IMPROVING THE VALUE OF COFFEE EXPORTS IN ORDER TO IMPROVE THE VALUE OF EXPORTS: A CASE OF RWANDA

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Dedication

This work is dedicated to my husband Dr. Nyemazi and my son Imfura. You have been the reason for my determination to pursue this Masters and I will always be grateful.

Abstract

In order for Rwanda to improve the quality of life for its people, government has prioritized coffee as a key sector to spur the economy. For the past years, while coffee has been an important commodity that brought revenues to the country, its production is still low and the value is not of high quality.

The purpose of this study was to assess the possibility of increasing the value of coffee in order to increase the value of exports for the country.

The coffee sector is constrained by production of ordinary coffee and the exportation of low quantities of fully washed coffee, specialty and roasted coffee. In addition, some coffee plantations are old, fertilizers are not enough and the coffee farmer is paid little money.

In order to increase the value of coffee to subsequently boost exports, it would be very important to increase the price paid to the farmer, finance the coffee sector, organizational capacities of farmers, efficiency of coffee washing stations, quantity of fully washed, specialty and roasted coffee as new international clients are targeted.

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CHAPTER ONE: INTRODUCTION

1.1 Background

Coffee farming, which was introduced in Rwanda in the 1930s by the Belgian colonial government, has farmers owning 89,726,809 trees cultivated on 35,891 hectare (ha) from which , 59.2% of them are productive (3 and 30 years old), 15% non-productive (less than 3 years old) and 25.8 insignificant (old trees over 30 years), (National Coffee Census 2015: 5).

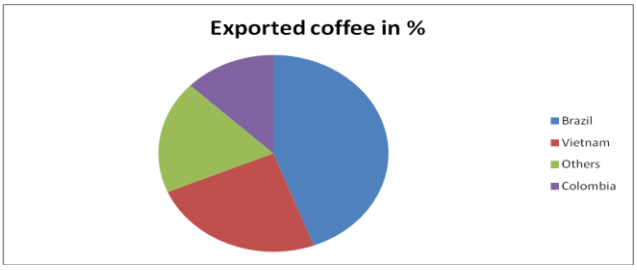
Arabica is the variety of coffee most produced. It is also considered a good coffee and represents 59% of the world's coffee production. It is sensitive to hot and humid conditions, and grows at altitudes of 1.25-1.55 miles. Arabica originated in the highlands of Ethiopia**.** It has been grown in the Americas for about two centuries (Wintgens 2009: 62).

Rwanda's best Arabica coffee is in great demand and attracts a premium price on the international market and has dominated agricultural exports with a 24% average contribution to revenue exports over the last decade, (National Agricultural Exports Development Board - NAEB, 2015: 11).

Coffee is very important for its ability to lift farmers in rural areas out of poverty and to increase foreign exchange reserves. According to Fairtrade and Coffee (2012:2), around 125 million people worldwide depend on coffee for their livelihoods. Today, green coffee beans are the second largest commodity traded to oil on the global market (Wintgens, 2009: 388).

As Fairtrade and Coffee states (2012: 3), coffee is grown in more than 70 countries but over 60% of the world's coffee is produced by just four of them – Brazil, Vietnam, Colombia and Indonesia. Brazil has been the world's largest coffee producer, growing an average of 2.5 Million tonnes a year in 2007-11. Coffee exports increased by 7% to a record high of 6.2 million tonnes in 2011, with a value of $ 23.5 billion, up from 5.8 million tonnes in 2010 (worth $ 16.7 billion). Brazil led with 2 million tonnes, followed by Vietnam with 1 million tonnes and Colombia with 464,000.

Figure 1: Exported Coffee in %



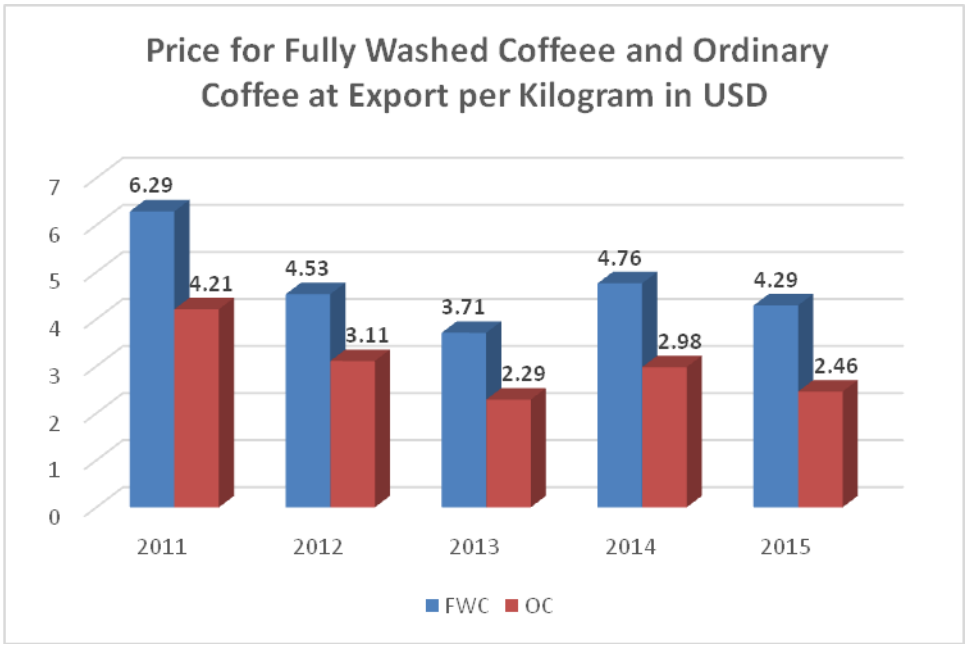
Source: ICO 2012

Rwanda, in order to improve the quality of life of its people, considers coffee as a key sector for the economic growth of both the farmer and the country. Coffee has been an important revenue-generating commodity for the country. It is one of the top three commodities exported. From 2010 to November 2016, export values in $ USD were $425,368,558 for coffee, $453,321,808 for minerals, and $345,688,572 for tea.

The Rwandan government has also liberalised the coffee trade, allowing the licensing of several private coffee exporters and the installation of several wet-mills (coffee washing stations processing cherries to dried parchment) and dry-mills (processing dry parchment to green coffee beans) by different companies.

International coffee prices are volatile and this has affected the prices for Rwandan coffee exports. From 2011 to 2015 at the export level, a kilogram of fully washed coffee attracted prices of USD $6,29, $4,53, $3,71, $4,76 and $4,29. Ordinary coffee over the same period received prices of USD $4,21, $3,11, $2,29, $2,98 and $2,46. Despite this, Rwanda's best Arabica coffee is in great demand and attracts a good price and even the premium price which is offered on certified coffee on the international market.

Figure 2: Price for Fully Washed Coffee and Ordinary Coffee at Export



Source: NAEB, August 2016

The price of a Kilogram of fully washed coffee is always higher than ordinary coffee. Since 2011 until 2015, prices for fully washed coffee have been fluctuating and unfortunately decreasing. It has also been the same for ordinary coffee.

1.2 Purpose of the study

The purpose of this study is to assess the possibility of increasing the value of coffee, one of the top three exported commodities, in order to increase the value of national exports. The study will critically analyze the value chain of coffee from production to exportation in order to see how the value of coffee could be increased in order to increase the value of national exports.

1.3 Statement of the problem

As one of the top three exported commodities, coffee is well-placed as a key product for economic growth. The productivity of coffee is between 16.000 and 20.000 tons per year and fully washed coffee represents 50% of the total, (NAEB, 2016:6). Roasted coffee, which is priced higher than fully washed coffee, can bring significant

revenue to the country but is exported in very low quantities as many international clients for Rwandan coffee are roasters of coffee and prefer non-roasted coffee.

Additionally, certified coffee (organic, rainforest, fair trade, etc.) still only represents a very small percentage of Rwanda's coffee exports. Ordinary coffee is also exported. Most of Rwanda's exported coffee, then, is lower-value coffee and therefore does not generate as much revenue.

In addition, some washing stations have low capacity and are not working at full capacity. Certain coffee farmers also still believe that they can produce and clean coffee from their homes, which tends to mean a larger production of ordinary coffee.

Lastly, local consumption of coffee still only at 1%, a very low figure which means local revenues for coffee are not significant. This makes the value of the coffee sector very dependent on trends in the international market.

Based on these considerations, the study will critically analyze how the value of exported coffee could be improved in order to improve the value of exports.

1.4 Hypotheses

1.4.1 Main hypothesis

The value of Rwandan exports could be increased through increasing the value of coffee. The increase in the value of coffee should significantly contribute to an increased value of Rwandan exports.

1.4.2 Sub-hypotheses

1. The production of coffee could be increased in order to generate more revenue.
2. The percentage of fully washed coffee could be increased in order to generate more revenue.
3. The value of the exported coffee could be increased by increasing the percentage of certified coffee.

4. The value of the exported coffee could be increased by increasing the percentage of roasted coffee.
5. Marketing strategies could be improved in order to identify clients who would buy roasted coffee from Rwanda.

1.5 Research questions

1. What is the value of fully washed coffee, ordinary coffee, certified coffee, roasted and unroasted coffee?
2. How much money is lost per kilogram when exported coffee is not fully washed?
3. What strategies are in place to reduce the export of ordinary coffee as a percentage of overall coffee exports?
4. What is needed to export fully washed coffee?
5. What are the requirements of the specialty coffee market?
6. What mechanisms are in place to process and export fully washed coffee?
7. Who are the international clients for Rwandan coffee and what are their requirements?
8. What mechanisms are there to increase the local consumption of coffee?
9. Who are the key players/actors (e.g. farmers, government officials, traders, importers etc.) for implementing the strategies and how can they be effectively mobilized?
10. What would be the most efficient ways of increasing the value of coffee production and exports, and which steps should be taken first and which later?

1.6 Methodology

Secondary data was analyzed on the value chains of coffee, the economics of global coffee prices, sustainable coffee production, with a particular focus on Rwandan coffee.

Different surveys and studies produced by institutions such as Fairtrade Foundation, the International Coffee Organization, the Overseas Development Institute (ODI), the International Growth Center (IGC), the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) have been used. Individual studies of coffee production and processing have also been used, such as the work of Wintgens, Slob, Webber and Labaste. For a full list, please see the bibliography.

Furthermore, in order to understand the coffee sector in Rwanda well, interviews were done with different groups, such as strategists and policy makers, coffee producers, coffee exporters, washing station owners & supervisors, independent consultants in the coffee sector and bankers working with coffee producers and exporters.

Policy Advisors

I met with policy advisors working in the Office of the President, the Ministry of Agriculture, the Ministry of East African Affairs, Commerce and Trade and the National Agricultural Exports Development Board (NAEB). I met with two people from each institution.

Coffee farmers/producers

I also met with four representative of coffee farmers or producers (one woman and three men). They were coffee farmers and owned coffee plantations. Two of them were members of a cooperative that owned a coffee washing station, and one was an individual farmer.

Coffee Exporters

I met with two coffee exporters Cafe du Rwanda (CAFERWA) and Rwanda Small Holder Speciality Coffee Company (RWASHOSCOO). They have four and six cooperatives as shareholders respectively. Cooperatives sell their coffee to these companies, who in turn have the export license.

Supervisor

I met with one supervisor of a washing station. He was not a member of a cooperative that owned the washing station, but an individual hired by the

cooperative. There seems to be an advantage to hiring someone who is not a member of the cooperative as supervisor, as it removes any conflict of interest.

1.7 Study limitations

The study was limited in time and space. The data on coffee covers the period from from 2011, when NAEB's mandate was changed, to 2017 when this study was completed.

The coffee producers, exporters, and coffee washing station owners interviewed were located mostly in Kigali but many coffee washing stations are located in different provinces, including North, West and South.

Three Bankers interviewed were in Kigali, representing Bank of Kigali, Bank of Development of Rwanda and Investment and Mortgage Bank which had the advantage that they were at the head offices and could access information on loans given by branch banks to coffee projects. The people interviewed knew that I was a public servant at the time of the study.

1.8 Chapter outline

The present study will have seven chapters:

1. Chapter 1: Introduction
2. Chapter 2: Overview of the coffee sector
3. Chapter 3: Literature review
4. Chapter 4: Coffee prices in Rwanda
5. Chapter 5: Descriptive Analysis
6. Chapter 6: Findings
7. Chapter 7: Policy Recommendations and Conclusion

CHAPTER TWO: OVERVIEW OF THE COFFEE SECTOR

2.0 Ten steps from seed to cup

Coffee makes a long journey to arrive in a cup. From the time beans are planted, picked and purchased, coffee beans go through a series of steps to enhance their final quality. According to the National Coffee Association USA, there are ten steps from seed to cup, as discussed below.[1]

1. Planting

The coffee bean is actually a seed. When dried, roasted and ground, it is used to brew coffee. If the seed is not processed, it can be planted and grow into a coffee tree. Coffee seeds are generally planted in large beds in shaded nurseries. The seedlings will be watered frequently and shaded from bright sunlight until they are hardy enough to be permanently planted. Planting often takes place during the wet season, so that the soil remains moist while the roots become firmly established.

2. Harvesting the Cherries

Depending on the variety, it will take approximately 3 to 4 years for the newly planted coffee trees to bear fruit. The fruit, called the coffee cherry, turns a bright, deep red when it is ripe and ready to be harvested. There is typically one major harvest a year. In some countries there are two flowerings annually, a main and a secondary crop.

In most countries, the crop is picked by hand in a labor-intensive and difficult process, though in places like Brazil where the landscape is relatively flat and the coffee fields immense, the process has been mechanized. Whether by hand or by machine, all coffee is harvested in one of two ways:

[1] http://www.ncausa.org/About-Coffee/10-Steps-from-Seed-to-Cup

Strip Picked: All of the cherries are stripped off of the branch at one time, either by machine or by hand.

Selectively Picked: Only the ripe cherries are harvested, and they are picked individually by hand. Pickers move among the trees every eight to ten days, choosing only the cherries which are at the peak of ripeness. Because this kind of harvest is labor intensive and more costly, it is used primarily to harvest the finer Arabica beans.

A good picker averages approximately 100 to 200 pounds of coffee cherries a day, which will produce 20 to 40 pounds of coffee beans. Each worker's daily haul is carefully weighed, and each picker is paid according to his or her work. The day's harvest is then transported to the processing plant.

3. Processing the Cherries

Once the coffee has been picked, processing must begin as quickly as possible to prevent fruit spoilage. Depending on location and local resources, coffee is processed in one of two ways:

The Dry Method is the age-old method of processing coffee, and is still used in many countries where water resources are limited. The freshly picked cherries are simply spread out on huge surfaces to dry in the sun. In order to prevent the cherries from spoiling, they are raked and turned throughout the day, then covered at night or during rain to prevent them from getting wet. Depending on the weather, this process might continue for several weeks for each batch of coffee until the moisture content of the cherries drops to 11%.

The Wet Method removes the pulp from the coffee cherry after harvesting. The bean is dried with only the parchment skin left on. First, the freshly harvested cherries are passed through a pulping machine to separate the skin and pulp from the bean. Then the beans are separated by weight as they pass through water channels. The lighter beans float to the top, while the heavier ripe beans sink to the bottom. They are passed through a series of rotating drums which separate them by size.

After separation, the beans are transported to large, water-filled fermentation tanks. Depending on a combination of factors, such as the condition of the beans, the climate and the altitude, they will remain in these tanks for anywhere from 12 to 48 hours to remove the slick layer of mucilage (called the parenchyma) that is still attached to the parchment. While the beans resting in the tanks, naturally occurring enzymes will cause the parenchyma to dissolve.

When fermentation is complete, the beans feel rough to the touch. The beans are rinsed by going through additional water channels, and are ready for drying.

4. Drying the Beans

If the beans have been processed by the wet method, the pulped and fermented beans must now be dried to approximately 11% moisture to prepare them properly for storage.

The beans, still inside the parchment envelope (the endocarp), can be sun-dried by spreading them on drying tables or floors, where they are turned regularly, or they can be machine-dried in large tumblers. The dried beans are known as parchment coffee, and are warehoused in jute or sisal bags until they are ready for export.

5. Milling the Beans

Before being exported, parchment coffee is processed in the following manner:

Hulling machinery removes the parchment layer (endocarp) from wet processed coffee. Hulling dry processed coffee refers to removing the entire dried husk — the exocarp, mesocarp and endocarp — of the dried cherries.

Polishing is an optional process where any silver skin that remains on the beans after hulling is removed by machine. While polished beans are considered superior to unpolished ones, in reality there is little difference between the two.

Grading and Sorting is done by size and weight, and beans are also reviewed for color flaws or other imperfections.

Beans are sized by being passed through a series of screens. They are also sorted pneumatically by using an air jet to separate heavy from light beans.

Finally, defective beans are removed either by hand or by machinery. Beans that are unsatisfactory owing to some deficiency (unacceptable size or color, over-fermented beans, insect-damaged, unhulled) are removed. In many countries, this process is done both by machine and by hand, ensuring that only the finest quality coffee beans are exported.

6. Exporting the Beans

The milled beans, now referred to as green coffee, are loaded onto ships in either jute or sisal bags packed in shipping containers, or bulk-shipped inside plastic-lined containers.

7. Tasting the Coffee

Coffee is repeatedly tested for quality and taste. This process is referred to as cupping and usually takes place in a room specifically designed to facilitate the process.

Samples from a variety of batches and different beans are tasted daily. Coffees are not only analyzed to determine their characteristics and flaws, but also for the purpose of blending different beans or creating the proper roast. An expert cupper can taste hundreds of samples of coffee a day and still taste the subtle differences between them.

8. Roasting the Coffee

Roasting transforms green coffee into the aromatic brown beans that we purchase in our favorite stores or cafés. Most roasting machines maintain a temperature of about 550 degrees Fahrenheit. The beans are kept moving throughout the entire process to keep them from burning.

When they reach an internal temperature of about 400 degrees Fahrenheit, they begin to turn brown and the caffeol, fragrant oil locked inside the beans, begins to emerge. This process, called pyrolysis, is at the heart of roasting—it produces the flavor and aroma of the coffee we drink.

9. Grinding Coffee

The objective of a proper grind is to get the most flavor in a cup of coffee. How coarsely or finely the coffee is ground depends on the brewing method.

The length of time the grounds will be in contact with water determines the ideal grade of grind. Generally, the finer the grind, the more quickly the coffee should be prepared. That is why coffee ground for an espresso machine is much finer than coffee for brewing in a drip system.

10. Brewing Coffee

Is about making a cup of coffee while pouring hot water onto ground coffee beans, then allowing to brew.

2.1 Coffee sector in Rwanda

There are 355,771 coffee farmers, 32% female and 68% male. Individual coffee growers account for 74% of all production and 26% of production comes from consolidated coffee blocks. A small minority of individual growers have large coffee plots of 1,000 to 6,000 trees each, (National Coffee Census, 2015:4).

Positive developments over the past 15 years have been to increase the production of high value, premium mild coffee from central washing stations and the phasing out of home-processed coffee. Yields have increased to an average of 2.6 kg cherry per tree, (NAEB Statistics 2015). The land use consolidation program has promoted the production of coffee in larger units (of 1.0 to 6.0 hectare) and processing and marketing has also been liberalized (European Union Survey, 2016:2).

2.1.1 Regularisation of the coffee sector in Rwanda

The Rwanda Tea Development Authority (OCIR Thé), the Rwanda Coffee Development Authority (OCIR Café) and the Rwanda Horticulture Development Authority (RHODA) were merged in 2011 to form the NAEB. The formation of NAEB was intended to improve the balance of payments of Rwanda's economy through increased agricultural exports. It is responsible for the entire agricultural export and cash-crop base under one management, regulation as well as monitoring[2].

At present, NAEB is in charge of the full value chain of coffee from farming to exportation. It now has two programs, namely Turn Around, which supports coffee washing stations (CWS), especially for cooperatives, and Zoning, which is concerned with improving relationship between the farmer and the coffee washing station.

NAEB supports farmers, provides export licenses, link farmers to coffee washing stations, promotes the market and ensures that exportation happens in a smooth manner. The institution ensures also that the farmers take care of the coffee and get fertilizers and pesticides on time. There are Agronomists who work with NAEB in all cells of the country and they must know all the coffee trees in their localities.

Table 1: Rwanda coffee plant cycle

Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
Flowering		Crop expanding			Crop maturing		Ripening				
							Harvesting				

Source: NAEB (August 2016)

It should be noted that the growing season for coffee takes around seven months. Harvesting takes five months. This means that the coffee farmer is busy during the entire year with different activities in the coffee-growing process.

[2] (NAEB, http://naeb.gov.rw/index.php?id=27&type=rss. Accessed on December 10, 2016)

Early crop harvest starts in December–January, while the main harvest and processing is between February and June. Peak harvesting is in March and April. Milling and export preparation take place between June and October.

2.1.2 Production of coffee

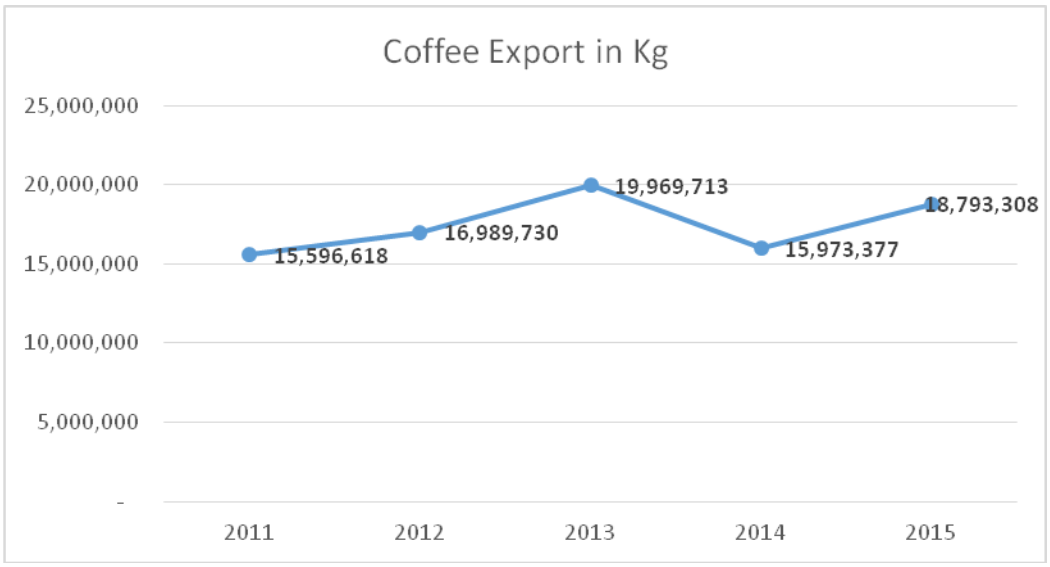
The World Coffee Production for 2016/17 is forecast to rise by 2.4 million bags to 155.7 million bags. As a result, world Arabica output is expected to rebound to 60% of total production after being below this level for the past 5 years. Global consumption is forecast to be a record 150.8 million bags, reducing inventories to a 4-year low. World exports are expected to slip from last year's record due to lower shipments from Indonesia, Vietnam, and Brazil. The World Atlas ranks Brazil as the top coffee-producing country. It is followed by Vietnam, Colombia, Indonesia and Ethiopia. [3]

Global coffee consumption has almost doubled over the last 40 years from 4.2 tonnes in 1970 to 8.1 tonnes in 2010, an increase of 91%. The last decade has seen steady growth of around 2.5% a year, from 6.3 tonnes in 2000 to 8.1 tonnes in 2010, an increase of 28% (Fairtrade and Coffee, 2012: 3).

Coffee producing countries consume 30% of the world's coffee, led by Brazil whose consumption reached 1.1 million tonnes in 2010. The remaining 70% is traded internationally. The US is the biggest importer, averaging 1.27 million tonnes a year in the period 2006-10, followed by Germany (546,000 tonnes) and Japan (431,000) (Fairtrade and Coffee 2012: 3).

[3] http://www.worldatlas.com/articles/top-coffee-producing-countries.html. Accessed on 23rd August 2016, at 11.48am.

Figure 3: Coffee Exports



Source: NAEB Report, 2016

Since 2011 exports of coffee have been increasing. However, in 2014 the production dropped by almost 4 million. According to NAEB, this was caused by a reduction in orders from international clients.

Almost the total Rwandan coffee crop is exported. The reason is that Rwandan coffee is of a high quality and appeals to international taste, and therefore brings money in to the country. Of the 99% of Rwandan coffee that is exported, 50% is in the form of fully-washed coffee, (NAEB, 2015:6).

Only ordinary coffee is taxed, and the tax on it amounts to 3% of the total export taxes.

Local consumption of coffee, on the other hand, is very low, 1%. The reason is that there is no real coffee-drinking culture in Rwanda. Tea drinking is common, among women and children especially, and with a few men who do not take alcohol. However, drinking coffee is now becoming a fashion in coffee shops and restaurants, and is beginning to be used as an energy-booster for working people.

A farmer has at least 0.1 hectare of land with between 150 - 300 trees. He can harvest 2.6 kg of cherries per tree, European Union Survey (2016:45).

The production of coffee still low. Rwanda is also a small country, with small individual landholdings which do not increase in size, and yet Rwandans have extended families with whom they are obliged to share the land they have and also to provide for all their children.

It is not easy to estimate the livings earned through coffee since most farmers have different sources of revenue, including coffee farms, cows, and small side businesses like selling vegetables or fruits. But according to the Coffee Division Manager from NAEB, a farmer should have at least 0.5 hectare to make a reasonable living[4].

For Rwanda to move from being considered a producer of commodity grade coffee to a specialty grade coffee producer, the coffee-producing sector needed to address three key issues, as advised by Webber and Labaste, 2010: 111.

Increase production. This is necessary because production levels have been insufficient to attract global demand. Activities used to increase production included distributing improved inputs, supporting growing associations, replanting coffee trees, and constructing wet-mill stations.

The production of coffee has increased from 4,332,895 Kilograms (kg) in 2011 to 8,584,585 kg in 2015 of fully washed coffee. Ordinary coffee increased from 11,263,723 kg in 2011 to 13,314,542 kg in 2013 but because the country's target is to increase fully washed coffee, ordinary coffee exports have been reduced to 10,198,363 kg in 2015, (NAEB 2016).

Increasing production by good agronomical practices, including using coffee washing stations to increase fully washed coffee, applying fertilizer and pesticides, and targeting different international clients, especially those looking for unroasted coffee, will increase the value of the exported coffee. Also, increasing awareness of the Rwandan coffee brand to ensure it is known regionally, throughout Africa, and internationally is needed.

[4] Interview conducted on 8 November 2016

Improve quality. Activities include educating producers on quality and cupping, establishing quality-control mechanisms, investing in and giving technical assistance in wet-mill techniques and operational and financial management, improving infrastructure, and improving existing institutions.

The quality of the product has been improved. The number of coffee washing stations has increased and farmers have been educated on the importance of taking coffee to washing stations instead of cleaning coffee at their homes and selling ordinary coffee. Also, adding fertilizers and pesticides to coffee plantations has become mandatory for all coffee farmers. In addition, all coffee plantations and trees are known by local leaders in charge of agriculture and farmers are only allowed to sell cherries to washing stations in their neighbourhood. Measures to reduce ordinary coffee have also been taken, including imposing a tax on the export of ordinary coffee but not on fully-washed coffee.

Promote the Rwandan brand. Activities include establishing and improving market linkages through trade show visits, sharing information about the local and global coffee markets with the private sector, and instituting innovative programmes.

Marketing strategies are also being improved but they need to ensure that Rwandan coffee is known both in the region and abroad. Rwandan coffee has a premium specialty similar to Kenyan and Ugandan coffee, but it is not as well-known.

Through these interventions, Rwanda was effectively able to reposition its coffee and compete in higher grade and higher priced markets. In 2002, the country made its first sales of specialty coffee. The following year, privately financed and operated wet-mill facilities produced fully washed coffee. Then, in 2004, Rwandan specialty coffee made its first sale to Starbucks Coffee Corporation.

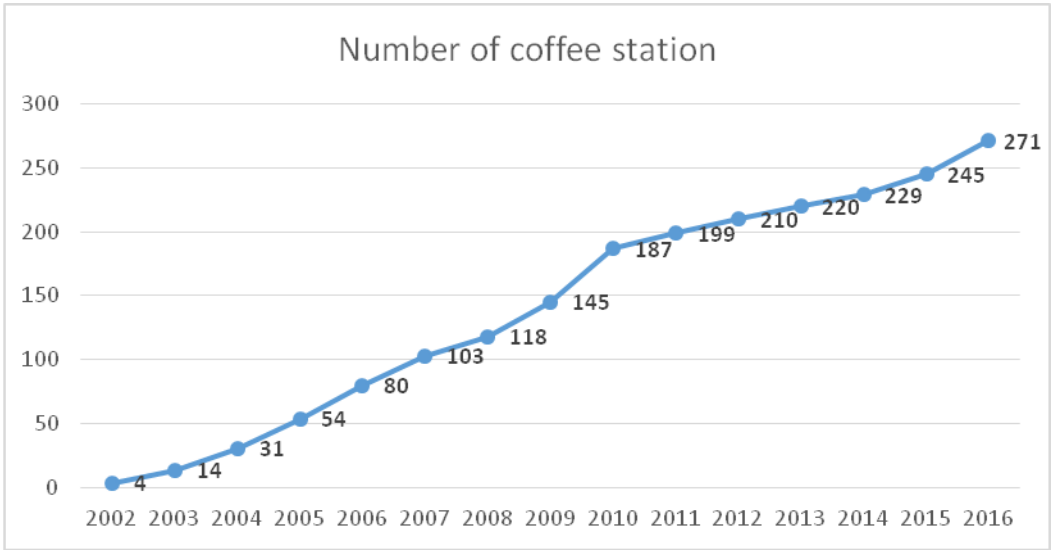
Webber and Labaste (2010:113) argue that continued investment in the existing wet-milling facilities is required to make better use of water sources and to equip them with water recycling pumps in order to continue the growth of the specialty coffee industry.

Rwandans could also choose to diversify their product offerings by seeking broader markets for standard coffee while simultaneously maintaining focus on higher prices for specialty coffee. This would leverage the Rwandan coffee sector's increased

capacity and maturing coffee and could enable Rwanda to broaden its coffee production to more diverse markets.

2.1.3 Coffee Washing Stations (CWS)

Figure 4: Coffee Washing Stations (CWS)



Source: NAEB Report 2016

The increase in coffee washing stations was due to the Government's strategy to increase the quantity of fully washed coffee. In 2002, there were only four coffee washing stations and by 2017 they had increased to 271 (NAEB, 2016:6). Donor projects in Rwanda supported the Government policy and provided financial support to cooperatives in order to construct coffee washing stations. According to NAEB (December 2016), the 271 washing stations currently operating are able to process 104,600 tons of cherries per season. At present the 271 washing stations are operating at 95% capacity (NAEB, 2016:6). 50% of CWS are private and the remaining 50% are cooperatively owned.

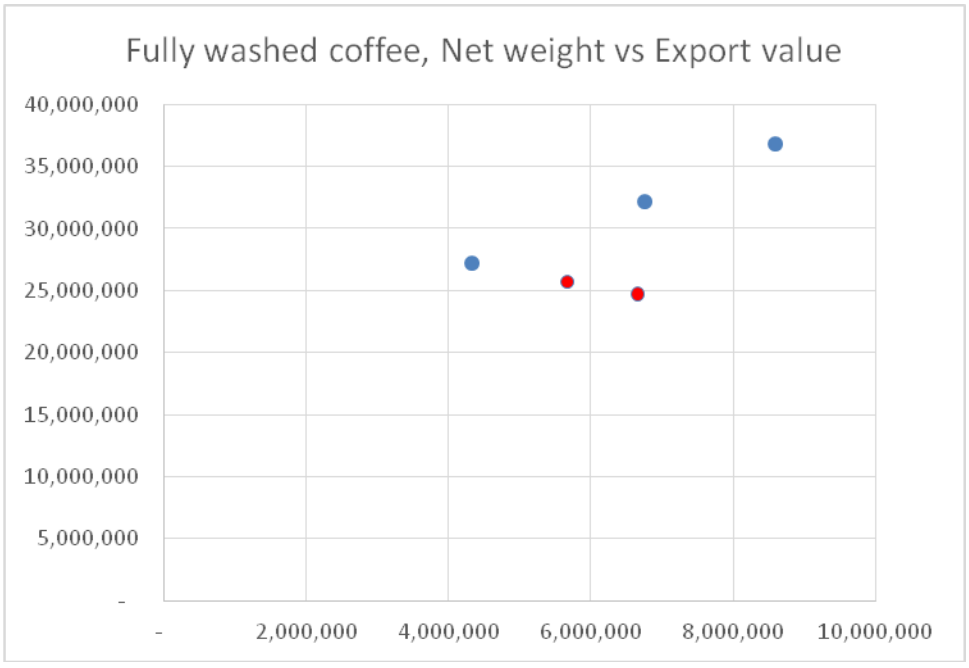
2.1.4 Evolution of fully washed coffee

Table 2: Fully washed coffee

	2011	2012	2013	2014	2015
Fully washed coffee net weight (Kg)	4,332,895	5,669,452	6,655,171	6,752,464	8,584,585
Export value (usd $)	27,240,084	25,683,072	24,720,459	32,175,265	36,851,750

Source: NAEB Report 2016

Figure 5: Increament of Fully Washed Coffee



From 2011 until 2015, the production of fully washed coffee has been increasing. However, coffee revenues have not kept pace. In 2012 and 2013, despite an increase in quantity, coffee export revenues fell because of international coffee price

fluctuation. Prices at export level in Rwanda went down from USD $6.29 in 2011 to USD $4.53 in 2012 and to USD $3.71 in 2013.

Rwandan coffee gets a premium on the international market. This should motivate Rwandans to increase the production of fully washed coffee and also to endeavour to attract international buyers despite possible fluctuations in the price of coffee. The Government, moreover, should consider providing protection for coffee farmers from coffee fluctuation prices, for instance by establishing a guarantee fund that could aid coffee farmers when the international price fell too low, enabling them to survive fluctuations in the international market.

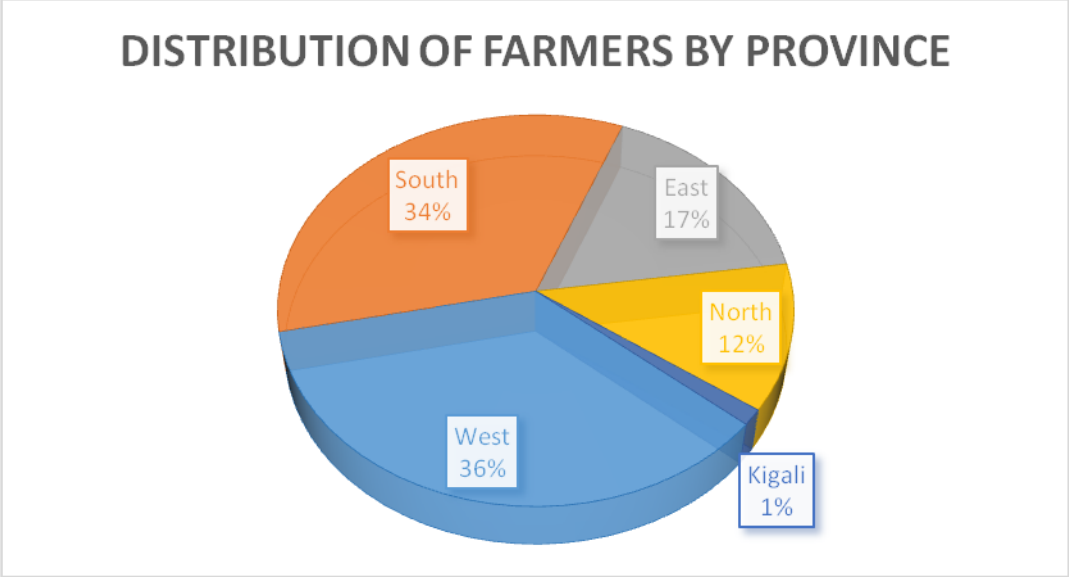
2.1.5 Distribution of coffee farmers per province

Table 3: Coffee farmers per province

PROVINCE	NUMBER OF FARMERS	%
West	126,655	35.6
South	122,172	34.3
East	59,270	16.7
North	43,007	12.1
Kigali	4,667	1.3
Total	355,771	100

Source: National Coffee Census 2015

Figure 6: Farmers by Province



Source: National Coffee Census 2015

Farmers are located throughout the whole country and Kigali, as a capital with little farmland has correspondingly few farmers. The Western and Southern provinces, with fertile land and weather conducive to coffee-growing, have a greater number of farmers.

2.1.6 Fertilizer and pesticide application, mulching and pruning, access to basic materials

The proportion of coffee trees treated by organic fertilizers is 57% and those treated by mineral fertilizers is 40% (NAEB 2016: 25). The progress of the application of fertilizers is still low owing to competition with food crops such as Irish potatoes, bananas, cassava and beans. However, measures have been taken to include the fertilizer cost in the coffee price at export and this has motivated farmers to purchase fertilizers.

Fertilizers are distributed by the private dealers with the support of NAEB which has all the information on farmers and the quantity of fertilizers needed. All farmers are also trained in the correct application of fertilizers and how many grams are needed per tree. Sometimes, there is not enough fertilizer and the available quantity is shared among farmers.

42.1% of coffee farmers used pesticides. The crucial challenges that farmers related facing are the lack of water, materials, pest and diseases prevention campaigns, and the late availability of pesticides. 59.7% of coffee trees were mulched, and 54.9% of the total number of trees were pruned. Mulching and pruning activities are activities that improve soil moisture in particular and soil fertility in general. On average, 2.4% of farmers owned sprayers, 4.6% owned pruning shears, and 3% owned saws (National Coffee Census 2015, 27).

2.2 Value chain of coffee

It is very important to know that the market demand is driving the quality and volume of the export. Therefore, we need to understand the requirements of high price markets and then comply with the market standards along the whole coffee production chain.

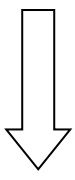
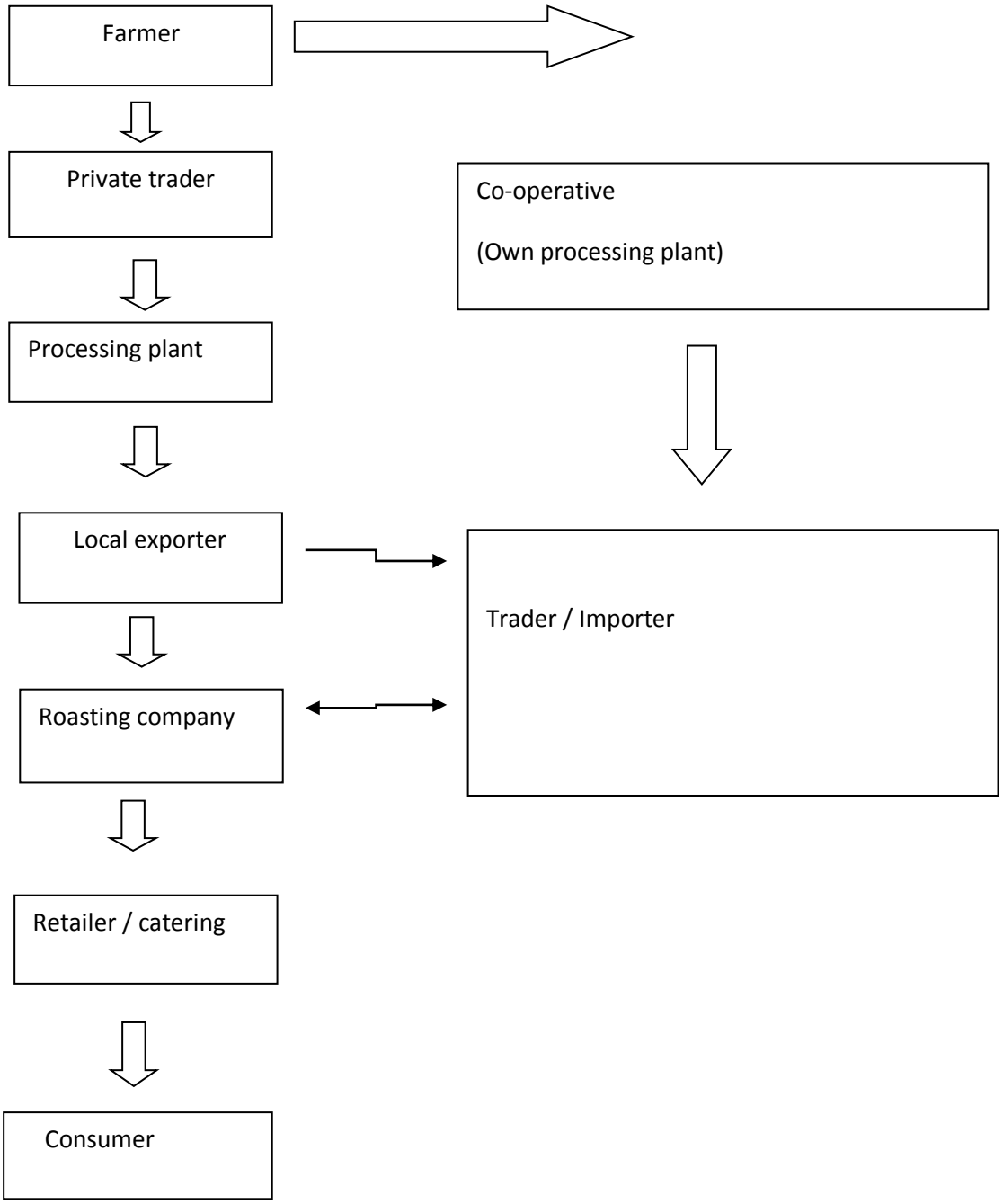


Figure 7: Simplified coffee supply chain

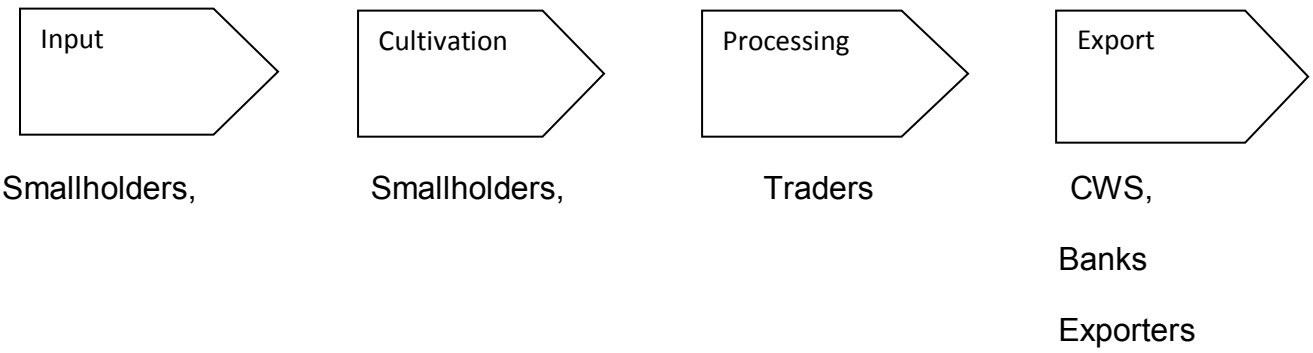


Source: Fair-trade and Coffee, 2012: 10

2.3 Value chain of coffee in Rwanda

Figure 8 shows the coffee value chain in Rwanda, according to Macchiavello and Morjaria (2015:5).

Figure 8: Value chain of coffee in Rwanda



Coffee farmers are mostly harvesting and drying cherries. Processors are involved in cleaning coffee mostly at the coffee washing stations. Exporters ensure quality inspection and handle areas such as promotion or sales and logistics.

According to Webber and Labaste (2010: 109), export revenue from coffee, which is a source of income to Rwanda, declined in the 1990s. Before 2001, Rwanda was unknown in the specialty/high-value coffee sector. Today, it is a sought-after supplier of specialty coffees to Europe and the United States. However, coffee's contribution to Rwanda's foreign exchange declined in 1990s and also after the 1994 genocide against the Tutsis. Again, in 1997 when Vietnam and Brazil responded to high prices by increasing their output of commodity grade coffee, Rwanda suffered. By 2001, average global coffee prices were US $0.52/lb. Rwanda received US $ 0.40/kg (US $ O.18/lb) which on average was below the price of production. Each actor lost money in this process, including small farmers, processors, exporters and even banks. During this period, Rwanda lacked technical capacity, market information and a coherent strategy.

2.4 Exportation of coffee

In the third quarter of 2016, Rwanda's total exports totalled US $112.54 million, imports totalled US $439.39 million and re-exports were valued at US $51.52 million. Total domestic exports decreased by 1.49 % during the period of the third quarter 2016 over the same quarter of 2015 (US $112.52 million and US $114.24 million respectively) and increased by 22.01% compared to the second quarter of 2016 (NISR 2016: 4).

The top five export destinations were the United Arab Emirates, Switzerland, Kenya, the Democratic Republic of Congo and Singapore. These five countries accounted for 68.83% of the total value of domestic exports (US $77.46 million). The commodity groups with the largest export values were coffee—not roasted, not decaffeinated (US $22.41 million), Vanadium ores, tantalum and concentrates (US $10.74 million), and black tea (US$ 7.35 million) (NISR 2016:4).

Switzerland imports the most coffee from Rwanda, followed by the USA, Belgium, UK, Singapore and Italy. In Africa, South Africa is the most export destination for Rwandan coffee, followed by Kenya and Tanzania, (NAEB 2016).

The target for export value for 2016 was $85.1million. From January to November the exports reached a value of $54.2million. The annual target was not met because of the fluctuation in global coffee prices. On average, prices for coffee beans have declined from $3.30/kg last year to about $3.13/kg this year. The overall decline in value was due to price fluctuations, poor infrastructure network for access to factories, and the lack of electricity in some areas, (Ministry of East African Communities, Commerce and Trade, 2016).

Coffee prices in supermarkets range between Frw 2,500 and 4,700 for 250 gms to 500 gms and 6,700 for 750 gms. The difference amounts to less than Frw 300 for different brands, (Ministry of East African Communities Affairs, Commerce and Trade, 2016).

Rwanda, despite producing coffee, also imports coffee, mostly Nescafe (instant coffee) and other blended coffee from Burundi, Uganda, Brazil, Tanzania, Kenya and Dubai. Instant coffee could be produced locally. Other blended coffee would also need high tax restrictions so that the locally produced coffee is promoted.

CHAPTER THREE: LITERATURE REVIEW

This chapter covers the literature reviewed in the course of my research. It discusses key terms of the study and key interrelated subjects.

3.1 Rwanda's coffee value chain

The value chain describes the full range of activities that firms and workers do to bring a product from its beginning to its end use and beyond. This includes production, marketing, distribution and support to the final consumer. Value-chain activities can produce goods or services, and can be contained within a single geographical location or spread over wider areas.[5]

Coffee producers are locked into production chains. Their produce reaches consumers in different countries having passed through the hands of intermediaries. Each of these intermediaries adds value to the final product. Through value chain analysis, researchers try to define who is to perform what role, what standards are to be met in order to participate in the chain and who influences the distribution of returns among the various parties participating in the chain (Webber and Labaste, 2010: 22).

The value chain is very important in every business. A good value chain makes a business successful and a bad one makes it fail. According to Webber and Labaste (2010: 78), Rwandan coffee was a principal source of foreign exchange for the country until the 1990s. But coffee's contribution to Rwanda's foreign exchange earnings declined through the mid-and late 1990s and never recovered to 1992 production levels (39,000 mt) because of inefficiencies in the coffee value chain.

The downward trend could be explained by the fact that low farm gate prices offered no incentives to farmers to invest in coffee production. In addition, the fact that

[5] Accessed from https://global valuechains.org/concept-tools (Accessed 19/01/16).

farmers were not given premium prices for better quality further discouraged them from making adequate investments in coffee production. This resulted in reduced coffee productivity attributable to decreased soil fertility in plantations because most farmers did not apply any chemical or organic fertilizers to coffee trees. Furthermore, farmers failed to replace a high percentage of the existing unproductive aged coffee tree stock and good agricultural production practices were not routinely applied to coffee holdings. Tree stocks were not regenerated through cut backs, and pruning, mulching, and weeding were rarely done[6].

According to Webber and Labaste (2010: 107), Mike Ducke, J.E Austin Associates, Inc., illustrates the concept of the hidden potential in value chains by analyzing Thailand's Good Agricultural Practices. Agriculture is a main contributor to the economy, and Thailand took some of the initiatives to position itself as a quality vegetable producer while focussing on branding and certification, working with supermarkets to gain dedicated shelf space for its vegetables and creating unique packaging.

Business must make choices purposefully, or they will simply be out-positioned by their competitors or buyers. Therefore, competition is a critical aspect of repositioning as well.

3.2 Standards, Specialty and Traceability of coffee

Bart Slob (2006: 9-10), argues on Standards, Specialty coffees and Traceability as follows:

Standards are mandatory when they are set by Governments in the form of regulation. Voluntary standards arise from a formal coordinated process in which key participants in a market or sector seek consensus. Private standards are developed and monitored internally by individual enterprises.

Specialty coffees: One of the most important trends in the coffee market has been the growing demand for specialty coffees. Sellers distinguish these coffees by highlighting their country of origin, by emphasizing their particular characteristics, or by showing a commitment to organic, shade-grown or Fair Trade practices.

[6] NAEB, Medium- Term Strategic Plan, 2013-2018, 12

Some examples of successfully developed names include Colombia's Juan Valdez and Café de Colombia, or Jamaica's Blue Mountain Brand.

Traceability: Traceability has become an important issue in the coffee industry. Increasingly, the coffee sector has begun producing goods and services tailored to the tastes and preferences of various segments of the consumer population. Traceability is an indispensable part of any market process that takes into consideration credence attributes or attributes that are difficult or costly to measure.

Barma et al. (2012: 9-10) discuss ways of making useful gains for natural resources that could also be applied to the coffee sector, particularly the following:

Policies are decisions made by Government officials on a specific course of action. A policy may also be adopted through budget plans or pursued more informally through a government agency's day-to-day operations.

Institutions are the rules of the game that structure political, economic, and social interactions. Formal institutions include a country's constitutional framework and the checks and balances in place on the different branches of government.

Governance is the exercise of public authority with regard to society through the agencies of government. It is about the processes by which bargains between state and society are made.

State capacity, or the ability of the state to implement policy through its agencies, is an important aspect of governance.

Fair trade remains the only sustainability initiative in the coffee sector that clearly benefits small-scale producers.

Within the Fair trade movement, there are basically two distinct views on what Fair trade is or should be, according to Webber and Labaste (2010: 30). One is that Fair trade should be a development model and the other that it should be a general market standard. The former represents the idea that small-scale farmers should be empowered and given access to the market. The latter represents the perspective of relatively new actors in the Fair Trade movement, such as multinationals and other labels.

Wintgens (2009: 388–389) argues for sustainable coffee production that aims to achieve environmental, economic and social sustainability for the long-term

development of coffee regions. Its goals are to preserve water, soil and biodiversity resources, while maintaining the well-being of the people in the communities involved.

As a general rule, the concept of sustainable coffee production includes three major principles: organic coffee growing (produced by implementing methods that maintain soil health and fertility by encouraging natural biological cycles and prohibiting the use of synthetic chemicals), shaded coffee (grown under a canopy of trees designed to maintain the biodiversity of the coffee growing region) and Fair-trade (which refers to measures taken to improve the livelihood and well-being of coffee farmers by promoting equitable trade with a minimum guaranteed price for their crop).

3.3 Implications for quality and price

According to Fury (2016), over 125 million people around the world are involved in the coffee farming industry. Yet coffee is susceptible to high degrees of price fluctuation, leaving a tremendous number of those people vulnerable[7].

Pettinger (2016) discusses three causes of prices fluctuation that could have an impact on coffee[8]:

Weather conditions: Good weather conditions can lead to an unexpectedly large increase in supply, or an early frost can harm supply, leading in either case to fluctuations in price.

Global market: The number of countries producing coffee has increased. Traditional producers like Colombia have faced competition from new countries seeking to enter the market.

Inelastic demand and supply: A small change in supply can have a large impact on price.

[7] (http://www.perfectdailygrind.com/2016/02/diversification-in-speciality-coffee-farming-the-agricultural-economic-case/ Accessed on December 6, 2016)

[8] http://www.economicshelp.org/blog/23840/economics/what-causes-price-fluctuations-in-agricultural-markets/ Accessed on November 20, 2016).

Demand for coffee is relatively price inelastic. If the price of coffee falls, there will be a smaller percentage rise in demand. This is because there are few close substitutes to coffee or tea. Although some people may drink coffee if it is cheaper, most consumers spend a relatively small percentage of their income on coffee and the price doesn't make much difference to overall demand. If demand rises, then prices will also rise, despite rising production.

In the short term, the supply of coffee is inelastic. If the price rises, the farmer cannot respond by increasing supply overnight. The ground has to be cleared and more coffee trees planted. It will take 3-5 years before new coffee trees produce beans.

There are three factors affecting the global coffee price, according to Wienhold (2016)[9]:

1. **C-Price and the ICE Market**: According to Wienhold (2016), the price of coffee changes every minute in the same way that stock – or any other commodity – does. It is defined by commodities exchanges, including the Intercontinental Exchange (ICE) in New York, which is the most important for Arabica Coffee and which sets what is called a C-Price.

   If there is less coffee available, the price goes up to the point at which supply exactly equals demand. Some people who wanted coffee will decide not to buy as the price goes too high for them. The price will then stop increasing when the remaining people who are willing to pay want the precise quantity offered.

   If there is more coffee available, however, the price will fall to the point at which it is all sold. There may be more available than people want that day but, as the price drops, they decide to buy more to take advantage of a good deal. The price stops dropping at the moment that people agree to purchase precisely the quantity offered.

2. **Coffee based Derivatives**: These are like future contracts, which are promises to purchase at a future date at a price determined today. The agreed-upon price is based on the predicted price (based on supply and demand) at the delivery

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http://www.perfectdailygrind.com/2016/06/unstable-market-economics-global-coffee-prices/ Accessed on December 6, 2016

date when the contract expires. Because of the derivatives market, predicted supply and demand for coffee is built into the C-Price. The reverse is also true. If there is speculation that the price will drop, people will start selling their coffee This decreased demand will cause the current price to drop based on future speculation.

3. **Hedging and betting**: Coffee derivatives are used as a hedge by industry actors and as an investment by speculators. To hedge in the coffee industry is to purchase a financial product based on the price of coffee at some point in the future. This is done as a safeguard from a change in price ahead of payment, delivery, or harvest. There are two flaws with this system: while the industry is able to hedge market volatility to an acceptable level of risk, most of the 25 million small farmers that produce 80% of the world's coffee do not have that capacity. This leaves farmers the most vulnerable to price fluctuations. Secondly, there is no formal consideration for specialty-grade quality coffee.

3.4 Conclusion

Different authors have highlighted the importance of having a strong and useful value chain in order to trade coffee successfully. They also emphasized how setting standards for trading coffee is key since people develop more trust for it and its place of origin. At present, coffee buyers expect a good coffee with high standards; having these standards allows coffee producers to be competitive. Roasted coffee, which is exported at a high price from Rwanda, double or almost triple that of washed coffee, always allows a producer to earn more money even when prices fluctuate.

CHAPTER FOUR: COFFEE PRICE IN RWANDA

Chapter four provides an analysis of coffee prices in Rwanda. It indicates prices for all types of coffee at national and export levels.

4.1 Exported coffee

Table 4: Exported coffee in the previous years

DESCRIPTION	2011		2012		2013		2014		2015		
	Fully Washed Coffee	Ordinary coffee	Fully Washed Coffee	Ordinary coffee	Fully Washed Coffee	Ordinary coffee	Fully Washed Coffee	Ordinary coffee	Fully Washed Coffee	Ordinary coffee	Roasted Coffee
Export NW/Kg	**4,332,895**	**11,263,723**	**5,669,452**	**11,320,278**	**6,655,171**	**13,314,542**	**6,752,464**	**9,220,913**	**8,584,585**	**10,198,363**	**10,360**
%	28	72	33	67	33.33	66.67	42.27	57.73	45.68	54.27	0.06
Export Value (USD)	27,240,084	47,364,309	25,683,072	35,203,788	24,720,459	30,483,890	32,175,265	27,502,733	36,851,750	25,067,758	118,182
Weighted average	**6.29**	**4.21**	**4.53**	**3.11**	**3.71**	**2.29**	**4.76;**	**2.98**	**4.29**	**2.46**	**11.41**
%	37	63	42	58	44.78	55.22	53.91	46.09	59.40	40.41	0.19
Total export Net weight (Kg)	15,596,618		16,989,730		19,969,713		15,973,377		18,793,377		
Total export value (USD)	74,604,393.00		60,886,860		55,204,349		59,677,998		62,037,690		

Source: NAEB (August 2015)

Since 2011, exports of fully-washed coffee increase in volume each year. Nevertheless, revenue exports do not necessarily increase since international coffee prices fluctuate. For ordinary coffee, from 2011 to 2013, the volume of exported coffee was more than double that of fully washed coffee. The quantity of ordinary coffee is still higher than fully-washed coffee. The Government has taken measures to reduce ordinary coffee and has imposed a 3% tax on ordinary coffee exports. Fully-washed coffee exports are not required to pay any taxes.

In the past, prices paid to Rwandan farmers closely mirrored international market fluctuations and followed a downward trend. Coffee recently experienced an economic crisis between 1997 and 2002 when the world commodity coffee price plummeted from US $1.27 to 0.45 per pound (Wintgens, 2009: 388).

Bart Slob (2006: 8-9) argues that over the long term, the coffee sector has suffered from a disastrous decline in prices, a process that speeded up during the 1990s. This price decline, along with other factors, severely impacted Rwanda's coffee production. The downward trend could be explained by the fact that low farm gate prices offered no incentives to farmers to invest in coffee production.

In addition, the fact that farmers were not given premium prices for better quality further discouraged them from making adequate investments in coffee production. This resulted in reduced coffee productivity, attributable to decreased soil fertility in plantations because most farmers did not apply any chemical or organic fertilizers to coffee trees.

To revamp the coffee sector, the Rwandan Government liberalised the coffee trade. This allowed the licensing of several private coffee processors and exporters and the installation of several coffee washing stations and dry-mills by private companies thus changing the coffee marketing chain from a central monopoly to a free market.

Private traders were then allowed to purchase coffee cherries from smallholder growers through coffee washing stations (wet-mills) and/or buy dried-parchment fully-washed coffee from coffee washing stations, and to sell it to the dry-mills. Coffee export increasingly went into the hands of private enterprises.

In addition, the government developed a strategy of targeting the production of high-quality coffee through wet-processing in coffee washing stations, a specialty product whose prices remain stable even when industrial-quality coffee (ordinary coffee) prices fall. It further provided technical assistance and training as well as linked farmers to high end markets. Furthermore, different priorities have been set up in order to support producers in increasing the volume of exports, to ensure a high quality of traded coffee, to promote value addition and to facilitate coffee marketing and export.

Looking at the coffee exported over the last five years, it can be seen that the production of ordinary coffee was higher than fully washed coffee, as were the revenues earned by ordinary coffee. During 2014 and 2015, however, when the price of fully washed coffee was double that of ordinary coffee, ordinary coffee brought in less revenue than fully-washed coffee did.

Fully washed coffee also increases in quantity every year but prices for this fluctuate as well. Nevertheless, the price of fully washed coffee is always higher than that of ordinary coffee.

Roasted coffee has higher price than both fully washed and ordinary coffee. However, so little is produced that it brings in very little revenue. The problem is that most clients are coffee roasters especially in the US, and other clients do not trust the quality of roasted coffee and prefer to buy unroasted. Rwanda needs to ensure good quality roasted coffee and also target clients specifically for roasted coffee.

Transporting roasted coffee is quite costly since the coffee needs to arrive at the end consumer quickly before it loses aroma, which requires expensive air transport. Nevertheless, Rwandair, the national carrier of Rwanda, could be used and specific destination countries targeted.

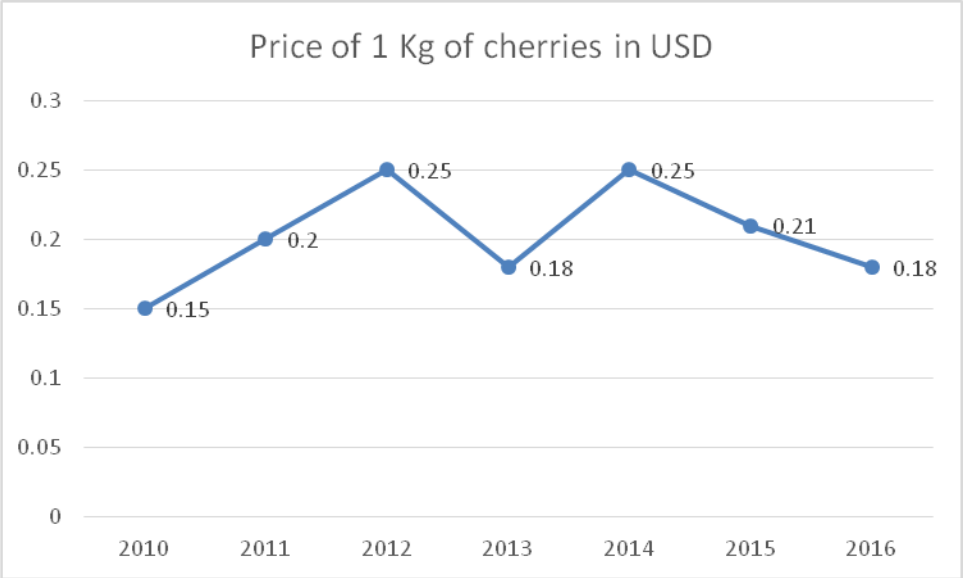
4.2 Price of coffee

Table 5: Price of coffee set by NAEB to coffee farmers

YEAR	MINIMUM PRICE OF 1KG OF CHERRIES (FRW)	AMOUNT CONVERTED IN US DOLLARS (VALUE: 1 $ US = FRW 813.9)
2010	122	0.15
2011	165	0.2
2012	200	0.25
2013	143	0.18
2014	200	0.25
2015	170	0.21
2016	150	0.18

Source: NAEB, November 2016

Figure 9: Price of 1 Kg of Cherries in USD



Source: NAEB, November 2016

Since 2010, the price of Rwandan coffee has been fluctuating because of fluctuating international coffee prices. It increases and decreases, but the price, at 10 cents on the US dollar, remains low relative to average earnings in Rwanda. The farmer's income seems to be too low. On the other hand, the exporter incurs additional costs, such as the transport from the coffee plantation, fuel for the machines at coffee washing stations, labour, materials, and transport to the dry mills companies and to NAEB for export.

Because of the imbalance of power in the mainstream coffee value chain, farmers and their families face a whole series of obstacles, starting with the fluctuating prices for coffee on the international market. Farmers often have to accept the price offered by traders and have very little, if any, power to negotiate (Bart Slob, 2006: 8).

IGC's survey of 178 managers of washing stations during the harvest season of 2012 revealed that processing costs (including labour, capital, energy, transport and procurement) amount to approximately US $1.00 to $1.20 per kg of parchment processed. Given the price that mills pay for fully washed coffee, stations obtain an average profit of 10% on the washing of coffee. Stations' profit margins are US$0.40 per kg of green coffee. (Macchiavello & Morjaria, 2015:6).

4.3 Certified coffee

Table 6: Certified coffee

YEAR	KGS OF COFFEE SOLD	AMOUNT IN USD ($)
2011	11.180.000	6.439.874
2012	651.900	3.412.896
2013	1.189.360	4.336.466
2014	1.071.780	5.457.978
2015	17.219.924	57.158.992

Source: NAEB August 2016

The price of certified coffee is higher than the price of fully washed or ordinary coffee and this should encourage coffee producers to apply different certifications in order to earn more money.

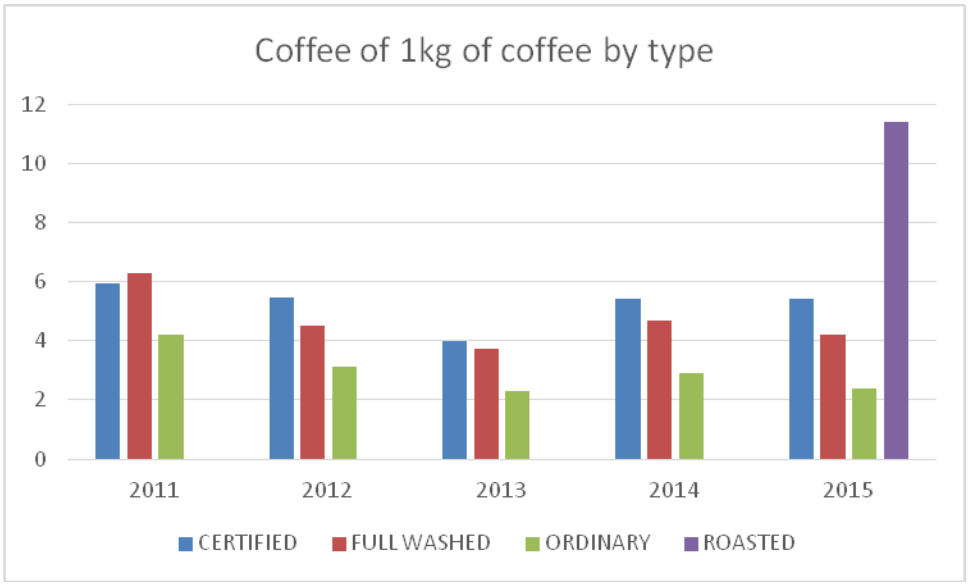
4.4 Cost of coffee at the export level in USD

Table 7: Cost of 1 kg of coffee at the export level in USD

YEAR	TYPE OF COFEE			
	CERTIFIED	FULL WASHED	ORDINARY	ROASTED
2011	5.92	6.29	4.21	
2012	5.45	4.53	3.11	
2013	4	3.71	2.29	
2014	5.44	4.7	2.9	
2015	5.43	4.2	2.4	11.4

Source: NAEB (October 2016)

Figure 10: Price of coffee by type



Source: NAEB (October 2016)

Price variation applies to all types of coffee. The price of green coffee is the price of the international market plus a premium which is negotiated between the exporter and the buyer. The price variation locally depends on the variation in the international market.

For cherries, NAEB, in collaboration with all stakeholders, sets the farm gate price. This is also based on the price of green coffee on the international market and the exchange rate USD-FRW, and varies as well from year to year.

The price of fully washed coffee is USD $4.20 per kg while the price for ordinary coffee is USD $2.40. There is a difference of USD $1.80 lost for each kg exported which is not fully washed. The price of certified coffee is USD $5.43 and the price for roasted coffee is USD $11.40, substantially more than the prices for certified, fully washed and ordinary coffee.

According to NAEB, most of Rwanda's coffee clients are coffee roasters. They do not therefore purchase roasted coffee. Also, many international clients do not trust Rwanda's roasting facilities and therefore prefer to buy unroasted coffee.

Since freshly roasted coffee beans require air transportation for an acceptable delivery time to the client. The NAEB will need to work with different Carriers especially Rwandair to establish reliable transport, and also to target clients who currently buy unroasted coffee but might be willing to buy roasted coffee if the quality were assured.

Certified coffee reduces health risks and environmental challenges, and for this reason Rwandan coffee exporters should think about upgrading the standard of coffee they export.

Ordinary coffee gets the lowest price and the Government should increase the efforts to reduce the export of this type of coffee, as it is generally of inferior quality and both the farmer and the Government potentially lose money on it. There are 67 companies in Rwanda that export coffee. Most of them export ordinary and fully washed, and only a very few export certified and roasted coffee.

In the new farm gate price for this year, NAEB is negotiating with stakeholders to increase the farm gate price by more than 60% so that farmers receive more money for an improved standard of living.

4.5 Price of packaged coffee

A small or medium cup of coffee costs between 2,500 Frw and 5,000 in prestigious coffee shops and hotels, approximately USD $3.00 to $6.14. In supermarkets, prices differ depending on the quantity and brand but the difference is minor as shown in the table below.

Table 8: Price of coffee in coffee shops and restaurants

Bourbon Coffee: Kizi rift, Kivu lake, virunga, Akagera and Muhazi coffee.		
SPECIFICATIONS	**QUANTITY**	**PRICE**
Bag of coffee beans	500 gms	5,000 Frw (USD 6.14)
Bag of coffee beans	340 gms	4,000 Frw (USD 4.91)
Blended coffee	500 gms	4,500 Frw (USD 5.53)
Blended coffee	250 gms	3,000 Frw (USD 3.68)
Gorillas coffee (wholesale price)		
Blended coffee	250 gms	1.800 Frw (USD 2.18)
Blended coffee	500 gms	3.500 Frw (USD 4.24)
Blended coffee	1 kg	6.800 Frw (USD 8.23)

Source: Ministry of East African Communities Affairs, Commerce and Trade (2016)

4.6 Market for Rwandan coffee

Almost the total volume of the produced coffee in Rwanda is exported (99%). Switzerland imports the most coffee from Rwanda over 40%, followed by the USA that takes 28%, Belgium, UK, Singapore and Italy. In Africa, South Africa is the most important export destination for Rwandan coffee, followed by Kenya and Tanzania, (NAEB 2016).

Rwanda's coffee has been rated as top quality. However, it is not well known on the international market. Much needs to be done to increase brand recognition for Rwandan coffee. This should be an opportunity for Rwanda to penetrate to different markets.

As most coffee currently exported is not fully washed, it should be a priority to increase the percentage of fully washed coffee as this attracts a higher price than the ordinary. In addition, certified coffee earns considerably more than non-certified. The Government should also encourage efforts to increase the production of certified

coffee. Buyers for roasted coffee should be targeted in order to increase export revenue. The export of ordinary coffee should be completely discouraged.

Countries that Rwandair, the national carrier, flies to should be targeted as potential buyers. There could be an opportunity for Rwanda to penetrate Europe, Asian and Middle Eastern countries.

CHAPTER FIVE: DESCRIPTIVE ANALYSIS

This chapter provides a descriptive analysis of the coffee sector in Rwanda and discusses the various constraints faced by the sector. The chapter ends with a look at the coffee sector in other countries such as Colombia, Costa Rica and Ethiopia, with a focus on what the Rwandan coffee sector can learn from these three countries.

5.1 Coffee sector in Rwanda

The present chapter will discuss thoroughly the coffee sector in Rwanda. It will provide a descriptive analysis of the state of the coffee sector and the challenges it is facing.

Rwanda is a small country, covering only 26,338 square miles. It has a population of 11,809,295[10]. Positive developments over the past 15 years have been the increased production of high value, premium mild coffee from central washing stations and the phasing out of home-processed coffee. Yields have also increased to an average of 2.6 kg of cherries per tree from 2.0 kg of cherries per tree in 2002 (European Union Survey, 2016:2).

The Rwandan government issued a revised National Coffee Strategy in 2009 with new production targets of 33,000 tons of coffee by 2012, 19,000 tons of which was to be fully washed. The Government anticipated revenues of $115 million if the target was met.

Coffee has been designated a priority commodity for the Rwandan economy. It is among the three main exported commodities and has contributed to the growth of the country. The target for the country is to reach 36.000 tons in 2018 (EDPRS II). Currently, the country has been able to reach 22,000 tons annually. Being able to produce 14,000 tons more would require a lot of efforts, that according to NAEB are being made including training farmers and increasing fertilizers and inputs in coffee plantations.

[10] NISR 2017, accessed from http://www.statistics.gov.rw/publication/size-resident-population, on 15 February 2017

According to NAEB, 50% of the exported coffee is fully washed and 1% is consumed locally. The government target is to export 80% of fully washed coffee by 2018 (NAEB 2016:6).

5.2 Existing initiatives

Turn-around program: This is an initiative that provides support to coffee washing stations in finance and management skills, especially for cooperatives. The programme started in 2010 and all the existing 216 cooperatives have been trained.[11]

Zoning: This is a programme to improve the relationship between farmers and coffee washing stations. NAEB has mapped all coffee trees and has data on coffee trees owned by farmers. This programme identifies existing farmers, coffee washing stations and coffee trees in each area, or cell. All coffee washing stations are requested to buy only coffee from coffee farmers in their local cell. On the other side, coffee farmers are not allowed to take coffee to other washing stations in different cells.[12]

5.3 Constraints at farmer level

Production of low volumes of fully washed coffee: Fully washed coffee is currently 50% of annual production, despite the knowledge that it is a good quality coffee which attracts a higher price and therefore brings in more revenue to the country. The Government is aware of this and has set targets to increase production. A number of coffee washing stations have also been created to ensure the coffee produced is properly washed. The number of coffee washing stations has increased tremendously from 4 in 2002 to 271 in 2017. They have the utilization capacity to process 119,000 tonnes per year.[13] The location of coffee washing stations in the country has also been taken into consideration and all provinces have

[11] NAEB Report January 2017

[12] NAEB Report August 2016

[13] NAEB Report January 2017

coffee washing stations. Despite all this, the production of fully washed coffee still low.

The Government target is for fully washed coffee to reach 80% of exported coffee by 2018.[14] However, not all coffee is accepted by the washing stations. The coffee washing station makes a selection and takes the best cherries; the second level are then sold as ordinary coffee. If production of fully-washed coffee is to increase, improvements need to be done at the farm level during planting and harvest to insure better seeds are harvested.

Production of ordinary coffee: Ordinary coffee is known to be a low quality coffee. It is still exported despite the Government's attempts to reduce it. The Government has imposed a tax of 3% (of total value) on ordinary coffee exports, whereas on fully washed coffee there is no taxation.

Ordinary coffee is prepared from the farmer's house without taking it to either coffee washing stations or dry mills. It is washed and well cleaned by the farmer. Nevertheless, the work done, though substantial and time-consuming, is unpaid as it is done by the farmer himself. This makes ordinary coffee cheap at the export level.

Some business men, who do not want the expense of cleaning coffee, prefer also to sell ordinary coffee which requires less work, less time for preparation, and also less time to wait for the harvest.

Mind-set of farmers: Some farmers believe that selling coffee immediately to exporters instead of taking coffee to coffee washing stations will give them more money. When a farmer sells a kilogram of parchment coffee he is given 900 Frw. When he takes a kilogram of cherries to a coffee washing station he is given Frw 150. However, 1 kg of parchment coffee equals 6 kg of cherries, and each kilogram of cherries is worth Frw 150. Substantial effort is needed to clean cherries, and by producing ordinary coffee the farmer is losing both money and time, although farmers are slow to accept this.

Other farmers think that coffee washing stations will only buy small amounts of their coffee and prefer to deal with ordinary coffee exporters directly. The price of 900 Frw per kilogram of parched coffee sounds impressive, but what is forgotten is that

[14] EDPRS II, 2013-2018

six kilograms of cherries have gone to make a single kilogram of parched coffee. The price for the product is the same, but the farmer has not included the cost of his own labour.

Others farmers are driven by financial need to sell their coffee before the harvest. These farmers typically sell their coffee as ordinary coffee to dealers and are paid low price compared to what is paid by washing stations.

Lack of contracts between Coffee Washing Stations and Farmers: Some, but not all, farmers are in cooperatives. Those in cooperatives have a commitment from their cooperatives that the cooperative will buy their coffee; however, farmers who are not in cooperatives might not be able to get coffee washing stations to buy their coffee. They frequently prefer to sell their coffee to ordinary coffee dealers because they are more certain to make a sale.

Price fluctuations: Coffee prices in Rwanda fluctuate because of international prices. Some farmers also believe that it is possible to wait for prices to improve before they sell their coffee. They therefore keep the coffee at home without taking it to the coffee washing stations. When they do sell the coffee, it is as ordinary coffee. Unfortunately, their attempts to predict what the market will do are not always successful, and they sometimes lose even the money that they would ordinarily have made from selling when the price was low.

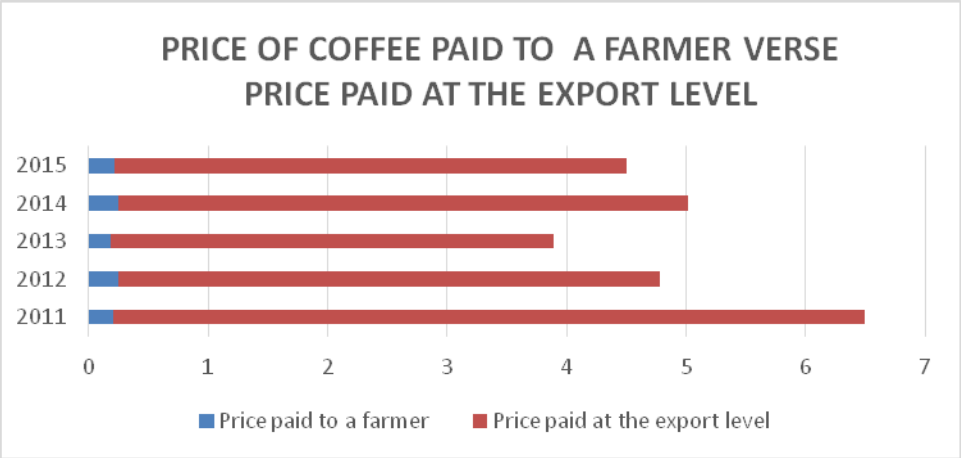
5.4 Price of coffee paid to a farmer

Table 9: Price of coffee paid to a farmer and price paid at the export level

YEAR	MINIMUM PRICE OF 1KG OF CHERRIES IN US DOLLARS (VALUE: 1 $ USD = FRW 813.9)	EXPORT VALUE (USD) FOR FULLY WASHED COFFEE
2011	0.2	6.29
2012	0.25	4.53
2013	0.18	3.71
2014	0.25	4.76
2015	0.21	4.29

Source: NAEB, November 2016

Figure 11: Price paid to a farmer and price paid at the export level



Source: NAEB, November 2016

There is a big difference between the price paid to an exporter and the price paid to a farmer. However, the exporter incurs different expenses such as operating costs at the washing stations, dry mills, and also transport.

Fertilizers: Normally fertilizers should be applied twice: in February and March before harvest and in November and December, but fertilizers and pesticides are distributed from September to December every year.

However, sometimes there is not enough and a farmer is only given fertilizer once. This could have an impact on the harvest and could reduce production. Before, buying fertilizers was the responsibility of the farmer, but farmers were not buying them. At present the Government subsidizes fertilizers but a farmer pays 108 Frw instead of 600 Frw for fertilizers and pesticides. The rest is paid by the Government.

According to NAEB[15], before 2014, about 10% of coffee plantation trees got fertilizers and pesticides. In 2014, it increased to 30%. In 2015, it more than doubled to 64%. This was a good increment but nevertheless, not all trees received fertilizer.

Price of coffee: The price set by NAEB and given to farmers has been between Frw 122 and Frw 200, that is USD $0.15 – $0.25. The current price being currently reviewed is Frw 150, USD $ 0.18 per kg. The farm gate price is set up with NAEB and all key stakeholders in the coffee sector, including farmers and exporters. It is based on the international price of coffee and also on the value of the US dollar.

[15] NAEB Report January 2017

Farmers have been complaining that the price is too low, and have been accusing exporters of exploiting them for their own profit. Nevertheless, when an exporter or a cooperative make a profit, they give a bonus which ranges between 30 – 100 Frw per kg of cherries supplied. The most serious consequences of the drop in coffee prices are felt at the lower levels of the production system, where coffee growers are losing money on their activity (Wintgens, 2009: 388). NAEB has been in negotiations with key stakeholders in coffee on the farm gate price for this year, 2017, and the intention is to increase the profit of the farmer in order to improve their welfare and also to motivate them to produce more and better-quality coffee.

Training: Washing stations hire seven (7) permanent staff: Manager, Accountant, Reception, Store Keeper, Quality Controller and 1 or 2 Guards. These staff are trained and they are the ones who train temporary staff who are hired during the harvest season.

NAEB also provides regular training to coffee farmers on how to maintain coffee plantations and how to use the inputs.

There are also other partners, especially non-government organizations such as Techno-Serve and German Technical Cooperation Agency, which provide training of various kinds to coffee farmers.

5.5 Constraints at coffee washing station level

Staff retention: According to an Independent Consultant in the Coffee Sector, coffee washing stations only work for 4 months a year, from February to June during the harvest season. After that, they only keep one worker and recruit again the next year. They cannot afford to keep staff on when there is no work to do. This causes various problems. When the harvest season approaches, coffee washing stations start to hire staff again. Most of the time, the staff hired are trained beforehand in order to acquire the necessary skills and knowledge but they may not be available for the next season. This means that the coffee washing stations are potentially working with inexperienced and sometimes incompetent staff [16].

[16] Interview conducted on 20 January 2017

Low financial capacity of Coffee Washing Stations: Some coffee washing stations have adequate financial capacity whereas others do not, especially washing stations owned by cooperatives. This has led them to seek loans, which, according to some cooperative members, are only given at a high interest rate. Some cooperatives, however, get loans from international banks[17].

According to bankers, loans for coffee projects are given at an interest rate of between 16.5% and 20%. Projects are sponsored based on the risks rating and the viability of the project. As some individual investors and cooperatives are turned down for these loans, it would seem that the risk is perceived to be high. Some cooperatives get loans from international finance institutions such as Route capital, which has interest rate of 10.5%.

Poor Infrastructure: Out of 271 coffee washing stations, only one is in the capital, Kigali. Some washing stations in other districts are in areas with poor roads which makes it difficult for farmers to bring the coffee cherries to them. However, washing stations together with agronomists in charge of the coffee agree on sites near coffee farmers where coffee could be taken. Farmers either take the coffee to these sites or take the coffee to washing stations where they are paid transport fees.

5.6 Constraints at export level

Price difference: When ordinary coffee is exported, an exporter pays a 3% tax which is not paid on the export of fully washed coffee. On fully washed coffee, an exporter earns 1,000 Frw more than for ordinary coffee. On every kilogram of ordinary coffee exported, $1.80 USD is lost. And when the price was quite high (as in 2011) $2.08 USD was lost. That so much money is being lost should lead to strong mechanisms to increase the export of fully washed coffee.

On every kilogram of fully washed coffee which is not certified, USD $1.23 is lost. This also is revenue that could make a difference to the Rwandan economy once certified coffee was exported in significant quantities. For unroasted coffee, USD $7.20 is lost per kilogram exported. This is a very substantial loss, the recovery of

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[17] Interview conducted on 25 January 2017

which could have a big impact on the lives of both farmers and exporters, and also increase the value of the country's exports. Rwanda does have a company that can roast coffee, but there are very few clients of roasted coffee. Nevertheless, the NAEB should actively seek out clients for roasted coffee.

Exporting low volumes of unroasted coffee: Many international clients, especially Americans, are roasters of coffee. This means that they will not buy roasted coffee. Rwanda has a roasting company with the capacity to process 1,500 tonnes a year and which is underutilized because the country does not produce roasted coffee in high volumes. If more clients for roasted coffee were found, there is the potential to boost the production of roasted coffee, which would enhance Rwanda's export revenue.

Exporting roasted coffee is expensive: Exporting roasted coffee is expensive since air transportation has to be used to ensure delivery time is short so that the coffee doesn't lose its aroma. Rwanda's national carrier, Rwandair, flies to many African countries, India, and China, and will be soon adding routes to the UK, Belgium and US. This carrier could be used to transport the roasted coffee to any or all of these countries.

Exporting low volumes of certified coffee: Coffee exporters claim that the cost of certification is very high. However, this cannot be changed since it is done by international auditors. Rather, the NAEB must convince companies to invest in certification and to meet the necessary criteria in order be able to compete internationally.

5.7 Constraints at national level

Low local consumption of coffee: Only 1% of the coffee produced in Rwanda is consumed locally.[18] There are various reasons for this. Tea, rather than coffee, is the preferred hot beverage for Rwandans. Tea can be found in all homes but coffee is rarely found in homes, even when there are coffee-drinkers in the home.

Some people believe coffee causes heart diseases and therefore do not drink it. Coffee in supermarkets and in coffee shops is double the price of tea. Coffee sellers claim that the packaging is very expensive.

Low production of coffee: At present, out of 89,726,809 trees, only 59.2% (53,118,270) are productive, (National Coffee Census, 2015:4). The Government should encourage coffee farmers to grow new coffee plantations. More lands could also be allocated for coffee since it is a valuable product to the country.

Poor marketing strategies: Rwandan coffee is not well known as brand, whether regionally or internationally, and yet Rwandan coffee is of top quality. Promotion campaigns are needed to ensure Rwandan coffee is marketed well and known both in the region and in other countries. In addition, marketing strategies should be developed to ensure greater number of clients is reached.

5.8 Cooperatives and companies

During this survey a number of cooperatives and companies were visited and interviews were done with their members and employees. The following provides a summary of discussions held with them.

5.8.1 Cooperatives

In the coffee value chain, out of 355,771 coffee farmers, 14% are members of cooperatives existing in the country while 86% are not (National Coffee Census 2015: 15).

The number of 14% who are members of cooperatives is very low, especially given that being in a cooperative is advantageous to the farmer. A cooperative provides

[18] NAEB Report August 2016

trainings to its members. In addition, all cooperatives assure their members that they will buy their coffee once grown. Furthermore, cooperatives give loans to their members and also buy them health insurance.

The NAEB is now tracking all coffee planted in order to plan for the harvest. Having cooperatives on board should help the NAEB to coordinate with more coffee farmers. The NAEB should play a major role in motivating coffee farmers to join cooperatives.

What keeps coffee farmers from joining cooperatives is a lack of trust in some cooperative managers and an unwillingness to pay membership fees.

5.8.2 COCAGI

The COCAGI cooperative has 1,075 members, 269 women and 806 men. When the cooperative started in 2004, there were 267. The membership fee is 34,000 Frw, paid once. It has increased from 500 Frw when the cooperative started. The company started with capital of 30 M and now has 190 M and it owns various properties worth 190 M including the washing station and plots.

The cooperative now has a coffee washing station with a capacity of 1,300 tonnes of cherries per season. The coffee processed is grown by members of the cooperative, the coffee washing station can only process coffee up to the stated capacity.

The cooperative has three international clients in the US and UK.

The cooperative has got one certification so far, Fairtrade. They got it with the help of an NGO. Cooperative members claim that certifications are expensive. The cooperative must pay USD $3,500 every year to get audited by the Certification Authority. They are currently looking for another certification, Rainforest Alliance. They also wish they could get organic certification but state that it is not easy since coffee plantations would have to be planted anew in line with specific requirements for certification.

The cooperative exports 111,600 tonnes every year. The big farmer can get 5 tonnes of coffee from his trees whereas the small one can get 80 Kgs.

The cooperative also advances money to members in case they need money for immediate expenses, such as to pay school fees for their children. It also pays for

insurance premiums for two members of the family and provides them with regular training.

Transport costs are paid at between 10 and 40 Frw per kg but only when a farmer takes coffee to the nearest site.

5.8.3 Companies

There are 88 companies which also have an export license. Most of these companies have more than one cooperative as shareholders. They have between them 96 international buyers.

5.8.4 Café du Rwanda (CAFERWA SARL)

Caferwa Sarl is a coffee-exporting company which started its operation in 1995 with the objective of exporting coffee to different parts of the world. CAFERWA currently owns Nkora washing station in Gisenyi, which is the biggest coffee washing station in Rwanda, capable of producing 500 tons of parchment coffee per season and three more washing stations in the Nyamasheke, Rulindo and Rutsiro Districts.

These three washing stations have a capacity of 200 MT (metric tones) (for parchment coffee) each. Two of them are located on the long side of Lake Kivu at an altitude of over 1500m and the other is located in Kigali, also at high altitude. The production is therefore 500 MT from Nkora and 600 MT from the other three washing stations combined.

Caferwa Sarl also owns a dry milling station in Kigali, with a parchment processing capacity of 5 metric tons per hour. Caferwa Sarl also uses its dry milling station for hulling, grading and packing coffee ready for export and has a well-equipped cupping laboratory for quality testing and a big roasting machine for roasting coffee for the production of the final product which is sold to the local market.

Caferwa Sarl works with 750 farmers grouped together in an association with Nkora and 250 farmers in Cyangugu and 350 in Kigali. The company encourages coffee growers by giving them incentives in the form of bonuses and also supplies fertilizers

and pesticides to the farmers. Caferwa Sarl plans to build dispensaries to improve the health of the citizens in the different regions as well.

Caferwa coffee is a special coffee from volcanic soils produced on the shores of Lake Kivu, at an altitude of 1450-1800 m where the the average rainfall is 1250mm. Caferwa exports coffee and also sells roasted coffee locally. The company has three international clients, Socadec (Switzerland), Schuter (Switzerland), and InterAmerican Coffee Inc. (USA).

5.8.5 Rwanda Small Holder Speciality Coffee (RWASHOSCCO)

RWASHOSCCO was created in 2005, towards the end of the PEARL/USAID project. The idea was to leave behind an umbrella organization or company for farmers that would handle all marketing and export logistics and strengthen the management and leadership of primary cooperatives. RWASHOSCCO is a farmer-owned marketing, exporting, and roasting company that also provides key services to smallholder coffee cooperatives in Rwanda. It is a limited company incorporated in the Republic of Rwanda and is owned by 6 cooperatives.

The six cooperative shareholders are Abahuzamugambi ba Kawa/Maraba, Bufcoffee, COCAGI Gashonga, COCAHU Humure, Dukundekawa Musasa and KOAKAKA Coops. All six cooperatives are coffee farmers who grow coffee, use their washing stations to clean coffee, and supply coffee to RWASHOSCCO, which takes coffee for dry mills, then to NAEB before exportation. RWASHOSCCO has the export license that cooperatives do not have and serves as a parent company for the cooperatives.

5.9 Overview of the coffee sector in Colombia, Costa Rica and Ethiopia

5.9.1 Introduction

Coffee production in Colombia, Costa Rica, and Ethiopia was looked at in order to learn from different success stories from countries producing coffee.

Rwanda is completely different from Colombia, Costa Rica, and Ethiopia in terms of size of the country, size of the population, number of coffee farmers, and the overall

economy. All three countries are bigger than Rwanda and so are their coffee plantations. Their farmers are also different in terms of capacity and financial capability. All of those facts make the three countries able to produce a large quantity of high-quality coffee, which they both export and consume locally in large quantities. Making a comparison in terms of coffee production or coffee quality might not be reasonable. However, there are a few lessons that Rwanda can learn from the three countries that could improve their coffee sector.

5.9.2 Colombia

There are 553,000 coffee farmers in Colombia, of which 95% produce on less than 5 hectares. The majority of farmers are small farmers, and this makes coffee a highly sensitive area for the Government in terms of employment and social welfare. Coffee is the largest employer in Colombia and a major source of livelihood in rural areas, accounting for 30% of agricultural employment and providing income for more than 20% of Colombia's rural population (Technoserve 2014:5).

The Coffee Policy Agreement (2008-2011: 56) includes a provision for income security called the "Price Protection Contract" which guarantees a fixed price to growers of 474,000 Colombian pesos (USD $199.22) per 125 kg bag. This protects coffee farmers.

Colombia mainly produces roasted coffee, with 56% going to local industry, 11% for instant coffee and the remaining 33% for export. The main markets for Colombian coffee are the US, Germany, Japan, Canada, Belgium and Luxembourg (NCF 2007: 59). These are almost the same markets as those for Rwandan coffee. This could mean that Rwanda could have a potential advantage, and be able to compete in terms of quality.

All coffee is fully washed and more than half of it is roasted. This allows their coffee to get the best premium, which in return brings revenue from the international market. Rwanda's priority is to increase fully washed coffee, which is now at 50%, and this should be focused on.

Roasted coffee, which is exported in very small quantity from Rwanda, attracts the highest premium but many of Rwanda's clients are roasters who prefer to buy

unroasted coffee. This will require Rwanda to target different clients who would buy roasted coffee.

Local consumption in Columbia is much higher (56%) than what is consumed in Rwanda (1%). There is no traditional coffee-drinking culture in Rwanda. Nevertheless, it is becoming fashionable for young people in coffee shops. This might increase, but only gradually. But if the regional and international communities are targeted for coffee exportation, this would bring in more revenue than local consumption would do.

14% of Colombian coffee is certified. Rwanda should seek to increase its percentage of certified coffee, since certified coffee attracts higher premiums. However, certification is also expensive and time will be required for Rwandan coffee exporters to be able to bring their plantations up to the required standards.

Colombian Farmers receive 80% of the export price. This provides farmers with a good income. Rwandan farmers receive a very small amount compared to what exporters earn. However, when an exporter makes a good profit he is required to go back to the farmers who supplied him coffee and pay them a bonus based on the earned profit.

5.9.3 Costa Rica

According to Miquel-Florensa (2015), the Costa Rican system of payment and liquidation achieves an efficient cash flow management and helps to consolidate farmers' trust in the financial strength of the coffee washing stations. The price that the farmers receive is regulated as a function of the price received by washing stations. The board sets the reference prices in relation to the NY future prices at the time of the coffee delivery, not allowing contracts below the price as these would mean smaller revenues for the farmers than expected at that given point in time. A system like this could protect Rwandan farmers, who currently receive very low prices and are also vulnerable to fluctuations in the international coffee price.

A key advantage of this system is that farmers are paid based on a weighted average of the prices prevailing in the coffee market throughout the year. Therefore, the system not only allows for a more equitable distribution but it also means that farmers are less exposed to international price fluctuations.

5.9.4 Ethiopia

Between 20 and 30% of Ethiopian coffee could qualify as specialty coffee, which gives it greater export opportunities (NCF 2007: 27). Specialty coffee is becoming more sought-after, since the more coffee is certified; the more health risks are reduced. Rwanda should increase certified coffee since it assures good quality and brings more revenue to the country.

45% of Ethiopian coffee is consumed in the country and the rest is exported.[19] Increasing the local consumption of coffee in Rwanda will take some time since it is not in their culture and the mindset will have to change.

Ethiopia mainly exports green coffee beans with only a very small quantity of roasted beans. Most exports are going to Germany, Saudi Arabia, Japan and the United States. Rwanda also exports to these countries. This could give to Rwanda the opportunity to compete with Ethiopia on brands. There are also storage limits in place in Ethiopia to prevent traders from holding their stocks too long.[20]

5.9.5 Comparison of production of coffee in Rwanda & other countries

The total production of Rwandan coffee in terms of a thousand 60 Kg bags, compared to other countries is as follows:

Table 10: Coffee in Rwanda & other countries

COUNTRY	YEAR 2012/13	YEAR 2013/14	YEAR 2014/15	YEAR 15/16
Rwanda	259	258	238	278
Ethiopia	6.233	6.527	6.625	6.700
Uganda	3.914	3.633	3.744	4.000
Kenya	875	838	765	760

Source: ICO, October 2016

[20] USDA June 2016

The production of coffee in Rwanda is very low compared to the rest of region and Ethiopia. It produces one-third of that produced by Kenya, but only an insignificant amount compared to Uganda and Ethiopia.

5.9.6 Comparison of exportation of coffee in Rwanda & other countries

The total exports of Rwandan coffee in terms of thousand 60 Kg bags, compared to other countries is as follows:

Table 11: Exportation of coffee in Rwanda & other countries

COUNTRY	OCTOBER 2015	OCTOBER 2016	2014/15	2015/16
Rwanda	39	40	265	258
Ethiopia	277	250	2.910	3.049
Uganda	223	209	3.449	3.302
Kenya	83	60	731	701

Source: ICO, October 2016

Rwanda exports significantly less coffee than Kenya, Uganda or Ethiopia.

CHAPTER SIX: FINDINGS

The present chapter will look critically at the findings from interviews done, questionnaires administered and written materials analyzed.

There are different players in the coffee sector who have a key impact on the production of coffee. They should work together to ensure that the production of coffee increases, to increase the local and international client base, and to increase benefits to the stakeholders and the economy as a whole. These stakeholders are the farmers who grow coffee, business people who own coffee washing stations, Government officials who work in the coffee sector, in policy implementation and monitoring, and traders who export coffee.

Interviews were done with the following groups of people: Coffee producers, Washing Station Owners, Supervisors, Coffee Exporters, Strategists and Policy Makers, Bankers, and Independent Consultants.

However, despite previous opportunities, the Rwandan coffee sector faces serious challenges that would need to be resolved for better outcomes to be ensured. As NAEB mentions (2013: 11-15), key challenges include low productivity, which still limits export of large coffee volumes; international price fluctuations that affect farmers' incomes and often discourage them from more production; underutilization of processing units, constraining their efficiencies and limiting increase in the export of fully washed coffee; failure to comply with export standards, which makes most of Rwanda's coffee fetch relatively low prices at market; and low private sector investment that affects both the quantity and quality of coffee produced. There is also limited product diversification and low value addition, inadequate capacity among farmers, inadequate access to credit, a prevalence of pests, diseases and declining or poor soils, affecting both production and the quality of coffee produced, a poor rural road network, which impacts coffee profitability. In addition, many coffee plantations are owned by older people and it is not clear that the next generation will continue to produce coffee.

According to Emmylou (2008:6), producers suffer from a weak position on the market due to stagnating demand and the increased supply of low-quality coffee. Diversification is hindered by producers' poor access to risk management,

information, infrastructure and credit. The result is that producers receive a relatively small share of income compared to other participants in importing countries.

6.1 Impact made by coffee on the lives of citizens

The welfare of the people I met with during interviews has been improved. These people could be considered direct beneficiaries of the coffee sector: coffee farmers, washing station owners, supervisors and exporters. They all confirmed that coffee has made an impact in their lives and that they are now able to look after themselves and their families. They were all married and able to pay school fees for their children, to nourish them and to cover the health insurance for themselves and their children. They have also acquired different properties such as houses, lands, motorcycles, and bicycles and have saved money in financial institutions.

In addition to material benefits, coffee had also changed the standing of individuals in society. All of them said that before they started the coffee business, they were very poor and had no status in their society. But now they are well-respected and seen as able to contribute to the country's development. The woman appreciated this more than the men when she said that, "I am now respected by both my husband and neighbours because of the role I am playing in the society".

Despite the impact coffee has had on the lives of the citizens, all coffee farmers complained that the farm-gate price given was small compared to all the efforts they put into growing coffee. Also, farmers who are not in cooperatives complained about a lack of guarantees from coffee washing stations that they would buy the farmers' coffee.

6.2 Support to Farmers

Coffee farmers are key people in the coffee sector and need to be taken care of. They are primary stakeholders since without them there would be no coffee grown. Most of them are people who live in the countryside and who are not educated but who are capable of reading and counting.

Coffee farmers need to be helped to be able to grow good coffee. Support is provided by NAEB through agronomists who are in every neighbourhood and follow

the day–to-day activities of coffee farmers. They teach them how to grow coffee, how to apply inputs and encourage them to sell coffee to washing stations. The greatest support that coffee farmers can be given is to see the impact made by the coffee they grow. If they can escape poverty through growing coffee, and be able to provide for themselves and their families, this will have an impact on society as a whole, and will also encourage farmers to improve their lands and their crops.

6.3 Regular monitoring of the coffee sector

NAEB, through qualified agronomists, should continue to provide regular monitoring of farmers' activities and also train them to maintain coffee quality. They have to monitor whether fertilizers and pesticides are given on time and are well applied. The production of coffee should also be monitored to ensure that all coffee farmers take their coffee to washing stations. This will also decrease the volume of ordinary coffee. NAEB should also oversee the capacity and functionality of washing stations with a view to improving areas that need to be strengthened and ensuring that enough coffee is produced.

6.4 Coffee farmers need to be encouraged to buy fertilizers and pesticides

Farmers contribute 108 Frw per Kg for fertilizers and pesticides and the Government covers 30% of the overall cost. Nevertheless, there are not sufficient fertilizers and pesticides because even though the contribution per farmer is based on the farm gate price he is paid, the subsidy is not enough to cover costs. If farmers could contribute more, inputs would also be increased and there would be enough to cover the cost of the fertilizer. Therefore, the farm gate price needs to be increased so that farmers are able to afford to buy inputs such as fertilizers. Exporters also need to be convinced to share their profit with the farmers. This will improve the living standard of the whole nation, exporters and especially farmers, some of whom are poor despite the success of coffee as an export crop.

6.5 Encourage coffee farmers and exporters to acquire contracts

Many developing countries are still heavily dependent on the export of coffee, including Benin, Burundi, Nicaragua and Rwanda. For these countries, negative income shocks have a significant impact on the balance of payments and the financial sector, limiting banking activity and financing to other sectors (Tuvhag 2008:8).

Furthermore, farmers need to have a good relationship with coffee washing stations and exporters. Some farmers are in cooperatives and others are not. Farmers in cooperatives have a guarantee that their coffee will be sold to their cooperatives' washing stations. This reduces the volume of ordinary coffee since coffee berries are taken to washing stations rather than processed at home. Farmers who have financial difficulties can get small loans relatively easily from their cooperatives.

However, farmers who are not in cooperatives are not sure whether their coffee will be sold or not, and they have no-one to turn to when they need financial support. This leads them to sell coffee to ordinary coffee dealers who give them low prices, especially before harvest time. They lose, and the amount of ordinary coffee traded increases.

Many exporters also trade coffee based on gentlemen’s agreements. They do not sign contracts with their international clients. Sometimes, their clients change orders at the last minute, reducing the quantity ordered or cancelling orders. Coffee exporters should be able to negotiate contracts with their clients. This would also help them to get loans from banks as contracts could be used as collateral.

6.6 Coffee production

6.6.1 Sub-hypothesis 1

The production of coffee could be increased in order to generate more revenue.

Coffee production has increased since the Government made coffee a priority sector. The use of fertilizers has also been improved and has made an impact even though fertilizers are distributed once a year instead of twice. Furthermore, being supervised by agronomists at the cell level, who visit farmers to look at their plantations and advise on how to maintain them, has made a tremendous impact on the increment of coffee production.

Capacity building has also been taken into consideration. Training on how to maintain coffee and apply inputs in the plantations are provided and funded by the Government through NAEB. A few partners like Techno-Serve, International fertilizer Development Fund and the German Society for International Cooperation also conduct training sessions.

NAEB should consider and ensure that young and non-productive trees are well taken care of. Old trees should be replaced. New trees planted now will only produce in four to five years, but now is the time for something to be done, as production, instead of increasing, will decline as more trees become too old for bearing.

Coffee farmers expressed concern about the low price paid by NAEB. They think it is too little, taking into account the cost of growing coffee. The price was set at 150 Frw (USD $0.18) in 2016 but now NAEB is negotiating with exporters and other key stakeholders to increase it by 60%. The price paid to coffee farmers seems to be very low compared to the cost of living.

Fertilizers are only given once (between September and December) since not enough are available. The farmer contributes Frw 108 (USD $0.13) per kilogram of coffee and the Government subsidizes 30% of the price. In 2014, only 30% of coffee plantations had received fertilizers. In 2015, beneficiaries increased to 64%.

Farmers need to be advised to join cooperatives. This will ensure the monitoring of coffee being produced and that agronomists will have easy access to the plantations. Farmers will also be able to sign contracts with washing stations and exporters and this will allow them to get loans from financial institutions as they can be certain that their coffee will be sold. This again will reduce the uncertainty that makes them sell coffee before the harvest season to ordinary coffee dealers.

6.6.2 Sub-hypothesis 2

The percentage of fully washed coffee could be increased in order to generate more revenue.

Fully washed coffee is at present 50% of exported coffee. The Government target is 80% by 2018. A kilogram of fully washed coffee was exported at USD $4.29 in 2015, whereas a kilogram of ordinary coffee was at USD $2.46. This means a net loss of USD $1.83. These figures only apply to exports; the farm gate price paid to a farmer is not known since trading ordinary coffee is done surreptitiously. In most cases, a farmer gets little money.

Cooperatives play a big role in increasing the volume of fully washed coffee. Farmers are known personally to their cooperatives. They are monitored on a daily basis and also helped when needed, either with advice on how to produce their coffee or financially in order to help themselves or their families. In addition, farmers in cooperatives are certain that their coffee will be sold to the washing station owned by their cooperative. They therefore feel no need to sell their coffee to ordinary coffee traders.

NAEB as a supervising authority should play a role in the management of cooperatives. All cooperatives should have a clear structure that is able to manage the funds of cooperative members and their day-to-day activities. This will also increase the trust of farmers and make them willing to join cooperatives. In the past, according to some coffee farmers and the NAEB, some cooperatives were mismanaged and this discouraged coffee farmers from joining cooperatives.

Coffee washing stations should also be well managed in order to ensure increased coffee production. In 2002, Rwanda had 4 washing stations; the number increased to 271 in 2017. This was a huge increase. However, the production of coffee does

not coincide with the increment of coffee washing stations. The reason given by NAEB is that some coffee washing stations are not well managed and others do not operate at full capacity. NAEB as a supervising entity should establish a monitoring system that will enable them to ensure that coffee washing stations operate well.

Financing is also crucial to the increasing coffee production. However, financial institutions will only give loans to coffee farmers if they see collateral or a commitment from a third party that coffee farmers will get money and pay back loans given. Coffee farmers should sign contracts with coffee washing stations that the stations will buy their coffee. These contracts could be used as collateral when farmers need money.

6.6.3 Sub-hypothesis 3

The value of the exported coffee could be increased by increasing the percentage of certified coffee.

Conforming to international standards for coffee and acquiring certification is expensive. However, international clients are asking for specialty coffee and Rwandan coffee producers should seek to acquire certification in order to be competitive. One cooperative I met with has a Non-Government Organisation that funds its certification. Exporting companies are able to pay for different standards but they claim that all are expensive. One possibility is for exporters to pay for the cost of certification.

Minten et al. (2014:1) point out that coffee's global value chains are quickly transforming because of shifts in demand and an increasing emphasis on product differentiation in importing countries.

Rich consumers are ready to spend a lot of money on high quality coffee and the demand for certified coffee is on the rise, (Ponte 2002). According to one coffee exporter I met with, some international buyers would like to buy more organic coffee than they are currently able to. However, organic coffee requires specific inputs that need to be in the plantations from a very early stage of the plantation's life[21].

[21] Interview conducted on 25 January 2017

Only the NAEB can convince coffee producers to plant coffee that meets this condition in order to supply these customers in the future.

The NAEB needs to advise exporters to acquire different certifications that will make them competitive. Although exporters may complain that certifications are expensive, certified coffee will be more in demand internationally. Exporters need to understand that in order to have a profitable business, they need to invest money.

6.6.4 Sub-hypothesis 4

The value of exported coffee could be increased by increasing the percentage of roasted coffee.

The price of roasted coffee is sometimes almost four times the price of ordinary coffee and almost triple that of fully washed coffee. In 2015, a kilogram of roasted coffee sold for USD $11.41; the price for a kilogram of ordinary coffee was USD $2.46 and of fully washed coffee USD $4.29[22]. Potentially, there is a loss of USD $8.95 for each kilogram of ordinary coffee and $7.12 for fully washed coffee.

Although traders squeeze extra margins for themselves out of farmers, the highest margins in the market are made, after export, by the roaster companies. Even in the worst years of the coffee crisis, roaster companies in the United States and Europe made extraordinary profits on their retail coffee business, while farmers and exporters in coffee-exporting countries made losses or at best tiny margins (Bart Slob, 2006: 8-9). Without doubt, if the Government through the NAEB could encourage efforts to increase roasted coffee, significant sums could be made. The country has now a roasting company that is able to process 1.500 tonnes a year but which is underutilized because only low volumes of roasted coffee are produced.

6.6.5 Sub-hypothesis 5

Marketing strategies could be improved in order to identify clients who would buy roasted coffee from Rwanda.

[22] NAEB August 2015

NAEB's role is to ensure that the coffee sector is properly marketed. It is in charge of providing marketing strategies and also finding markets for Rwandan coffee. It connects international clients to Rwandan coffee farmers and exporters. Exporters also do marketing of their own for their coffee.

The strategy to increase coffee exports should consider clients' needs, diversification of products and benefits for the nation. At present, a large number of international clients are coffee roasters who will not buy roasted coffee. These should be served as usual which will continue to boost the demand for fully washed coffee. However, roasted coffee, which receives a higher price than unroasted should also be traded. This would require the NAEB to target clients for roasted coffee, whether in Africa and also in other countries. Specific marketing strategies could be developed to suit different clients' needs.

Tim Harford (2006:2) states that a perfect market ensures that companies are making things the right way, companies are making the right things, things are being made in the right proportions, and things are going to the right people. Coffee buyers are becoming more demanding and are also demanding increased choice. Specialty coffee is becoming a prime coffee. Coffee producers should be able to follow this trend in order to attract these clients. They should be encouraged to produce specialty coffee such as Fairtrade, Rainforest Alliance and organic coffee. Specialty coffee which is of higher value than fully washed coffee will require citizens to get helped financially in order to be able to grow it. Hence, the need for joining cooperatives and also signing contracts with coffee washing stations and international companies so that they get money from financial institutions.

Last but not least, Rwanda has got good coffee. Many companies are in existence, and there are also different types of coffee. At present, there are more than ten types of coffee, such as Gorillas, Bourbon, Maraba, Kivu Bourbon, Huye Mountain, Everfresh coffee and so forth. However, there is no single brand for them; each is branded separately. The NAEB should develop one brand for Rwandan coffee that will be easily remembered by all clients and also portray the image of Rwanda.

CHAPTER SEVEN: POLICY RECOMMENDATIONS AND CONCLUSION

The Rwandan coffee sector has enormous potential. Rwandan coffee is already recognized internationally as of high quality; coffee farmers as well as support staff have basic skills that can be exploited to transform the coffee business into profitable one within a short time; and existing processing capacities at coffee washing stations can be fully utilized with minimum effort, to produce high quality coffee (NAEB 2013: 11-15). All of these form a solid grounding, but need to be improved in order to improve the value of coffee and through it improves the value of exports.

7.1 Policy recommendations

The following recommendations are made to improve the value of coffee, which will eventually improve the value of exports.

1. Increase the farm gate price

Since 2011 to 2015, the farm gate price paid to coffee farmers has been between USD $0.15 and $0.25. This price is too low when the cost involved in growing coffee and also the cost of living for coffee farmers are taken into account. The low price has also meant that coffee farmers are unable to purchase enough inputs, which impacts production levels. If the farm gate price were increased, the welfare of the coffee farmers would also be improved and the commitment of coffee farmers to taking care of their coffee plantations would be strengthened.

2. Increase the production of coffee

The production of coffee should be based on a number of actions including the replacement of old coffee trees that now account for 25.8% of the total stock. These trees are useless and do not contribute to production. They should be removed so that new ones can be planted for an increment in coffee production in the next 3 to 5 years. Moreover, there is a need for more fertilizer so that coffee farmers are able to apply them twice a year in order to increase the crop. The current low farm gate price does not allow farmers to purchase enough fertilizer for their coffee plantations.

Increasing fertilizer availability would require a guarantee fund that should require all direct stakeholders (coffee farmers, exporters, coffee washing station owners) in the coffee sector to contribute to so that there are sufficient funds to provide enough fertilizer for two applications yearly for all plantations.

3. **Improve the management and functioning of cooperatives and coffee washing stations**

The NAEB should establish a unit in charge of monitoring cooperatives and coffee washing stations. For cooperatives, this will re-build trust that has been lost between cooperatives and individual farmers and will encourage farmers to join cooperatives, which will eventually ensure the monitoring of their coffee production in order to reduce the production of ordinary coffee.

Monitoring will also mean that banks, which have in some cases lost money they had lent to cooperatives and washing stations will also regain trust and work with them. It should also increase the number of coffee farmers since many people will be joining cooperatives as they become more successful. Coffee washing stations will also be well managed and function adequately which will eventually increase the volume of full washed coffee.

4. **Convince washing stations to give contracts to farmers and clients to exporter**

This would ensure certainty that the crop would be taken and avoid the selling of coffee to ordinary coffee dealers. It would also convince financial institutions to give loans to farmers and exporters.

5. **Continue to build capacity for coffee farmers**

NAEB should continue to train coffee farmers, washing stations' staff and cooperatives' managers on how to maintain coffee quality well.

6. **Conduct market research to assess the existing market and improve the marketing strategy for the coffee sector**

Market research should be able to identify new clients (mostly non-roasters of coffee), clients for specialty coffee and other clients for fully washed coffee. There is also a need to develop one brand for Rwandan coffee which will be easily recognized and always remembered. NAEB should run regular marketing campaigns for coffee, organize fair trade for coffee as is done for tourism, in order to rise awareness in the region and internationally and make Rwandan coffee better-known in the region and abroad.

7. **Improve statistical systems and market information management systems**

Reliable and accurate data will make Rwandan coffee known internationally, bring investors into the coffee sector since they will be able to see trustworthy data, and also protect coffee farmers when they negotiate for favorable prices.

8. **Improve service delivery and information dissemination**

To ensure service delivery inspecting bodies should be established to inspect and monitor for coffee certification. NAEB's website needs to be made more helpful in providing necessary information for the coffee sector, such as information on coffee produced, on clients, on cooperatives and washing stations, and to make information on taxes and duties in destination countries available and the required grades and standards of the various type of coffee in coffee importing countries, and to provide information about regular events such as local and international exhibitions.

9. **Forge alliances with international marketers of value-added Rwandan coffee**

Rwandan coffee is already known to major international companies. This should be an opportunity to negotiate for forming alliances which will add value to Rwandan coffee.

10. Impose high taxations on imported coffee

Rwanda produces coffee which is mostly exported. Only 1% is consumed locally[23]. To promote local consumption of coffee produced in Rwanda, instant and other blended coffees imported from other countries should pay high tariffs. The Government should also plan to install a local industry that produces packages which are currently imported and very expensive. This would enable the coffee grower to charge coffee locally on low price and increases local consumption.

[23] NAEB, August 2016

7.2 Conclusion

Rwanda, in order to increase revenue exports that could boost her economy, has designated coffee a priority exported commodity. Fortunately, Rwanda produces a good coffee that has penetrated the international market and has also been able to contribute increasing revenues from exports. It is evident that coffee is among the crucial commodities that can change not only the lives of the coffee farmers in Rwanda but also improve the economy of the nation.

Nevertheless, the production of coffee is not extensive. The value of the coffee sold is still not high, and the range of coffee produced is limited. Fully washed coffee is still only 50% of coffee exported, and certified and roasted coffee are only produced in very small volumes. Kaplinsky and Morris (2011) emphasize that the value chain encompasses thinking about the value created by the chain, particularly for end-use customers[24]. Because a product is affected by many factors – from farm to market – achieving quality standards and certification is a value chain issue, and the strategies must be value-chain-wide strategies.

The farm gate price paid to farmers is also low. Coffee washing stations have increased in the recent years but are not utilized to their full capacity. Some coffee farmers who are not in cooperatives and sell their coffee to ordinary coffee traders because they cannot be certain that washing stations will buy their coffee.

There are a number of actions that should be undertaken to ensure that the value of the coffee sector is improved. The farm gate price should be increased so that the farmer can make an acceptable living.

Cooperatives and washing stations' management and functioning should be improved and the NAEB as a supervising authority should play a key role in making this happen. Old trees should be replaced and fertilizers should be increased in order to increase the crop. Clients should be targeted strategically, especially clients for roasted and for specialty coffee, such as Fair-trade, Rainforest Alliance and

[24] Kaplinsky, R. and M. Morris (2010) A handbook for Value Chain Research, Prepared for the International Development Research Centre (IDRC), p.4-6 (emphasis added) (Accessed 19/01/15). Sustainability, UNEP and UN Global Compact.

organic coffee, all of which receive a higher premium. Coffee farmers and exporters need also to be encouraged and helped to achieve these standards.

Rwanda, to be able to continue producing good coffee, should improve the quality of its coffee in order to meet recognized standards and be competitive. There is a need to be strategic in targeting specific clients after producing specialty coffee, as Webber and Labaste (2010:115) state, value chains can obtain price premiums if they meet standards, especially if they achieve valued product and production certifications. These certifications can go well beyond market entry requirements and appeal to special customer segments that are willing to pay premium prices.

As Slob (2006:17) says, the organic coffee market has experienced sustained growth rates in the last ten years in many high-income countries and many supermarket chains have used organic coffee as a marketing tool to attract new customers. Since organic products are sold at a premium at the retail level, it has been possible to generate higher margins for all those involved in the marketing chain. Coffee export revenues are triple those of tea and double those of minerals exports. If the above suggestions to improve the value of exported coffee are implemented, the value of exports of the country will evidently be improved.

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