the technical assistance.

- monitor the commitment of members to implement the required agricultural practices.

These actions may enable farmers to increase the coffee output and sell to the association the required quality of coffee cherries. Required resources will include human and financial resources. Human resources and adequate financial resources should provide better coffee production practices to increase farm productivity. The evaluation team is expected to be paid so that they have incentives to provide good services.



#### D.2) Increase the market share in the specialty coffee market channels.

To achieve the strategy, the association needs to fulfill the following actions:

- Maintain market relations with current buyers
- Continue to produce a consistent and high quality coffee
- Invest in market research to identify opportunities in coffee-consuming countries other than the United Kingdom and the U.S.

Taking advantage of the specialty coffee market will require investment in human and physical capital as well as access to new technologies, financial institutions and technical assistance. The 3% of coffee export value charged by OCIR Café could be offered to support coffee stakeholders, among them the National University of Rwanda and the National Research Institute, that provide support to the association. The system will then introduce the possibility of paying extension services by coffee producing organizations. Furthermore, the possibility to request technical assistance programs and a credit line through fair trade organizations may provide the resources needed for the accomplishment of increasing the market share in the specialty coffee market. The Union Roasters' Company has confirmed the possibility of assisting the association in cupping skills.

#### D.3) Develop an internal training system network

As noted earlier, the association lacks skilled personnel. To respond to this weakness, the association should have a plan to provide continuous training to its members and particularly to the management team of the association. The following activities could help to fulfill the task:

- Tours in neighboring countries to share experiences. The East African Fine Coffee Association represents an opportunity to facilitate the process.

-Attend coffee trade shows organized in neighboring countries, Europe and North America.

The Specialty Coffee American Association annual conference represents an opportunity to the association to learn more about the dynamics of the specialty coffee industry.

-Hire an experienced manager: The management of the association needs expertise from an experienced manager who can plan how and where the association will sell its output. With the diversity of consumers' preferences in the specialty coffee market, this market environment calls for a high degree of professionalism to manage the association, create and maintain long-term relationships with buyers.

#### D.4) Diversify into other products

The strategic analysis showed the necessity for the association to implement a diversification strategy. The following actions could be implemented:

- Creation of an appellation system for its coffee and retention of consumer fidelity through continuous emphasis on quality. The goal will be to introduce a brand name for its green coffee product. Also, the association should move from the high grade quality to the exemplary quality coffee of the specialty coffee, which represents 94% of the specialty coffee industry (Onthefrontier, 2002). Maraba coffee has already achieved 89% of the SCAA ranking. If the association succeeds in exceeding the 90% score, Maraba coffee could be treated as an exemplary quality coffee that will capture high premiums. The PEARL project and other partners that provide technical assistance to the Maraba Association can play a major role in creating a Maraba brand-name. Also, an aggressive advertising of the product and the creation of a market information network are needed to accomplish this action strategy. Since the association is lacking these business skills, technical assistance can fulfill

these activities by providing, for instance, training to the management team of the association.

-Study the possibility of selling to other sustainable coffee segments such as the organic and shade-grown coffee channels. Selling to other sustainable coffee markets represents another alternative in the diversification strategy. Demand for double certified coffee, which is both organic and fair trade, is growing in coffee-consuming countries particularly in Europe. The association should start selecting, among its members, farmers that will be suited to produce organic coffee. There is also a need to assess a shade-grown coffee production system. The agro-forestry project operating under the National Research Institute (ISAR) can provide expertise on this strategy.

-Research and development on new products the association could produce. Investing in coffee enterprise leaves some time unused during the year. There is a possibility to integrate other agricultural and non-farm activities with coffee production. Before suggesting what enterprises to invest in, market research on potential activities the association should invest in is required. Pepper production that has been started by the association should be assessed to determine its viability. Other suggestions encompass handicrafts and fruit production. The reasons of proposing previous enterprises are the long history of the area where Maraba district is located to produce and sell handicrafts. In addition, there are small agro-enterprises that process fruits near the association headquarters.

The previous actions will reduce the risk of relying on the thin market of the fair trade coffee. Resources needed for these actions encompass human and financial resources to research on opportunities of new products. They will thus require a good research and development team to move from a single business to a diversified organization.

## **CHAPTER 5: FINANCIAL APPRAISAL FOR MARABA ASSOCIATION**

### **5.1. Introduction**

With the imbalance between supply and demand in the global coffee market coupled with a low level of commercial coffee prices, there is much interest among private operators to invest in coffee washing stations in Rwanda. The washing station is a necessary investment to produce a fully washed coffee, which is sold in the specialty coffee market at high prices. This chapter will assess the financial feasibility of investing in coffee processing and marketing, using the Maraba Association as a case study.

### **5.2 Financial appraisal of investing in coffee processing and marketing**

#### **5.2.1. Objectives**

The purpose of this section is to find what should have been the profitability of the Maraba Association if major investments and operation costs were paid by them. The results of the analysis may therefore be a useful guide for other similar associations and private investors willing to enter into the specialty coffee business. Specifically, the analysis will:

- a) Estimate the expected after-tax cash flows from the investment over a time frame of six years. The time frame of six years was chosen because it was difficult to predict what the specialty coffee market, a thin market, will look like in the long run.
- b) Compute the net present value and the internal rate of return.
- c) Propose a hypothetical model of sharing specialty coffee export value between coffee stakeholders.
- d) Carry out sensitivity analysis to identify the impact of change of key parameters on profitability.

### 5.2.2. Data description and assumptions

Data for this section are based on primary data collected in summer 2002. In addition, secondary information was gathered from the association's records. The PEARL project also makes available financial contributions made to the association to cover the cost of establishing coffee processing facilities.

#### a) Investment costs

The investment cost includes the cost of building the washing station and the milling factory. The PEARL project estimated the total costs of establishing the washing and the milling factory at FRWA 47 million. The association also evaluated the land on which the washing station was built at FRWA 250,000. The rationale for including the value of the land as part of the investment cost is that if the project was not undertaken the land would have been put to alternative uses. The washing station constructed has a capacity of 100 tons of parchment coffee per year, about 500 tons of coffee cherries. A conversion rate of 1 kilogram of parchment coffee from 5 kilograms of coffee cherries was used.

#### b) Operating costs

The operating costs are comprised of the following categories:

- Coffee cherry purchasing costs.

The association buys coffee cherries from coffee growers, members of the association. In 2002, the price was FRWA 60 per kilogram of coffee cherries, roughly equal to 300 FRWA per kilogram of parchment coffee. Other coffee growers were paid FRWA 120 per kilogram of parchment coffee in the regular national coffee market. The price of FRWA 60 per kilogram of coffee cherries was expected to stay constant during the time frame of the analysis. The quantity of raw coffee was determined using production estimations from the

National Coffee Board, which indicates that a coffee tree located in the agro-ecological zone of the association can, on average, produce 461grams of parchment coffee per year during the production stage of the tree (years 3-30 of life) with an increase of 3% when more inputs are utilized<sup>3</sup>. On average, every coffee grower has 153 coffee trees in Maraba district (OCIR, 1999). In addition, the coffee census conducted by the coffee board in 1999 found that more than one-third of trees were more than 30 years old. The productivity of coffee trees depends on many factors among them their age. An old tree will produce a low yield. In this study, I have assumed that every member of the association possesses 100 trees, which is two-thirds of the average tree population per farmer, with each tree capable of producing on average 461 grams of parchment coffee between 2003 and 2007.

The number of association members was taken into consideration. In 2002, the Maraba Association had around 450 members. In the 2003 coffee season, the number was 1500. In 2004, they expect to have 1670 members. The 1999 coffee census estimated the number of coffee growers in Maraba at about 6000. One would expect that farmers will continue to join the association. An average of 150 farmers per year was assumed to join the association between 2005 and 2007. Data for 2002 were obtained from association records and included the number of members and the quantity of parchment coffee. Table 9 shows the number of coffee growers per year, the quantity of coffee cherries expected and the costs of purchasing the raw coffee.

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<sup>3</sup> This production increase was not taken into consideration in the financial appraisal.

**Table 9. Estimation of the cost of purchasing coffee cherries**

<b>Year</b>	<b>2002 a/</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Number of members of the association	450	1,500	1,670	1,820	1,970	2,120
Number of coffee trees	-	150,000	167,000	182,000	197,000	212,000
Production parchment coffee (Kilograms)	39,706	69,150	76,987	83,902	90,817	97,732
Production of coffee cherries (Kilograms)	198,529	345,750	384,935	419,510	454,085	488,660
Cost of coffee cherries (FRWA)	<b>11,911,765</b>	<b>20,745,000</b>	<b>23,096,100</b>	<b>25,170,600</b>	<b>27,245,100</b>	<b>29,319,600</b>

**Notes:**

- a/ Data for 2002 were based on association's records and were adapted for other years.
- A conversion rate of 1 kilogram of parchment coffee from 5 kilograms of coffee cherries. was used
- Price per kilogram of coffee cherries = FRWA 60.
- Number of coffee trees per member = 100 from 2003.
- Average yield of parchment coffee per coffee tree 2003 and 2007 = 461 grams.

**-Transport costs**

Coffee cherries need to be processed within 7 hours of picking; otherwise they can start fermenting, consequently reducing the quality of the coffee and its monetary value. Transport costs were computed for coffee collected at more than 6 km from the washing station. Transport costs also encompass costs of moving the parchment coffee to a milling factory located about 10 km from the washing station. Beside that, shipping costs to the port, when coffee is exported, was added to this category of costs.

Among places where the association collects raw coffee, three areas are located more than 6 kilometers from the washing station. An average of FRWA 10,000 per day was taken as the rent for a truck for gathering coffee cherries for a harvesting season of 90 days. It is assumed that the truck used for collecting coffee cherries has excess capacity. This is the

reason for the constant cost of bringing coffee cherries to the washing station over the time frame of the financial analysis. Regarding the cost of bringing the parchment coffee to the milling factory, the estimations were based on the official price applied to collectors who supply parchment coffee to the milling factories. An average of FRWA 35 per kilogram is paid for transport from provinces to Kigali, the capital city of Rwanda where most milling factories are located (average of 100 kilometers). Since the washing station and the milling factory of the association are separated by 10 kilometers, an average of FRWA 3.5 per kilogram was used. Finally, the shipment cost from the association's warehouse to buyers' ports was based on the prevailing data of 2002. Table 10 establishes the types of transport costs and the total costs that are projected during the time frame of the analysis.

**Table 10. Estimation of Transport Costs**

Type of transport costs	2002 a/	2003	2004	2005	2006	2007
a. Bringing coffee cherries to washing station (FRWA))	900,000	900,000	900,000	900,000	900,000	900,000
Quantity of parchment coffee (Kg)	39,706	69,150	76,987	83,902	90,817	97,732
b. Moving parchment coffee to hulling factory (FRWA)	138,971	242,025	269,455	293,657	317,860	342,062
Quantity of green coffee to be shipped	27,000	47,022	52,351	57,053	61,756	66,458
c. Cost of shipment (FRWA)	2,727,000	4,749,222	5,287,467	5,762,389	6,237,312	6,712,234
<b>Total transport costs (FRWA)</b>	<b>3,765,971</b>	<b>5,891,247</b>	<b>6,456,922</b>	<b>6,956,046</b>	<b>7,455,171</b>	<b>7,954,296</b>

**Notes:**

- a/ Data for 2002 were based on association's records and were adapted for other years.
- Average cost/Kg of moving parchment coffee to hulling factory = FRWA 3.5.
- Average cost of shipment/Kg = FRWA 101.

- Labor costs

They include overhead staff and temporary labor costs to carry out the wet processing activities. The overhead costs are mainly the salaries paid to the management team of the



association. Temporary labor costs consist of costs of de-pulping, washing and drying, grading and sacking the parchment coffee.

Labor costs were based on the association's records of 2002, which unfortunately did not separate fixed and variable costs. The breakdown between fixed and variable costs was based on data for Kenya's cooperative factories, where Whittaker et al. (1985) estimated that fixed and variable costs for a washing station with a capacity of 251-500 tons of coffee cherries were equal to  $\frac{3}{4}$  and  $\frac{1}{4}$  of total labor costs, respectively<sup>4</sup>. The  $\frac{3}{4}$  and  $\frac{1}{4}$  shares were then multiplied by total labor costs for the association in 2002, divided by the quantity of coffee cherries, which in turn was calculated using the conversion factor from parchment coffee to coffee cherries. This gives fixed and variable labor costs of 24 and 8 FRWA per kg of cherries, respectively. Table 11 shows the labor costs of the wet processing function.

**Table 11. Estimation of labor cost related to the wet processing**

Year	2002 a/	2003	2004	2005	2006	2007
Quantity of coffee cherries ( Kg)	198,529	345,750	384,935	419,510	454,085	488,660
Variable labor costs of wet processing (FRWA)	1,583,182	2,757,199	3,069,681	3,345,401	3,621,121	3,896,841
Fixed labor costs of wet processing (FRWA)	4,749,545	4,989,545	5,109,545	5,229,545	5,349,545	5,469,545
Total labor costs of wet processing (FRWA)	6,332,726	7,746,743	8,179,226	8,574,945	8,970,665	9,366,385

**Notes:**

- a/ Data for 2002 were based on association's records and were adapted for other years.
- Average variable cost/kg of wet processing = FRWA 8
- Fixed cost is equivalent of  $\frac{3}{4}$  of the total labor cost which occurs in 2002.

- Costs of supplies of the association

There are costs of supplies to keep records of the association. Packaging materials to bag the parchment and green coffee were also added to the cost of supplies. The cost of

<sup>4</sup> Annual costs of overhead staff and temporary labor in Kenya's cooperatives are shown in appendices 4 and 5.

supplies was based on 2002 figures. The cost of materials to keep records was expected to change according to the number of members of the association. An average cost of supplies per farmer was derived using 2002 data. Furthermore, the packaging materials were based on the quantity of parchment coffee produced. Table 12 shows the types of supplies and the different costs discussed in this section.

**Table 12. Estimation of costs of the association's supplies**

Year	2002	2003	2004	2005	2006	2007
Number of farmers	450	1,500	1,670	1,820	1,970	2,120
Cost of materials to keep records (FRWA)	174,050	579,000	644,620	702,520	760,420	818,320
Quantity of parchment coffee (kg).	39,706	69,150	76,987	83,902	90,817	97,732
Number of bags	662	1,152	1,283	1,398	1,513	1,628
Cost of bags (FRWA)	646,112	1,125,504	1,253,491	1,365,846	1,478,201	1,590,556
<b>Total costs of supplies (FRWA)</b>	<b>820,162</b>	<b>1,704,852</b>	<b>1,898,498</b>	<b>2,068,788</b>	<b>2,239,078</b>	<b>2,409,368</b>

**Notes:**

- a/ Data for 2002 were based on association's records and were adapted for other years.
- Average cost of supplies/Member= FRWA 387
- Cost of one bag = FRWA 976
- Quantity of coffee/ Bag= 60 Kg
- Cost of repair and maintenance

During the six years for which the financial analysis is conducted, the association is not expecting more expenses in repair and maintenance since the equipment is still new. They plan to replace, every year, only the pulper disks of the washing station at a constant cost estimated at \$300 per year starting in year 2003, which is equal to FRWA 150,000 for years 2003-2007.

- Dry processing costs

These costs were based on data collected in 2002. Fixed costs were constant during the time of the analysis. The reason for that is the flexibility of performing this function

compared to coffee wet processing. Once coffee is dried, the hulling function can be performed at any time before exportation. As for wet processing, it is assumed that fixed costs per kilogram of parchment coffee are equal to three-fourths of total labor costs of the coffee dry processing function, using the Kenyan cooperatives' costs as a guide. Average variable cost per kilogram of parchment coffee is computed by dividing one-quarter of total drying processing costs by the quantity of parchment coffee recorded in 2002. Table 13 shows the labor cost related to dry processing.

**Table 13. Estimation of labor cost related to coffee dry processing**

<b>Year</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Quantity of parchment coffee ( Kg)	39,706	69,150	76,987	83,902	90,817	97,732
Fixed costs of dry processing (FRWA)	1,117,630	1,117,630	1,117,630	1,117,630	1,117,630	1,117,630
Variable costs of dry processing (FRWA)	372,543	622,350	692,883	755,118	817,353	879,588
<b>Total labor costs ( FRWA)</b>	<b>1,490,173</b>	<b>1,739,980</b>	<b>1,810,513</b>	<b>1,872,748</b>	<b>1,934,983</b>	<b>1,997,218</b>

**Notes:**

- a/ Data for 2002 were based on association's records and were adapted for other years.
- Average variable cost of dry processing/Kg = FRWA 9.38
- Fixed cost is equivalent of  $\frac{3}{4}$  of the total labor cost that occurs in 2002
- Other costs: Costs of attending coffee trade-shows and the salary of the manager

Action strategies suggested in the strategic plan include hiring a qualified manager to provide business skills to the association and to attend coffee trade shows. The study assumed two trade shows per year with one held in Europe and another in the United States. For trade shows organized in Europe, the cost of attending them consists of a round-trip ticket (\$1000) and a total *per diem* of \$ 1750 with an average of \$250 per day. In the U.S, the cost of the ticket and the total *per diem* were estimated at \$1500 and \$ 1050 respectively. The

salary of the manager was estimated at FRWA 150,000, which is equal to an average salary of a Bachelor's degree holder in agriculture or social science areas. Table 14 summarizes the costs of processing and marketing for the association.

**Table 14. Estimation of total costs of processing and marketing**

Year	2002	2003	2004	2005	2006	2007
Cost of coffee cherries (FRWA)	11,911,765	20,745,000	23,096,100	25,170,600	27,245,100	29,319,600
Total transport costs (FRWA)	3,765,971	5,891,247	6,456,922	6,956,046	7,455,171	7,954,296
Cost of wet processing (FRWA)	6,332,726	7,746,743	8,179,226	8,574,945	8,970,665	9,366,385
Total costs of supplies (FRWA)	819,847	1,706,004	1,899,781	2,070,186	2,240,591	2,410,996
Repair and maintenance cost (FRWA)		150,000	150,000	150,000	150,000	150,000
Cost of dry processing (FRWA)	1,490,173	1,739,980	1,810,513	1,872,748	1,934,983	1,997,218
Cost of attending Coffee trade show (US)	2,550,000	2,550,000	2,550,000	2,550,000	2,550,000	2,550,000
Cost of attending Coffee trade show (Europe)	2,750,000	2,750,000	2,750,000	2,750,000	2,750,000	2,750,000
Salary of manager	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000
<b>Total processing and marketing costs (FRWA)</b>	<b>26,120,481</b>	<b>45,078,974</b>	<b>48,692,541</b>	<b>51,894,526</b>	<b>55,096,510</b>	<b>58,298,495</b>

c) Projected outputs and prices

-Projection of coffee production

The expected output derives from the projected quantity of coffee cherries estimated in Table 9. The conversion factor from parchment coffee to green coffee was taken to be 68%.

#### -Projected sales and prices

This study assumes that the fair trade coffee prices will be the minimum price the association will expect in the future. The minimum guaranteed price is \$1.26/pound for fair trade coffee buyers. In addition, based on an email-survey conducted with coffee buyers, the Community Coffee Company's manager stated that prices were set according to free market forces where factors such as supply, demand and quality determine the prices. In 2002, the company bought 300 bags at \$1.36 /pound. He also added that they expect to buy at least one container<sup>5</sup> from the association if the quality of coffee improves. This study has assumed that the same price of \$1.36 pound will prevail for the next five years. Table 15 shows expected coffee sales in kilograms and total benefits in Rwandan currency.

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<sup>5</sup> A container contains 18 metric tons or 300 bags

**Table 15. Expected sales and revenue by the association**

<b>Year</b>	<b>2002 a/</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Quantity of green coffee (Kg)	27,000	47,022	52,351	57,053	61,756	66,458
Sales to Community coffee Company (Kg)	18,000	18,000	18,000	18,000	18,000	18,000
Sales to fair trade buyers(Kg)	9,000	29,022	34,351	39,053	43,756	48,458
Revenue from Community company (\$)	53,856	53,856	53,856	53,856	53,856	53,856
Revenue from Fair Trade Buyers (\$)	24,948	80,449	95,221	108,256	121,290	134,325
Total sales (\$)	78,804	134,305	149,077	162,112	175,146	188,181
<b>Total revenues in FRWA</b>	<b>39,402,000</b>	<b>67,152,492</b>	<b>74,538,708</b>	<b>81,055,957</b>	<b>87,573,206</b>	<b>94,090,455</b>

**Notes of table 15:**

- a/ Data for 2002 were based on association's records and were adapted for other years.
- Price per kg of green coffee for Community coffee (\$) = \$1.36/pound x 2.2 = 2.992
- Price per kg of green coffee for fair trade buyers (\$) = \$1.26/pound x 2.2 = 2.772
- Exchange rate (FRWA/\$) = 500
- Conversion factor from parchment to green coffee is 68%.

d) Other assumptions of the analysis

- Bank interest

The association receives a loan each year from the local bank in order to operate during the coffee season. The bank finances most of the annual working capital and charges interest only on the principal. The annual interest rate of 16% is used in the financial analysis.

Regarding the investment costs, the same local bank was assumed to provide a loan to cover the initial capital cost in 2001. The association has been offered a grace period of one year and the loan is going to be repaid in six equal annual installments at 16% interest per year starting in 2002. Interest fees will be calculated on both the principal and the interest capitalized from 2001.

- The costs and benefits are in constant FRWA. Prices changes due to inflation are not included in the analysis.

- The official exchange rate of the Rwandan Franc to the US dollar was assumed to be 500 FRWA per \$ U.S.

- The coffee washing station and hulling factory are depreciated with a straight-line balance method. The useful life of the facilities is 15 years.

- Tax rate of depreciation: The washing station has been classified as “farm work” with a tax rate of 15%. Depreciation is not a cash flow but has cash flow consequences because it is tax deductible. Therefore, it provides a tax shield equal to depreciation multiplied by the tax rate.

- Government tax rate: The value added tax is assumed to be applied to the association's profits. Tax rates are fixed by Rwanda Revenue Authority, a national public agency. The Value Added Tax (VAT) of 15 % will be applied to the association's net income. In addition,

10% of the profits are distributed to community development activities. The fair trade label requires farmers' organizations to contribute financially to community development programs such as education, health care, housing and water supplies. The national coffee board also charges 3% of coffee export revenue. The coffee board fee and the tax on community development were deducted from the net income before the calculation of the government tax (VAT). It is assumed that the association will not pay taxes for either the government or for the community development when there is a negative cash flow. It is also supposed that there is no compensation offered to the association when there is no positive net income.

-The salvage value of the equipment was calculated using the straight line depreciation procedure. The total salvage value is equal to the value of the land plus the sum of the depreciation value of the equipment for 9 years minus the value of six years of depreciation taken for the analysis. The opportunity cost of capital was assumed to be 16%, equivalent to the interest rate of the local bank.

- Portfolio of assets: The analysis assumes that the association will invest only in coffee processing and marketing. Other lucrative options are supposed to be not feasible to invest in.

- Cash flows are estimated by simply counting money flowing in and money flowing out of the business. Therefore, there was no need to calculate changes in net working capital (NWC) because of the use of the cash accounting approach.



### 5.2.3. Financial appraisal

Rational economic agents prefer to receive cash sooner rather than later. Present value analysis was used to summarize the quantitative attractiveness of the project. The net present value (NPV) can be interpreted as the amount by which the market value of the association's wealth will change as a result of undertaking the project (Bierman, 1984). The formula for computing the net present value of the investment includes the present value of after-tax cash flows (PVATCF), present value of after-tax terminal value (PVATTV) and the after-tax equity proportion of initial investment (ATEPII). In this study, I have assumed that the two last components are equal to zero. The PVATCF encompasses cash inflows, cash outflows and the effects of tax shield and income taxes in the cash flows. The formula for the estimation of the PVATCF is the following:

$$PVATCF = ((\text{Revenues} - \text{Expenses}) (1-t) + \text{Depreciation} (t) - \text{Interest} (1-t) - \text{Principal}) / (1+ke)^n -$$

Net Working Capital (NWC), where:

- t is an income tax rate for the association;
- ke is the cost of equity-capital and the NWC is equal to zero;
- n is the number of years.

The calculation of the net present value consists first of all in obtaining the Net Cash Flows After-Taxes (NCFAT), which takes into account the deduction for income tax. NCFAT are obtained by multiplying the taxable cash flow (Cash inflows-operating costs-Interest) by the after-tax factor (1-t) adding the tax allowance for depreciation and subtracting the cash flows for principal payments. The NCFAT of the sixth year includes the salvage value of the processing facilities and the value of the land at that period. In order to find the NPV, the NCFAT at different points in time are converted to comparable values at

the present time. The opportunity cost of equity capital ( $K_e$ ) is the most appropriate discount rate to use in the calculation of the present value of each cash flow.

Ideally, the investment analysis is based on asset valuation approaches that state that the value of an investment is determined by discounting expected future cash flows and using an appropriate risk premium rate for the investment. Asset pricing models should be used to determine the appropriate risk-adjusted discount rate to use in estimating cash flows. This study did not have data on the returns of a similar investment to estimate the risk premium. I have therefore simply used the interest rate of 16% as an estimation of the opportunity cost of capital for the investment.

Using the interest rate of 16% as the discount rate, the financial analysis has shown a positive net present value of FRWA 13,743,833 and an internal rate of return of 70% (Table 16). This result indicates that investing in coffee processing and marketing will therefore be profitable for the association. Assuming for instance that the risk premium of investing in coffee processing and marketing is 15%, the results show that the internal rate of return is double the sum of the interest rate (16%) and the assumed risk premium (15%). It is therefore most likely that taking into account the risk premium will not change the decision of accepting the investment.

**Table 16: Results of the financial appraisal**

ITEM/YEAR	2001	2002	2003	2004	2005	2006	2007
<b>INFLOW</b>							
Revenue from Coffee sales		39,402,000	67,152,492	74,538,708	81,055,957	87,573,206	94,090,455
Residual value							28,449,997 a/
<b>Total Inflow (1)</b>		39,402,000	67,152,492	74,538,708	81,055,957	87,573,206	122,540,452
<b>OUTFLOW</b>							
<b>INVESTMENT</b>							
Coffee Processing Facilities	47,000,000						
Land	250,000						
Total Investment (2)	47,250,000						
<b>OPERATING EXPENDITURE</b>							
Total Operating Expenditure (3)		26,120,796	45,077,822	48,691,258	51,893,128	55,094,997	58,296,867
Fees charged by OCIR café b/		1,182,060	2,014,575	2,236,161	2,431,679	2,627,196	2,822,714
<b>Total Outflow (4) = (2) + (3) + b/)</b>	47,250,000	27,302,541	47,093,549	50,928,702	54,326,204	57,723,706	61,121,208
<b>NET BENEFIT BEFORE FINANCING (5) = (1) – (4)</b>	-47,250,000	12,099,144	20,060,095	23,611,289	26,731,151	29,851,013	61,420,872
<b>NPV</b>	47,400,522						
<b>IRR</b>	41%						
<b>FINANCING</b>							
Loan Receipts							
Short-term (line of credit) c/		26,120,796	45,077,822	48,691,258	51,893,128	55,094,997	58,296,867
Medium term d/	47,250,000						
Debt Service							
Short-term e/		30,300,124	52,290,273	56,481,859	60,196,028	63,910,197	67,624,365
Medium term f/		12,804,750	12,804,750	12,804,750	12,804,750	12,804,750	12,804,750
Total Debt Service (e/ + f/)		43,104,874	65,095,023	69,286,609	73,000,778	76,714,947	80,429,115
<b>Net Financing (6 = (c/ + d/) – (e/ + f/))</b>	47,250,000	-16,984,077	-20,017,201	-20,595,351	-21,107,650	-21,619,950	-22,132,249
<b>NBAFBT g/ (7 = 5 + 6)</b>	0	-4,884,934	42,894	3,015,937	5,623,500	8,231,063	39,288,623

TCD h/	0	0	4,289	301,594	562,350	823,106	3,928,862
<b>NET BENEFIT BEFORE GOVERNMENT TAX (8)</b>							
	0	-4,884,934	38,605	2,714,344	5,061,150	7,407,957	35,359,761
Government taxes i/	0	0	0	0	289,173	641,194	4,833,964
<b>NET CASH FLOWS (AFTER FINANCING) after taxes (9)</b>							
	0	-4,884,934	38,605	2,714,344	4,771,978	6,766,763	30,525,797
<b>NPV</b>	13,743,833 FRWA						
<b>IRR</b>	70%						

**Notes:**

- a/ Residual value = Annual depreciation (FRWA/year) x (15-6) years + value of the land =  $(3,133,333 \times 9) + 250,000 = 28,449,997$  (FRWA)
- b/ Fees charged by OCIR café = Revenue from Coffee sales \* 3%
- c/ Short-term (line of credit) = Total Operating Expenditure (3)
- d/ Medium term = Total Investment
- e/ Short-term debt service = c/ + Interest on working capital calculated by taking 16% of the total operating costs.
- f/ Medium term debt service = Equal annual loan payment = (Loan Amount=Investment cost) x Capital Recovery Factor (16%, 6 years) =  $47,000,000 \times 0.271$
- g/ NBAFBT = Net benefit after financing before taxes
- h/ TCD = Tax for community development = 10% of g/
- i/ Government taxes = 15% of Net Benefit before government tax – Tax shield (Annual depreciation\*Rate of depreciation =  $3,133,333 \times 15\% = 470,000$  for 2003-2007)

#### 5.2.4. Hypothetical model of sharing specialty coffee export value between coffee stakeholders

Based on results of the financial appraisal, it is possible to propose a hypothetical model that can guide coffee stakeholders about sharing the export value of the specialty coffee. Using the model shown in table 1, table 17 gives a model in the case of the specialty coffee channel. The table shows that the absolute value and the share (% out of the FOB Mombasa) received by coffee growers are higher in this new channel compared to the bulk channel. Table 18 gives the comparison of the two models and also highlights some cost efficiency in the case of the specialty coffee channel for the dry processing function.

**Table 17. Hypothetical Specialty Coffee Channel's Export value Sharing Model a/**

ITEM	Value	Share (%)
Exchange rate (RWF/USD)	500	
Price FOB Mombasa (US cents/ pound)	126	
Price FOB Mombasa	1,389,150	
1.Port charge	24,335	2
2. Insurance (0.25 % of FOB)	3,481	0.25
3.Transporter :To Mombasa	51,478	4
4.Bank charge (2% of FOB)	32,483	2
5. OCIR café fee (3 % of FOB)	41,762	3
6. Dry Processing cost	25,045	2
7. Collector (Rwandan Transport)	35,000	2.5
Conversion factor from green coffee to parchment coffee (68%)		
7*.Total cost of dry processing and collector( 25,045+35,000) /.68	88,301	
Total costs: $\Sigma (1 + \dots + 5 + 7^*)$	241,840	
<b>Producer price for one ton of green coffee</b>	<b>1,147,310</b>	<b>83</b>

a/ All calculations are in FRWA per metric ton unless otherwise indicated

**Table 18. Comparison between Models of Sharing the Bulk and Specialty Export Value**  
a/

ITEM	VALUE (FRWA)	
	Bulk	Specialty
Exchange rate (RWF/USD)	500	500
Price FOB Mombasa (US cents/ pound)	35	126
Price FOB Mombasa	385,000	1,389,150
1.Port charge	24,335	24,335
2. Insurance (0.25 % of FOB)	963	3,481
3.Transporter :To Mombasa	51,478	51,478
4.Bank charge (2% of FOB)	9,003	32,483
5. OCIR café fee (3 % of FOB)	11,550	41,762
6. Exporter margin	11,550	-
7. Dry Processing cost	70,000	25,045
8. Collector (Rwandan Transport)	35,000	35,000
Conversion factor from green coffee to parchment coffee (68%)		
8*.Total cost of dry processing and collector( 25,0045+35,000) /.68	154,412	88,301
Total costs: $\Sigma (1 + \dots + 6 + 8^*)$	263,290	241,840
<b>Producer price for one ton of green coffee</b>	<b>121,710</b>	<b>1,147,310</b>

a/ All calculations are in FRWA per metric ton unless otherwise indicated

#### 5.2.5. Sensitivity analysis

In this section, sensitivity analysis is carried out by changing green coffee prices, total operating costs and total production in order to identify the variables that most affect the level of profitability. The sensitivity analysis exercise does not, however, take into account the probability of any of the changes considered. It does not also show the correlation between the variables that are changing.

##### a) Change in coffee prices

Results from the sensitivity analysis show that investing in coffee processing and marketing is sensitive to a decrease in green coffee prices. A 10% reduction in the prices of the green coffee renders the investment unprofitable since the analysis finds a negative net present value of FRWA 3,445,822 and an internal rate of return of 8%, smaller than the discount rate. The switching value, which is the point where total outflows equal total

inflows, was an 8.3% decrease in coffee prices. Table 22 shows the results of the sensitivity analysis.

**Table 19. Sensitivity analysis 1: 10 % decrease in coffee prices**

<b>Year</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Quantity sold (Kgs) to community coffee company	18,000	18,000	18,000	18,000	18,000	18,000
Revenues in \$	48,470	48,470	48,470	48,470	48,470	48,470
Quantity sold (Kgs) to fair trade buyers	9000	29,022	34,351	39,053	43,756	48,458
Revenues in \$	22453.2	72,404	85,699	97,430	109,161	120,892
Total revenue in \$	70923.6	120874.486	134169.674	145900.723	157631.771	169362.82
Total Benefits (FRWA) (1)	35461800	60,437,243	67,084,837	72,950,361	78,815,886	113,131,407a/
Base case total benefits(FRWA) b/	39,402,000	67,152,492	74,538,708	81,055,957	87,573,206	122,540,452
Reduction in total benefits(FRWA) (2) c/	3,940,200	6,715,249	7,453,871	8,105,596	8,757,321	9,409,046
Reduction in OCIR fees (FRWA) d/	118,206	201,457	223,616	243,168	262,720	282,271
Base case net cash flow e/	-4,884,934	42,894	3,015,937	5,623,500	8,231,063	39,288,623
New net cash flows f/	-8,706,928	-6,470,898	-4,214,317	-2,238,927	-263,538	30,161,849
<b>NPV</b>	FRWA (3,445,822)					
<b>IRR</b>	8%					

(For notes see following page)

**Notes to table 19:**

- a/ The benefit recorded in year 2007 includes the salvage value of the equipment and the land.
- b/ = (1) of table 16
- c/ = (2) = a/ - (1)
- d/ = c/ \* 3%
- e/ = g/ of table 16
- f/ = e/ + d/ - c/ = Base case net cash flows – Reduction in total benefits + Reduction in OCIR café fees
- Price per kg of green coffee offered by the Community coffee company (\$) =  $2.992 * 0.9 = 2.6928$
- Price per kg of green coffee offered by Fair-Trade Buyers (\$) =  $2.772 * 0.9 = 2.4948$
- Exchange rate (FRWA/\$) = 500



b) Change in total operating costs

A 10% increase in total operating costs leaves the investment attractive because the net present value is greater than zero and the internal rate of return is greater than the discount rate. They are respectively FRWA 1,416,970 and 19%. The switching value was an 11% increase in operating expenditure. Table 23 shows the results of the analysis when changes in operating costs are made.

**Table 20. Sensitivity analysis 2: 10% Increase in operating costs**

<b>Year</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
TOTAL OPERATING COSTS (FRWA) a/	0	26,120,796	45,077,822	48,691,258	51,893,128	55,094,997	58,296,867
10% Increase in expenditure (FRWA) b/	0	2,612,080	4,507,782	4,869,126	5,189,313	5,509,500	5,829,687
Interest increase c/	0	417,933	721,245	779,060	830,290	881,520	932,750
Total expenditure increase	0	3,030,012	5,229,027	5,648,186	6,019,603	6,391,020	6,762,437
Base case net cash flows	0	-4,884,934	42,894	3,015,937	5,623,500	8,231,063	39,288,623
New net cash flows	0	-7,914,946	-5,186,133	-2,632,249	-396,102	1,840,044	32,526,187
<b>NET PRESENT VALUE (FRWA)</b>	1,416,970						
IRR	19%						

**Notes:**

-a/ = (3) of table 16

- b/ = 10% \* a/

- c/ = 16% \* b/

c) Change in coffee production

A 10% decrease in total production leaves the investment attractive because the net present value is greater than zero. The decrease in total production affects other categories of costs and benefits as shown in table 21. The net present value and the internal rate of return are respectively FRWA 8,740,497 and 40%. The switching value was found to be a 19% decrease in coffee production.

**Table 21.** Sensitivity analysis 3: 10% decrease in coffee production

<b>Year</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>REDUCTION IN REVENUE ( FRWA)</b>						
Reduction in production of green coffee (Kgs)	2,700	4,702	5,235	5,705	6,176	6,646
Reduction in total revenue in \$	7,484	13,034	14,512	15,815	17,119	18,422
Reduction in total revenue in FRWA a/	<b>3,742,200</b>	<b>6,517,249</b>	<b>7,255,871</b>	<b>7,907,596</b>	<b>8,559,321</b>	<b>9,211,046</b>
<b>COSTS SAVINGS ( FRWA)</b>						
1.Reduction in quantity of coffee cherries (Kgs)	19,853	34,575	38,494	41,951	45,409	48,866
Reduction in coffee cherries purchase (FRWA )	1,191,176	2,074,500	2,309,610	2,517,060	2,724,510	2,931,960
2. Cost reduction of wet processing (FRWA)	158,824	276,600	307,948	335,608	363,268	390,928
Reduction of quantity of parchment coffee	3,971	6,915	7,699	8,390	9,082	9,773
3.Reduction in transport costs ( to the hulling factory) (FRWA )	13,897	24,203	26,945	29,366	31,786	34,206
Reduction of quantity in shipment	2,700	4,702	5,235	5,705	6,176	6,646
4. Reduction in cost of shipment	272,700	474,922	528,747	576,239	623,731	671,223
<b>Total transport cost savings (3+4)</b>	286,597	499,125	555,692	605,605	655,517	705,430
5. Reduction in costs of bags (FRWA)	64,588	112,484	125,232	136,481	147,729	158,977
6.Reduction in costs of dry processing (FRWA)	35,735	62,235	69,288	75,512	81,735	87,959
<b>TOTAL REDUCTION IN OPERATING COSTS (FRWA) : 1+2+...+6</b>	1,736,921	3,024,944	3,367,771	3,670,265	3,972,759	4,275,254
7.Reduction in cost of debt (FRWA) b/	277,907	483,991	538,843	587,242	635,642	684,041
8.Reduction in OCIR cafe fees c/ (FRWA)	112,266	195,517	217,676	237,228	256,780	276,331
<b>TOTAL COSTS SAVINGS (FRWA) : 1+2+...+8</b>	2,127,094	3,704,452	4,124,290	4,494,735	4,865,181	5,235,626
<b>DECREASE IN CASH FLOWS(FRWA) d/</b>	1,615,106	2,812,797	3,131,581	3,412,860	3,694,140	3,975,420
Base case net cash flow	-4,884,934	42,894	3,015,937	5,623,500	8,231,063	39,288,623
New net cash flows	<b>-6,500,040</b>	<b>-2,769,903</b>	<b>-115,643</b>	<b>2,210,640</b>	<b>4,536,923</b>	<b>35,313,204</b>
<b>NET PRESENT VALUE (FRWA)</b>	8,740,497					
IRR	40%					

(For notes see following page)

**Notes of table 21**

- a/Price applied to the reduction of production = Price per kg of green coffee for Fair-Trade

Buyers (\$) = 2.772

- b/ 16% of the total reduction in operating costs

- c/ 3% of the reduction in total revenue

- d/ Difference between cost savings and reduction in total revenue

#### 5.2.6. Discussion of results

The financial appraisal finds that it is worth investing in coffee processing and marketing for an association similar to the Maraba Association. The analysis has assumed that farmers will respond to the investment by achieving a yield of 461 grams of parchment coffee per tree and by delivering high quality coffee cherries to the washing station. Moreover, it is also assumed that the association will attract new coffee growers (150/year from 2003) with an average of 100 trees per grower.

The current local market price of parchment coffee is FRWA120, which is equivalent to the cost of producing 1Kg of parchment coffee in Rwanda as found by a study carried out in 1982 by the World Bank (Graaff, 1986). A coffee survey conducted in 2002 by the Rwandan Food Security Project found that the threshold price, which can provide incentives to farmers to replace old trees, was 300 FRWA/Kg of parchment coffee. This price assumed that farmers bore the cost of primary processing. The threshold price of 300 FRWA/ Kg of parchment coffee can be interpreted as a price above the production costs, which will give incentives to farmers to maintain and continue to invest in coffee activities.

The financial analysis supposed that farmers will be paid 60 FRWA/Kg of coffee cherries. Using the conversion factor of 5 from coffee cherries to parchment coffee, this price is equivalent to 300FRWA/Kg of parchment coffee. Results of the financial appraisal have implications for farm-level profitability. The 60 FRWA/Kg of coffee cherries paid to coffee growers offers economic incentives to coffee growers because it is equal to the “threshold” price and because the association relieves coffee growers of laborious de-pulping, fermenting and drying activities. Farmers can then be expected to respond positively to the coffee price paid by the association by replacing old trees and maintaining coffee fields, resulting in an

increase in coffee productivity. Furthermore, interviews conducted with non-coffee growers in the Maraba district found that they are willing to invest in the coffee enterprise in response to greater revenue received by farmers delivering coffee cherries to the association.

The financial appraisal has shown, however, a negative cash flow during the first year of the operation. To solve this situation, the association can request members to contribute a small share from coffee sales that can be repaid later when the cash flows will become positive. Results of the sensitivity analysis have shown that the investment was sensitive to prices of green coffee; a 10% decline of coffee prices renders the investment not profitable. However, a production decrease of 10% and a 10% increase of operating costs did not affect the decision to accept the investment. The switching values computed were an 8% decrease in coffee prices, a 19% decrease of coffee production and an 11% increase in operating costs.

Results of the sensitivity analysis have some implications. In order for the association to succeed in the high quality coffee market, the association needs to maintain current buyers and foster market linkages with new buyers who will continue to deliver price premiums for its coffee. This can be achieved by continuously producing a higher-quality coffee to quality-conscious buyers and building mutual trust through long-term business relationships. It is also important for the management team of the association to reduce operation costs because the switching value of an increase in operating costs, without compromising the profitability of the investment, is relatively low. One solution will be, for instance, to find financing mechanisms that can reduce the cost of working capital. The association can negotiate loans from its coffee buyers. The Union Roasters Company is studying ways to support this strategy for the next harvest season.

## **CHAPTER 6: SUMMARY AND CONCLUSIONS**

The research paper assessed the profitability of investing in producing for the specialty coffee market, using the Maraba Association as a case study. The paper also developed a strategic analysis and suggested a strategic plan for the Maraba Association to implement. Specific objectives of the study were to: analyze the fair trade coffee market, analyze the strengths, weaknesses, opportunities and threats of the Maraba Association, develop a strategic plan for the same association and undertake a financial appraisal of coffee processing and marketing for a time frame of six years. Primary and secondary data were collected in 2002 from the association and other coffee stakeholders working closely with them.

The international coffee prices for mainstream quality coffee are at their lowest levels due mostly to a supply surplus from coffee-producing countries. In order to respond to this coffee crisis, coffee producers and exporters, particularly those producing on a small-scale, who have no comparative advantage in the commodity coffee market, have much interest in targeting the specialty coffee market that provides price premiums. There is, however, not much experience in this new business for coffee operators from Rwanda. The assessment of the possibility to target coffee niche markets by a coffee growers' association is therefore crucial.

The strategic analysis identified the key success factors for the Maraba Association to export into the specialty coffee market and particularly into the fair trade coffee market. The analysis identified critical strategic issues that were addressed in the strategic plan for the association. The SWOT analysis finds that the association has many capabilities to produce the high quality coffee but is operating in a thin and highly competitive market. The



SWOT analysis was built upon the market analysis of the fair-trade coffee market. The analysis found significant rates of growth in this segment and in the overall specialty coffee industry.

Results of the financial appraisal show that investing in coffee processing and marketing is profitable. These findings are encouraging and can be used as guidelines for other similar associations and private investors planning to produce for the high quality coffee markets. The major task will be to get financial resources to set up the required facilities to produce it. However, the sensitivity analysis found that a 10% reduction in prices will make the investment not attractive to the association. Access to a specialty market that provides a price premium is therefore crucial.

The results can serve as a guide for a private investor planning to build a washing station. The task for private investors will be to find what mechanisms will link them to coffee growers so that they can deliver coffee cherries to the station. One will expect that associations will have a comparative advantage compared to private operators if they can target technical assistance that will support them in producing and selling to the specialty coffee markets. Alternatively, since large-scale coffee plantations that can produce sufficient volume for export are nonexistent in Rwanda, private investors could implement a contract farming model. With this model, farmers will bring coffee cherries to the washing station and the investors can provide price incentives to farmers in order to process sufficient throughput. Investors can also offer loans of inputs that should be paid from sales of coffee cherries.

The assessment of the success of the contract farming model will be useful. Since private operators cannot sell to the fair trade coffee market, it can be recommended for them to target other specialty coffee niches. The challenge will be to offer attractive prices to

farmers that are competitive compared to prices offered by coffee growers' associations, leaving at the same time a reasonable profit level for their operation. It is, however, questionable how a high quality coffee will be obtained when private investors cannot monitor the production stage of the coffee cherries and where there are no quality standards of raw coffee.

The strategic plan aimed at addressing the critical issues that were identified in the strategic analysis of the association. Four specific actions were proposed to address critical issues the association is facing: control the production of high-quality coffee cherries, increase the market share in the specialty coffee market channels, develop an internal training system network, and diversify into other products.

This study has a number of policy implications. The financial feasibility analysis was based on the assumption that the association will function under capacity during the first six years of operation. During that period, the idle capacity increases the per unit costs of processing and marketing, and prevents taking advantage of scale economies. Before building a washing station, it may be appropriate to assess the potential production capacity of coffee growers who are going to deliver the raw coffee. This could guide the size of the processing facilities and operating at maximum capacity could therefore enhance the profitability.

Investing in coffee processing and marketing is a way to eliminate some of the intermediaries, leading to a reduction in current high transactions costs of the bulk channel, permitting an increase in the farm gate price. Table 1 showed for the bulk channel that the farm gate price was FRWA 101 /Kg of parchment coffee. Using conservative estimates, the financial appraisal of processing and marketing high quality specialty coffee assumed that

farmers will be paid FRWA 60 /Kg of coffee cherries, which is equivalent to FRWA 300 /Kg of parchment coffee. The main reason for this high price is the price premiums offered by the specialty coffee market. Moreover, the specialty coffee channel provides some cost savings compared to the bulk coffee channel. The cost of dry processing was lower in the specialty channel compared to the bulk system. The hypothetical model of sharing the export value from the specialty coffee channel, among coffee participants presented in table 21, shows that the vertically integrated nature of the specialty channel offers a higher absolute value and a higher share of export value to farmers than in the bulk coffee model presented in table 1.

The financial appraisal also showed that investing in coffee processing and marketing will be profitable only if the specialty market buys the coffee. A 10% decrease of coffee prices renders the investment not profitable. Coffee government agencies and other coffee partners need to support coffee exporters in assuring market access for high quality coffee by advertising and promoting specialty coffee from Rwanda. Another area where the support will pay off is in improving the skills of exporters (be they associations or individual private operators). Most of them lack knowledge and expertise as highlighted in the strategic analysis for the Maraba Association. As people are interested in building washing stations and selling to the high-quality coffee market, the government can help to establish this new channel. Since ripeness of coffee cherries affects the quality of green coffee, a rule that stipulates that no green cherries are to be accepted in washing stations can improve the quality image of Rwandan coffee and attract coffee buyers. In addition, OCIR Café could start establishing grading standards that are related to coffee quality, which will provide guidelines to operators investing in washing stations. These standards can also help introduce price differentials in the local coffee market.

The research paper has some limitations. First, the analysis was based on one association. The results may not be generalized to other areas although coffee production conditions are almost similar across the country. As Maraba Association is located in a moderate-potential coffee production zone, one would expect promising results in high-potential coffee zones. Similar analysis could be adapted for other producers based on their internal assessment. Secondly, the use of interest cost of debt as the required rate of return has shortcomings. A discount rate should reflect an appropriate risk premium for the investment. One would expect an opportunity cost of capital higher than the interest rate. The implication for the financial analysis will be a decrease in net present value. A study on risk premiums of coffee processing facilities would solve these drawbacks. Thirdly, the sustainability of the Maraba Association will depend on the farmers' responsiveness on farm practices that lead to the production of a high quality coffee. An assessment of the capabilities and the willingness of coffee growers, members of the association, to respond to the fair-trade coffee and specialty coffee markets' requirements can be useful.

## APPENDICES

### Appendix 1: Coffee standards relating to environmental protection and socio-economic issues

Nature	Name or description	Actors or organization setting standards	Characteristics	Geographic and farm-size coverage
Voluntary (Certification and labeling procedures)	Bird-friendly Coffee	Smithsonian Migratory Bird Center (SMBC)	Minimum standards on vegetation cover and species diversity to obtain use of label; also covers soil management	Standard applicable only to Latin American coffees so far; mostly estates
	Certified organic	International Federation of Organic Agriculture Movements (IFOAM) and affiliated associations	Accredited certification agencies monitor organic standards on production, processing and handling; formally, IFOAM basic standards also include issues of social justice	Global, but most organic coffee comes from Latin America, especially Mexico; all farms
	Fair-trade certification	Fair Trade Labeling Organizations International (FLO) and associated Fair Trade Guarantee Organizations	Minimum guaranteed price paid to registered small farmers' organizations that match standards on socio-economic development and labor relations; nonprofit organizations set/monitor standards and mediate between registers producers and Alternative Trade Organizations (ATOs), which may be for-profit; also covers basic environmental protection standards	Global, but large amount of FT coffee is bought in Africa; only smallholders
	Eco-OK Coffee	Rainforest Alliance	Certifies farmers rather than products or companies, on the basis of 'sustainability' standards; covers environmental protection, shade, basic labor and living conditions, and community relations; has lower standards on individual issues than any of the organic, bird-friendly and fair trade certifications	Six Latin American countries; 21 estates and four groups of cooperatives
	Utz Kapeh Code of Conduct	Utz Kapeh Foundation	Code of conduct for growing sustainable coffee formulated on the basis of the 'good agricultural practices' of the European Retailer Group (EUREP); includes standards on environmental protection and management, and labor and living conditions; has lower standards on individual issues than any of the organic, bird-friendly and fair trade certifications	Five Latin American countries; eight estates and two groups of cooperatives
Private (Enterprise initiatives)	(Some) Relationship coffees	A few importers and roasters in the specialty industry	Include environmental and/or socio-economic conditions as parameters in choosing and ranking suppliers	A few specialty coffee producing countries; mostly estates
	Preferred Supplier System	Starbucks	Point system to qualify for purchase priority on the basis of indicators of environmental impact, social conditions and economic issues (under formulation)	n/a

Source: Ponte, 2002

## Appendix 2: Coffee standards relating to quality

Nature	Name or description	Actors or organization setting standards	Characteristics	Geographic and farm size coverage
<b>Mandatory</b>	Producing country coffee quality standards (domestic trade and export)	National regulatory body or trade association with regulatory/monitoring powers	Minimum quality standards for trading coffee domestically and/or for export; standards embedded in regulation and enforced through monitoring and export certification procedure; quality standards at the export level are lower than those envisaged by SCAA and ICO; in Robusta and Hard Arabica trade, often they are based on physical properties of coffee, not on cup taste	Domestic trade: after market liberalization, most producing countries have either eliminated quality regulation or rarely enforced it; at the export level, numerous producing countries still have minimum quality standards (notable exceptions: Brazil, Mexico, Guatemala, El Salvador, India, Peru); applicable to all farms
	Consuming country food safety, quality and origin regulations	National or regional regulatory body (FDA, EFSA)	Food safety standards (pesticide residues, maximum allowed toxin levels), minimum quality standards (defects point description) and origin documentation for allowing the import of coffee in a country; standards embedded in regulation and enforced through monitoring and testing	Applied to all coffee from all destinations coming into a consumer country
	Coffee Quality-Improvement Programme	ICO	Minimum 'global' quality standards for exportable coffee based on defect count and maximum moisture content (under formulation)	ICO member states; all farms
<b>Voluntary</b>	Certified specialty	SCAA	Under formulation; envisages strict minimum quality standards both on physical appearance and cup quality to obtain 'SCAA certified' mark of integrity (under formulation)	n/a
	Cup of Excellence Program	ACE	Competition-auction processes; country-level competitions select the highest quality coffees, these are then sold through internet auctions	Five Latin American countries; mostly estates (except in Nicaragua)
	Appellation of origin	Trade associations, producer organizations or public institutions in producing countries	Sets boundaries to facilitate the enforcement of the intellectual property rights in relation to geographic indications of origin and truth in labeling; contains minimum quality standards only if French system 'Appellation d'Origine Contrôlée' is adopted	Minimum quality standards applied in the 'Jamaica Blue Mountain' appellation, but not in the '100% Colombian' programme; other appellation systems are being developed in Guatemala, Peru and Uganda but not clear whether they will include minimum quality standards; all farms

<b>Private</b>	Commercial coffee purchasing system	Commercial importers and roasters	Paying prices in relation to commercial classification or description mandated by regulation in producing country, usually on the basis of simple description of mostly physical characteristics of coffee (sometimes also on cup taste); pricing based on differentials over future markets; small producers rarely receive price in relation to quality	Global; all farms
	Common specialty coffee purchasing system	Most importers and roasters in the specialty industry	Paying prices in relation to quality of coffee offered by exporter/ broker/importer, often on the basis of cup analysis of pre-approved sample; pricing based on differentials over future markets; estates more likely than smallholder to receive quality premium	Specialty coffee producing countries; all farms
	Relationship coffees	A minority of importers and roasters in the specialty industry	Sourcing direct at origin; paying premium for quality; may buy on the basis of multi-year fixed price contracts de-linked from futures market price; contract may contain provision on environmental protection and/or socio-economic conditions	A few specialty coffee producing countries; mostly estates

**Source:** Ponte, 2002

### Appendix 3: Monthly averages of ICO Indicator prices in US cents per lb

#### Composite Indicator Price

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1984	138.32	141.11	143.18	143.89	148.36	145.43	141.01	143.13	141.85	135.99	138.14	133.89
1985	135.46	133.30	132.36	132.02	131.87	131.04	120.68	119.96	118.78	125.93	140.91	174.84
1986	204.02	195.11	204.23	191.73	176.92	151.14	149.12	154.38	181.45	163.21	149.42	130.41
1987	118.39	115.52	100.81	104.33	111.45	101.59	96.17	98.38	104.93	111.45	115.53	115.14
1988	115.07	120.76	117.75	116.31	116.35	118.72	113.65	107.11	113.80	113.92	114.03	124.06
1989	126.69	118.04	117.36	117.55	115.89	104.52	76.67	69.05	69.23	61.10	62.07	61.90
1990	62.75	67.01	75.25	75.34	73.30	69.91	68.36	74.10	75.55	73.89	70.10	72.83
1991	69.38	70.55	72.47	71.45	67.47	65.58	64.31	63.34	66.86	62.83	64.30	63.07
1992	61.12	55.51	56.48	53.64	49.27	48.13	48.70	45.89	47.11	52.88	57.49	64.00
1993	58.14	57.32	54.76	51.38	54.18	54.54	60.61	67.69	71.64	67.78	70.03	71.50
1994	69.17	72.37	76.11	81.19	108.42	127.91	191.44	181.53	202.39	185.64	168.12	149.14
1995	152.08	152.24	162.73	159.59	155.96	141.66	132.71	141.70	124.76	120.02	117.99	99.57
1996	100.33	110.50	105.89	107.09	110.24	105.79	99.97	102.73	96.52	98.56	97.14	90.04
1997	100.03	121.89	137.47	142.20	180.44	155.38	135.04	132.63	132.51	121.09	118.16	130.02
1998	130.61	130.78	119.93	119.66	114.23	103.84	97.32	101.25	95.82	95.01	98.26	100.73
1999	97.63	92.36	89.41	85.72	89.51	86.41	78.21	77.22	71.94	76.36	88.22	95.63
2000	82.15	76.15	73.49	69.53	69.24	64.56	64.09	57.59	57.31	56.40	52.18	48.27
2001	49.19	49.39	48.52	47.31	49.38	46.54	43.07	42.77	41.17	42.21	44.24	43.36
2002	43.46	44.30	49.49	50.19	47.30	45.56	44.70	42.79	47.96	50.79	54.69	51.68
2003	54.04	54.07	49.61	51.87	53.19	48.90	50.89	52.22	54.10	51.72	49.81	52.44

Source: ICO, 2004



**Appendix 4.** Annual cost of overhead staff in co-operative factories in Kenya

Annual overhead staff costs (Kenya Shillings)	Factory Size Group			
	< 250 tons cherries/annum	251-500 tons cherries/ annum	501-1000 tons cherries/ annum	> 1000 tons cherries/ annum
	79,320	79,320	79,320	98,760

**Source:** Whitaker et al., 1985

**Appendix 5.** Annual cost of manual labor requirements in co-operative factories in Kenya

Annual cost of manual labor requirements (Kenya Shillings)	Factory Size Group			
	< 250 tons cherries/annum	251-500 tons cherries/ annum	501-1000 tons cherries/ annum	> 1000 tons cherries/ annum
	26,013	69,847	124,424	241,015

**Source:** Whitaker et al., 1985

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