KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF SCIENCE

EVALUATION OF QUALITY MANAGEMENT SYSTEM FOR AN ALCOHOLIC BEVERAGE INDUSTRY

A THESIS SUBMITTED TO THE DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FOOD QUALITY MANAGEMENT

BY

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CERTIFICATION PAGE

I hereby declare that this submission is my own work and that, to the best of my knowledge, it contains no material previously published by another person or material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made.

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ABSTRACT

The QMS of an alcoholic beverage industry was evaluated using a local company as a case study. The research assessed the knowledge of management on the benefits of implementing a QMS. A survey was used as the means for carrying out the study. Data was collected as a means of oral interviews and multiple response questionnaires. The company has a Quality Assurance System based on quality control, process monitoring and end product testing. The system however does not entirely conform to the requirements of ISO 9000: 2005 and ISO 9004:2009. Management commitment is demonstrated in resource provision and training of staff. Management review of quality is not done. The Company's QA system which is an aspect of QMS is maintained in accordance with best industry practice. The company has a quality manual and documented standard operating procedures (SOP) to promote due diligence in its operational activities. The generation of documents was well under control. These documents are fully supported by the completion of records for planned activities, maintenance and verification. The company conducts end product testing based on the Codex Alimentarius guidelines aimed at assessing the quality and safety level of finished product prior to distribution. Traceability systems have been established and maintained. Non-conforming products are either discarded or reworked based on an internal SOP. With regards to knowledge assessment of managers, majority of the respondents (90%) attribute quality to high cost. Three major barriers or challenges facing the implementation of quality management systems are lack of expertise/resources in quality management system, tendency to cure symptom rather than get to the root cause of a problem and rigid attitude of executive management towards quality. Management however appreciates that the implementation of an auditable QMS will benefit the company in a competitive environment as the company strives to enter the international market. It is recommended that some financial inputs be made to improve their QMS and staff training.

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LIST OF ABBREVIATIONS

GMP:	Good manufacturing practices
HACCP:	Hazard Analysis and Critical Control Points
ISO:	International Standardization Organisation
QA:	Quality Assurance
QMS:	Quality Management System
SOP:	Standard Operation Procedures

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DEDICATION

This Thesis is dedicated to my sweet wife Lily Adjeley Quaye and my lovely children Lynelle, Leonel and Linden.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

The Ghanaian alcoholic beverage industry has been growing steadily over the past few years with corresponding increase in alcoholic beverages sold on the market. This trend is expected to continue over the coming years. Many people normally judge the quality of an alcoholic product based on its superiority in terms of brand and the consistency of the manufacturer. Some may also relate quality to defects in manufacturing services. To satisfy customer demands, alcoholic industries in Ghana have to maintain consistency in the quality of their products, and this may be done by implementing quality management systems. A quality management system is a management approach that reaps long term benefits from customer satisfaction. All members of an organization participate in refining the processes, products, services and the culture in which they work in their total quality management effort (Hoyle, 2007).

Developed countries encourage or mandate corporate businesses to adopt quality systems in their operation. Such requirements place a responsibility on them to implement a number of international standards of quality and safety not only on local producers, but even more so on companies in developing countries who wish to gain access to such markets.

Implementing a quality management system benefits the company and its staff, customers and the society at large. Benefits to the company includes maintaining and expanding markets, improving company efficiency and minimizing waste, scrap and rework. Customers and users benefit by receiving products and services that are conforming to legal requirements, dependable, reliable, maintainable and available

when needed. Society may benefit from the implementation of quality management systems by the ensuing improved health and safety as well as reduced environmental impact.

1.2 Problem Statement

Concerns have been raised about the safety and quality of food including alcoholic beverages available on the market for consumption by governments, businesses and consumers all over the world due to problems in processing. For countries such as Ghana, where such constraints in processing are more severe, the quality and safety of foods is an even greater concern, especially the growing alcoholic beverage industry. Low levels of technology and lack of the evidence of the implementation of quality assurance principles places doubts in the minds of consumers as to whether or not the products they buy are safe. So far, there is no proven report of the implementation of quality management systems in the alcoholic beverage industry or the level to which they are implemented.

1.3 Justification of the Study

The results of the study will serve as reference material for researchers and others who would pursue future studies in total quality management in the alcoholic beverage industry. It will help them to appreciate the various principles, concepts, measurements, strategies and systems involved in the development of the total quality management process.

Smaller alcoholic beverage companies may also learn from the leading producer used as a case study, by directly copying or modifying the quality processes they implement. Depending on the results obtained the alcoholic beverage industry used for the case study (*Kasapreko* Company Limited) may enhance their international recognition as well as recognize the way in which to improve their quality management system. In

total this study would bring to light the state of the implementation of quality management systems in the alcoholic beverage industry and give stakeholders such as consumers, manufacturers and regulatory bodies an idea as to whether to maintain or improve it.

1.4.1 Main Objective

To evaluate the level of implementation of quality management system for an alcoholic beverage industry using a leading producer as case study.

1.4.2 Specific Objectives

- To assess the knowledge and perception of employees on quality management system
- To audit the quality management system in the company

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 What is Quality?

The meaning of quality has changed over the years. It has become broader and involved more concepts than before. Previous definitions were narrower; they stressed correct target uniformity, excellence in products which is measured in terms of specifications which need to be met within a certain range of tolerance and requirement conformity (Crosby, 1980; Kramer and Twigg, 1962; Deming, 1986). In recent times, the definition

of quality has been seen to be broader than the former. It now includes fitness of purpose, product excellence (appearance, nutritional content, taste and relevant characteristics to consumer acceptance (Portter and Hotchkiss, 1995).

2.2 Quality Management

Quality, when measured in terms of service quality is considered a major concern in management literature. The strategic plans of many organizations have recognized quality as a pivotal point for success (Skalpe and Sandvik, 2002). As emphasized by Pallet *et al.* (2003), in order to have a systematic approach to quality, vision, initiation, plan, delivery and maintenance must be considered. Management is defined as a process of directing a structure of functions that utilize scarce resources to achieve specified targets for an organization (Hayman, 1994).

In the words of Ho and Fung (1994), about 80 % of quality problems are due to management issues while 20 % is due to issues related to employees. For quality to have an effective and effectual progress in the organization, it must be a shared responsibility between management and employees (Oakland, 2003). It must therefore be a concern for management (Lindoe and Olsen, 2004).

According to Munro-Faure and Munro-Faure (1992), there is no clear definition of quality although various definitions abound in literature. Additionally, Lockyer *et al.* (1991) asserted that product quality is a consideration of an organization's status which normally leads to success; for the organization and its employees. Quality is the hallmark of every successful company or organization (McIlveen, 1994). Moreover, Gendron and Burlingham (1989) stated that in order to save time and cost, it is crucially important to produce quality products especially for the first time. It is better than returning products for correction and repair. This makes the cost of poor quality products an issue which can exceed the cost of developing the product itself (Wyckoff,

2001). In a rare estimation, it is said that the cost of poor quality could account for about 20 % of the gross profit in a manufacturing industry. For a service industry, it could account for about 30 % (Skalpe and Sadvik, 2002).

According to Hayman (1994), the definition of quality management is that aspect of the overall management function that determines and implements the quality policy. A quality management system must emphasize clear principles and measures that are consistent to the levels of quality expected and achieved. Waller (1999) explained in certain terms that quality management involves a systematic planning of all operational activities, techniques and procedures of the organisation. As stated earlier by Hofmann and Geiger (1995), the various elements of the quality system must be clearly defined and well-managed by the operators. Within the organisation, the definition of quality must hinge on valid, relevant, specific, reliable, measureable indicators which can also be understood by all people in the operation (Waller, 1999). Soriano (1999) emphasized that, in terms of relativity, every organization has the right to define quality in its own way according to the type of product and service and customers' demands.

According to Thiagarajan and Zairi (1997b), every quality management programme must include two key features;

- Hard (quantifiable production techniques) Soft (qualitative production techniques).

The hard aspects of the management programme include features such as total quality control, just-in-time production and task-based teamwork. The soft aspects of the management programme include features such as customer satisfaction, cultural change, continuous improvement and the use of the human resource to establish commitment to quality (Thiagarajan and Zairi, 1997).

To develop a comprehensive quality management system, Hayman (1994) suggested ten key operational elements that should be included. They are as follows:

- Establish a culture of quality
- Develop a team orientation;
- Develop leadership skills;
- Develop customer-driven policies and procedures;
- Set standards;
- Develop human resources;
- Plan for quality;
- Build systems to measure achievements; Evaluate performance to improve performance;
- Build reward and recognition systems.

The process of quality management involves all the activities that organizational managers carry out in order to implement their policy towards quality. These measures include quality planning, quality control, quality assurance and quality improvement (Praxiom Research Group, 2005). King and Cichy (2006) asserted that there is no right or wrong way to achieve quality. In their assertion, they identified three common threads for every organisation that wishes to excel in the area of management and improvement in quality. They are;

- Leadership by top management,
- A view that quality is long-term process,
- A passion for gathering and acting on feedback from customers.

2.3 Quality Assurance Systems in the Food Sector

The most common quality assurance systems that are operating in the Agro-Food industry are Good Manufacturing Practice (GMP), Hazard Analysis of Critical Control Points (HACCP), and the International Standards Organization (ISO) series. Good Manufacturing Practice and Good Hygiene Practice are linked.

There are ten different principles in Good Manufacturing Practice that introduce employees to certain critical behaviors in order to maintain good manufacturing practices in plants (WFP, 2008).

Good Hygiene Practice is a subset of Good Manufacturing Practice. It refers to the procedures that must be undertaken. It also involves the hygienic conditions that have to be fulfilled to guarantee food safety. It also has to be monitored at all stages of production. Good Hygiene Practice refers to all the actions that must be undertaken to ensure that production of food and the wrapping of food materials is executed in a proper way to guarantee safe end products and safe food for human consumption (Knaflewska and Pospiech, 2007).

2.3.1 Benefits of Quality Management Systems

With the implementation of Quality Management System, the company stands a chance of achieving its Project Scope, Customer Satisfaction, Consistent products, Increase production, minimizing re-work, increasing financial performance, Increase its market share and Improvement in internal communication (IOWA state university, 2002)

2.3.2 HACCP

Hazard Analysis of Critical Control Point (HACCP) is a food safety programme that was developed for National Aeronautics and Space Administration (NASA) about 30 years ago. It is based on regulations of the United Nations *Codex Alimentarius Commission* (CAC) (Sperber 1998). It was done to ensure the safety of food products

that were to be used by the astronauts in the space programme (WFP, 2008). It is a systematic approach which identifies, evaluates and controls the steps that are used in manufacturing food. It is a critical case for product safety (Trienekens and Zuurbier, 2008). It is used to identify risks involved in the production processes which can lead to the design and measurement of unsafe products. At the end, risk is reduced to the barest minimum (FAO, 1998).

The system is used to establish process control through identifying the points in the production process that are most critical to monitor and control the system. Its preventative focus is seen as a more cost effective method than testing a product and then destroying it. The system can be used as an application tool to control any stage in the food system. It is designed to provide adequate feedback to direct corrective activities (ICMSF, 1988).

HACCP is guided by seven principles. They are as follows;

1. **Conduct hazard analysis and risk assessment**: The implication of this principle is that it identifies and assesses threats and hazards that are likely to occur and determine control measures. To conduct the hazard analysis and risk assessment, make a list of the potential hazards at each step of operations; from the receipt of raw materials to the release of the finished product. All the potential hazards must be considered and controlled if it is likely to occur and result in unacceptable level. Examples of control measures are time and temperature control, heating and cooking of food, cooling and freezing, fermentation and pH control, addition of salt or other preservatives, drying and source control (Keskin and Gulsunoglu, 2012).

2. **Identify Critical Control Points**: Critical control point refers to a point, step or procedure in food preparation at which control can be applied. It is essential to prevent or eliminate food safety hazard. Critical control points are process specific and they may change with difference in plant layout, formulation, process flow, equipment, ingredient selection, and sanitation and support programmes. The critical control points are; cleaning, reheating, hot/cold holding, cooking, mixing, cooling and cross contamination (Keskin and Gulsunoglu, 2012).

3. **Establish Critical Limits**: A critical limit is a maximum and / or minimum value to which biological, chemical or physical parameters must be controlled at a critical control point in order to prevent, eliminate or reduce to acceptable level, the occurrence of a food safety hazard (Keskin and Gulsunoglu, 2012).

4. **Establish procedures for monitoring Critical Control Point**: To effectively monitor a critical control point, there is the need to conduct a planned sequence of observations or measurements to check whether a CCP is under control and to help produce an accurate record for future verification. Monitoring is done to track process operations, enable the identification of trends toward a critical limit, identify when there is loss of control and provide written documentation of the process control system (Keskin and Gulsunoglu, 2012).

5. **Establish corrective action protocol**: Corrective procedures are established for each critical control point if a critical control point does not fulfill the necessary requirements for it to be established. These actions may include isolating and holding product for safety evaluation, diverting the affected product or ingredients to another line where deviation will not be considered critical, reprocessing or destroying the product. It is done to correct and eliminate the cause of the deviation and restore process

control to bring a critical control point back under control (Keskin and Gulsunoglu, 2012).

6. **Establish procedures for an effective record keeping and maintenance of the documentation of the HACCP system**: There are four kinds HACCP records are needed to implement, determine, register, store and archive data. These are plan and support documentation used in developing the plan, records of CCP monitoring, records of corrective action and record of verification activities (Keskin and Gulsunoglu, 2012).

7. **Establish procedure for an effective verification (audit)**: There needs to be verification of all activities to determine the validity of the HACCP plan and make sure that the system is operating according to the plan. The verification provides the level of confidence that the HACCP plan is based on solid scientific principles and it is adequate to mitigate the hazard associated with the product (Dairy UK, 2013).

2.4.0 ISO 9000 Series

The ISO 9000 series of quality management standards was developed by the ISO Technical Committee 176 (ISO/TC 176). It set out to create a structure of the basic generic elements that would form the foundation for numerous internationally recognized quality management standards (ISO, 2008). This series of standards show the relevant requirements that every company or enterprise must address to make sure that there is consistent production and timely delivery of its products and services to the market. The aim is to meet the expectations of customer and maintain their loyalty. It is a standard that is applied widely in food and non-food sectors. (Quazi, 1997)

The series of quality management standards are made up of five separate standards or guidelines: ISO 9000, ISO 9001, ISO 9002, ISO 9003 and ISO 9004. ISO 9001, 9002,

9003 are conformance standards for quality assurance systems and relates to the development of quality systems within a company. ISO 9001 applies to firms that design, develop, produce, install and service their own products. ISO 9002 applies to firms that provide goods or service consistent with the specification furnished by the customer (Wayhan *et al.*, 2002).

ISO 9003 applies to final inspection and test procedures only (Agglogiannopoulos *et al.*, 2007). Food safety principles and practices are always integrated into activities identified within quality systems in the food sector. When this is done, the system can address both food quality and food safety concurrently (Briz *et al.*, 2005).

2.4.1 ISO 22000: 2005

ISO 22000 is an international, auditable standard that specifies the requirements for a food safety management system by incorporating all the elements of GMP and HACCP together with a comprehensive management system (Pillay and Muliyil, 2005). It has been found that this system has well-functioning prerequisite programs that can help to simplify and strengthen the HACCP plan. Hence ISO 22000 is a HACCP-type standard and fits very well with ISO 9001: 2000 (Faergemand and Jespersen, 2004). This standard offers an alternative to food enterprises that do not implement ISO 9001 and want to have an effective food safety management system (Aggelogiannopoulos *et al.*, 2007). Its advantages include; quality management, good internal and external communications, crisis management, good health practice and critical control points (Talbot, 2007).

2.5 Quality Planning

For a quality management system to be effective, planning is the fundamental step to take. Oakland (2003) defined a quality plan as a document that is specific to a product,

activity, service or group that makes the quality related activities stand out. It usually must start by a 'zero defect' which undergoes continuous improvement at the objective. Planning is a process that enhances the making of decision and helps the organisation to be a proactive one where its future problems can be anticipated and possibly mitigated to avoid further negative trends. To develop a more suitable plan, there needs to be continuous review of the plan.

It must be compared with the preliminary analysis in order to give it a base for strength and weakness appraisal of the quality system. Establish quality policies and goals, create organizational structures, define responsibility, establish quality system, implement programmes, monitor and evaluate programmes regularly (Oakland, 2003).

A quality plan must function irrespective of management or personnel change. It must include the design, development, production/operation, subcontracting, installation, maintenance, purchase material/service specifications, procedures for quality system, product formulation, service type, specification for packaging and distribution, procedures for sampling and inspection, and process control (Oakland, 2003).

There are three types of quality planning: Strategic plans, Tactical plans and Operational plans. Strategic planning is long-term plan which describes the vision, mission, policies, objectives and goals of the organization. Operation planning is a short-term plan that focuses on specific areas of the organization such as actual activities undertaken and their efficiency. Tactical planning is more detailed than strategic but less focused than operation for specific areas such as marketing, design and production (Oakland, 2003).

2.6 Benefits of Implementing a Successful Quality Management System

Quality is a pivotal issue for economic performance. Economic performance in this case is measured in terms of maximizing product price and increasing market share to influence return on investment. This is true for every organisation that places value on quality issues (Skalpe and Sandvik, 2002). Curry and Kadasah (2002) argued that it is the attitudes and perceptions of employees towards quality that influences their culture of quality. Thus, it should be interlinked with the people and business culture in order to gain competitive advantage in the business market and obtain appropriate outcomes (Pallet *et al*., 2003).

King and Cichy (2006) considered quality as a critical issue for every organisation to get assurance on customer loyalty, compete with other rivals, make appreciable profits and survive in difficult market conditions. Motwani (2001) additionally stated that the benefits of implementing a system of quality are less rework, cost cutting, increased productivity, lower prices and higher market share.

Karapetrovic and Willborn (2001) summarized some of the benefits that a company can gain from a successfully-implemented quality system. They are;

- Added value, minimized quality cost, maximized revenues,
- Increased confidence in the quality services,
- Reduced paper work and bureaucracy,
- Enhanced company image and competitiveness,
- Improved training of staff, higher morale and job security,
- More effective cooperation of the client and the company,
- Improved operational control by means of internal and external audits,
- Attracting new customers,
- Continuous improvement of the service quality.

2.7 Barriers to the Implementation of a Quality Management System

Beckford (1998) identified five different barriers in the implementation of quality management systems which are the systems and procedures inhibiting the pursuit of quality, the organizational culture preventing quality, the design of the organization inhibiting the strive for quality, the managerial and employee recognition of the importance of quality and attitudes towards it and finally costs of quality resulting from not maintaining a certain quality level.

The systems and procedures in an organisation may inhibit the pursuit of quality. This is because the processes and systems may be prolonged and might not help in its implementation. The culture of an organisation may also prevent the successful introduction and implementation of quality management systems. These could include the norms that regulate the values and beliefs of employees (Clutterbuck and Crainer, 1990). Beckford (1998) asserted that the design of the organization can inhibit its quest for quality. Another barrier to implementation is managerial and employee recognition of quality. Beckford suggests that management have to acknowledge the importance of quality. It must be a concern to the entire organisation in order for it to work effectively. Carlsson and Carlsson (1994) conducted a study and asserted that the barriers such as time and resource consumption, interpreting the standards of ISO 9001, unclear and too bureaucratic documentation, and making the quality system understood and accepted could inhibit the implementation of quality management systems. Other challenges presented by Dale *et al.*, (2007) are: inadequate leadership, resistance to change, conflicting policies, unsuitable organizational structure and poor management of the change process.

2.8. Brief background about the company under study

The company under study is a solely Ghanaian owned company which produces a range of alcoholic and non-alcoholic beverages, such as Bitters amongst others. The company commenced operation in Ghana and had grown steadily. The company has consistently increased its market share within Ghana and beyond. The name is a household name in Ghana and its brand of alcoholic beverages are well established in Ghana and beyond the shores of Ghana.

"The mission of the company is to produce quality alcoholic and non-alcoholic beverages to satisfy consumers through the adoption of modern methods using a highly motivated professional staff". "The company's vision is to be the leading alcoholic and non-alcoholic beverage manufacturer in Ghana and beyond, satisfying consumers with excellent products through sound management practices and collective responsibility of all stakeholders."

CHAPTER THREE

3.0 METHODS AND MATERIALS

First, literature was reviewed on topics leading to the development of the latent variables on quality management systems. With the aid of the literature review, the research framework was formulated. Several interviews with the management of the company was conducted based on the research framework developed. This exploratory study proves leadership, company strategy, employee relationship, customer focus, supplier relationship and method of manufacturing processes. These areas were focused on because they were the factors highlighted as the most important for the implementation of quality management systems. Observations were also made about production facility.

3.1 Sample

A leading alcoholic beverage factory was chosen as the case study. It is an indigenous Ghanaian company purported to have a high performance to regulatory standards and have not had any major issues with regulatory agencies in Ghana. Appointments were made with the company's representative to agree on time and venue of the interviews. The interview sessions were recorded with the permission of the respondents and each interview took approximately 45 minutes to one and half hour. The interview was based on the questionnaire developed for the evaluation. This is shown in Appendix A.1, pages 43 – 49. Three (3) sub-departments under the technical department were used. These departments are the Quality Assurance department, Blending department and Research and Development department. These departments were chosen because they have the greatest role in Quality management systems. The sample size that was adopted for this study was ten (10). This number was chosen as a representative of working staff of the entire company. The sample size satisfies the method of study used (case study) according to Yin (2009). The questionnaire was the result of an

assimilation of efforts including consultations with experts in food quality and safety experts in questionnaire design and extensive literature review. Specifically, the ten staff interviewed were Quality Assurance Manager (1), Research and Development Manager (1), Blending Manager (1), Quality Assurance Officers (4), Research and Development Officer (1) and Blending Officers (2).

3.3 Research Instrument

A survey was used as the means for carrying out the study. A questionnaire in Appendix A.1, pages 43 - 49 was designed to ascertain the level of knowledge to QMS, perception of quality, data acquisition method, organizational implementation of QMS and training. The questionnaire was itemized from 1-34 and was administered by a face to face interview. Respondents were made to choose a single or a set of multiple answers related to a question. These kinds of questions resulted in ordinal variables, but the questionnaire also included many categorical variables such as '1-Yes, 2 - No, 3 - No answer'.

3.4 Audit

International Organization for Standard (ISO) auditing standard that specifies the requirements for food safety management systems by incorporating all the elements of Good Manufacturing Practices (GMP) and Hazard Analysis Critical Control Points (HACCP) together with a comprehensive management system was adopted as the standard for assessing the company. Specifically, the ISO 9000 series was used (ISO 9000: 2005 and ISO 9004:2009). ISO standards are internationally accepted benchmarking standards for quality certification. The standard is auditable to ascertain adherence. The audit was based on an observational guide and interview when necessary. The chechlist for assessment is shown in Appendix A.2. The entire factory

was audited with observational questions to the Quality assurance manager, Research and Development manager, Production manager, Human Resources Manager, Blending manager, Technical director and most of the officers in their departments. In this, a total of 42 working staff were interviewed during the audit. The audit covers policies or procedures on food safety, premises, building (Interior and exterior), sanitary facilities and waste disposal, employee facilities, cafeteria, equipment cleaning and sanitizing, water quality and supply, transportation, receiving and storage of goods, finished product storage and release, personnel hygiene, cleanliness and training.

3.5 Data Analysis

The Statistical Package for the Social Sciences or SPSS version 16.01 for windows was used to facilitate the production of basic frequencies and percentages for all the responses. Before the data was analyzed, it was coded into themes. This approach incorporated picking important themes, establishing hierarchies of themes and linking themes into theoretical models (Ryan & Bernard, 2003).

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Knowledge of QMS

A series of questions were asked to assess workers knowledge of QMS. Table 4.1 below shows results for the perception of quality of the staff of the alcoholic beverage industry used for the study. In relation to their perception of quality the question asked was: In your opinion, which of these words best define quality? Responses were not limited to one answer. As shown in Table 1, the respondents prioritized quality in the following order from most to least; high cost, satisfying the external consumer and appearance, value for money, increased profit and partnership between organization and supplier, teamwork and satisfying the internal consumer. Nine (9) out of ten (10) respondents associated quality with high cost (expensive). They believe that producing a good quality product would require a high cost of production resulting in an expensive end product. This notion held by the respondents suggests that the company targets the middle to high income earners of society as its target market and as such tailors their products to suit their target market. The second priority area for defining the quality of their product was the satisfaction of the external consumer and the products' appearance. This perception of quality has a close relationship with the former, in that it would be easy for the company to incur extra costs to ensure that their products meet the specifications of their target market or consumers. In the design of their product and its variations, attention would most likely be paid to packaging details. The third area of priority to the company in the perception of quality is value for money. Broh (1982) stated that quality can also be viewed as value and defined 'value' as the degree of excellence at an acceptable cost. This means that the consumer should be able to get benefits equal to the amount paid for the product. It may also mean that the manufacturer should be able to get appreciable returns for investments made to produce

a good quality product. The top three priority items of the company's perception of quality buttresses its mission to produce quality alcoholic and non-alcoholic beverages to satisfy consumers, hence more focus is on the consumer. The perceptions that focus on the company are increased profit and partnership between organization and supplier, teamwork and satisfying the internal consumer.

Table 4.1: Perception of Quality of respondents (Multiple responses) Quality Definition Frequency (n=10)

High cost (expensive)	9
Satisfying internal customer (within the organization)	4
Satisfying external customer (outside the organization)	8
Appearance	8
Increased profit	6
Value for money	7
Teamwork	5
Partnership between organization and supplier	6

A follow up question in this section asked the respondents to state whether or not they felt QMS would work in their organization and figure 4.1 gives their responses. Sixty percent (60 %) of the respondents indicated that it will work or does work very well, 30 % indicted that it will work or does work to some extent while 10 % indicated that they can't say anything about it. These results above gives the indication that majority of the respondents are positive that the company is in a good position to upgrade its implementation of quality management systems from quality assurance only to other aspects. With the majority in agreement it would be relatively easy to introduce QMS such as ISO 9000 series to augment the systems already implemented.

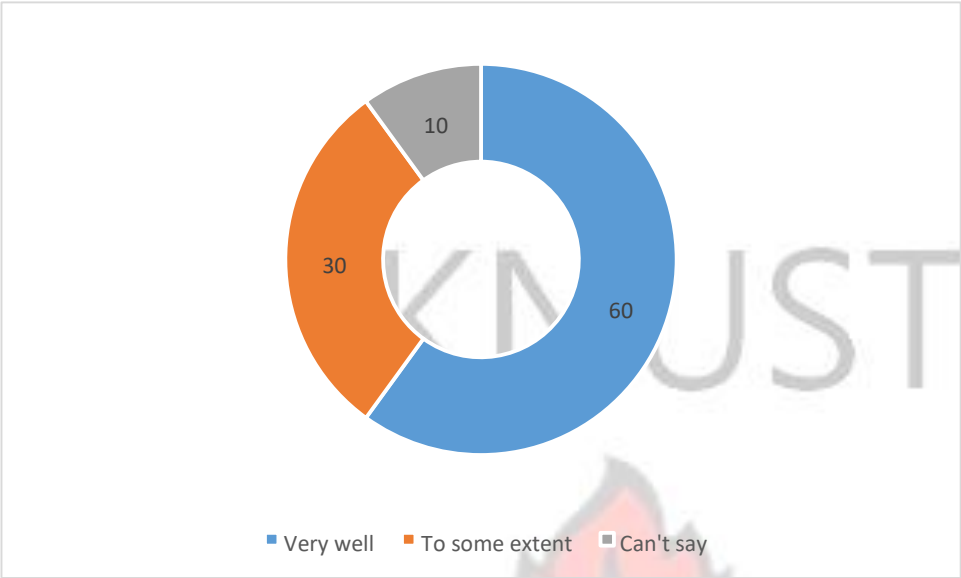

Figure 4.1 Practicality of QMS implementation in the alcoholic beverage industry

In ascertaining the opinions of the respondents on the benefits of QMS, 60 % expressed how beneficial QMS will be to the Industry, 20 % said No while 20 % were undecided. This is shown in figure 4.2 below. Again with the majority in agreement that QMS has benefits to the company despite the costs of implementation and time involved, it would be easy to implement new or improved QMS in the company. The respondents by these results demonstrate a high willingness to embrace the implementation of QMS in their company. Ahmed and Azhar (2006), conducted a similar study where majority of the respondents felt that the use of a quality management program would be beneficial for their company. The information thus gathered from this study reinforces the general opinion that QMS have immense benefits to industries.

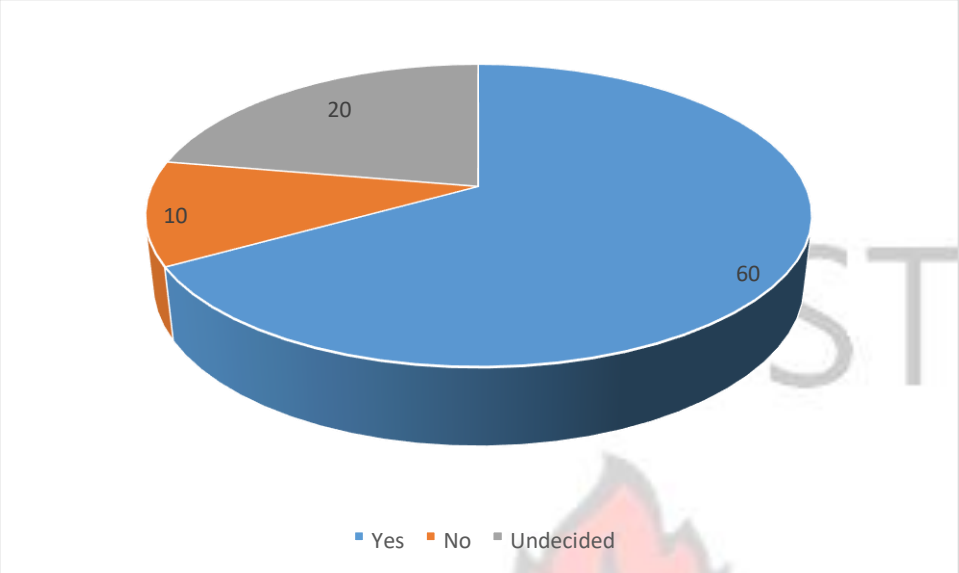

Figure 4.2 Benefits of QMS to the organization

The next item appraised was what benefits the respondents perceived QMS would accrue to the company. In order of priority, the results can be ranked as follows; cost estimating, increase market share, project design, warranty claims, reduce change orders and reduce lawsuits these results are shown in Table 4.2 below. The respondents perceive that the area where the most benefit would be realized is with cost estimation. This means that they believe that the implementation of QMS would help them estimate their costs of production and make projections in drawing budgets and meeting corporate targets. Karapetrovic and Willborn (2001) reported that the benefits of implementing QMS in terms of finances included minimizing quality cost and maximizing revenue. It can be said then that the greatest benefits that companies hope to derive is monetary, which shows their business nature.

Table 4.2: Sectors of the organization to benefit from QMS

Responses	Frequency (n=10)
Cost estimating	9
Project design	5
Warranty claims	6
Reduce change orders	4
Increase market share	7
Reduce lawsuits	3

4.2 Perception of Quality

In the first section of the questionnaire, respondents were asked to give their individual opinions on quality. In this second section, the respondents were asked to give what they thought the organization as a corporate body perceived quality to be. Figure 4.3 shows the responses on the organizations perception of quality. The results shows that the organization does not attribute quality to a single element. About 40 % of the respondents asserted that quality was competitive advantage while 30 % of the respondents asserted that the increase profits and elimination of defects defined quality. In its vision, the company states that it wants to be the leading alcoholic and nonalcoholic beverage manufacturer in Ghana and beyond, thus it is no surprise that competitive advantage is topmost in its perception of quality. A similar study by Ahmed and Azhar (2006), however reveals otherwise. In their study, the topmost element for the perception of quality is to eliminate defects. It can be said then that the way by which this alcoholic beverage company aims to sustain its leading role in the industry is by focusing more on its competitors. The different views of the respondents on the perception of quality by the company however suggests that its top management have not yet clearly defined and communicated its quality goals. According to Jacxsens

(2009), a company can easily resolve this by formulating a quality policy. The quality policy must however be in accordance with the global standards.

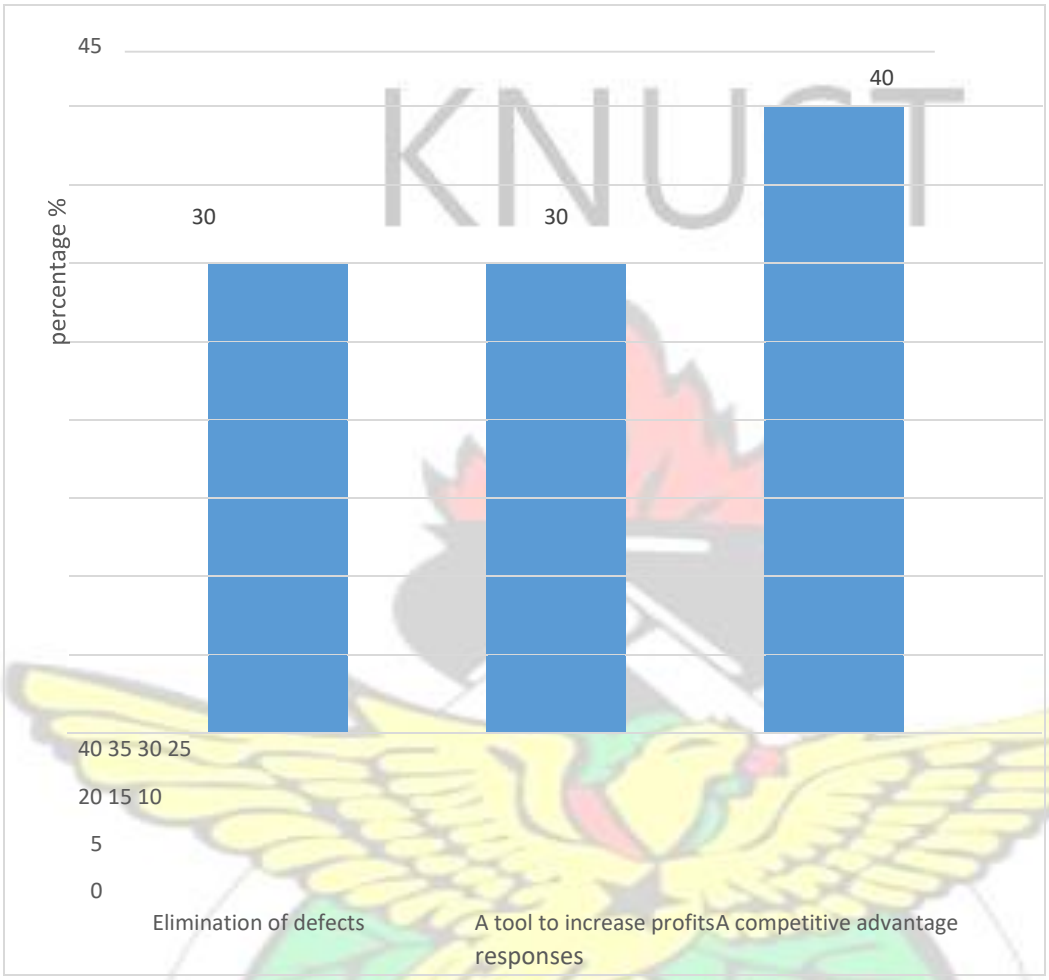

Figure 4.3 Organizations perception of quality

Figure 4.4 shows how the respondents rated product/service quality. Forty percent (40 %) rated it as important whereas 30 % rated it very important. Ten percent (10 %) was recorded for each of the responses somewhat important, not important and can't say .It appears from the results that the respondents view product/service quality as an important element for the development of QMS. This may be because of the direct link that product/ service quality has on satisfying the external consumer. It would therefore be in the best interest of the management of the company to develop an attitude that puts the customer in every decision made.

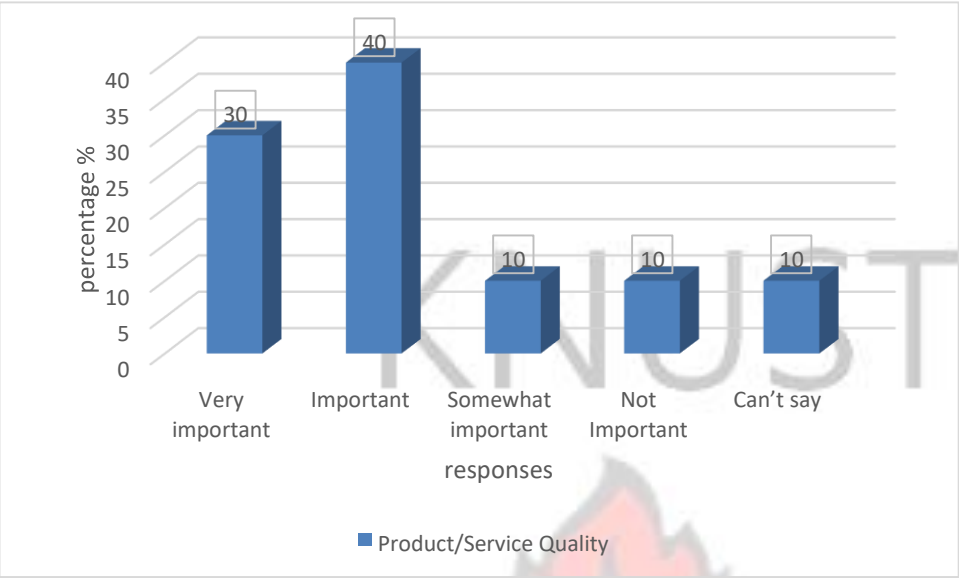

Figure 4.4 Rating of importance of quality

Respondents were asked to rate the potential for improvement within specific processes on a scale of 1-5, with 1 being low and 5 being high. Table 4.3 below shows the outcome of this rating. Areas where there was found to be a high potential for improvement was on-site supervision, personnel management of employees and close-out of projects. In making strategic changes to implement QMS, it is advised that the management of the company targets these areas first as changes would be easier made. The low potential for improvement areas were redesign, certification of materials, administration of change orders and coordination with other members of a project.

Table 4.3: The potential for improvement

Statements	AVERAGE
On-site supervision	4
Redesign	2
Testing procedures at job site	3
Personnel management of employees	5
Certification of materials	2
Administration of change orders	2
Close-out of projects	4
On-site safety management	3
Coordination with other members of a project	2

The final question on this section asked respondents to state the focus for setting quality goals by the company. Table 4.4 below shows that the company's primary focus is competition in general. This verifies the company's perception of quality as shown in Figure 4.2. The company may be focused in this way because of the competiveness of its category in the food industry and its desire to stay ahead of its competitors. This orientation would motivate them to go to all lengths to stay ahead and as such the implementation and improvements of their quality management systems would prove helpful.

Table 4. 4: Setting of quality goals Responses Frequency

The leading company in your field	3
The competition in general	5
To a level set internally	2
Total	10

4.3 Data Acquisition Method

The respondents were asked if they collect data to measure the performance of operations or process. According to 80 % of the respondents, they conduct this exercise. About 10 % of the respondents said No and another 10 % did not respond. This is shown in figure 4.5 below. According to Ahmed and Azhar (2006) data collection forms part of consistency in product quality.

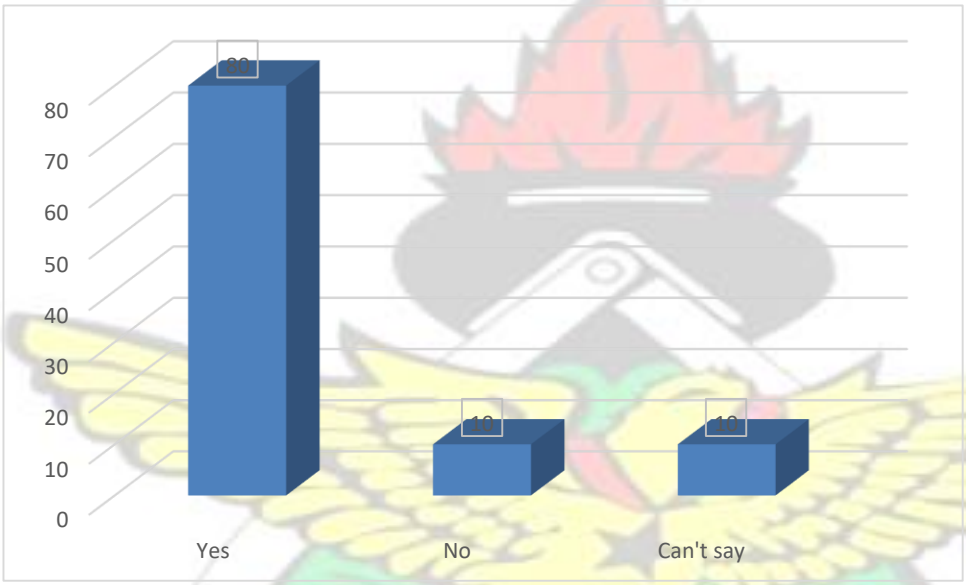

Figure 4.5: Data acquisition to measure performance

In order to improve on QMS, quality related problems must always be solved or prevented. The question was thus asked on how the organization solves quality related problems. Majority of the respondents (60 %) agreed that that there is a permanent team that is available, 30 % said that they set up a multi-disciplinary team for each problem while 10 % said that they assign individuals to solve the problems. The differences in views as to how quality related issues are solved suggest that the Management of the company do not have a well spelt out procedure to handle such issues. It is therefore advised that the quality team of the company formulate and document proper corrective

action procedures to be implanted. The example from the results of the study of Ahmed and Azhar (2006) can be followed where majority of the companies studied assign individuals to solve quality related problems. In this regard, there is the need to assess the current skill level and awareness of quality principles of all the employees. Figure 4.6 illustrates the results.

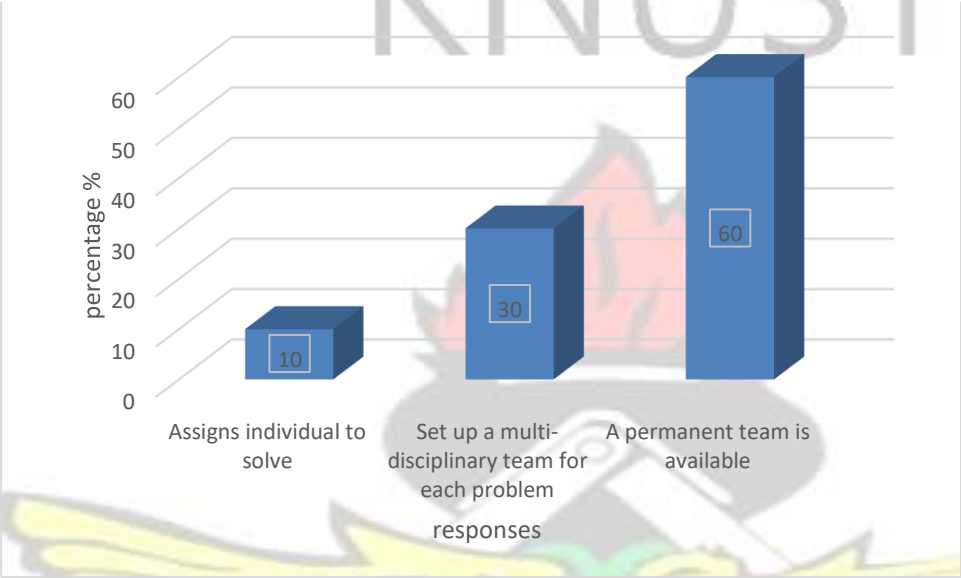

Figure 4.6 Resolution of quality related problems

According to Jacxsens (2009), an effective QMS focuses on systematically developing customer–focus strategies and action plans. Questions were thus asked about the system for gathering information from employees and customers. The results are shown in Figure 4.7 and Table 4.5. The study however focused more on the implementation of QMS in relation to the technical processes and finished product. If defects in service are identified by the company, subcontractors are required to pay for corrections. Subcontractors are the auxiliary companies that help with production. They include raw material suppliers, packaging suppliers and engineers. Sixty percent (60 %) of the respondents affirmed that this was so. About 20 % of the respondents said that they are not made to pay, and 20 % did not respond to the question as shown in Figure 4.8.

Subcontractors pay for defects either by replacing with new items or reproduce the items when demanded. This finding is aligned with a study conducted by Ahmed and Azhar (2006) who indicated that majority of the respondents interviewed showed that subcontractors are also required to pay for corrections if defects in service are identified.

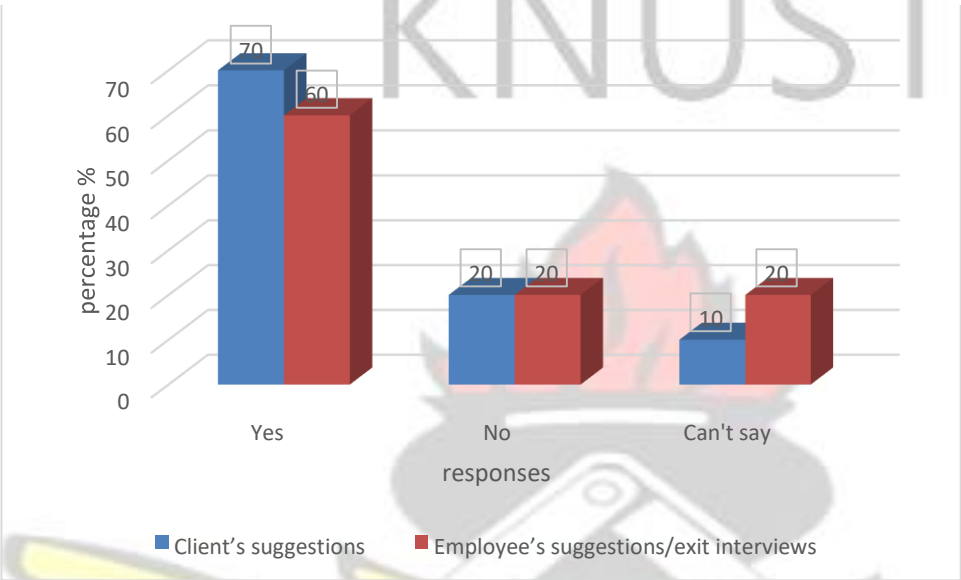

Figure 4.7: System for gathering suggestions

Table 4.5: Measurement of Client's Satisfaction

Responses	**Frequency**
Questionnaire surveys	4
By the number of complaints	3
Not measured	3
Total	10

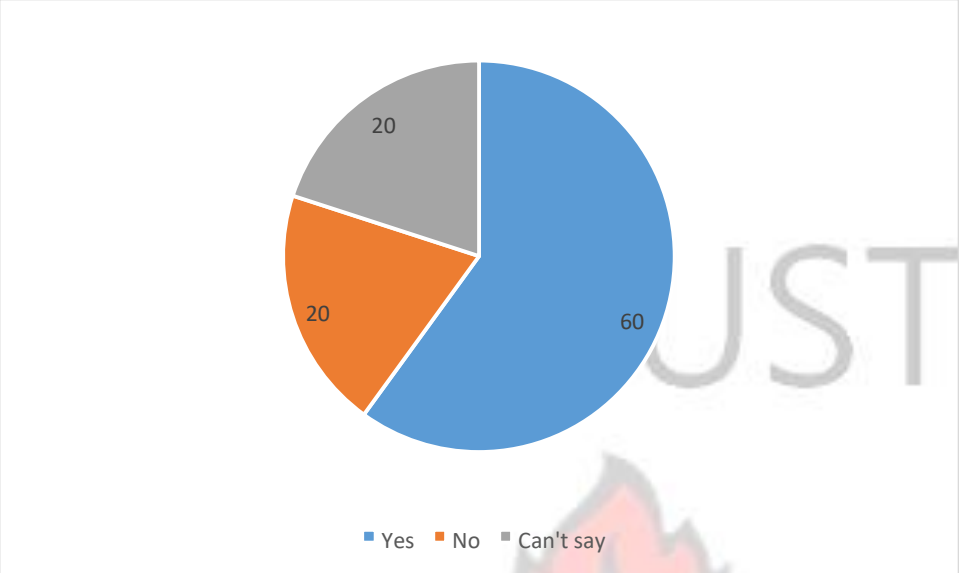

Figure 4.8: Identification of defects in service

4.4 Quality Control in the Organization

All the respondents indicated that there is a clear quality control policy in the organization as shown in Figure 4.9. According to ISO 9000 a clear quality policy is a necessity for efficient performance. The content of the quality was however not reviewed to assess its adequacy. Having a quality policy is a step in the right direction as it indicates that the company is committed to quality, and as such the implementation of QMS. The only drawback may be that the quality policy is not well communicated to staff. This is based on previous results in Figure 4.3.

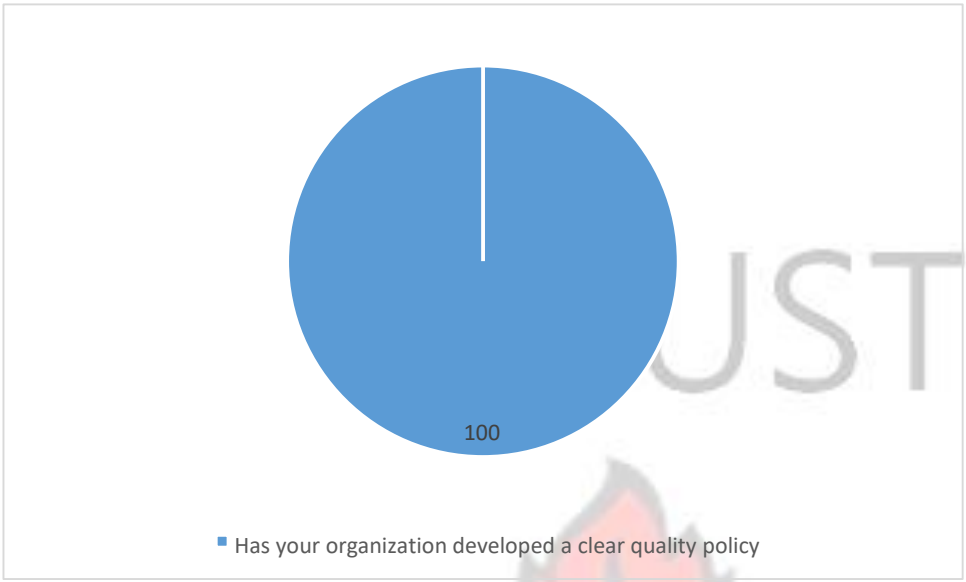

Figure 4.9: Development of Quality policy

Majority of the respondents said that a quality improvement plan has been a part of corporate policy for some time now. There was some differences in views however as to which quality improvement policy was in place among the four responses provided; ISO 9000, Quality control / Quality Assurance, Quality Management Systems and Total Quality Management. Ideally, all the respondents should be in unison as to which type of quality improvement program used. The differences in views further emphasize the gap in communication by top management. It may also mean that the quality policy does not specify the quality improvement program, in which case it should be revised. Table 4.6 below shows the results.

Table 4.6: Quality Improvement Program Responses Frequency

A quality improvement program has been implemented recently	3
A quality improvement plan has been a part of corporate policy for some time now	7
Total	10

The respondents were asked about the factors that motivated them to start a QMS. According to the majority, there is the need to reduce costs and improve performance, others said that it is demanding customers, is pressure from competitors, pressure from the company's Chief Executive, environmental issues and need to reduce rework and scrap in order of decreasing agreement. The results as shown in Table 4.8 proves that that reducing costs is a major factor in motivating the company to start a QMS. As a company that perceives quality to be expensive, it is no surprise that reduced cost is motivation to start and implement a QMS.

Table 4.7: Type of Quality Improvement Program

Responses	Frequency
ISO 9000	3
Quality control / Quality Assurance	3
Quality Management Systems	2
Total Quality Management	2
Total	10

Table 4.8: Motivation Factors to start QMS (multiple responses)

Responses	Frequency
Pressure from competitors	5
Demanding customers	6
Your company's Chief Executive	5
Environmental issues / considerations	4
Need to reduce costs and improve performance	7
Need to reduce rework and scrap	4
Total	31

Table 4. 9: Steps involved in Quality Improvement Plan Responses Frequency

Formation of a multi-disciplinary team and quality circles	5
Data gathering for measuring ops and processes	6
A cedi value has been assigned to the cost of quality	7
An initial awareness program is underway	3
An educational program has been implemented	5
Quality problems have been identified	4
Have defined benchmarks for improvement	6
Total	36

Table 4. 10: Quality Incorporation in the Project

Responses	**Frequency**
Concept development	3
Research and development	3
Operations	1
Final inspection	3
Total	10

Table 4.11: After the implementation of Company Quality Improvement Programme

Responses	**Services/Product Quality Frequency**	**Customers & Suppliers Frequency**
Drastically improved	6	5
Improved	2	1
Remained the same	1	3
Decreased	1	1
Total	10	10

4.5 Training of Staff

This section focused on the need to assess the current skill level on the awareness of quality principles of all employees. The respondents were asked if formal training in QMS or other quality improvement philosophies is given to employees. The majority affirmed that a formal training was in effect. Others also thought that some form of training was available but did not qualify as formal training. The existence of training however is an index to the company's readiness to implement QMS. All the staff interviewed had undergone quality improvement training. Current training is however focused on statistical analysis and customer satisfaction. The tables below show the results for this section of the questionnaire. The aspect of training looked at were formal training, number of staff who have undergone training and the emphasis of the training. **Table 4. 12: Formal training in QMS given to Employees**

Responses	**Frequency**
Some training is available	2
A formal training program is in effect	8
Total	10

Table 4.13: Staff who have Undergone Quality Improvement Training

Responses	**Managerial/Supervisory Staff**	**Non-Managerial/Technical Staff**
	Frequency	**Frequency**
All	10	10
Total	10	10

Source: Field Data, 2015

Table 4. 14: Current Training Emphasis (multiple responses)

Responses	Frequency (n=10)
Process control	5
Statistical analysis	9
Data gathering & analysis	7
Team work	4
Communication	5
Customer satisfaction	8

4.6 Obstacles in the Implementation of QMS Program

Concerning the obstacles in the implementation of a QMS program, results are shown in table 4.15 below. The two most eminent obstacles in the implementation of QMS were tendency to cure symptom rather than get to the root cause of a problem and rigid attitude of executive management towards quality. The attitude of management towards quality seems to be a trend in most food companies as Ahmed and Azhar (2006) also found that the three key challenges facing the implementation of quality management systems to be; lack of expertise/resources in quality management systems, rigid attitude and behavior of executive management towards quality and lack of employee commitment or understanding. It is imperative that management devise a way to overcome these obstacles to ensure the smooth running of quality management systems. Less severe obstacles were lack of employees' commitment/understanding and emphasis on short-team objects.

Table 4. 15: Obstacles in the implementation of QMS program (multiple responses)

Obstacle	Frequency
Too much document commitment / understanding	7
Lack of expertise/resources in QMS	9
Lack of employees' commitment/understanding	4
Tendency to cure symptom rather than get to the root cause of a problem	8

Current tendering/bidding climate	5
Rigid attitude of executive management towards quality	8
Schedule and cost treated as the main priorities	7
Emphasis on short-team objects	4
Lack of education and training to drive the improvement process	5
Total	57

Source: Field Data, 2015

The quality related factor that 70 % of the respondents strongly agreed to was; senior executives visibly and explicitly committed to quality. This implies that within the company there is comprehensive identification of customer needs and alignment of processes. To satisfy the needs the company supports any change in style or structure required to adapt the changes in the business environment.

The quality related factors that 60 % of the respondents strongly agreed were; senior executives assume active responsibility for the evaluation and improvement of management systems and leading quality drive; employees are encouraged to accept responsibility for quality; the use of SPC (statistical process control) to control variability and improve processes, the company builds its competitiveness on the basis of providing high quality services; systematic reviews and analysis of key process measures that have a direct or indirect impact on value–addition to customer satisfaction. These are implemented and the company possesses a web site which provides all the information needed by the customer about the products and services provided by the company.

4.7.0 Observations made at the facility

An observational audit was done at the facility in order to ascertain the prerequisite programs already in place for the implementation of a quality management system and identify areas where the company needs improvement. The observations are outlined in

the proceeding subsections of this chapter. The Codex Alimentarius Commission principles and code of practice (General Principles of Food Hygiene CAC/RCP 1-1969) and the quality management system standards of the ISO 9000 series (ISO 9000:2005, ISO 9004:2009) were used as general standard guidelines to assess the company**.** From the observations the company conforms to most of the standards, however there are areas with gaps that need to be worked on. The checklist used for this observational assessment is shown in Appendix A2.

4.7.1 Quality assurance activities

The company has a Quality Assurance (QA) system which is firm specific, meaning that it managed at company level without any input from an external or international body (Alli, 2004). The scope of its Quality Assurance system includes all product categories, processes and activities conducted at the factory. These practices are aligned with the policies and objectives of the company. The company has a quality manual and a documented standard operating procedures (SOP) to promote due diligence in its operational activities. The generation of documents was well under control. These documents are fully supported by the completion of records for planned activities, maintenance and verification. Quality assurance systems are intended to provide confidence to a food company's management, its customers and to government regulatory agencies that the company is capable of meeting the food quality and food safety requirements (Alli, 2004).

4.7.2 Management commitment

Top Management of the company has demonstrated its commitment to producing safe product by providing a purpose-built infrastructure. This is in line with ISO's quality management principles on leadership which states that leaders should establish unity of purpose and direction of the organization and should create and maintain the internal

environment in which people can become fully involved in achieving the organization's objectives (ISO 9000:2005). Provision has been made for raw materials storage areas, processing areas, laboratory, and finished product storage facilities. The walls and floors had smooth finish and fabricated from materials that does not pose any food safety risk to the products. Cloakrooms and toilet facilities have been provided. These facilities were in good state of repair. The company had no documented infrastructural maintenance regime; it is maintained in an ad-hoc manner. Maintenance works occur as and when detected.

4.7.3 Food safety policy

The Company's commitment to quality is clearly defined in its mission statement, "To produce quality alcoholic and non-alcoholic beverages to satisfy consumers through the adoption of modern methods using highly motivated professional staff." There is however no food safety policy in place. On further enquiry it was found that the policies are documented but kept in the shelves of management. This does not make the policies known to the working staff. Food policies are designed to influence the operation of the food and agriculture system. This often includes decision-making around production and processing techniques, marketing, availability, utilization and consumption of food, in the interest of meeting or furthering social objectives. According to the National Food safety policy, a food safety policy is important to the development of an improved food safety programme as it provides the overarching framework and principles that will guide the requisite interventions (NFSP, 2013). The communication of the food policy to staff is therefore very crucial. Management has to disseminate the food safety policy to staff in order to facilitate workers commitment to the safety of their product.

4.7.4 Human resource

The company conducts induction training for its newly recruited workers and has a policy of internally improving the knowledge base of its workers. Officers of the quality assurance department are afforded the opportunity to attend training programs organized by statutory and regulatory bodies. The rationale for personnel training according to Codex is to eliminate the potential threat to the safety of food and its suitability for consumption(General Principles of Food Hygiene CAC/RCP 1-1969). Documentation indicated that these officers also train the other staff to ensure that food safety is not compromised. The company thus satisfies ISO standards which states that documentation enables communication of intent and consistency of action, and is also profitable in the area of provision of appropriate training (ISO 9000:2005). Most of the officers are well trained and equipped in the discharge of their duties

4.7.5 Traceability system

ISO 9000 series describes traceability as ability to trace the history, application or location of that which is under consideration and stipulates documentation as a requirement to ensure traceability (ISO 9000:2005). In accordance to these requirements the company keeps a record of its distribution outlets in terms of the brand of product supplied, the date of supply and quantity supplied. The batch number of the product supplied is recorded taking into cognisance the processing and delivery records. This system helps the company to trace and recall its products in the event of product non-conformity. However, the batching system does not indicate the relationship between the batches of raw materials used in the production of the product. This gap in the company's traceability system need to be fixed in order to allow them fully conform to ISO standards. Withdrawn products are held under supervision and subsequently

destroyed under the supervision of statutory and regulatory institution. These products are well recorded and kept.

4.7.6 Control of non-conformity

All products that are affected by a non-conforming situation are held under control until they have been evaluated. ISO 9000:2005 defines non conformity as non-fulfilment of a requirement. Non-conforming products are accessed for rework or otherwise destroyed. Documentary evidence at the factory in accordance with ISO 9000:2005 requirements, indicated only few consumer complaint. Complainants get their products replaced and compensated with additional product and also encouraged to bring to the attention of the Company any non-conforming product. Further assessment is made to prevent such non-conformance.

4.7.7 Premises and factory Interior

Codex stipulates that where appropriate, the internal design and layout of food establishments should permit good food hygiene practices, including protection against cross-contamination between and during operations by foodstuffs. It also stipulates that premises and structures should be sited, designed and constructed to avoid, as far as reasonably practicable, contaminating food and harbouring pests (General Principles of Food Hygiene CAC/RCP 1-1969). The factory was observed to be well enclosed with a wall that prevents rodents and other vices from patronizing the compound. It has no drains or large gutters around it.

The environment has good air quality and good drainage system. The outside is free from bush and there was no stagnant water or flood observed. The landscape of the outside is rodent, insect and birds free but workers complained of mosquitoes even during the day.

The site is not a potential for pest harborage and dust. There was availability of potable water and a good disposal facility. There is an adequate lighting system but the lights are too far up the ceiling that makes bulb replacement an issue. There is a good flow of process and a sufficient working space.

The foundation or walls are impervious to moisture and floor /walls can easily be cleaned. The floors show no signs of cracks and crevices. This allow easy cleaning and avoid accumulation of dust and particles in line with the module for the Codex Alimentarius (General Principles of Food Hygiene CAC/RCP 1-1969) which demands appropriate facilities and procedures to be in place to ensure that:

- Any necessary cleaning and maintenance is carried out effectively
- Appropriate degree of personal hygiene is maintained.

4.7.8 Ceiling, windows and doors

The ceiling, windows and doors are designed that they can easily be cleaned, swept and hosed as recommended by Codex Alimentarius. Codex also requires that adequate means of natural or mechanical ventilation should be provided (General Principles of Food Hygiene CAC/RCP 1-1969) . The windows and doors observed at the factory were seen to give effective environmental control and adequate lighting.

4.7.9 Transport, receiving and storage

Codex stipulates that Food must be adequately protected during transport. This is stipulated with the rationale that Food may become contaminated, or may not reach its destination in a suitable condition for consumption, unless effective control measures are taken during transport, even where adequate hygiene control measures have been taken earlier in the food chain (General Principles of Food Hygiene CAC/RCP 1-1969). It was however observed that the food carriers were not inspected daily even though they appear clean. There was no checklist for carrier inspection. There were no records

of loading vans but they do report of any accidents as and when they occurred. The company needs to check and correct these inconsistencies.

Raw materials used are both purchased locally and internationally. There is a form for raw material inspection and well documented as per the Codex requirements (General Principles of Food Hygiene CAC/RCP 1-1969). Each product per entry into the factory is inspected and non-conforming products are either rejected or destroyed. Also Material Safety Data Sheet (MSDS) or Certificates of Analysis (COA) are attached to the raw materials as they are received. The stores for raw material storage is separated from the finished product warehouse.

4.7.10 Non – food chemical receiving and storage

There are separate rooms for chemical storage but no inventories available. Also there were no instructions available for its usage. Codex mandates that food and food ingredients be protected from contamination by pests, or by chemical, physical or microbiological contaminants or other objectionable substances during handling, storage and transport. These activities are to be documented and restrained for a period that exceeds the shelf life of the product (General Principles of Food Hygiene CAC/RCP 1-1969). The company therefore needs to make adjustments and conform to these standards.

4.7.11 Finished product storage

The same Codex requirements for storage of raw materials and non-food products apply for finished products. Codex indicates that where necessary, adequate facilities for the storage of food, ingredients and non-food chemicals (e.g. cleaning materials, lubricants, fuels) should be provided (General Principles of Food Hygiene CAC/RCP 1-1969). The company has adequate storage facilities for their finished products. There are defined release procedures and specifications available which enables release basically

by the QA manager after final product checks. Also products are kept as reference samples till its expiry. Analyses are conducted to ascertain the quality of product before final product release.

4.7.12 Equipment design and installation

Equipment is well established and suitable for the operation. It is well fabricated and designed to prevent cross contamination. Cleaning of equipment is done often and easily. Maintenance scheduled was well structured. The lubricants used are food grade and there was a startup procedure after maintenance. There was availability of maintenance master plan and calibration records. These all satisfy the Codex guidelines for equipment installation and use as outlined by the Codex General Principles of Food Hygiene CAC/RCP 1-1969.

4.7.13 Product recall and rework

Codex states concerning Recall procedures that Managers should ensure effective procedures are in place to deal with any food safety hazard and to enable the complete, rapid recall of any implicated lot of the finished food from the market. Where a product has been withdrawn because of an immediate health hazard, other products which are produced under similar conditions, and which may present a similar hazard to public health, should be evaluated for safety and may need to be withdrawn(General Principles of Food Hygiene CAC/RCP 1-1969). It was observed that recall procedures were well documented. The company due to its structure has not conducted a recall since its establishment. Complains are also well handled. Products complained about are minute and were normally replaced. This is usually with a few products hence no need for recall.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The evaluation of the level of implementation of quality management system for the alcoholic beverage company used as a case study is satisfactory comparing the results of this study to the ISO 9000 series standards. In the areas of knowledge of QMS, perception of quality, data acquisition method, Resolution of quality related problems, Identification of defects in service, Development of Quality policy and Training of Staff the company seems to have a good foothold as regard to their firm-specific standards. This indicates the readiness of the company to implement a more advanced quality management system. There is however room for improvement in the areas of perception of quality (financial commitment) and training of staff. The company may improve their international status by improving on the systems already in place and adopting international standards such as the ISO 9000 series.

5.2 Recommendation

The following recommendations have been made based on the results from the study; Financial commitments must be made into the effective running of quality management system. This is recommended because majority of the respondents believe that to improve quality, it has to hinge on high cost of production.

It would be appropriate to arrange more formal and informal training programs for employees and management of the alcoholic beverage company. Formal training could take the form of graduate studies while informal training could be in the form of career development programs.

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APPENDIX

A.1 QUESTIONNAIRE FOR EVALUATING QMS IMPLEMENTATION IN AN ALCOHOLIC BEVERAGE INDUSTRY.

GENERAL INFORMATION ON COMPANY PROFILE

Name of the Company: _____

Status of company (general contractor/prime contractor/other)

_____

Size of the company (no. of employees): _____ (admin)

_____technical

Annual turnover: _____ Age of the company:

_____

Position of respondent in the company:

_____

YOUR KNOWLEDGE OF QMS

1. In your opinion, which of these words best define quality? (Not limited to single answer)

High cost (expensive)

Satisfying internal customer (within the organization)

Satisfying external customer (outside the organization)

Appearance

Increased profit

Value for money

Teamwork

Partnership between organization and supplier

2. Do you think that QMS will (or does) work in your organization?

Very well

To some extent

Won't work (Questions 3 and 4 not applicable) Can't say (undecided)

3. Would a QMS program be beneficial to your organization?

Yes

No (Question 4 not applicable)

Can't say (undecided)

4. QMS would be used to improve (not limited to one answer)

Project design

Cost estimating

Warranty claims

Reduce change orders

Increase market share

Reduce lawsuits

5. Are you aware of any industry programs to implement QMS or of any type of the ISO Standards?

……..……

……

YOUR PERCEPTION OF QUALITY

6. What is your organization's perception of quality?

Elimination of defects

A tool to increase profits

A competitive advantage

Others (please specify) _____

7. How would you rate the importance of product/service quality?

Very important

Important

Somewhat important

Not Important

Can't say

8. How would you rate customer satisfaction?

Very important

Important

Somewhat important

Not Important

Can't say

9. Please rate the potential for improvement within the following processes:

(Scale 1 to 5, 1: Low 5: High)

1 On-site supervision 5 - 4 - 3 - 2 - 1 - 0

1	Redesign	5 - 4 - 3 - 2 - 1 - 0
1	Testing procedures at job site	5 - 4 - 3 - 2 - 1 - 0
1	Certification of materials	5 - 4 - 3 - 2 - 1 - 0
1	Administration of change orders	5 - 4 - 3 - 2 - 1 - 0
1	Close-out of projects	5 - 4 - 3 - 2 - 1 - 0
1	On-site safety management	5 - 4 - 3 - 2 - 1 - 0
1	Personnel management of employees	5 - 4 - 3 - 2 - 1 - 0
1	Coordination with other members of a project	5 - 4 - 3 - 2 - 1 - 0

10. Do you set your quality goals to the level of?

The leading company in your field

The competition in general

To a level set internally

Other (please specify):_____

DATA ACQUISITION METHOD

11. Do you collect data to measure the performance of operations or process?

Yes

No

Can't say

12. How does your organization solve quality related problems?

Assigns individual to solve.

Set up a multidisciplinary team for each problem.

A permanent team is available.

Other (please specify)……

13. Do you have a system for gathering client's suggestions?

Yes

No

Can't say

14. How do you measure client's satisfaction?

Questionnaire surveys

By the number of complaints

Other methods (please specify)……..

Not measured

15. Do you have a system for gathering employee's suggestions/exit interviews?

Yes

No

Can't say

16. **Are employees empowered to make significant changes to construction** operations or methodology?

Full empowered

Only key personal are empowered

Empowerment is not needed

Can't say (undecided)

17. **Are suppliers / sub contractors rated?**

All

Most

None

Can't say (Undecided)

18. **If defects in service are identified, then are subcontractors required to pay for corrections?**

Yes

No

Can't say (undecided)

QUALITY CONTROL IN YOUR ORGANIZATION

19. **Has your organization developed a clear quality policy?**

Yes

No

Can't say (undecided)

20. **Percentage of employees who are aware of the importance of quality?**.....

Does your organization have a quality improvement program?

A quality improvement program has been implemented recently

A quality improvement plan has been a part of corporate policy for some time now.

Such a plan is under consideration.

No (please skip the remaining questions and move to the next section)

21. **What type of quality improvement program do you have?**

Total Quality Management

ISO 9000 (please skip the next question

Quality control / Quality Assurance (Please skip the next question and go to the question no. 23)

Other (please specify) (Please skip the next question and go to the question no. 23)

Quality Management Systems

22. Which of the following factors provided the motivation to start QMS (not limited to one answer) Pressure from competitors

Demanding customers

Your company's Chief Executive

Environmental issues / considerations

Need to reduce costs and improve performance Need

to reduce rework and scrap

23. Your organization's quality improvement program can be described as:

Periodic short range resolution or motivational plan

A formal long - term program with wide spread employees' awareness

Others (please specify)……

24. Does your quality improvement plan have the full support of top management?

Yes

No

Can't say (undecided)

A formal long - term program with wide spread employees' awareness

25. The major objectives of your programs are:

Increase productivity

Cost reduction

Involvement of employees in the quality building effort

Compliance with statutory, environment and safety regulations. Others

(please specify)

26. Your quality improvement plan includes which steps?

Formation of a multi-disciplinary team and quality circles.

Data gathering for measuring ops and processes

A cedi value has been assigned to the cost of quality

(Cost of quality = cost of conformance + cost of non-conformance)

An initial awareness program is underway

An educational program has been implemented

Quality problems have been identified

Have defined benchmarks for improvement

27. Quality is first incorporated in the project at:

Concept development

Research and development

Operations

Final inspection

28. After the implementation of your quality improvement program, services /product quality has:

Drastically improved

Improved

Remained the same

Decreased

Can't say (undecided)

Not applicable

29. After the implementation of your quality improvement program, relationship with your customers and suppliers have:

Not applicable

Improved

Remained the same

Decreased

Can't say (undecided)

Not applicable

TRAINING

30. Is formal training in QMS or other quality improvement philosophies given to employees?

No training is given (please skip the rest of this section)

Some training is available

A formal training program is in effect

Others (please specify)

31. Percentage of managerial/supervisory staff who have undergone quality improvement training? _____% 32. Percentage of non-managerial/technical staff who have undergone quality improvement training: _____ % 33. Training currently emphasizes (not limited to one answer)

Process control

Statistical analysis

Data gathering & analysis

Team work

Communication

Customer satisfaction

OTHERS

34. Do you envisage obstacles in the implementation of QMS program (not limited to one answer?)

Rigid attitude of executive management towards quality

Schedule and cost treated as the main priorities

Emphasis on short-team objects

Lack of education and training to drive the improvement process Too much document commitment / understanding

Lack of employee's commitment/understanding

Tendency to cure symptom rather than get to the root cause of a problem

Lack of expertise/resources in QMS

Current tendering/bidding climate

THANK YOU

A.2 Audit check list for an alcoholic beverage industry.

AUDIT CHECK LIST FOR AN ALCOHOLIC BEVERAGE INDUSTRY
COMPANY:…… DATE:……..

NO.	WRITTEN POLICIES OR PROCEDURES ON FOOD SAFETY	OBSERVATION, NOTING RELEVANT DOCUMENTS AND RECORDS EXAMINED.	TRAIL
1A	Can one ensure the safety of raw materials received, stored, prepared and packaged and other food production areas (eg. Time and temperature policies and procedures)? (**YES/NO**)	Yes	
B	Can one ensure the safety of foods produced? (**YES/NO**)	yes	
C	Can one ensure the safety of food products sent out into the market? (**YES/NO**)	yes	
D	Are there written policies? (**YES/NO**)	yes	
E	Is the policy documented and pasted on the walls for everyone to admit? (**YES/NO**)	No – well documented but kept on shelves	
F	Is the policy well known and easily be sited by workers? (**YES/NO**)	No – working staff not abreast with the policies	
G	Do most people understand the policy? (**YES/NO**)	No – just a few understands it because it's not been discussed and explain to most workers	
2	**PREMISES**		
A	Is the factory enclosed by wall? (**YES/NO**)	yes	
B	Is the factory sited near a drain or gutter? (**YES/NO**)	No	
C	Is the factory having adequate drainage system? (**YES/NO**)	yes	
D	Is the factory sited at a place with good air quality or pollution from other factory? (**YES/NO**)	yes	
E	Is the outside free from bush? (**YES/NO**)	yes	
F	Is the outside free from stagnant water or flood? (**YES/NO**)	yes	

G	Is the landscape of the outside rodent, insects and birds free? (**YES/NO**)	yes	
H	Is the site potential for pest harborage? (**YES/NO**)	No	
I	Is the layout of the factory free from dust and from vehicular movement? (**YES/NO**)	yes	
J	Is there space for future expansion? (**YES/NO**)	yes	
3	**BUILDING – FACILITY**		
A	Is there availability of potable water? (**YES/NO**)	yes	
B	Is there an adequate waste disposal facility? (**YES/NO**)	yes	
C	Is there adequate lighting system? (**YES/NO**)	Yes but bulbs are too far for replacement	
D	Is there sufficient working space for hygienic operation? (**YES/NO**)	yes	
E	Is there good flow of process (hygienic, no cross contamination)? (**YES/NO**)	yes	
F	Is there on-site laboratories sited physically away from production area? (**YES/NO**)	Yes, but occasional laboratory analysis are conducted with external bodies	
4	**BUILDING – INTERIOR**		
A	Is the foundation or walls impervious to moisture? (**YES/NO**)	yes	
B	Is the floor and wall easily cleaned? (**YES/NO**)	yes	
C	Is the floor or wall made of suitable, smooth, non-toxic, impervious, easy to clean and disinfect? (**YES/NO**)	yes	
D	Is the floor slope to drain? (**YES/NO**)	yes	
E	Does the construction prevent rodent entry? (**YES/NO**)	No	
F	Is the floor impervious to water? (**YES/NO**)	yes	
G	Is the floor free of cracks and crevices and resistant to chemicals? (**YES/NO**)	yes	

5	**CEILINGS, WINDOWS AND DOOR CONSTRUCTION**		
A	Is the ceiling of no dirt and condensate? (**YES/NO**)	yes	

B	Can the ceiling be cleaned, swept or hosed easily? (**YES/NO**)	yes	
C	Is the ceiling in hygienic state and has no gaps? (**YES/NO**)	yes	
D	Can windows give an effective environmental control and adequate lighting? (**YES/NO**)	yes	
E	Are windows and doors nonopening into production and filling rooms? (**YES/NO**)	yes	
F	Are the windows and doors clean, easily disinfected and non-absorbent? (**YES/NO**)	yes	
G	Are windows easily cleanable? (**YES/NO**)	yes	
H	Are doors properly placed to prevent pest and airborne contamination? (**YES/NO**)	yes	
I	Are the exterior of the doors having air curtains? (**YES/NO**)	yes	
J	Are the doors free to open and close? (**YES/NO**)	yes	
K	Are door handles easily cleaned and dirt free? (**YES/NO**)	yes	
L	Are the surfaces of the door cleanable? (**YES/NO**)	yes	
M	Are doors made from the correct materials? (**YES/NO**)	Yes	
N	Can all three be maintained? (**YES/NO**)	Yes	
O	Are working surfaces durable, easy to clean and disinfect? (**YES/NO**)	yes	
6	**LIGHTING**		
A	Is the factory well lighted? (**YES/NO**)	Yes	
B	Are the bulbs well covered from dust? (**YES/NO**)	Yes	

C	Are the lighting systems easily changed when burnt? (**YES/NO**)	No – because the bulbs are too high	
D	Are the lights free from dust and other vices? (**YES/NO**)	Yes	
E	Are the lighting systems adequate? (**YES/NO**)	Yes	
7	**VENTILATION**		
A	Is the factory having adequate ventilation? (**YES/NO**)	Yes	

B	Are there signs of proper ventilation? (**YES/NO**)	Yes	
C	Are there hygrometers to monitor? (**YES/NO**)	Yes	
D	Is there cross ventilation? (**YES/NO**)	Yes	
E	Are there heat extractors in the factory? (**YES/NO**)	Yes	
7	**SANITARY FACILITIES WASTE DISPOSAL**		
A	How is waste disposed? (**YES/NO**)	Waste is disposed by segregation of few materials but not all	
B	Are designated waste collection points clean? (**YES/NO**)	Yes	
C	Are there effective effluent management? (**YES/NO**)	No – plans to site effluent treatment plant	
D	Are waste easily degenerated and identified on line? (**YES/NO**)	Yes	
E	Are the external collection points enclosed? (**YES/NO**)	No - but far from site	
F	What are the frequency of waste disposal?	Daily due to the frequent waste discharge	
G	Are there SOPS on waste disposal? (**YES/NO**)	Yes	
H	Does the waste keep long in the factory before disposal? (**YES/NO**)	No	
I	Are the waste segregated? (**YES/NO**)	Somehow	
J	Are the wastes recycled? (**YES/NO**)	No	
8	**EMPLOYEE FACILITIES**		

A	Are there toilet facilities with hand washing facilities? (**YES/NO**)	Yes	
B	Are the toilet facilities adequate for staff? (**YES/NO**)	Yes	
C	Are the toilet facilities easily accessible? (**YES/NO**)	Yes	
D	Are there hand washing facilities and dryers at production areas? (**YES/NO**)	Yes	
E	Does the water flow regularly? (**YES/NO**)	Yes	
F	Are the location of toilets far away from production, packaging areas? (**YES/NO**)	No	

G	Are there changing rooms with adequate and clean lockers? (**YES/NO**)	Yes	
H	Are the rest rooms and hand washing areas pasted with "hand wash" signage? (**YES/NO**)	Yes	
I	Are there signage showing restrictions of visitors into production areas? (**YES/NO**)	Yes	
9	**CAFETERIA**		
A	Does the company have a cafeteria? (**YES/NO**)	Yes	
B	Do workers occasionally eat in their offices? (**YES/NO**)	No	
10	**EQUIPMENT CLEANING AND SANITIZING FACILITY**		
A	Are daily cleaning conducted? (**YES/NO**)	Yes	
B	Are machines cleaned and maintained periodically?(**YES/NO**)	Yes	
C	Are all the various sections cleaned daily? (**YES/NO**)	Yes	
D	Is there a checklist for cleaning activities? (**YES/NO**)	No	

E	Is CIP conducted on the water, storage tanks and processing lines? (**YES/NO**)	Yes	
F	Is the CIP conducted after every product change? (**YES/NO**)	Yes	
11	**WATER QUALITY AND SUPPLY**		
A	What is the source of water?	GWSCL	
B	Does the water flow regularly? (**YES/NO**)	Yes	
C	Is the water clean always? (**YES/NO**)	Yes – but also treated at source	
D	Is there other treatment made to the water before use? (**YES/NO**)	yes	
E	If any please mention it…….	Chlorination	
F	Is the water analyzed daily before use? (**YES/NO**)	Yes	
12	**TRANSPORTATION, RECEIVING AND STORAGE**		
A	**FOOD CARRIERS** Are the carriers of food always cleaned? (**YES/NO**)	Yes but records not kept	
B	Are the carriers for the company or suppliers?.....	both	
C	Are the carriers inspected daily before loading? (**YES/NO**)	No	
D	Are there checklist for carriers and their handlers? (**YES/NO**)	No	
E	Are the records of loading vans available? (**YES/NO**)	Yes	
F	Do they report of any accidents in their? (**YES/NO**)	Yes	
12	**INCOMING RAW MATERIALS**		
A	Are the raw materials imported? (**YES/NO**)	Some	
B	Does raw material inspection form cover vital information for traceability? (**YES/NO**)	Yes	
C	What percentage of raw material is locally manufactured?	-	

D	Are there inspection and analysis Conducted on raw materials on arrival and are records kept? (**YES/NO**)	Yes	
E	Are there certificate of analysis attached to the raw materials or consignment? (**YES/NO**)	Yes	
F	Is there an approved raw material suppliers list available? (**YES/NO**)	No	
G	Do material safety data sheets accompany consignments if needed? (**YES/NO**)	Yes	
H	Are there specifications attached or available to approved raw and packaging materials? (**YES/NO**)	Yes	
I	Are raw and packaging materials rejected when failed specification? (**YES/NO**)	Yes	
J	Are there documentations on raw and packaging materials received? (**YES/NO**)	Yes	
K	Are there separations to raw and packaging material in the storage rooms? (**YES/NO**)	Yes	
L	Are raw and packaging materials well stored at an appropriate place? (**YES/NO**)	Yes	

M	Is handling of Non-conforming Raw and packaging material adequate? (**YES/NO**)	Yes	
N	Are storage of raw and packaging material under controlled environment? (**YES/NO**)	Yes	
O	Does stock rotation allow traceability? (**YES/NO**)	yes	
P	Is there an SOP on raw material receipt? (**YES/NO**)	yes	
Q 13	Are all the records up to date? (**YES/NO**) **NON - FOOD CHEMICAL**	yes	

	RECEIVING AND STORAGE		
A	Are there separate storage rooms for chemicals and nonfood products? (**YES/NO**)	Yes	
B	Are there inventories to the chemicals? (**YES/NO**)	No	
C	Are they kept out of reach to unauthorized personnel? (**YES/NO**)	Yes	
D	Are there instructions to their usage? (**YES/NO**)	No	
E	Are there material safety data sheet available? (**YES/NO**)	Yes	
14	**FINISHD PRODUCT STORAGE AND RELEASE**		
A	Are there defined released procedure? (**YES/NO**)	Yes	
B	Are product specifications for release defined? (**YES/NO**)	Yes	
C	Are there authorized persons defined for release of products? (**YES/NO**)	Yes	
D	Is keeping quality samples (KQS) defined and part on release? (**YES/NO**)	yes	
E	Is organoleptic attribute part of product release? (**YES/NO**)	yes	
F	Is Product examination part of release? (**YES/NO**)	Yes	
15	**EQUIPMENT DESIGN AND INSTALLATION**		
A	Are equipment suitable for operation to prevent cross contamination? (**YES/NO**)	Yes	
B	Are equipment positioned to allow cleaning and disinfection; and inspection? (**YES/NO**)	Yes	
C	Are Equipment material nontoxic and withstand cleaning and disinfection? (**YES/NO**)	Yes	

D	Does equipment design permit cleaning and disinfection? (**YES/NO**)	yes	
16	**EQUIPMENT MAINTENANCE AND CALIBRATION**		
A	Are the equipment calibrated and calibration records available? (**YES/NO**)	Yes	
B	Is there an equipment maintenance schedule? (**YES/NO**)	Yes	
C	Are the lubricants use food grade? (**YES/NO**)	Yes	
D	Are there a start-up procedure after maintenance? (**YES/NO**)	Yes	
E	Are the records on maintenance master plan? (**YES/NO**)	Yes	
F	Are there stickers on "status of calibration" on such equipment? (**YES/NO**)	Yes	
G	Are machine test on filling machines done? (**YES/NO**)	Yes	
H	Are there records of calibration and verification available? (**YES/NO**)	yes	
I	Are there document maintenance schedule for equipment? (**YES/NO**)	Yes	
17	**PERSONNEL**		
A	**TRAINING GENERAL FOOD HYGIENE TRAINING**		
B	Are hygiene standards documented? (**YES/NO**)	Yes	
C	Are jewelry and watches worn on line? (**YES/NO**)	No	
D	Are there a uniform policy in place?	Yes	

	(**YES/NO**)		

E	Have the staff been trained in GMP's? GLP"s, Personal hygiene, Safety issues and other sanitation aspects? (**YES/NO**)	most	
18	**TECHNICAL TRAINING HYGIENE AND HEALTH REQUIREMENTS**		
A	Are working staff medically certified staff? (**YES/NO**)	Yes	
B	Are the illness reporting system effective? (**YES/NO**)	Yes	
C	Are personnel hygiene habits online prevent cross contamination? (**YES/NO**)	Yes	
D	Are there appropriate training for all categories of staff (hygiene and quality) (**YES/NO**)	Yes – depending on the yearly	
E	Are there records to that effect? (**YES/NO**)	Yes	
F	Are visitors inform of hygiene rules? (**YES/NO**)	No	
19	**CLEANLINESS AND CONDUCT**		
A	Are finger nails kept and inspected? (**YES/NO**)	Yes	
B	Are smoking and eating witnessed on-line? (**YES/NO**)	No	
C	Is hand cleaning protocol observed? (**YES/NO**)	Yes	
D	Were workers observed in their PPE's? (**YES/NO**)	Yes	
E	Are protective clothing adequate and cleaned? (**YES/NO**)	Yes	
F	Are foot wears, goggles, nose mask, ear plugs etc. found to be worn? (**YES/NO**)	Yes	
20	**COMMUNICABLE DISEASE AND INJURY**		
A	Are injuries recorded? (**YES/NO**)	Not often	
B	How is an injured person handled?	By the first aiders	

C	Is injury rate high? (**YES/NO**)	No	
D	Is the company a high risk environment? (**YES/NO**)	Yes	

E	Is there an ambulance to handle casualties? (**YES/NO**)	No	
F	Are workers given FIRST AID when necessary? (**YES/NO**)	Yes	
G	Does employer ensure employee conduct their health examinations? (**YES/NO**)	Yes	
H	Are there issues of communicable diseases?(**YES/NO**)	No	
21	**SANITATION AND PEST CONTROL**		
	SANITATION PROGRAM		
A	Is there a sanitation program in place? (**YES/NO**)	Yes	
B	Are there signage for sanitation directives? (**YES/NO**)	No	
C	Is there a checklist for good sanitation practices? (**YES/NO**)	No	
D	Are workers sanitation conscious? (**YES/NO**)	Yes	
22	**PEST CONTROL**		
A	**PEST CONTROL PROGRAM** Are there 3 tier pest barrier? (**YES/NO**)	Yes	
B	Are the plans for pest control available? (**YES/NO**)	Yes	
C	Are there pest control reports? (**YES/NO**)	Yes	
D	Are there any schedule and unscheduled visits? (**YES/NO**)	Yes	
E	Are bait stations identified? (**YES/NO**)	Yes	
F	Are there site plans indicating location of bait stations? (**YES/NO**)	No	
G	Are pesticides in use appropriate for safety of products? (**YES/NO**)	Yes	

F	Are there details on fumigation or any chemicals used-MSDS? (**YES/NO**)	Yes	
G	Was there storage of chemicals?(**YES/NO**)	Yes	
H	Are there evidence of pest?(**YES/NO**)	No	

I	Will pest gain access to production line? (**YES/NO**)	No	
23	**RECALL**		
	RECALL SYSTEM		
A	**RECALL PROGRAM** Is recall procedure tested regularly? (**YES/NO**)	Yes	
B	Are there vital details on recall committee? (name, designation, phone number) **(YES/NO)**	yes	
C	Are product recalls given the level of attention? (**YES/NO**)	Yes	
D	Are there any recall procedure? (**YES/NO**)	Yes	
E	Is there any recall committee? (**YES/NO**)	No	
F	Is there a recall Coordinator? (**YES/NO**)	Yes	
G	Are the classifications of recall available? (**YES/NO**)	No	
H	What is the mode of handling of recall products?.....	Handled by QA department and warehouse	
24	**REFERENCE SAMPLES**		
A	Is there a sampling scheme for reference samples? (**YES/NO**) And how?.....	Yes	
B	Are there verification of reference samples till expiry? (**YES/NO**)	Yes	
C	Are reference samples used in product release? (**YES/NO**)	Yes	
25	**NON-CONFORMING PRODUCTS**		
A	Is there procedure for handling Non-Conforming products? (**YES/NO**)	Yes	

B	Are Non – Conforming materials well identified? (**YES/NO**)	Yes	
C	Are Non-Conforming products segregated? (**YES/NO**)	Yes	
D	Is evaluation done to identify cause of non-conformance? (**YES/NO**)	Yes	
E	Is there a mode of disposal of non-conforming products? (**YES/NO**)	Yes	
F	Are there classifications of nonconforming products? (**YES/NO**)	Yes	

G	Is quality cost due to nonconforming products calculated? (**YES/NO**)	Yes	
26	**REWORK**		
A	Is there any rework procedure? (**YES/NO**)	Yes	
B	Is the criteria for rework defined? (**YES/NO**)	Yes	
C	Are food safety evaluations done? (**YES/NO**)	Yes	
D	Are there records on rework (within the last six months)? (**YES/NO**)	Yes	
E	Does rework methodology permit traceability? (**YES/NO**)	Yes	
F	Is there approval before rework? (**YES/NO**)	Yes	
G	Is there any quality cost due to rework? (**YES/NO**)	Yes	
H	Is FIFO considered in rework? (YES/NO)	Yes	
27	**TRACEABLITY**		
A	Is traceability procedure available? (**YES/NO**)	Yes	
B	Is traceability of raw and packaging material suppliers adequate? (**YES/NO**)	Yes	
C	Is traceability of distributors possible? (**YES/NO**)	No	

D	Are there records on rework (within the last six months)? (**YES/NO)**	Yes	
E	Are there batch coding of products, raw materials and packaging materials? (**YES/NO**)	Yes	
28	**COMPLAINTS**		
A	Are complaint procedure adequate? (**YES/NO**)	No	
B	Is there an allocation of responsibility for complaints? (**YES/NO**)	Yes	
C	Does complaint form capture all vital information? (**YES/NO**)	Yes	
D	Are complaints analyzed and actions taking? (**YES/NO**)	Yes	
E	Is there any reply to complainants? (**YES/NO**)	No	
F	Are complaints circulated to appropriate departments? (**YES/NO**)	Yes	
G	Are complaint data put in trend chats? (**YES/NO**)	No	
H	Are complaints part of management review of quality? (**YES/NO**)	Yes	
I	Is cost of quality due to complaints calculated? (**YES/NO**)	Yes	
29	**PRODUCT CODE IDENTIFICATION AND DISRIBUTION DETAILS**		
	OPERATIONAL PRE-REQUISITE PROGRAM		
A	Are the GMP's concerning production available? (**YES/NO**)	Yes	
B	Are there cleaning in process (CIP) (**YES/NO**)	Yes	
C	Are there hygienic practices? (**YES/NO**)	Yes	
D	Are there good transport facilities? (**YES/NO**)	Yes	
E	Is there any program to check personnel hygiene? (**YES/NO**)	Yes