

ST.MARY'S UNIVERSITY
SCHOOL OF GRAGUATE STUDIES
FACULTY OF QUALITY AND PRODUCTIVITY MANAGMENT



PRACTICE AND CHALLENGS OF QUALITY IMPROVEMENT
IN COFFEE ROASTING
: IN THE CASE OF MELANGE COFFEE AND
ELIANA COFFEE ROASTERS
COMPANIES

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ADDIS ABABA ETHIOPIA

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HANA ENGDWORK SGS 0690/2014A

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DECLARATION

Candidate's Declaration

I, Hana Engdawork, the under signed, declare that this thesis entitled: that “**practice and challenges of quality improvement in coffee roasting: in case of mélange coffee and eliana coffee roasters companies**” is my original work. I have undertaken the research work independently with the guidance and support of the research supervisor. This study has not been submitted for any degree or diploma program in this or any other institutions and that all sources of materials used for the thesis has been duly acknowledged.

Candidate's Name: Hana Engdawork

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ENDORSEMENT

This thesis has been submitted to St. Mary's university, school graduate studies for examination with my approval as a university advisor.

Advisor

signature

Saint Mary's University, Addis Ababa

June, 2023

Table of Contents

Table of Contents	v
ACKNOWLEDGEMENTS	vii
List of table.....	ix
List of figure.....	x
Abstract.....	xi
CHAPTER ONE	1
1. INTRODUCTION	1
1.1 Background of the study.....	1
1.2 Statement of the problem	2
1.3 Research Question	4
1.4 Objective of the study.....	4
1.4.1 General Objective	4
1.4.2 Specific Objective.....	4
1.5 Scope of the study.....	4
1.6 Significance of the Study	5
1.7 Structure and Content of the Thesis	5
CHAPTER TWO	6
2. LITERATURE REVIEW.....	6
2.1 Quality	6
2.2 Quality Improvement.....	7
2.3 Quality Improvement and Roasted Coffee.....	8
2.4 Importance of Quality Improvement in Roasted Coffee Companies And Challenges.....	9
2.5 Organizational Committing to Quality improvement Practice in Roasted coffee Sector	11
2.6 Quality to Coffee Roasting.....	12
2.7 Barriers to implement quality improvement in roasted coffee organization.....	12
2.8 good practice of quality improvements	14
2.9 Other Good Practice	14
2.9.1The quality management system principles	14

2.10 Conceptual Framework	16
CHAPTER THREE	18
3. RESEARCH METHODOLOGY	18
3.1 Research Design.....	18
3.2 Research Approach	18
3.3 Population and Sampling Technique	19
3.3.1 Target population	19
3.3.2 Sampling technique.....	19
3.4 Data Collection Instrument	21
3.5 Method of Data Analysis.....	21
CHAPTER FOUR.....	22
4. DATA COLLECTION AND ANALYSIS	22
4.1 Introduction	22
4.2 Survey Questionaries'	22
4.3 Respondent's Background.....	23
4.4 Characteristics and Profile of Respondents.....	24
4.5 Cronbach's Alpha Reliability Test	24
4.6 Method of Data Analysis and Interpretation	25
4.6.1 Company's Customer Perspective	25
4.6.2 Company's supplier perspective	29
4.6.3 Company's Management, Quality Head and Supervisors Perspective	35
4.7 Summary of Major Finding.....	49
4.7.1 Customer view	49
4.7.2 Supplier view	50
CHAPTER FIVE.....	52
5. CONCLUSION AND RECOMMENDATION.....	52
5.1 Conclusion.....	52
5.2 Recommendations.....	53
Reference.....	55
Reliability test result.....	68

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List of Acronyms

SWOT: Strength, Weakness, Opportunity and Threat

QMS: Quality Management System

ISO: International Standardization for Organization

ECX: Ethiopian Commodities Exchange

SPSS: Statistical package for the social science

FGD: Focused group Discussion

SOP: standard operating producer

OTA: Ochratoxin.A

RH: Relative Humidity

List of table

Table 4-1 Respondent Age Distribution	23
Table 4-2 Respondents' Gender Distribution.....	24
Table 4-3 Summary of Response Rate from Respondents	24
Table 4-4 shows understanding on the concept of quality Improvement.....	26
Table 4-5 shows measuring customer need and satisfaction.....	27
Table 4-6 shows companies commitment in considering customer opinion and suggestion.....	27
Table 4-7 shows Costumer complaint and response of companies	28
Table 4-8 shows presence of well-established communication channel with its customers.....	28
Table 4-9 shows the relation between the price of coffee and its quality	28
Table 4-10 shows company belief in quality improvement	30
Table 4-11 Company's supplier's role and degree of participation in quality activities.....	30
Table 4-12 Shows companies' quality objective	31
Table 4-13 Effort in finding critical point and solving quality problems.....	32
Table 4-14 degree of trust between the company and customer.....	33
Table 4-15 effort of identifying the customer need	33
Table 4-16 distributing raw coffee to customers	34
Table 4-17 understanding on the concept of quality improvement	35
Table 4-18 shows the role and participation in quality improvement.	35
Table 4-19 shows quality improvement objective sated by the company's.....	37
Table 4-20 show identification of quality improvement area implementation	38
Table 4-21 shows the managements of commitment in quality improvement	39
Table 4-22 shows the quality policy manual.....	40
Table 4-23 shows the quality improvement producer manual	40
Table 4-24 shows the responsibility and authorities of the company staff	41
Table 4-25 shows Top management involves in improvement process and handling quality problems	42
Table 4-26 shows Resource allocation for quality improvement activities	43
Table 4-27 shows Reviewing and evaluating performance of quality improvement	43
Table 4-28 shows Employee training and education	45
Table 4-29 shows Continues on quality improvement	46
Table 4-30 shows Company's quality improvement system and practice	47
Table 4-31 shows Quality improvement management methods for the production control.....	48

List of figure

Figure 1-1 meaning of quality.....	7
Figure 1-2 meaning to quality improvement.....	8
Figure 1-3 quality management system principle.....	16
Figure 1-4 Conceptual frame work to the practice of quality improvement.....	17
Figure 4-1 shows Extent level of roasted coffee quality	26
Figure 4-2 shows understanding and awareness on the concept of quality improvement	29
Figure 4-3 companies' supplier understanding and customer relation of degree in quality	31
Figure 4-4 quality improvement policy	32
Figure 4-5 show companies understanding on customer required quality	36
Figure 4-6 shows company's effort in recognizing point and solving quality problems.	37
Figure 4-7 shows the understanding of quality improvement.....	39
Figure 4-8 shows creating communication and sustain quality improvement program.....	41
Figure 4-9 shows creating communication and sustain quality improvement program.....	44

Abstract

This thesis examines the understanding of practice and challenges of quality improvement in the context of roasted coffee companies from the perspectives of Top management, customers and suppliers. The research findings indicate that the company demonstrates a good understanding and awareness of quality improvement, as reflected in a mean value of 3.59. The company regularly measures customer satisfaction and needs, with over 80% of customers confirming this practice. Furthermore, 90% of customers reported that their opinions are seriously considered, and more than 70% stated that the company responds promptly and positively to customer complaints. These results highlight the company's well-established communication channels, as attested by over 80% of customer respondents.

A majority of respondents demonstrated a positive belief in quality improvement, indicating the company's overall commitment in this area. The understanding of customer needs was rated highly, with a mean value of 3.5, enabling the company to produce the desired products. Effective customer needs assessment facilitated the identification of critical points and problem-solving in quality issues. Respondents also indicated that their companies have quality objectives to enhance competitiveness and attract new customers. Clear quality improvement policies served as strategies for enhancing product quality and ensuring consistency. Some of the challenges faced by the company in distributing raw coffee to customers included a limited number of farmers producing high-quality raw coffee and difficulties in identifying and solving defects in green coffee. Analyzing visual inspections of green coffee also posed challenges. Following the quality standards of raw coffee and grading accordingly were identified as the least frequently encountered challenges.

In conclusion, this research highlights the company's strong understanding and awareness of quality improvement from both customer and supplier perspectives. It underscores the company's dedication to measuring customer satisfaction, promptly addressing complaints, and producing quality roasted coffee. Furthermore, it emphasizes the importance of customer needs assessment, setting quality objectives, and building trust with suppliers and customers. By identifying and addressing challenges in the distribution process, the company can continue to improve its product quality and maintain its competitive position in the market.

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

Arabica coffee (*Coffea arabica* L.) and Robusta coffee (*Coffea canephora* P.) are the two most economically important commercial coffee species. Of which *C. arabica* is originated in Ethiopia which is considered as a high-quality coffee and contributes more than 70% of the world coffee production (Chemura et al., 2021; Labouisse et al., 2008) Economically, coffee is the most important cash crops grown and exported by more than 80 developing countries to all industrialized countries (Papanek, 1972; Petit, 2007) and stands second only to oil in terms of international trading on the world. In many producing countries, besides contributing a tremendous amount to the foreign exchange currency as a main cash crop, it serves as a means of livelihood for millions of people and plays a vital role in their socioeconomic values (Anthony et al., 2001; Esteves Vieira et al., 2006) reported that, coffee quality is affected by 40% at pre-harvest, 40% at post-harvest practices and 20% at secondary/export processing and handling practices. Different factors can influence the preservation of coffee thereby its final quality (Amin Ameyu, n.d.; Baggenstoss et al., 2008) and significant changes to coffee's physical properties have been observed to occur during roasting (Mwithiga and Jindal, 2003)

Therefore, studying the quality improvement of roasted coffee bean is important due to potential market conditions. Furthermore, only qualitative coffee quality evaluations through raw and organoleptic are not enough to describe the effects of harvesting and postharvest processing on quality of roasted coffee. Thus, the knowledge of the descriptive physical quality analysis of roasted bean is recommended (Nebesny and Budryn, 2006) Coffee roasting is a complex heat transfer process, where coffee beans are subjected to a steady weight loss, increase of volume and consequently decrease of density during entire roasting process (Amin Ameyu, n.d.). The volume increase of non-defective beans was higher than for black beans (Franca et al., 2005) The total weight loss of green coffee beans after roasting can be one of the criteria for determining the degree of roasting (Jokanovića et al., 2012) and the way of green bean preparation. Bulk density changes are implied in bean expansion and in the formation of a characteristic porous structure of the roasted coffee bean (Amin Ameyu, n.d.) Hence, knowledge of physical quality attributes of the roasted coffee beans subjected to different harvesting and postharvest processing methods is important in

understanding the contribution of harvesting and postharvest handling practices on the physical quality of roasted coffee beans since it is an important quality factors considered at the exporter or importer level (Leroy et al., 2006)

Considering this fact into account, this research was designed for the objective to determine the practice and challenges of quality improvement in roasted coffee companies. Roasted coffee production is facing a lot of challenges in quality this day. Of this mélange coffee and eliana coffee roasters are mentioned. one of the biggest challenge facing on this company are lack of uniformity in quality. This is result of the vast array of different type of roasting temperature that take all over the need to the maximum unit. During classic roasting, green coffee beans are usually subjected to temperatures ranging between 180-190 and 220-230 °C for 12-15 minutes ((Coradi et al., 2007) Tissue structure of coffee beans starts changing at ca. 50 °C, and with a continued temperature elevation protein denaturation and water evaporation increase. Above 100 °C, beans undergo browning related to a series of reactions (Bicho et al., 2012) giving rise to various substances. Around 150 °C, gaseous substances (water vapour, carbon dioxide, and carbon monoxide) are released, and the bean volume increases. At 180-200 °C, with the disruption of the endosperm, bean cracking occurs, bluish smoke and aroma appears, and caramelization (Bicho et al., 2012) Thereafter, to prevent excessive browning and aroma lost, coffee beans are removed from the roasting chamber and rapidly cooled with a stream of cold air or water spray (Bicho et al., 2012). During the roasting process, weight loss usually varies between 14-23% depending on the botanical origin, green coffee. Moisture, storage conditions, and the roasting method.

1.2 Statement of the problem

In today global market quality improvement is an order winning criteria. Roasting coffee has value to give the customer pleasure and satisfaction through flavor, aroma and desirable physiological and psychological effect (Beshah et al., 2015) The end product quality improvement the roasted coffee has an outcome of the pre-harvesting, harvesting, and post-harvesting effort, because of the coffee genetic makeup, climatic condition and organic nature Ethiopian coffee is preferred in the global market. However the supply of Ethiopian coffee (both-wet-processed and sun-dried) to local and international market face some basic quality problem. This quality problem makes the Ethiopian coffee unable to adequately compete in the international coffee market and earn reasonable price. Harvesting and post harvesting practice are attributes to the decline of the roasted coffee quality

improvement. The practice and challenges of quality improvement for roasted coffee companies is a complex issue.

The first issue is lack of skill in coffee roasting knowledge and knowing how to roasting coffee, but being negligent reducing the quality of coffee or carelessness of the operators that losing focuses during roasting the coffee. Limited knowledge, skill that affects the development, sustainability, spread of measurement and quality improvement of the work process. Such problem affects the quality parameter of coffee roasting process and gives a poor quality. Beside poor quality has the impact on poor customer satisfaction, difficulty to attracting new customer, including additional cost and losing to revenue.

Secondly, the quality defect due to overloading and under loading of the machine that means lack of knowing the exact capacity of the machine per batch. Knowing the optimal capacity of the roasting machine is essential. Overloading the machine will take a longer time to roast the beans and the result is often baked and bland. Under loading the machine will make the roast difficult to control due to increased sensitivity to heat, resulting in uneven roasts. Baking can happen when the roasting temperature drops or the roasting time gets too long, resulting in bland coffee that is devoid of complex flavor profiles, sugars and acids. Scorching happens when the beans are loaded into the coffee roasters at too high a temperature, resulting in coffee beans with overpowering Smokey or ashy flavor while the inside is still raw.

Thirdly inappropriate amount of heat supply and lack of monitoring or recording data's are vital problem for the quality improvement in coffee roasting process. Coffee beans are roasted to different degrees that can present the same average reading in light reflectance measurements. Mendes et al., (2001) show that good quality coffee submitted to a light roast at a temperature (30 min roasting at 200 degree centigrade) presented the same value for luminosity measurement than low quality coffee submitted to darker roast at (2-hour roasting at 200 degree centigrade).

Lastly Limited knowledge and awareness of workers on contamination that affect the quality related to the roasted coffee product and the ochratoxin A are the main problems that can affect the quality in roasted coffee companies. Among workers at coffee roasting and packaging facilities have no a better knowledge to the exposure of contamination such dust, endotoxins, carbon monoxide, diacetyl 2,3-pentanedione ,OTA and other volatile organic compound which affects the quality of roasted coffee. Exposure in an establishment that depends on a variety of factors such as ventilation number and size of batch roasted, packaging quality, how much coffee is needed on site and type of

equipment, environmental cleaning, and hygiene. This factor affects the quality related approaches of coffee roasting process also reduced the job satisfaction to the employees and decreased the commitment of relation to their team work, reduce them perceive of their current work environment and affects the product with poor quality.

1.3 Research Question

This research will try to answer the following question:

- ✚ What are the current practices of quality improvement in both roasted coffee companies?
- ✚ What are the benefit and challenges of implementing the quality improvement in the companies?
- ✚ How does the companies measure and evaluate the quality of their roasted coffee?
- ✚ What solution can the companies utilize to improve their quality activities for the production process

1.4 Objective of the study.

1.4.1 General Objective

The general objective of the study is to investigate the practice and challenges of quality improvement in roasted coffee company and to propose a solution to quality related problem both in mélangé and Eliana coffee roasters.

1.4.2 Specific Objective

Coffee roasters company objectives for quality improvement practice are to consistency produce high-quality batch of roasted coffee that meets customer expectation and industry standard. The following objectives are included

- ❖ To Investigating the existing quality related problems in the case companies
- ❖ To Identifying the major quality related problems in the case of the companies
- ❖ To propose a solution to the problem by exploring the quality related work process in coffee roasting.

1.5 Scope of the study

The scope of the study is to explore the practice and quality improvement in coffee roasting at two different companies; Mélangé coffee roasters and Eliana coffee roasters. There are small companies in roasted coffee processing in aids Ababa. Furthermore, only both companies have been chosen to

make the study manageable and best choice to the study. Eliana coffee roasters are one of the competitor of Mélange coffee roaster. Specifically, this study examines the method and process used by each company to ensure the highest coffee roasting and the challenge they face in doing so. Additionally this study explores the practice and quality improvement on customer satisfaction and loyalty. Furthermore based on the company's quality practice and improvement of current situation the study would be facilitate assessing the backward and forwarding important procedural and functional suggestion and advice for improvement to the implementation of the study. Finally the study analyzes the effectiveness of the companies' quality improvement practice and suggests opportunities for improvement.

1.6 Significance of the Study

The study contribute to the body of knowledge on the practice of quality improvement implementation through evaluating the quality practice as standard, tools, in roasted coffee production process. Not only in coffee roasters also drive other organization clarity that ultimately leads to high quality of service provider to customers, and become create constancy of purpose and service adopts the new philosophy to eliminate the problems. On other hand that chase dependence on inspection to achieve the quality improvement practice and end the practice of awarding business on price alone. And also have a great role in identifying the problems in quality related practice in both companies. The finding of the study further add value for the companies by proposing ways of the quality improvement by taking corrective action and make informed decision to facilitate the successful execution of the study by eliminating the most important factors.

1.7 Structure and Content of the Thesis

The study embrace five chapter which elaborate specifically all the types the research method. Chapter one that carry the background of the study or the introduction part and that explain the statement of the problem , basic research question ,objective of the study, significance of the study . Chapter two embraces the literature review and the conceptual farm work of the study. Chapter three explains the research methodology such research design, research approach, population and sampling technique, data collection instruments. Chapter four embraces the results and discussion of the study and presents the finding background of information in empirical. Finally, chapter 5 provides with the summery, conclusion and recommendation of the study.

CHAPTER TWO

2. LITERATURE REVIEW

This chapter is a literature review that covers quality and quality improvement in roasted coffee companies. The definition of quality and quality improvement practice has been discussed briefly. Important of quality improvement in roasted coffee companies are identified. an overview of organizational committing to quality improvement practice in roasted coffee sector has also covered. Moreover the general overview of quality to coffee roasting and the organoleptic quality of roasted coffee steps are included.

2.1 Quality

Quality is a much more complicated term than it appears. Dictionary definitions are usually inadequate in helping a quality professional understand the concept. It seems that every quality expert defines quality in a somewhat different way. There are a variety of perspectives that can be taken in defining quality (e.g. customer's perspective, specification-based perspective). Are there commonalities among these definitions? Is anyone definition "more correct" than the others? Is one quality expert "right" and the others "wrong"? Quality professionals constantly debate this question. The editors of Quality Digest say that defining the word "quality" is "no simple endeavor.

A modern definition of quality derives from (Juran's) "fitness for intended use." This definition basically says that quality is "meeting or exceeding customer expectations." (Deming) states that the customer's definition of quality is the only one that matters. (Phillip Crosby), state that quality is conformance to requirements. That means quality of conformance equates to conformance of specifications within an acceptable tolerance range. In addition (Deming) say that quality should be aimed at the need of the customer, present and future. (Feidenbaum) define as quality is about the customer. His message was to move away from focusing on the technical aspects of quality control and seeing quality as not meaning a product that might be called "best" but ,rather, what might be called" best for the customer. There are so many definition of quality; therefore quality is an outcome characteristic of a good service that provide to a customer, and the hallmark of organization which has satisfied its entire stakeholder.

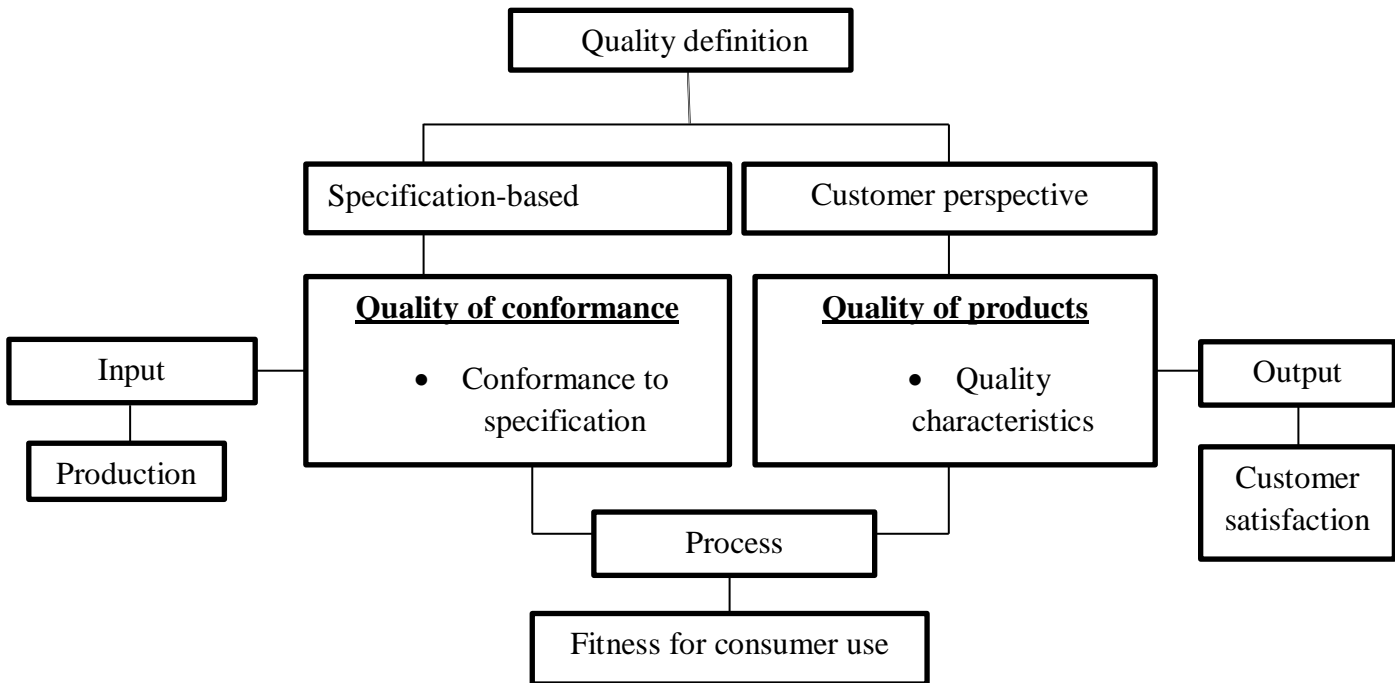


Figure 1-1 meaning of quality

2.2 Quality Improvement

Quality improvement have been central organizational sectors since the 1960s, as a means of ensuring quality standards within and across to continual improvement. Quality has developed and continues to develop (Brown, 2004). Quality improvement is a troublesome, relatively unstable idea. As discussion improvement has intensified, clearer definitions of improvement as a concept have emerged. In a recent review of improvement in England, Roger Brown noted: Quality improvement here describes the improvement of pedagogy through information and ideas from research, benchmarking, quality assurance, and other exchanges of experience and practice (Brown 2014). This section focuses on these misalignments.

The increasing interest in improvement relates to growing awareness of concerns about the impact of quality procedures in terms of the organizational structure underpinning quality systems implementation and their resultant ownership. There is also concern about the apparent focus on the practice procedures and the related representation and experience of quality improvement as a top down managerial process, rather than a bottom-up.

The central question of this paper is: what must be accomplished to enable and sustain improvement to occur in the everyday life of organizations? Theories about practice and quality improvement in organization describe improvement processes either as naturally occurring and smoothly passing processes of diffusion. Therefore the study discussed briefly the quality improvement practice which carried out the activities and the product production process of quality matter in both companies in system to improve quality .And provides a critique of current debates about practice and quality improvement in roasted companies.

This helps to refine the role of quality in improving both in Mélange and Eliana coffee roasters companies and covers a range of intervention which is more complex issue that affects factor to implement the quality improvement practice .Therefore quality improvement practice is that helps to involve multidisciplinary team working across departments, management process, and organizational structure to address quality issues.

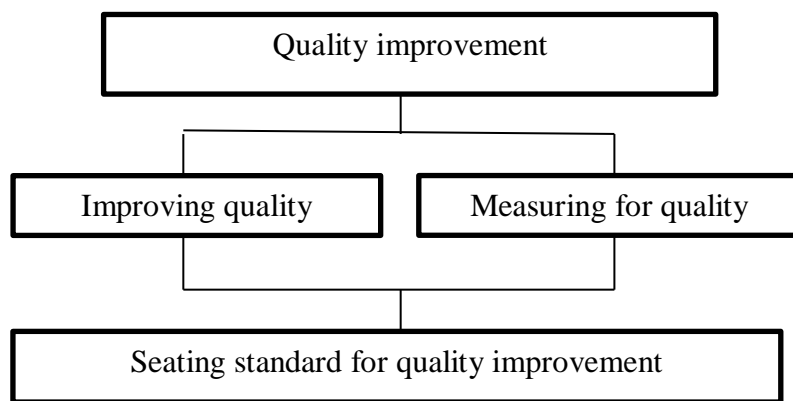


Figure 1-2 meaning to quality improvement.

2.3 Quality Improvement and Roasted Coffee

Coffee is a commercial commodity that grows and is traded in the global market (Endeshaw H and Belay A 2020). Worldwide coffee consumption reaches three billion cups of coffee drinks every day. (Al-Dalain S Y et.al 2020). Coffee consumers vary widely, depending on age, culture, and geographic distribution. With the increasing demand for coffee, especially specialty coffee around the world, scientific sensory evaluation methods for coffee are increasingly being sought to meet consumer demands (Chambers IV E et.al 2016).

The key quality factor of raw coffee is influenced by its sensory quality. The sensory quality of coffee is influenced by all the links in the coffee production chain, namely plant genetics, handling

of Coffee cultivation, post-harvest handling, transportation, roasting, grinding, storage, and brewing. The final consumer experience is influenced by social, psychological, and situational factors. (Bhumiratana N et.al 2011, Poisson L,et.al 2017, Giacalone D,et.al 20016, Cheng B et.al 2016).

Food processing is an important factor in improving sensory quality and nutritional quality by eliminating some compounds that are bad for health (Gökmen V 2014). The roasting process is the most important processing method for developing color, flavor, and aroma. From a sensory perspective, the roasting process can create aromatic compounds through several reactions, such as the Millard reaction, Striker degradation, the degradation of sugars, and the breakdown of amino acids (Madiah K Y K, 2013).The roasting and cooling stages require precise control to avoid excessive coffee ripeness. Burnt coffee beans will produce a bitter taste (Sunarharum W B et.al 2014). The degree of roasting was assessed qualitatively by color standard and classified as a light roast, medium roast, and dark roast (Bolka M and Emire S 2020).

The ideal roasting process in quality improvement is very complicated because different processes will produce different coffee qualities. Roasters must have the skills to develop the quality improving depend on physical properties, chemical composition, and biological activity of the roasting coffee beans. The degree of roasting is controlled by temperature and roasting time (Bauer D et.al 2018).

The distinctive flavor and sensory qualities of the world's coffees vary widely due to differences in genetic strain, geographic location, agricultural practices, climate, and variations in the processing methods applied (da Rosa J S et.al 2016). Therefore, quality control activities during the roasting process are very important to stop the roasting process properly so that the desired coffee aroma has fully developed in quality enhancing and the color of the coffee beans is homogeneous. Control quality of the roasting process is done by creating a method to evaluate the degree of roasting coffee in real-time. The need for roasters so far is a method of controlling the quality of roasted coffee with risk and real-time approach. This review presents the various methods used to determine roasting degrees from a roasted coffee quality risk perspective.

2.4 Importance of Quality Improvement in Roasted Coffee Companies And Challenges

Every company needs quality improvement; The main purpose of this study is need to bring out the best in the quality improvement of roasted coffee in every roaster company sector through careful profiling ,roasting and storage /degassing. The best fine roasting coffee product makes sure that the drink served to the customer is of the same excellent quality.

Roasted coffee is a semi- finished product, or packaged finished product. Therefore quality improvement in roasted coffee that provide the multidisciplinary team working across department or organization ,management producer, line the organizational structure and customer need to go through further processing before being enjoyed by the end consumer of the coffee cupper or drinker. As specialty, coffee association members that standards practicing and improvement of quality in roasted coffee to makes a specialty grade that means roasted coffee that has a parameter in which received at about 80+ out 100 is a high quality coffee and 90+ above is a specialty coffee.

Therefore specialty coffee is standardized by the whole coffee process cycle from choosing plantation criteria's till coffee brew serving, specialty coffee flavor is focused on fruity, floral and acidic notes. The presence of at least five different flavor notes with balance in coffee is valued with higher sensory score (dejene 2011, carvalhoet al 2016, and Kelly 2018) the sensory system analysis system for specialty coffee cup tasting or cupping.

Therefore the practice and challenges of quality improvement for roasted coffee can be broken down in to three distinct areas. Firstly, the coffee roasters needs to be roasted to the highest standards to ensure the best flavor and aroma by using the baste parameter that improve the quality of the product. This will involve monitoring the temperature, moisture level, acidity and other parameter during the roasting process to ensure an even consistent roast that produces the desired flavor profile.

Secondly, the ground coffee needs to be blended with the right mix of complementary and even have formulate the best light medium or the best dark color of texture that fulfill the customer need and of flavors to crate the desired flavor. This requires careful consideration of the individual of characteristics of the various coffees and the proportion of each in the blend. Thirdly, the quality of the finished product must be tasted and capture the cupping all parameter that related to the quality improvement such the acidity, aroma the body sweetness, blench cleanses of the finished product of roasted coffee regarding to the coffee type to ensure the desired flavor profile has been achieved. This can be done through sensory evaluation, chemical analysis or cup testing.

Challenges in achieving quality improvement for roasted coffee include the need for accurate monitoring of the roasting process, such time using losing focus during roasting that affect the quality improvement because of losing the time duration, the need for careful selection such un proper batch setting and blending the coffee which is not allowed for the production process and

blending of the individual components of the blend and the need for through testing of the finished product.

In addition the organizations often the most affected by low price environment that organizes to overcome poor basic infrastructure. All challenges have its own impact through the quality of the product therefore the company bereft is value through by losing its profitability and productivity.

The practice and quality improvement in roasted coffee that provide the organization to the opportunities for evaluate through a procedure devised and implemented by those with specialist knowledge and understanding of the process working experience and to stimulate the process of internal relation on quality improvement issues, where relevant to assist the organizations leaders in implementing quality –related reforms. And helps to bring, fresh ideas and wider perspectives to the companies that encourage the principle of many correct answer to the problem concerning the pursuit of quality improvement in the coffee roaster company.

Therefore quality improvement gives the opportunity to contributes investing in and maintaining a quality practice such involving the employees within an organization that will assists in leading to successful implementation. And gives employee empowerment in sustaining by giving a training personal on controlling the quality improvement of roasting coffee products and giving core value as solid foundation for successful quality improvement within the company. Although quality improvement to the process in one division may improve the quality in that division. It may cause another division cost to increase the organizational management need to work at the company situation as whole to improve the process for maintaining customer satisfaction while still keeping cost low ,thus up holding the produces.

2.5 Organizational Committing to Quality improvement Practice in Roasted coffee Sector

The first step management is recommended to take when committing themselves to quality improvement practice lies in empowering them to understanding the work flow. Therefore when employee feel empowered they take more pride in their work. Empowering employers does not eliminate the role of managing the quality improvement. Successful implementation of work force empowerment requires some flatting of the company firms.

That means reducing the losing focus during roasting process in order to improve the efficiency between managing the problems, increases the awareness of the need to prevent contamination through roasting process such cleaning and handling of the equipment that need for the production

process and have a better understanding of the mechanism that to controlling the under loading and overloading during roasting process.

In addition the organizational management need to ensure and achieve workforce empowerment such upper management must give a training needed to understand and support the quality improvement practice of concept that relating to roasting coffee quality improvement practice and face up the workforce apprehension.

2.6 Quality to Coffee Roasting

Quality deterioration raw coffee occurs due to an increase of moisture content of the bean, the spoiling of the raw appearance of the bean by loss of color fading or tainting, or to the introduction of unpleasant flavors, by infestation of storage insects or by infection with molds or bacteria (Behailu et al., 2008). Moisture is an important attribute and indicator of quality. A market survey conducted in Europe in 1998-1999 for the common fund for commodities concluded that for Arabica coffee beans the most important defect for a trader or a roaster is the moisture content (CFC, 2004). A high moisture content of the beans is a loss of material and leads to physical and sensorial defects. If the beans are too wet above 12.5 % moisture, they mold easily during storage, whereas, if too dry (below 8 % moisture) they will lose flavor. The moisture content influences the way coffee roasts and the loss of weight during roasting. Green coffee beans with low moisture content tend to roast faster than those with high moisture content. The international coffee organization (ICO) resolution 407 recommends that coffee should not be exported when outside of these limits as assessed by the ISO 6673 method (ICO, 2002). It was recommended that, a cool and dry environment (10-18o C, 50-70% RH) makes a great contribution towards preservation of coffee quality, provided the coffee is initially well dried (Abadiga, 2010) . As reported by the author coffee could not be stored in parchment form in the primary stores beyond 4 to 5 months.

2.7 Barriers to implement quality improvement in roasted coffee organization

Implementing of quality improvement practice in roasted coffee organization can be a challenge endeavor. It is a process that must be initiated and managed by the quality improvement management. The quality improvement management must make available all critical resources required as well as the organizational structure and culture required. The process must focus on finding out, meeting, and exceeding customer needs and expectations through the total involvement of everyone in the organization through continuous improvement. The literature mentions that

quality improvement implementation is a complex, difficult, lengthy, involving huge efforts from organizations. While the quality improvement practice has been suggested, in principle, to improve the performance of the practical application involves several difficulties. Such obstacles to implement the quality improvement practice are discussed below,

- a) **Not knowing the definition of quality:** When it comes to quality improvement, the first barrier to improving quality does not know what the meaning of quality is. Each organization has a different product or service. Organizations must define what quality means for their product or service.
- b) **Lack of leadership;** the second barrier to quality improvement is the lack of leadership. Deming; has suggested in his 14 points of management that leadership needs to have a long-term commitment to the organization's success. If the management is not interested in the quality, you cannot achieve quality improvement.
- c) **Lack of Support and Leadership by Upper Management;** this is the most common reason why quality improvement practices were not effective. In any top down organization the leadership must be strong and fully committed to a cohesive vision of change. They must be strong communicators and lead by example. Employees has to learn new skill sets during a change, leaders of the organization should be the first to obtain new certification, or skills in order to build trust and confidence within the team.
- d) **Lack of Professional Development or Training on the production process.**

Training employees for broader and better skill sets will serve them well in their careers. It will also help the future of the company as it communicates its desire to keep them involved in the long term.
- e) **Poor Prioritization;** There is never going to be a shortage of ideas for improvement at any organization. There are many ways to improve processes and initiatives. But when there is not a particular focus on what improvements are priorities, disagreements about strategies will occur. All changes should result in a re-commitment to its corporate strategy and vision.
- f) **Poor Employee Engagement;** there may be an indifferent attitude to organizational goals among employee. The general feeling that prevails among employee is that management exploits workers to pursue unachievable goals.

2.8 good practice of quality improvements

There are key features of the good practices necessary for the functioning of an effective quality improvement practice which are;

a) Focus on quality improvement:

The primary purpose of quality improvement should be improved in the organizations. This shall involve defining barriers of quality in terms of organizational leading outcomes, taking care products, needs in all aspects of the organizational processes, and making continuous quality improvement a priority. A culture of continuous improvement of learning is crucial in this regard.

b) Involvement and commitment of leadership:

The organization leadership should at all level and the board be involved in and committed to the development and implementation of quality improvement. This shall involve setting the overall direction of the institution toward improvement of quality activities, introducing polices and structure for quality assurance with clear responsibility at all level and monitoring their implementation.

2.9 Other Good Practice

2.9.1The quality management system principles

Manufacturing industries or service sectors can successfully practice QMS if they have a conducive work environment. To create such an environment, they must emphasis on seven management principles that is described as follows.

a) Customer focus ;

This almost goes without saying. An organization that doesn't focus on customers won't be around for long. Although a customer focus is critical, many times this can be lost in the priorities of a quality system and the various processes involved. The focus should include current and future customers. Besides continuously meeting or exceeding customer expectations, companies should measure customer satisfaction. Conversely, failing to meet customer expectations should also be tracked. Every function and department should be involved.

b) Leadership;

Strong leadership means have a clear vision of your company's future. Communicating this vision effectively will ensure whole team works towards the same objectives, giving organizations a shared sense of purpose. This can then help to increase employee motivation and productivity.

c) Engagement of People;

An engaged workforce is one that organizations want to have. This means the abilities of the staff are used and valued. It also enables continuous improvement, learning, and discussion of any issues. With an engaged workforce, staff are held accountable for their actions. Rather being seen as a passive place to clock in every morning, the job requires everyone in the organization to be active and engaged in their work

d) Process Approach;

As with so many things in quality, a process approach outlines the steps for success. This means activities are managed as processes, measured, and connections between activities are identified. Opportunities for improvement are tracked. Quality doesn't just happen. It requires processes behind the scenes to ensure the success of the organization.

e) Improvement;

A strong quality system requires change. Without improvement, companies will eventually be outshined by the competition. Aiming to maintain the status quo does not inspire anyone. This means the company's performance and capabilities should be developed on an ongoing basis. These improvement activities should align with goals, and staff should be encouraged and empowered to make improvements. When improvements are made, these should be measured.

f) Evidence-based decision making;

As organization may have guessed, gut feelings are not the way forward. Rather, data is king. Of course, this should be no surprise to the quality professional. Organizations should make sure data is accessible, accurate, and reliable. It should be analyzed and decisions made based on it. Still, data analysis should be balanced with practical experience.

g) Relationship management;

Finally, the people are the important part of any organization, and the relationships between suppliers and other partners are critical. Suppliers should be selected carefully based on the ability to

create value as well as manage costs. Partners should be aware of plans and information that would help them in their work. A spirit of collaboration should be the goal. Coordinating improvement activities can help both parties. Recognizing supplier successes will also go a long way to maintaining a strong relationship. Juggling ISO requirements may seem difficult, but these principles can light the way toward better quality. Maintaining a quality management system and improving your organization can be done. It takes work and consideration of a range of factors, but these seven principles are a good start.

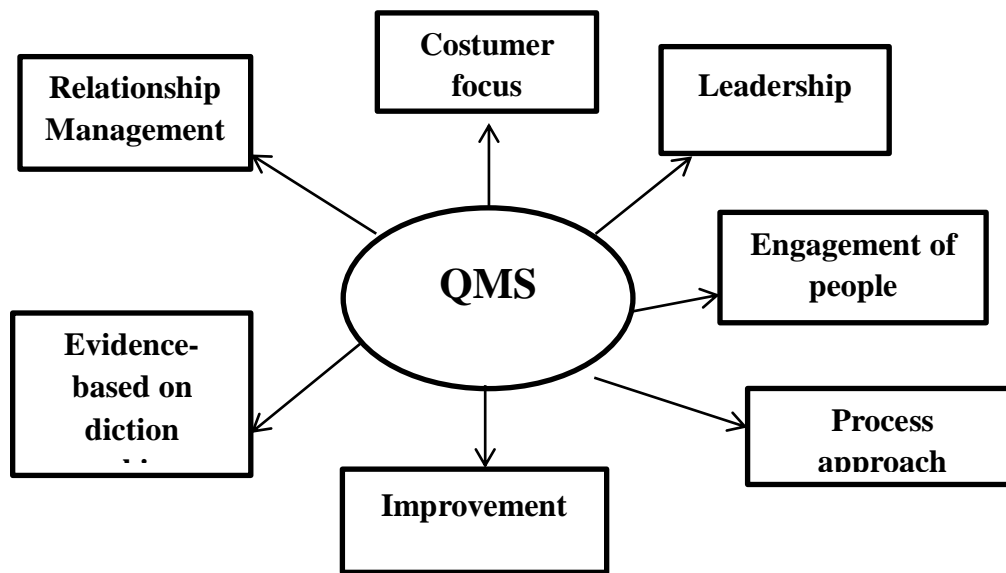


Figure 1-3 quality management system principle

2.10 Conceptual Framework

In this section, the conceptual framework of the study is presented and elaborated. The main theoretical constructs identified from the quality improvement literature and elements of the organizational theories were combined to draw the dimensions of the framework. The framework conceptualized in open systems perspectives which are the actual practice and challenges of quality improvement,

This conceptual framework process model reflects graphically the interaction of four major areas:

- a) Quality improvement management
- b) Quality improvement practice responsibility
- c) Quality improvement production control
- d) Measurement and analyses ,improvement

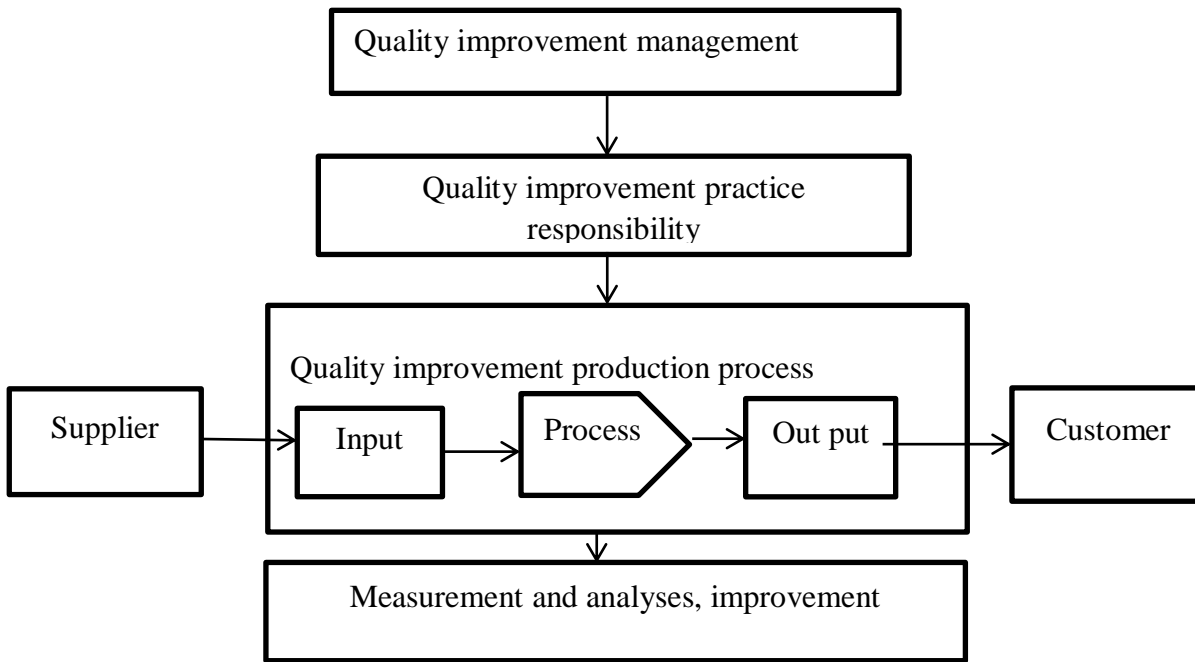


Figure 1-4 Conceptual frame work to the practice of quality improvement.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Research Design

A cross sectional study was used to assess the practice and quality improvement in roasted coffee sectors. The study employed qualitative approach to capture qualitative aspects of quality improvement and its practice from the two organizations .therefore the study uses a qualitative research method. On the view of participants asking broad and general questions, collecting data consisting of mainly verbal explanation from participants, describing and analyzing these words for themes and conducting the inquiry. The qualitative design provide a suitable method to generate adequate in depth information on quality improvement practice in the coffee roasting organization, shank (2002) defines qualitative research as a form of systematic, empirical inquiry into meaning by systematic means ‘planning ordered and public following rules agreed up on by members of the qualitative research. By empirical means that type of inquiry is grounded in the world of experience and inquiry in to meaning says researchers try to understand how others make sense of their experience. After the required data is collected on the previously mentioned inquires, the study seeks to depict the general picture and the extent organizational of practice and quality improvement of the coffee roasting companies. This is done through inductively reasoning from the detail to the general.

3.2 Research Approach

The study has chosen to center on the sector of information and communication technology both in the organization of eliana coffee rosters and m elange coffee roasters and also use the data collection method of questionnaires observation, group desiccations.in addition to that the study embrace secondary data collection method such journals, books, newspaper. The questionnaire design was developed from a wide review of the literature which allowed the study to measure the great majority analyzed in order to improve the content validity. The study developed a pre taste with two company of the sector. In order to the data collected from different source the researches were reviewed both organization of their quality standard this analysis assumed to support problems identified by using questionnaires and thereby checking up whether significant relationship between the organization and practical skill exist or not .

3.3 Population and Sampling Technique

3.3.1 Target population

The population of the study is the total number of employers, chief executive officer, suppliers, and customers in both of mélange and eliana coffee roasters. Total number of populations in both eliana and mélange coffee roasters is about 97 in numbers. This target helps to maintain decent manageability of the scope of the study

3.3.2 Sampling technique

It is not possible or feasible to make direct investigation to the whole population involved in both eliana and mélange coffee roasters. Therefore, the population of the study is restricted to those total numbers of employee and top management sampling used to select from both organization is about 37. On the top of that there are also other stakeholders such as suppliers and customers which are about 41. A growing body of literature recommended that the institution where the total number of population about 78. From this number 37 are employed as a full timer in both companies. The rest are suppliers and customers for both companies. For Elaina and Mélange coffee roasters green coffee will be supplied through ECX and vertical integration. In addition the roasted coffee from Eliana and Mélange coffee raster's will be distributed to the local super markets, cafes, hotels, and for export markets.

Table 3-1: target population in eliana coffee roasters

Eliana coffee rosters	Number of Females	Number of Males	Numbers
Number of employee	5	9	14
Top management	1	2	3
Supplier		2	2
Customer	4	7	11
Total population	10	20	30

Table 3-2: target population in mélange coffee roasters

Mélange coffee roasters	Number of females	Number of Males	Numbers
Number of employee	8	8	16
top management	1	3	4
Supplier	-	2	2
Customers	8	18	26
Total population	17	31	48

Regarding to this of 78 populations in both eliana and mélange coffee roasters become representative sample by method of computing sample size therefore, 37 of the total population were considered whereby proportional number of males and females were given attention. The top management, quality workers, supplier, and customers are considered the appropriate respondent for the study. The top management responsible for the policy formulation and industry regulation , while the others carries out implementation to quality improvement practice and is assumed to be knowledgeable in the area .

Formula used to Compute Sample Size

$$n = \frac{N}{1+Ne^2} \quad (\text{Proposed by Pagoso, et al})$$

Where

n = sample size

N = the size of the population

e = the margin of error between 3% and 5%

$$n = \frac{97}{1+97(0.05)^2} = \frac{97}{1.2425} = 78$$

$$n = 78$$

3.4 Data Collection Instrument

Primary and secondary data were collected with the help of structured open ended and close ended questionnaire as well as interview and organizational databases. The collected data were analyzed using qualitative approach using SPSS analysis for both roasted coffee companies. Secondary sources of data were also collected from both companies such as quality related manual documents, different literature, articles. The study also uses the primary data collection method that employed different instruments so as to assess the practice and quality enhancement of the coffee roasting. There are interview, questionnaires, focus group discussion, and observation.

Questionnaires; based on the study open ended questionnaires solicit basic information from the employees, supplier, customer, and top management.

Focus Group Discussion; was one of the fundamental tools for data collection in this study. In the FGD the researcher was intended to engage informants of the quality related sector, quality supervisors, quality controller, quality assurance, all the quality departments and quality related sector are only resulting from time constraints to include all informants.

Observation; in eliana and mélangé coffee rosters compound, observation was planned to be done twice in each of the organizations. Unfortunately, observation inside eliana coffee rosters was done only once due to time limitation. The researcher used the chalkiest prepared in advance notebook to record things that are related to quality. The researcher observes what methods of standards they use to fulfill the quality parameters of the roasted coffee.

3.5 Method of Data Analysis

The study used thematic analysis incorporating a description of context and the process observed. An explanation of the practice and quality enhancement was explored in depth. Data analysis was ongoing during the research process, this allowed to condense an extensive amount of information into a more manageable format and compare findings within and among transcripts to organize the data we read through it line by line and through about the managing of each word.

CHAPTER FOUR

4. DATA COLLECTION AND ANALYSIS

4.1 Introduction

This chapter deals with data collecting pretending to the practice of quality improvement in two organizations. Data Collected from multiple source at different times will be analyzed in qualitatively in order to demonstrate how quality improvement of roasted coffee production inputs, process and output and constrained and how this influence learning in the roasting organization in case of m elange and eliana coffee roasters.

It is assumed that quality improvement in any organization requires investing in the important input-human financial and physical resource. In this study the preparation (capacity and motivation) of incoming roasting companies; quality and quality improvement practice accessibility of financial and physical resource are considered as important input element for both organizations.

The analysis in this section is premised in the assumption that ensuring quality practice of input is necessary condition for quality improvement practice implementation to happen.

This section begins with critical examination of the state preparedness of the organization staff and instrument that are put in place to determine entry the quality practice of the organization. Then analysis of data on the organization and practice are the follows;

4.2 Survey Questionnaires'

The researcher has collected a data in both coffee rosters companies by addressing the objectives of the research. The researcher was used the questionnaires, interview, observation, focused group desiccation and collect the data from different primary source data selecting. The questionnaires was designated and administered through three distinct parts;

- a) For suppliers
- b) For top managements, supervisions, and quality departments.
- c) Customers were distributed in both organizations for assessing their opinion or attitude on the practice and challenges of quality improvement.

The questionnaires designed and provided to the selected sample of those distinct parties in assessing their opinion or attitude on the practice and challenges of quality improvement provide in roasted coffee productions.

In addition to face to face interview was conducted during the study time with top managements respectively in both organizations. Beside, personal observation of the research had applied around or in warehouse and laboratory officer who were found in the organizations is. Whereas; the secondary data were collected from reviewing relevant documents, such as quality control report sheet documents of both organizations, organizations profile documents related to quality practice such SOP (standard operating producer) books, journals, articles and published documents, websites and other reliable documents.

4.3 Respondent’s Background

The respondent background helps to determine the relationship between their knowledge on the related questionnaires and the educational background of the respondents; in addition the gender distribution that helps to know to what extent is the gender relation helps to provide the quality improvement practice in both companies

Table 4.-1 illustrates the distribution of respondents' age into three groups: 20-30, 31-40 and 40 and above. The percentages of respondents in each age group are as follows: 52.2 % for the 20-30 group, 40.3% for the 31-40 group, and 7.5% for the 40 and above group. Higher respondent percentage is between 20 and 30 so these proportions are based on a total of 67respondents, as shown in the table below:

Table 4-1 Respondent Age Distribution

Age Groups	Number of respondents	The percentage range of respondent	Cumulative percent	cumulative respondent
20-30	35	52.2	52.2	35
31-40	27	40.3	92.5	62
Above 40	5	7.5	100	67

Source: Indicate source: Outer computation from the collected data

Table 4-2 Respondents' Gender Distribution

Sex	Number of respondents	Percentage range of respondent	Cumulative percent	Cumulative respondent
Male	47	70	70	47
Female	20	30	100	67
Total	67	100	100	67

4.4 Characteristics and Profile of Respondents

The respondents were categorized mainly into three groups/parties, namely top management, supplier, and customer.

Table 4-3 Summary of Response Rate from Respondents

Representing parties	Questionnaire Distributed	Questionnaire Returned	Valid Response rate (%)
Top Management	39	36	92
Supplier	4	4	100
Customer	35	27	77
Total	78	67	86

As it shown shows it the above table from the total 39 distributed questionnaires to top manager 36 of it is returned, this means that 92 % questionnaires were returned. From the total 4 distributed questionnaire to supplier, all of them are returned. From the total 35 distributed questionnaires to the customer, 27 of it returned this means that 77%questionnaires were returned.

4.5 Cronbach's Alpha Reliability Test

There are several diverse methods of evaluating the reliability of the Likert scale. In this study, the methods hired were Cronbach's reliability test. Cronbach's alpha is the most normally used procedure to estimate reliability. Before the result obtained from the Questionnaire survey received was analyzed, a Cronbach's alpha analysis was carried out to ascertain the reliability of each question. This reliability test measures the internal consistency of the questions using the Likert scale points. To examine the reliability of each factor, the Cronbach's alpha coefficient was tested on each group of factors to view if there were integrated. The value of Cronbach's alpha should have to range between 0 to 1. The lower values represent lower internal consistency and the larger value

represents greater internal consistency. The criteria introduced by (Nunally and Bernstein, 1994) for the interpretations of this coefficient were considered to evaluate the result of the analysis. $C\alpha > 0.8$ = Excellent; $0.7 < C\alpha < 0.8$ = Good; $0.5 < C\alpha < 0.7$ = Satisfactory and $C\alpha < 0.5$

4.6 Method of Data Analysis and Interpretation

After collection data through the above instruments, it was important to organize, present and analyze in systematic way. Based on this qualitative method of data analyses were used to describe the issues. Those completed questionnaires were coded and the data were analyzed by using the optionally either by excel chart or either statistical package for social sciences (SPSS). Respondent were requested to rate their questionnaires responses on a 5 point liker scale where 5=excellent/high, 4=very good/moderate, 3=good/little, 2=fair/low, 1=poor/none and the last one there is Yes or No questionnaires. The researcher would be tell his subject the fulfill details of the purpose of investigation and the importance as a result of genuine information they provide for successfulness of the study. In addition, researcher has to inform the subject that they have the right to remain anonymous for providing any information.

4.6.1 Company's Customer Perspective

Step one; Quality concept

A. Understanding and awareness on concept of quality improvement

The table below shows company's understanding and awareness on quality improvement, 40.7% of the respondent responded that they have good/little understanding and awareness on the concept of quality improvement and the other 59% of the respondent responded companies have Very good/moderate understanding and awareness on quality improvement. The respondent response in company understands and awareness on concept of quality improvement attained 3.59 mean values. This implies that companies have good understanding and awareness on the concept of quality improvement. But in addition to this the interview conducted with customer revile that companies have good understanding and awareness on the concept of quality improvement. This both concept implies that companies have good understanding and awareness on the concept of quality improvement.

Table 4-4 shows understanding on the concept of quality Improvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	11	40.7	40.7	40.7
	very good/moderate	16	59.3	59.3	100.0
	Total	27	100.0	100.0	

B. Extent level of roasted coffee quality

The table below shows 48.1% of the respondents responded that the company is a good position in providing quality roasted coffee while 48.1% of them confirmed that the company is in a good position in this regard. The other 3.7% agreed that even it is in an excellent position. The table also depicts that mean value respondents who favored the company’s good position is 3.55.

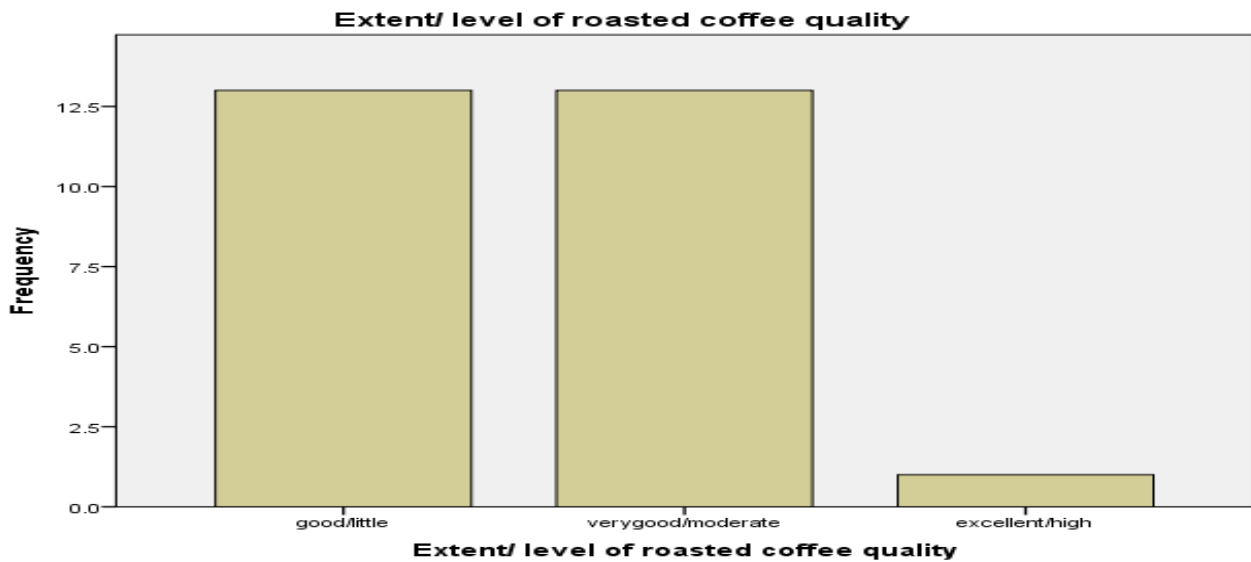


Figure 4-1 shows Extent level of roasted coffee quality

Step two; Customer focus perspective

A. Measuring customer need and satisfaction

The table below shows that, customer response on regularly measuring their need and satisfaction by the companies.

Table4-5 shows measuring customer need and satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	24	88.9	88.9	88.9
	No	3	11.1	11.1	100.0
	Total	27	100.0	100.0	

As it is shown in the above table, 88.9% of the respondents agreed that the Company regularly measures their satisfaction and need which would help it to provide best product to its customers. The other 11.1% of the respondents responded there is no consideration of customers' satisfaction and need.

B. Consideration of customer opinion and suggestion

As it is indicated in the table below, the company's commitment in considering customer opinion 92.6% of the respondents responded that the company considers their opinion and suggestion seriously. The other 7.4% of the respondents responded there is no consideration of customers' opinion and suggestion.

Table 4-6 shows companies commitment in considering customer opinion and suggestion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	25	92.6	92.6	92.6
	No	2	7.4	7.4	100.0
	Total	27	100.0	100.0	

C. Customer complaint and response of companies

As the table reveals, 77.8% of the respondents replied that the company strictly considers customer's complaints and responds as quickly and positively as possible. The other 22.2% of them didn't agree in this regard.

Table 4-7 shows Customer complaint and response of companies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	21	77.8	77.8	77.8
	No	6	22.2	22.2	100.0
	Total	27	100.0	100.0	

D. Communication

On the basis of the table below, 81.5% of the respondents responded that the company had a well-established communication channel to communicate with company representative. The other 18.5 % of them didn't agree on the supposition that the company had a well-established communication channel.

Table 4-8 shows presence of well-established communication channel with its customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	22	81.5	81.5	81.5
	No	5	18.5	18.5	100.0
	Total	27	100.0	100.0	

E. Pricing strategy of company

The table below shows the relation between the price of coffee and its quality, from the total response 51.9% of the customer respondents responded as very good saying the price they are paying compared to the quality of coffee they are getting is highly reasonable, the remaining 48.1 % respondents replied as good. As customer view the relation between the price of coffee and its quality attained 3.518 mean values. This shows that, majority of the customer are satisfied by the quality of coffee in relation to its price that they are getting from the company.

Table 4-9 shows the relation between the price of coffee and its quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	13	48.1	48.1	48.1

d	very good/moderate	14	51.9	51.9	100.0
	Total	27	100.0	100.0	

4.6.2 Company's supplier perspective

Step one; Quality concept

A. Understanding and awareness on concept of quality improvement

The table below shows company's understanding and awareness on quality improvement, from the total survey 50% of the respondent replied companies have good/little understanding and awareness on the concept of quality improvement and the other 50% of the respondent replied company's has Very good/moderate understanding and awareness on quality improvement. The respondent response in company understands and awareness on the concept of quality improvement attained 3.5 mean values, which implies that companies have a very good understanding and awareness on the concept of quality improvement.

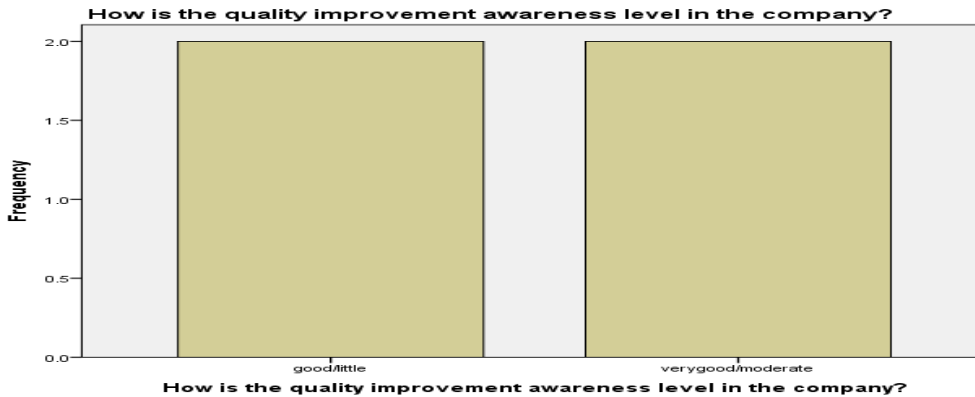


Figure 4-2 shows understanding and awareness on the concept of quality improvement

B. Company belief in quality improvement

The table below shows half of the respondents replied that there is relatively good/little belief in quality improvement and the remaining half of the respondents replied that there is relatively very good belief in quality improvement. This implies that companies have a good belief in quality improvement.

Table4-10 shows company belief in quality improvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	2	50.0	50.0	50.0
	very good/moderate	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

C. Role and degree of participation in quality activities

Table 4-11 Company’s supplier’s role and degree of participation in quality activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	2	50.0	50.0	50.0
	very good/moderate	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

From the total reply, 50% of the companies have a good/little role and degree of participation in quality actives and the other 50% responded that companies have a very good role and degree of participation in quality actives. The level of role and degree of participation in quality actives attained 3.5 mean values; this implies that company’s has a very good level of role and degree of participation in quality actives.

D. Customer need and product quality

The table below shows, the response of respondent on company understands of costumer nerelation with quality of product



Figure 4-3 companies' supplier understanding and customer relation of degree in quality

As it is indicated in the above table half of the respondent which accounts 50% responded that they have good understanding of their customer need in relation to their product quality and the remaining 50% of suppliers replies, companies have a very good understanding of their customer need in relation to their product quality. This response attained 3.5 mean values which represent company's has a very good understanding of their customer need. This helps companies to produce the required product for their customers.

E. Quality objective

Setting quality objective direct to improve quality and help supplier to deliver consistent quality of product. The table below shows presence company quality objective setting.

Table 4-12 Shows companies' quality objective

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	4	100.0	100.0	100.0

As it is indicated in the above table, the entire respondent responded that company's has quality objective to improve quality of product. This helps them to be competent with other suppliers and to attract new customer.

F. Effort in finding critical point and solving quality problem

An effort in finding critical point and solving quality problems requires customer need assessment. Consideration of customer need helps find critical point to solve quality problems. The table below shows company's effort in finding critical point and solving quality problems.

Table 4-13 Effort in finding critical point and solving quality problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	2	50.0	50.0	50.0
	very good/moderate	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

As it is indicated in the above table, the entire respondent responded that their company has quality objective to improve quality of product. This helps them to be competent with other company and to attract new customer.

Step two; Quality improvement management

A. Quality improvement policy

Quality improvement policies are stated strategies in improving quality of product. Have a quality improvement policy helps to assess customer satisfaction. The table below shows the strength of company improvement policy

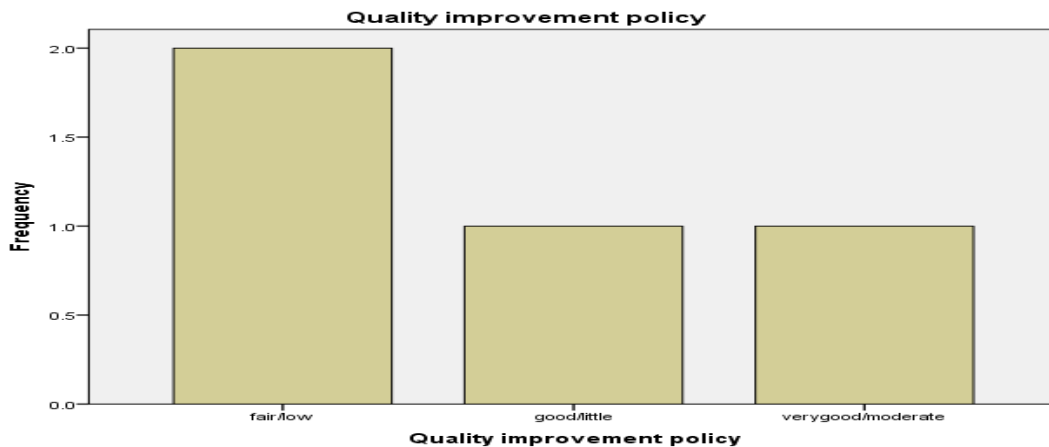


Figure 4-4 quality improvement policy

As it is indicated in the above table, 25% of the respondent responded that they have a very good quality improvement, 25% of the respondent responded that they have a good quality improvement policy and the remaining 50% of the respondent responded that they have low/fair quality improvement policy. This response attained 2.75 mean values which represent companies have good quality improvement policy.

B. Degree trust between the company and customer

Developing trust between suppliers and customer helps to sustain business. The table below shows the trust between suppliers and costumer.

Table 4-14 degree of trust between the company and customer

		Frequency	Percent	Valid Percent	Cumulativ e Percent
Valid	good/little	2	50.0	50.0	50.0
	very good/moderate	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

As it is indicated in the above table, half of the respondent responded that they have a very good trust with their customers while the rest half replied that they have good trust with their customers.

C. Effort to identify customer need

Costumer need assessment helps to identify required product by costumer. Which helps suppliers to produce required products? The table bellows shows company’s effort in indenting costumer need. Table: effort to identify customer need

Table 4-15 effort of identifying the customer need

<u>Does the management identify the customer need to their performance</u>					
		Frequency	Percent	Valid Percent	Cumulativ e Percent
Valid	good/little	2	50.0	50.0	50.0
	very good/moderate	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

As it is indicated in the above table, half of the respondent responded that management of their company have a very good effort in identifying costumer need to deliver best quality product and the other half of the respondent responded that management of their company have a good effort in identifying costumer need to deliver best quality product. This response attained 3.5 mean values which represent companies have a very good effort in identifying costumer need to deliver best quality. In general quality improvement management scores 3.25 mean value which implies that

companies have a very good quality improvement management to produce best product to its customer.

Step 3 Quality evaluation

Challenges Company's facing while distributing raw coffee to their customers are discussed below.

Table 4-16 distributing raw coffee to customers

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Check the quality processing method of raw coffee such (washed and unwashed)	4	3.2500	.50000	.25000
Analyzing the visual inspection green coffee	4	3.2500	.50000	.25000
Determining the defects of green coffee and solving the problem	4	3.7500	.50000	.25000
Following the quality standard of raw coffee and depending on that grading the coffee with its standard	4	2.7500	.95743	.47871
Less number of farmers which produce the4 high quality of raw coffee	4	3.7500	.50000	.25000

According to the result of the questionnaire assessment (which is provided in the above table), Less number of farmers which produce the4 high quality of raw coffee and Determining the defects of green coffee and solving the problem were firstly ranked challenges by suppliers with a mean value of 3.75 each. Check the quality processing method of raw coffee such (washed and unwashed) and Analyzing the visual inspection green coffee were secondly ranked challenges by suppliers with a mean value of 3.25 each Following the quality standard of raw coffee and depending on that grading the coffee with its standard were the list frequently faced challenges with a mean value of 2.75.

4.6.3 Company's Management, Quality Head and Supervisors Perspective

Step; 1 Quality concept

A. Understanding and awareness on concept of quality improvement

The table below shows Company's management, quality head and supervisors understanding and awareness on quality improvement, 33.3% of the respondent responded they have good/little understanding and awareness on the concept of quality improvement, 61.1% of the respondent responded they have very good understanding and awareness on the concept of quality improvement and the other 5.6% of the respondent have an excellent understanding and awareness on quality improvement. The respondent response in understanding and awareness on concept of quality improvement attained 3.72 mean values. Which implies that Companies have very good understanding and awareness on the concept of quality improvement?

Table 4-17 understanding on the concept of quality improvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	12	33.3	33.3	33.3
	very good /moderate	22	61.1	61.1	94.4
	excellent	2	5.6	5.6	100.0
	Total	36	100.0	100.0	

B. Role and degree of participation in quality activities

The table below shows company's role and degree of participation in quality activities

Table 4-18 shows the role and participation in quality improvement.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	10	27.8	27.8	27.8
	very good/moderate	20	55.6	55.6	83.3
	excellent/high	6	16.7	16.7	100.0

	Total	36	100.0	100.0	
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From the total replied, 27.8% of respondent responded that companies have a good/little role and degree of participation in quality actives, 55.6% of respondent responded that the Companies have a very good role and degree of participation in quality actives and the remaining 16.7% respondent responded that they have an excellent role and degree of participation in quality actives. The level of role and degree of participation in quality actives attained 3.89 mean values which imply that company’s has a very good level of role and degree of participation in quality actives.

C. Companies understanding on customer required quality

The table below shows, the response of respondent on Companies understanding on customer required quality.

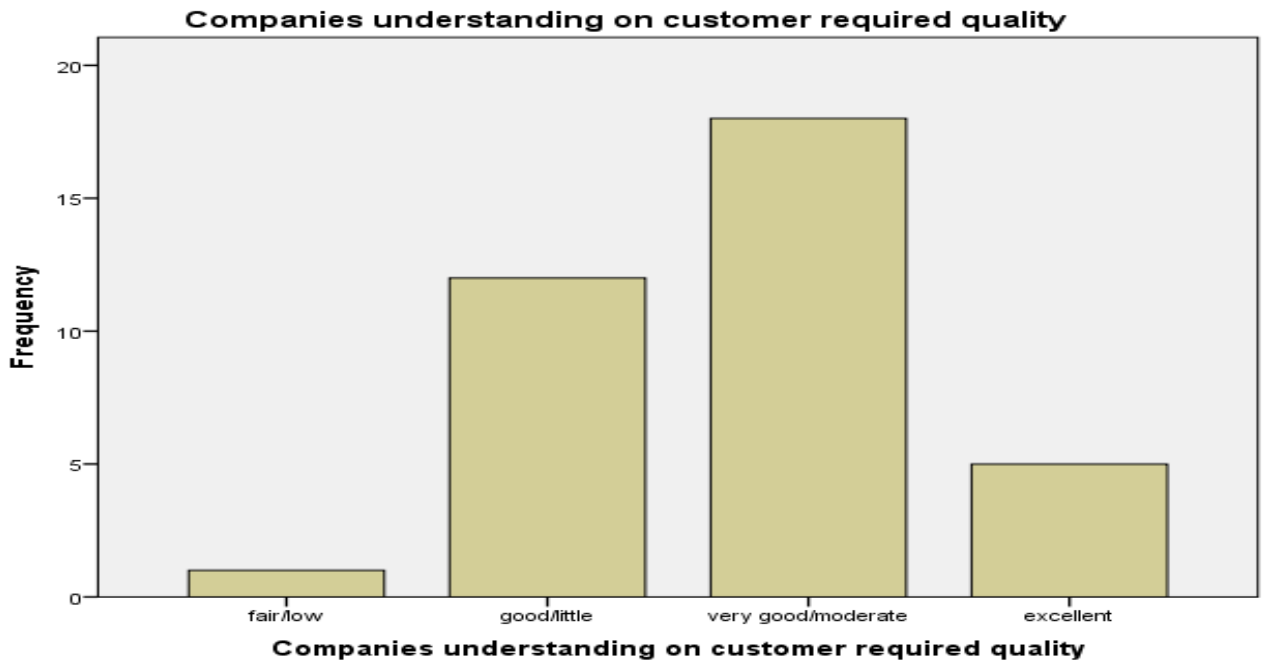


Figure 4-5 show companies understanding on customer required quality

As it is indicated in the above table 2.8% responded that they have fair understanding on customer required quality, 33.3% respondents responded that they have good understanding on customer required quality, 50% respondents responded that they have a very good understanding on customer required quality and the remaining 13.9% of respondents replies, they have an excellent understanding on customer required quality. This response attained 3.75 mean values which represent Company’s has a very good understanding on customer required quality.

D. Quality improvement objective

Table 4-19 shows quality improvement objective sated by the company's.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	36	100.0	100.0	100.0

As it is indicated in the above table, the entire respondent responded that both company's has quality objective to improve quality of product.

E. Effort in recognizing and solving quality problem

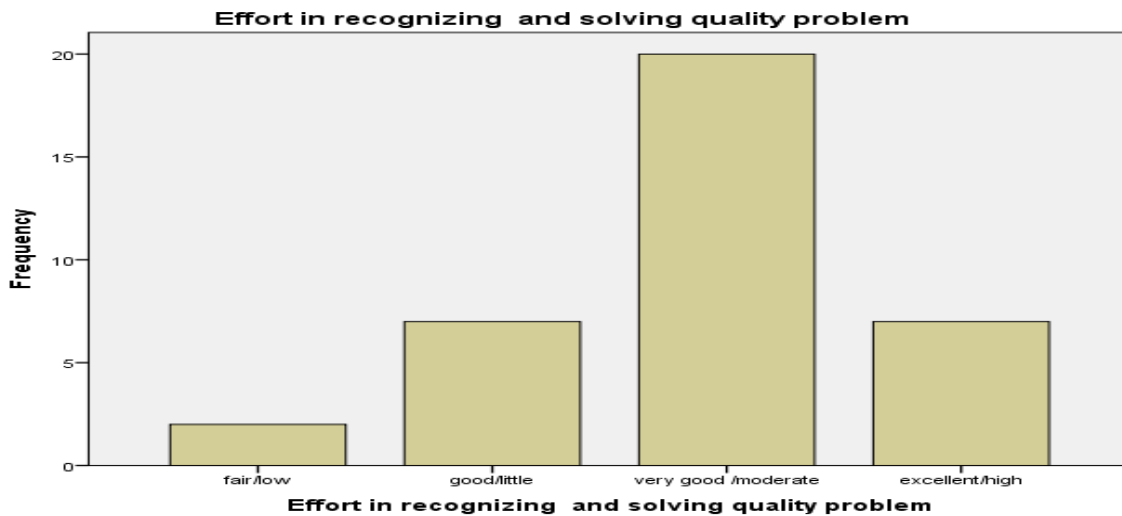


Figure 4-6 shows company's effort in recognizing point and solving quality problems.

As it is indicated in the above table 5.6% respondent responded that they have fair effort in recognizing and solving quality related problems, 19.4% respondents responded that they have good effort in recognizing and solving quality related problems, 55.6% respondents responded that they have a very good effort in recognizing and solving quality related problems and the remaining 19.4% of respondents replies that they have an excellent effort in recognizing and solving quality related problems. This response attained 3.89 mean value which represent Companies have a very good understanding on customer required quality.

F. Identification of quality improvement area and implementation

The table below shows company’s identification of quality improvement area and implementation

Table 4-20 show identification of quality improvement area implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	fair/low	2	5.6	5.6	5.6
	good/little	12	33.3	33.3	38.9
	very good/moderate	18	50.0	50.0	88.9
	excellent/high	4	11.1	11.1	100.0
	Total	36	100.0	100.0	

As it is indicated in the above table 5.6% respondent responded that they have fair identification of quality improvement area and implementation, 33.3% respondents responded that they have good identification of quality improvement area and implementation, 50% respondents responded that they have a very good identification of quality improvement area and implementation and the remaining 11.1% of respondents replies that they have an excellent identification of quality improvement area and implementation .This response attained 3.67 mean value which represent Companies have a very good identification of quality improvement area and implementation.

G. Understanding of Managers, quality head and supervisors organization on quality improvement concept

The table below shows Understanding of Managers, quality head and supervisors organization on quality improvement concept.

Understanding of Managers, quality head and supervisors organization on quality improvement concept

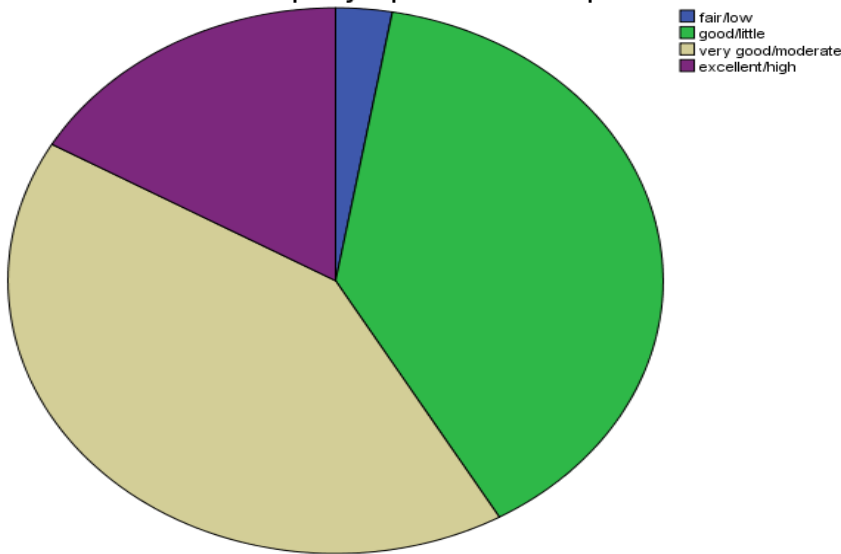


Figure 4-7 shows the understanding of quality *improvement*

As it is indicated in the above table 2.8% respondent responded that their organization have fair understanding in quality improvement concept, 38.9% respondents responded that they have good understanding in quality improvement concept, 41.7% respondents responded that they have a very good understanding in quality improvement concept and the remaining 16.7% of respondents replies that they have an excellent understanding in quality improvement concept .This response attained 3.72 mean value which represent Managers, quality head and supervisors organization have a very good understanding in quality improvement concept.

Step two; Top management commitment and leadership

A. Management commitment to quality improvement

The table below shows response of the respondent about management committed to quality improvement

Table 4-21 shows the managements of commitment in quality improvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	34	94.4	94.4	94.4
	no	2	5.6	5.6	100.0
	Total	36	100.0	100.0	

As it is indicated in the above table, almost the entire respondent responded that company's management is highly committed to quality improvement of final product.

B. Quality policy manual

The table below shows response of the respondent on company's having quality policy manual.

Table 4-22 shows the quality policy manual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	28	77.8	77.8	77.8
	no	8	22.2	22.2	100.0
	Total	36	100.0	100.0	

As it is specified in the above table, 77.8% of the respondent responded that they are agreed on companies have quality policy manual. While the rest 22.2% of the respondent responded that they are not agreed on having quality policy manual which

C. Quality improvement producer manual

The table below shows response of the respondent on company's having quality improvement producer manual

Table 4-23 shows the quality improvement producer manual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	28	77.8	77.8	77.8
	no	8	22.2	22.2	100.0
	Total	36	100.0	100.0	

As it is shown in the above table, 77.8% of the respondent responded that they are agreed on companies have a quality improvement producer manual. This helps companies in implementing quality improvement of their product. While the rest 22.2% of the respondent responded that they are not agreed on having quality improvement producer manual.

D. Responsibility and authorities of company staff

The table below shows response of the respondent on having defined responsibility and authorities of company’s staffs

Table 4-24 shows the responsibility and authorities of the company staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	31	86.1	86.1	86.1
	no	5	13.9	13.9	100.0
	Total	36	100.0	100.0	

As it is shown in the above table, 86.1% of the respondent responded that they are agreed on company’s staff have a defined responsibility and authorities. This helps companies to evaluating their employees. While the rest 13.9% of the respondent responded disagreed regarding the issue.

E. Creating communication and sustain quality improvement program

The table below shows response of the respondent on creating communication and sustain quality improvement program of the company’s.

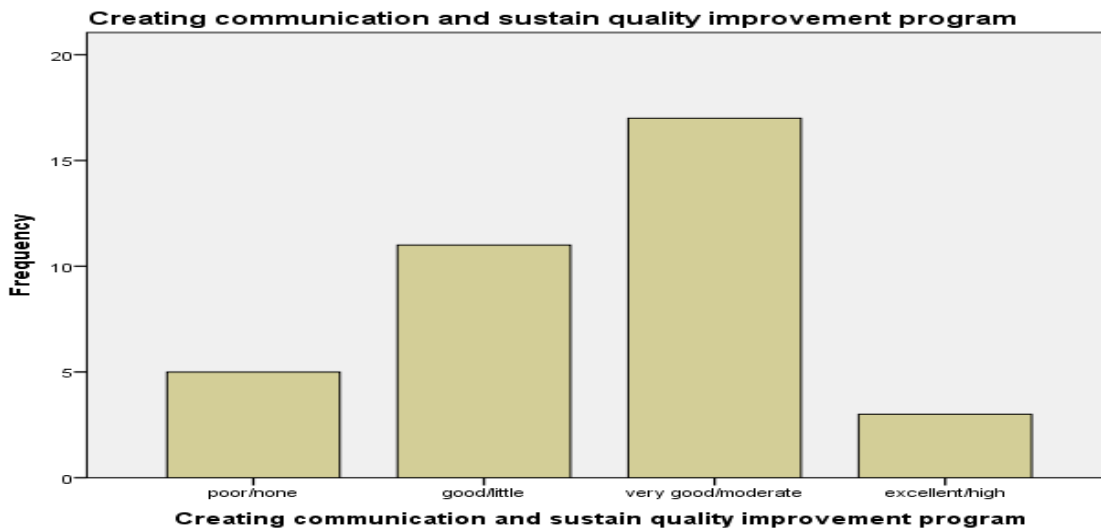


Figure 4-8 shows creating communication and sustain quality improvement program

As it is revealed in the above table, 13.9% of the respondents responded that there is poor communication with other stakeholder’s and poor in sustaining quality improvement programs,

30.6% of respondents replied that there is good communication with other stakeholder's and good in sustaining quality improvement programs, 47.2% of the respondents responded that there is a very good communication with other stakeholder's and a very good in sustaining quality improvement programs and the remaining 8.3% of the respondents responded that there is an excellent communication with other stakeholder's and an excellent in sustaining quality improvement programs. The response attains 3.36 mean values which imply that companies are good in communicating with stockholders and good in sustaining quality improvement programs.

F. Top management involves in improvement process and handling quality problems

The table below shows response of the respondent on involvement of top management in implementation, improvement process and handling quality problems.

Table 4-25 shows Top management involves in improvement process and handling quality problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	14	38.9	38.9	38.9
	very good/moderate	20	55.6	55.6	94.4
	excellent/high	2	5.6	5.6	100.0
	Total	36	100.0	100.0	

As it is showed in the above table, 38.9% of the respondents responded that there is good involvement of top management in implementation, improvement process and handling quality problems to increase profitability of the company, 55.6 of respondents replied that there is a very good involvement of top management in implementation, improvement process and handling quality problems to increase profitability of the company, and the remaining 5.6% of the respondents responded that there is an excellent involvement of top management in implementation, improvement process and handling quality problems to increase profitability of the company. The response attains 3.67 mean values which imply that there is a very good involvement of top management in implementation, improvement process and handling quality problems to increase profitability of the company.

G. Resource allocation for quality improvement activities

The table below shows response of the respondent on allocation of adequate resource (finance, time, equipment, and personnel) required for quality improvement activities by the company's

Table 4-26 shows Resource allocation for quality improvement activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good/little	13	36.1	36.1	36.1
	very good/moderate	21	58.3	58.3	94.4
	excellent/high	2	5.6	5.6	100.0
	Total	36	100.0	100.0	

As it is showed in the above table, 36.1% of the respondents responded that there is good allocation of adequate resource (finance, time, equipment, and personnel) required for quality improvement activities, 58.% of respondents replied that there is a very good allocation of adequate resource (finance, time, equipment, and personnel) required for quality improvement activities and the remaining 5.6% of the respondents responded that there is an excellent allocation of adequate resource (finance, time, equipment, and personnel) required for quality improvement activities. The response attains 3.5 mean values which imply that there is a very good allocation of adequate resource (finance, time, equipment, and personnel) required for quality improvement activities by the company.

A. Reviewing and evaluating performance of quality improvement

The table below shows response of the respondent on reviewing and evaluating performance of quality improvement by the company’s.

Table 4-27 shows Reviewing and evaluating performance of quality improvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	fair/low	1	2.8	2.8	2.8
	good/little	15	41.7	41.7	44.4
	very good/moderate	14	38.9	38.9	83.3
	excellent/high	6	16.7	16.7	100.0
	Total	36	100.0	100.0	

As it is showed in the above table, 2.8% of the respondents responded that there is poor reviewing and evaluation of performance undertaken to quality improvement, 41.7 of respondents replied that

there is good reviewing and evaluation of performance undertaken to quality improvement, 38.9% of the respondents responded that there is a very good reviewing and evaluation of performance undertaken to quality improvement and the remaining 16.7% respondents responded that there is an excellent reviewing and evaluation of performance undertaken to quality improvement. The response attains 3.43 mean value which implies that there is a good reviewing and evaluation of performance undertaken to quality improvement by the company.

B. Participation of employee in quality improvement practice

The table below shows response of the respondent on Participation of company’s employee in quality improvement practice

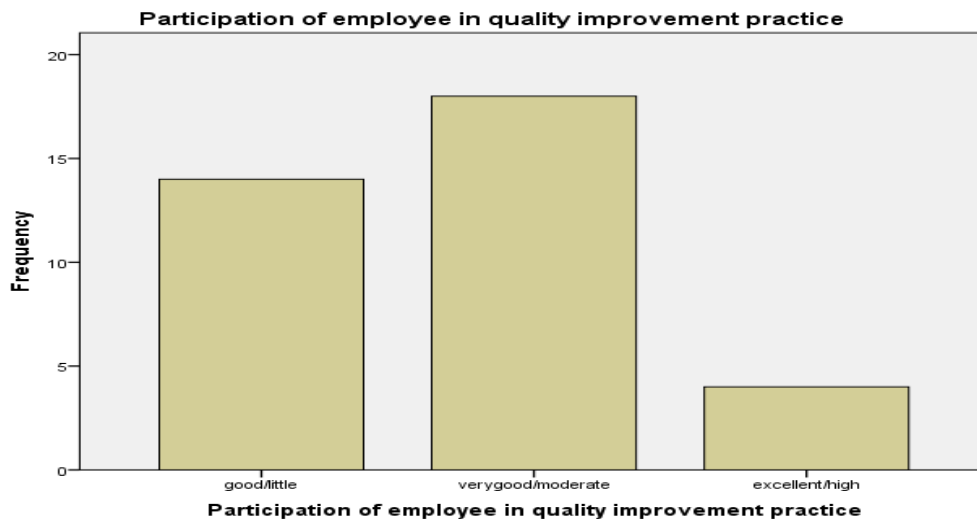


Figure 4-9 shows creating communication and sustain quality improvement program

As it is showed in the above table, 14% of the respondents responded that there is good Participation of company’s employee in quality improvement practice, 50% of respondents replied that there is a very good Participation of company’s employee in quality improvement practice and the remaining 11.1% of the respondents responded that there is an excellent Participation of company’s employee in quality improvement practice. The response attain 3.5 mean value which implies that there is a very good Participation of company’s employee in quality improvement practice

Step 3: Employee training and education

Company’s Employees skill should have to be to develop to produce quality and competent product. Employee training and education are discussed below

Table 4-28 shows Employee training and education

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
employees in the company are frequently trained on quality management	36	3.92	0.649	0.108
Training is given for developing team spirit?	36	3.75	0.604	0.101
Training is given on new on new technology or equipment, method, system or procedure?	36	3.81	0.749	0.125
Training is given for specific work skill (technical and vocational given to employee throughout the company?)	36	3.64	0.593	0.099
Training is given in problem identification and problem-solving skill?	36	3.75	0.649	0.108
Training courses is given for employee in quality improvement skill technique?	36	3.89	0.785	0.131

According to the result of the questionnaire assessment (which is provided in the above table), Training for quality management were firstly ranked training which is provided to employees with a mean value of 3.92. Training for quality improvement skill technique was secondly ranked training which is given to employees mean value of 3.89. Training for new technology was third ranked training which is given to employees mean value 3.81. Training for developing team spirit and for problem identification and problem-solving skill were third ranked training which is given to employees mean value 3.75. Training is given for specific work were list ranked training which is given to employees mean value 3.64.

Step 4: Continues on quality improvement

There are many methods to improve quality of product. Company's methods of improving quality are discussed below

Table 4-29 shows Continues on quality improvement

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
identifies areas for quality improvement and implements them frequently	36	3.78	.681	.113
The company use standard and documented operating procedures and manuals?	36	3.58	.649	.108
The company concentrates on ongoing quality improvement of personnel by establishing extensive training and education programs?	36	3.78	.637	.106
The company identifies service defects, fined the root cause in the diagnosis of problems and ensures such faults do not occur in the future?	36	3.89	.708	.118

According to the result of the questionnaire assessment (which is provided in the above table) identifies service defects, find the root cause in the diagnosis of problems and ensures such faults do not occur in the future is firstly ranked advised method for improving quality of product with a mean value of 3.89 . Identifies areas for quality improvement and implements them frequently and concentrates on ongoing quality improvement of personnel by establishing extensive training and education programs are secondly advised method for improving quality of product with a mean value of 3.78 each. Use standard and documented operating procedures and manuals is the list advised method for improving quality of product with a mean value of 3.58.

Step 5: Company's quality improvement system and practice

Evaluation of quality improvement implementation by the companies are discussed below

Table 4-30 shows Company's quality improvement system and practice

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Setting quality standards for roasted coffee production process?	36	3.81	0.668	0.111
Setting institutional structure and responsibility for quality improvement?	36	3.72	0.615	0.102
Providing guideline, procedures of roasting profile and support to the production staff to ensure quality of the products	36	3.94	0.674	0.112
Building quality culture and shared value across department?	36	3.81	0.525	0.087
measure the quality of the roasted coffee in every second of batch , such (analyzing the roast level of temperature like light roast, medium roast, dark roast	36	3.83	0.737	0.123

According to the result of the questionnaire assessment (which is provided in the above table) providing guideline, procedures of roasting profile and support to the production staff to ensure quality of the products were the first evaluation state art in implementing quality improvement in the company with a mean value of 3.94. Measuring the quality of the roasted coffee in every second of batch , such (analyzing the roast level of temperature like light roast, medium roast, dark roast products were the second evaluation state art in implementing quality improvement in the company with a mean value of 3.83. Setting quality standards for roasted coffee production process and Building quality culture and shared value across department were the third evaluation state art in implementing quality improvement in the company with a mean value of 3.81each. Setting

institutional structure and responsibility for quality improvement were the last evaluation state art in implementing quality improvement in the company with a mean value of 3.72each.

Step: 6 Quality improvement management methods for the production control

Follow quality improvement management method for production control by the companies are discussed below

Table 4-31 shows Quality improvement management methods for the production control

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
1, plan-do-check-act	36	3.92	0.692	0.115
Proper production process such pre-reception during roasting process, man power, and measurement material	36	3.83	0.737	0.123
Clean and maintain coffee roasting equipment's	36	3.92	0.732	0.122
Using the right amount of green coffee to roast with the minimum amount of the roaster machine	36	3.94	0.630	0.105
,Controlling the temperature during roasting such factor of problem the backing; slow roasting, fast roasting and the combination method	36	3.97	0.774	0.129
Check the green coffee which is natural processed, washed, honey processed and analysis the defects of the green coffee before roasting	36	3.86	0.762	0.127
There is well known person /body that controlling the quality of roasting coffee and recording all the parameter of the process and be well documented	36	3.94	0.754	0.126

According to the result of the questionnaire assessment (which is provided in the above table) ,Controlling the temperature during roasting such factor of problem the backing; slow roasting, fast roasting and the combination method were the first ranked quality improvement management method for production control following by the company's with a mean value of 3.97 . Using the right amount of green coffee to roast with the minimum amount of the roaster machine and There is well known person /body that controlling the quality of roasting coffee and recording all the parameter of the process and be well documented method were the secondly ranked quality improvement management method for production control following by the company's with a mean value of 3.94 each. Plan-do-check-act and Clean and maintain coffee roasting equipment's were the thirdly ranked quality improvement management method for production control following by the company's with a mean value of 3.92 each. Check the green coffee which is natural processed, washed, honey processed and analysis the defects of the green coffee before roasting were the fourthly ranked quality improvement management method for production control following by the company's with a mean value of 3.86. Proper production process such pre-reception during roasting process, man power, and measurement material were the last ranked quality improvement management method for production control following by the company's with a mean value of 3.83.

4.7 Summary of Major Finding

4.7.1 Customer view

When it comes to understanding and awareness on quality improvement, 3.59 mean values was attained which implies that companies have good understanding and awareness on the concept of quality improvement. While the question if the company has any method to regularly measure the customer's satisfaction and need, more than 80% responded that the Company regularly measures their satisfaction and need in addition 90% customer responded that their opinion is seriously considered. Also, more than 70% stated that the company strictly considers customer's complaints and responds as quickly and positively as possible.

This result was achieved by the company because it had a well-established communication channel to communicate with company representative more than 80% customers respondents are testament to that. With regard to the company being in a good position in providing quality roasted coffee more than 90% gave positive feedback. In addition, the price of coffee was acceptable by customers in relation to the quality they are getting.

4.7.2 Supplier view

from the total survey 50% of the respondent replied companies have good/little understanding and awareness on the concept of quality improvement and the other 50% of the respondent replied companies has Very good/moderate understanding and awareness on quality improvement. The respondent response in company understands and awareness on the concept of quality improvement attained 3.5 mean values, which implies that companies have a very good understanding and awareness on the concept of quality improvement. In general quality improvement management scores 3.25 mean values which implies that companies have a very good quality improvement management to produce best product to its customer. More than half of the respondents replied that there is relatively good belief in quality improvement. This implies that the company has a good belief in quality improvement. Level of role and degree of participation in quality actives attained 3.5 mean values;

The companies have a very good understanding of their costumer need; this helps companies to produce the required product for their customers. There is an effort in finding critical point and solving quality problems requires costumer need assessment. Consideration of costumer need helps find critical point to solve quality problems. The respondent responded that their company has quality objective to improve quality of product. This helps them to be competent with other company and to attract new costumer. Quality improvement polices are sated strategies in improving quality of product. Setting quality objective direct to improve quality and help supplier to deliver consistent quality of product.

Developing trust between suppliers and customer helps to sustain business. Half of the respondent responded that they have a very good trust with their Costumer need assessment helps to identify required product by costumer. Which helps suppliers to produce required products, half of the respondent responded that management of their company have a very good effort in identifying costumer need to deliver best quality product, this response attained 3.5 mean value which represent companies have a very good effort in identifying costumer need to deliver best quality

Some of the Challenges company's facing while distributing raw coffee to their customers are, a smaller number of farmers produce the high quality of raw coffee and determining the defects of green coffee and solving the problem were firstly challenges by suppliers with a mean value of 3.75 each. Analyzing the visual inspection of green coffee challenges by suppliers with a mean value of

3.25 each. Following the quality standard of raw coffee and depending on that grading the coffee with its standard were the list frequently faced challenges with a mean value of 2.75.

4.7.3 Top management, quality head, supervision and others Company's customer response

Quality concept

The Company's management, quality head and supervisors have understanding and awareness on quality improvement. Participation on quality actively, understanding quality required by customer aids in identifying of quality improvement area and method of implementation. Organizational understanding of quality improvement concept having quality policy manual.

Helps companies in implementing quality improvement of their product. Having a structured company's staff and defined responsibility and authorities. This helps companies to evaluate their employees. In addition, creating communication and sustain quality improvement program. Communicating with stockholders, top management in implementation, improvement process and handling quality problems to increase profitability of the company, also Participation of company's employee in quality improvement practice

Employees' skill should be updated to produce quality and competent product. Some of the Training given is for quality management, quality improvement skill technique, new technology, developing team spirit, problem identification, problem-solving skill in addition training is given for specific work. Good allocation of adequate resource (finance, time, equipment, and personnel) required for quality improvement activities,

Finding root cause in the diagnosis of problems and ensuring such faults do not occur in the. Identifying areas for quality improvement and implements them frequently and concentrates on ongoing quality improvement of personnel by establishing extensive training and education programs are Using standard and documented operating procedures and manuals is the list advised method for improving quality of product.

Quality improvement implementation according to the result of the questionnaire assessment providing guideline, procedures of roasting profile and support to the production staff to ensure quality of the products is the first evaluation state art in implementing quality improvement in the company. Quality of the roasted coffee in every second of batch. Setting quality standards for roasted coffee production process and Building quality culture and shared value across department institutional structure and responsibility for quality improvement in the company.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

From the result of the finding and the questionnaires assessment which are presented in the previous chapters, this specific study has drawn the following major conclusions. The understanding and awareness level of the companies' staff on the concept of quality improvement aspect of roasted coffee quality, customer need and satisfaction level, appropriate quality improvement technique, and communication channel with customer is considerably by customer is high. Suppliers are highly encouraged by the companies to actively participate in the quality improvement practices. The companies make considerable efforts in finding critical path and solve quality problems.

Major challenges of the companies face while implementing the quality improvement practice are: the relatively less numbers of suppliers which produce and supply high quality raw coffee inability to identify and determine the cause of the defects on the green coffee. Supplier Poor quality cleanings practice adopted by the companies to inspect the quality of the roasted coffee. Top management encourages employee participation in quality improvement activities and evaluating the performance of the overall functioning. To develop team spirit, employees in the companies are regularly trained in quality management to enhance the problem-solving skill, for the companies, top management commit adequate resource required for training and education and establish mechanism that facilitates the quality improvement and production process.

Top managements of the companies are highly committed to the quality improvement tasks and for this they have prepared quality policy manuals and quality improvement production manuals, as well. Top management of the companies make considerable effort to create communication channel and to sustain clear vision, mission, goal and policy concerning quality improvement program. The company's management strongly wish for apply some methods of quality improvement like: needs assessment and implementing program in implementing the quality improvement, need institutional self-assessment in quality improvement practice, need potential examiner, need the empowerment of employee through the knowledge of quality improvement activity in roasted coffee process.

The companies should also give aloe attention to consistently prioritizing consistency in the roasting process tend to produce higher quality of roasted coffee. The companies are highly advised to

develop a mechanism to identify the Cause and defect that reduce the quality and raw coffee beans. This can be done with experts or professionals in this regard. The companies are also advised to apply a state of the art mechanism and checking the quality of the raw coffee.

5.2 Recommendations

As it has been indicated in section 5.1 the companies adopted and applied most of the profound and found roasted coffee quality improvement practice. However, this specific study would like to recommend on some areas of the quality improvement practice that actually need further improvement these are:

- ✓ The companies had better start with high-quality green coffee beans. This is because the quality of the final product will depend heavily on the quality of the green coffee beans they use, so it would be better to invest in reputable supplier and take time to evaluate each batch before roasting.
- ✓ The companies should also develop a consistent roast profile keep detailed records of the roasting process, including temperature, time and other variables. They should also use this data to develop a consistent roast profile that produces balanced, flavorful coffee and adjust the profile as needed to improve quality.
- ✓ The companies should also use a cupping profile to evaluate the quality of roasted coffee. This would help them to assess the roasted coffee flavor, aroma and other characteristics objectively. Regularly cupping the coffee can help to identify areas for improvement and track progress over time.
- ✓ The companies' quality improvement staff should engage in ongoing education and experimentation. This can be by attending coffee conferences, by going a roasting industries, or take classes to stay current with industry trends and best practice, it is also better to experiment with different roast profiles, brewing methods and coffee origins to expand knowledge and improve skill the quality department staff.
- ✓ Their practice of soliciting feedback from customers and peels regularly feeling out feedback from customer and other roasted coffee professionals helps to identify areas for improvement and this influence assist to refine the roasting process and create coffee that meets or exceeds expectation.

- ✓ The companies should also give a due attention to consistency prioritize consistency in the roasting process tends to produce higher quality of roasted coffee products
- ✓ The companies are highly advised to develop a mechanism to identify the causes and defects that reduce the quality of raw coffee beans. This can be done with experts or professionals in the regard
- ✓ The companies are also advised to apply a state -of -the art mechanism and checking the quality of the raw coffee.
- ✓ The companies also should establish a better communication channel that can effectively allow the flow of relevant information among customer, supplier and competing companies.

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S.t Mary's university

School of graduate studies

Facility of quality and productivity management department



Practice and challenges of quality improvement in coffee roasting

: In case of mélange coffee and Eliana coffee rosters

Introduction; This questionnaire is designated to collect relevant information about your view on the system and the practice of quality improvement of coffee roasting in your factory in particular and the company in general. I guarantee you; the organization and individual respondent that the information gathered through this questionnaire will only be used for data analysis and to draw technical recommendation about the organization and your response to the items of the questionnaire will remain confidential and the result will be used to examine the existing quality practice system and practical at the companies. We hope you will be able to take time and carefully complete this questionnaire. Please briny state your response for the open ended items

APPENDIX -1

QUESTIONNAIRE FOR SUPPLIERS

Section 1: general information

Instruction; please indicate your answer by making a "√" on the space provide.

Your personal data (it is not necessary to write your Name!)

Gender

Male

female

Age respondent

20 to 30 years

31 to 40years

Above 40 years

Education status

High school

diploma

Bachelor's degree

master's degree and above

Position held (like manager, quality control head, supervisor etc...)

Experience year in partnership in the company?

Less than 5 years

10 years to 15 years

5 years to 9 years

above 16 years

Rate the following question as follows (where applicable in your company)

5= Excellent/high

4= very good/moderate

3= good /little

2= fair/low

1=poor/none

Give short or brief answer for subjective question.

PART 1

<i>1.</i> <i>NONO</i>	QUALITY CONCEPT	RATING				
		5	4	3	2	1
<i>1</i>	How is the quality improvement awareness level in the company?					
<i>2</i>	Does your company believe in quality improvement?					
<i>3</i>	How high is your role and participation in quality activities?					
<i>4</i>	How the companies understand the customer need with the relation in quality?					
<i>5</i>	Does the company have quality objective?					
<i>6</i>	Does the company find the critical point and solve the quality problem					

PART 2

<i>NO</i>	QUALITY IMPROVEMENT MANAGEMENT	RATING				
		5	4	3	2	1
<i>1</i>	Does the company have a quality improvement policy?					
<i>2</i>	Is there trust between the company and customer?					
<i>3</i>	Does the management identify the customer need to their performance					
<i>4</i>	The company offers closer and long-term work with customer who adopt quality improvement relationship					

PART 3

QUALITY EVALUATION						
Your organization distributes a raw coffee, so what are the major challenges are your organization is facing regarding to quality relation?						
NO		RATING				
		5	4	3	2	1
1	Undesirable storage of green coffee?					
2	Less awareness in quality and standard of raw coffee?					
3	Environmental factor which affects raw coffee during distribution such humidity /moisture, dusts, insects, pests					
4	Seasonal factors in less availability of the desired raw coffee quality?					
5	Less number of farmers which produce the4 high quality of raw coffee?					

. How do you personally evaluate the quality of green coffee as supplier determinants?						
NO		RATING				
		5	4	3	2	1
1	Check the quality processing method of raw coffee such (washed and unwashed)					
2	Analyzing the visual inspection green coffee					
3	Determining the defects of green coffee and solving the problem					
4	Following the quality standard of raw coffee and depending on that grading the coffee with its standard					

How do you evaluate the strength and opportunity to distribute the quality of green coffee to your customer?						
NO		bad	Not bad	good	Very good	Excellent
1	Strength					
2	Opportunity					

4. How do your company rate in managing the harvested green coffee that affected by (defects, paste. rodent, fungi) which destroy or ruin the quality of green coffee beans	RATING				
	5	4	3	2	1

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APPENDEX -2

QUESTIONNAIRES FOR, MANAGMENTS, QUALITY HEAD AND SUPERVAISOR,

Section 2: general information

Instruction; please indicate your answer by making a”√ “on the space provide.

Your personal data (it is not necessary to write your Name!)

Gender

Male

female

Age respondent

20 to 30 years

31 to 40years

Above 40 years

Education status

High school

diploma

Bachelor’s degree

master’s degree and above

Position held (like manager, quality control head, supervisor etc...)

Experience in year

Less than 5 years

10 years to 15 years

5 years to 9 years

above 16 year

Rate the following question as follows (where applicable in your company)

5= Excellent/high

4= very good/moderate

3= good /little

2= fair/low

1=poor/none

Part 1

NO	QUALITY CONCEPT	RATING				
		5	4	3	2	1
1	How is the quality improvement awareness level in the company?					
2	How high is your role and participation in quality improvement activity?					
3	How the companies understand the customer's definition of quality and try to achieve?					
4	Does the company have quality improvement objectives?					
5	Does the company recognize and solve the quality related problems?					
6	The company identifies area for quality improvement and implement them frequently					
7	To what extent does your organization understands the concept of quality improvement?					

Part 2

NO	TOP MANAGEMENT COMITMENT AND LIDERSHIP	RATING	
		YES	NO
1	Is the top management committed to the quality improvement?		
2	Does the company have the quality policy manual?		
3	Does the company have a quality improvement producer manual?		
4	Are the responsibility and authorities of all the company staff defend?		

NO	CONTI.....	RATING				
		5	4	3	2	1
1	Top management creates communication and sustains clear vision, mission, goal and policy concerning quality improvement program?					
2	Top management involves in implementation, improvement process and handling quality problems as a way to increase profit?					
3	Top management in your company allocate adequate resource (finance, time, equipment and people) required for quality improvement activities?					

4	Top management reviews and evaluate the performance of quality improvement functioning?					
5	Top management encourages employee to participate in quality improvement concept and skill?					

Part 3

NO	EMPLOYEE TRAINING AND EDUCATION	RATING				
		5	4	3	2	1
1	Employees in the company are frequently trained on quality management?					
2	Training is given for developing team spirit?					
3	Training is given on new technology or equipment, method, system or procedure?					
4	Training is given for specific work skill (technical and vocational given to employee throughout the company)?					
5	Training is given in problem identification and problem-solving skill					
6	Training courses is given for employee in quality improvement skill technique?					
7	Top management has committed adequate resource for employee training and education?					

Part 4

NO	CONTINUOUS ON QUALITY IMPROVEMENT	RATING				
		5	4	3	2	1
1	The company identifies areas for quality improvement and implements them frequently?					
2	The company use standardized and documented operating procedures and manuals?					
3	The company concentrates on ongoing quality improvement of personnel by establishing extensive training and education programs.					
4	The company identifies service defects, find the root cause in the diagnosis of problems and ensures such faults do not occur in the future					

Part 5

NO	QUALITY IMPROVEMENT SYSTEM AND PRACTICE	RATING				
	How do you evaluate the state art of implementing the quality improvement in your company?	5	4	3	2	1
1	By setting quality standards for roasted coffee production process					
2	By setting institutional structure and responsibility for quality improvement					
3	Providing guideline, procedures of roasting profile and support to the production stuff to ensure quality of the products.					
4	Building quality culture and shared value across departments					
5	Measure the quality of the roasted coffee in every second of batch .such(analyzing the roast level temperature like light roast, medium roast, dark roast ,Moisture level, body, cupping					

NO	Does your organization follow one or more quality improvement management method for the production process control?	RATING				
		5	4	3	2	1
1	Plan-do-check –act?					
2	Proper production processes such pre-reception during roasting process, man power, and measurement material					
3	A solution to immediately for a problems (decision make					
4	Clean and maintain coffee roasting equipment’s?					
5	Using the right amount of green coffee to roast with the minimum amount of the roaster machine?					
7	Controlling the temperature during roasting such factor of problem the backing; slow roasting, fast roasting and the combination method?					
8	Check the green coffee which is natural processed, washed, honey processed and analysis the defects of the green coffee before roasting?					
7	There is well known person /body that controlling the quality of roasting coffee and recording all the parameter of the process and be well documented					

8. Do you think that the requirements of the quality improvement system set by the roasted coffee products are acceptable and implementable in the context of your organization?

Yes ,

how _____

No

NO	Does your organization need one or more of the following method of quality improvement?	RATING				
		YES	NO			
1	Need assessment program in implementing the quality improvement?					
2	Need institutional self-assessment in quality improvement activities?					
3	Need external examiner/auditor of quality controller?					
4	Need the empowerment of employee through the knowledge of quality improvement activity in roasted coffee process?					
NO	How level is the following quality improvement area implemented in your organization?	RATING				
		5	4	3	2	1
1	Institutional mission to the product of quality standard?					
2	Proper management to quality improvement through the organizational quality standard					
3	A standard quality product of roasted coffee which supports customer service essential?					
4	Proper Quality improvement process flow chart for roasted coffee production?					
5	Proper laboratory equipment in controlling the standards of the roasted coffee products?					

APPENDEX -3

QUESTIONNAIRES FOR, CUSTOMERS,

Section 3; general information

Instruction; please indicate your answer by making a "✓" on the space provide.

Your personal data (it is not necessary to write your Name!)

Gender

Male

female

Age respondent

20 to 30 years

31 to 40years

Above 40 years

Education status

High school

diploma

Bachelor's degree

master's degree and above

Position held (like manager, quality control head, supervisor etc...)

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5 years to 9 years

above 16 year

Rate the following question as follows (where applicable in your company)

5= Excellent/high

4= very good/moderate

3= good /little

2= fair/low

1=poor/none

Part 1

NO	QUALITY CONCEPT	RATING				
		5	4	3	2	1
1	How level is your understanding on the concept of quality improvement?					
2	How do you give the company extent level of roasted coffee quality					

Part 2

NO	CUSTOMER FOCUS	RATING	
		YES	NO
1	.Does the company regularly measure customers 'need and satisfaction?		
2	Does the company take customers opinion and suggestion seriously?		
3	D Does the company focus on customer compliant handling quickly and Positively		
4	They have a well-established communication channel with their customer, allowing customers to seek help and information or to make a complaint?		
5	How do you level the company's correlation between the price of coffee and its quality		
6	How do you level the company's commitment to share about the product information		

Reliability test result

Top management reliability taste

Quality concept related factor

Reliability Statistics	
Cronbach's Alpha	N of Items
.911	7

Top management commitment leadership related factor

Reliability Statistics	
Cronbach's Alpha	N of Items
.840	9

Employee training and education

Reliability Statistics	
Cronbach's Alpha	N of Items
.788	7

Quality improvement system and practice

Reliability Statistics	
Cronbach's Alpha	N of Items
.858	14

The rest of the questionnaires

Reliability Statistics	
Cronbach's Alpha	N of Items
.849	9

Customer questionnaires' reliability taste

Quality concept and customer focus

Reliability Statistics	
Cronbach's Alpha	N of Items
.878	8

C. Supplier questionnaires' reliability taste

1. Quality concept

Reliability Statistics	
Cronbach's Alpha	N of Items
.800	6

Quality improvement

Reliability Statistics	
Cronbach's Alpha	N of Items
.889	4

Quality evaluation

Reliability Statistics	
Cronbach's Alpha	N of Items
.792	11