

Implementation of Food Safety Management System and its Effects on Business Performance in an Educational Institution Restaurant.

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DOI: <https://dx.doi.org/10.47772/IJRISS.2024.806056>

Received: 16 May 2024; Accepted: 27 May 2024; Published: 03 July 2024

ABSTRACT

Food safety standard implementation is fundamental to the prevention, detection, and management of foodborne risks as well as the realization of food security, protection of health, and economic sustainability of food manufacturing, processing, and distributing enterprises. The global food safety standard, Hazard Analysis and Critical Control Point (HACCP) is one such instrument deployed to promote food safety in the hospitality industry worldwide. A higher educational institution in Kenya introduced HACCP ten years ago as part of its ongoing quality improvement policy to gain the advantages of implementing the standard in the food business, and as a reaction to incidents of food contamination in its restaurant that raised concerns among the customers and the leadership. Food contaminations were experienced even after the implementation of the HACCP food safety program, which brought to the fore the pitfalls that occur due to deviations from the HACCP plans and loss of control that expose consumers to food hazards. Despite the introduction of HACCP in the institution's restaurant in 2014, there have been incidents of lapses in food quality among which was a suspected food contamination resulting in undesired customer experiences. This study aimed to evaluate the effects of the implementation of HACCP food safety management processes on food and beverage safety and business performance at the institution's restaurant. The specific objectives of the study were to assess the implementation of the HACCP food safety management system in food production and sales; assess the customer perceptions and confidence levels in the quality and safety of food and beverages served, and to evaluate the effects of the HACCP food safety management programme in the delivery of safe food and the general business performance at the institution restaurant. The study design was exploratory and involved a survey of restaurant customers using a structured questionnaire, and interview of key informants using an interview guide. The researcher also observed food chain processes using a checklist. The study population was primarily the management and staff of the institution restaurant as well as the client population comprising students, instructors, administrative staff, institution managers, and regulatory agency representatives. The data obtained from primary sources was complemented with secondary data. Quantitative data were analysed using descriptive statistics and results were presented in tables, graphs, and pie-charts while qualitative data were analysed thematically. The key findings of the study were that despite some challenges and complexities in the implementation of HACCP, this food safety management system had significantly reduced the incidence of food contamination in the facility. Further, based on customer perceptions and feedback, the institution had registered high customer satisfaction scores (CSAT) and customer retention rates (CRR). In addition, the institution was able to generate sustained and increasing revenues and profits for the institution. The study therefore concluded that HACCP is an

important instrument for promoting and safeguarding food safety in the hospitality industry and an important tool for building customer confidence and generating revenues for food businesses. The key recommendation from this study is that the institution should address identified issues of space, equipment, staff, and supplier knowledge and skills that compromise conformity with HACCP requirements.

INTRODUCTION

The World Health Organization (WHO) estimated that as many as 600 million people or almost 1 in 10, fall ill, and 420,000 of them die annually after consuming contaminated food (FAO/WHO, 2018). This level of infections, illnesses, deaths, associated costs of treatment and compensation, and loss of human resources, comprise the risk and rationale for global, regional, and national initiatives to prevent, detect, and manage food contaminations. The initiatives include the establishment of international food safety standards such as the Hazard Analysis and Critical Control Point (HACCP) of the United Nations' Food and Agriculture Organization (FAO) and World Health Organization (WHO) to guide the prevention, detection, and management of foodborne risks in the food chain as well as the realization of food security, protection of health, and economic sustainability of food manufacturing, processing, and distributing enterprises. The International Standards Organization (ISO), a voluntary standards agency, has also established the ISO 22000:2018, Food Safety Management System (ISO 22000), to serve the same purpose (Giovannucci & Satin, 2007; ISO, 2018; FAO/WHO, 2019). Food safety management, practiced under the ISO 22000 or HACCP system, provides structures, processes, and guidelines that minimize food safety hazards, enhance food quality, and consequently meet customer expectations (ISO, 2018; FAO/WHO, 2019). These would further culminate in benefits such as increased customer demand for food and beverage and increased sales volumes and profitability of businesses such as restaurants (Heras, et al., 2002; Sharma, 2005; Navel & Marcus, 2007). In contrast, a single foodborne illness or disease outbreak can bring economic losses. Hence, investing in preventive quality assurance measures is much cheaper than facing the costs of food recalls, disposals, penalties, legal fees, loss of reputation, and customer confidence (Ribera, et al., 2012; Hussain & Dawson, 2013).

According to Will and Guenther (2007), food quality and safety standards globally comprise voluntary and mandatory standards developed and promulgated at four levels: multilateral, such as the World Trade Organization; supranational such as the European Union (EU) or Common Market for Eastern and Southern Africa (COMESA) trading bloc; national, such as the member states of EU or COMESA; and private industry and trade associations. Food safety systems are used to coordinate and support operations in the hospitality industry. In Kenya, food safety systems are overseen and regulated by, among other organizations, the Ministry of Health, through the Public Health Department, Kenya Bureau of Standards, and the Dairy Board of Kenya. A host of local, regional, and international organizations have standards that are binding on Kenyan food safety systems implementers (Oloo, 2010). As advised by Vans and Lindsay (2011), organizations must adopt national, regional, or global systems for use to ensure that food remains safe, healthy, and fit for human consumption. Further, when implemented as prescribed, food safety standards such as HACCP help meet customer expectations and understand their current and anticipated needs. Consequently, they assure and maintain growing customer demand for food and beverages, resulting in restaurant businesses' profitability and viability (FAO/WHO, 2019). It is in anticipation of these benefits that the 10,000-people institution (name redacted on their request) adopted the FAO and WHO Hazard Analysis and Critical Control Point (HACCP) food safety system for its food and beverage operations a decade ago. The study carried out in 2023-2024 covered the period 2014 to 2019 because the restaurant was closed between 2020 and 2022 due to the COVID-19 pandemic.

The institution's management established the HACCP policy and provided initial resources for basic infrastructure, established appropriate management structures, and operating systems as well as sensitized and trained the catering management team and staff, set up prerequisite programs, developed the HACCP

implementation plan, sensitized customers, and ultimately rolled out the program. Although the implementation of global food safety management systems such as HACCP has been presented as the solution for the quality of food and beverage, problems in organizations, incidents of non-conformity and safety risks remain prevalent (Evans & Lindsay, 2011; ISO, 2019). Experiences documented in Kenya by the Ministry of Health, SGS Kenya Limited, and Kenya Bureau of Standards, the food certification and regulation institutions, indicate persistent lapses and significant non-conformities including non-fatal incidences of food contamination in the implementation of the standards. These non-conformities have raised concerns about implementing the food safety system and its impact on the quality of food and beverage services as well as the business performance of the institution's restaurant. Considering that these standards constitute attempts at improving quality and food safety in particular, the gap between the anticipated outcomes of the quality system implementation and the reported outcomes raised concerns about safety performance and its overall effects on the restaurant business at the institution. This study sought to address this identified gap and specifically answer the question as to what effects the implementation of HACCP food safety systems had on food and beverage safety and business performance at the institution's restaurant. The specific study objectives were to: 1) assess the implementation of the HACCP food safety management programme at the institution's restaurant; 2) assess the customer perceptions and confidence levels in the quality and safety of food served at the institution's restaurant; 3) evaluate the effects of the HACCP food safety management programme in the delivery of safe food and beverages and the general business performance at the institution restaurant.

LITERATURE REVIEW

Implementation of Food Safety System

The organizational development (OD) theory embeds the introduction and implementation of the HACCP food safety programme as part of the institution's overall performance improvement. The OD theory espoused by Lippitt, Watson and Wesley (1958) and advanced by Pugh (1986) and French & Bell (1998) refers to ongoing efforts to improve organizational performance and resolve challenges that are experienced through effective management of people's behaviour in an organization. The model is used within the framework of an organization's strategy as a mechanism to bring about change and to address resistance to change inherent in new initiatives such as the introduction HACCP food safety program. The OD model uses strategies such as training to improve human resource skills, process change to increase efficiency and effectiveness, and structural reorientation to create roles, and responsibilities, and facilitate accountability, communication, and control. Consequently, OD seeks to create a culture where teams work together to deliver high-quality and profitable performance (French & Bell, 1998). The model thus suitably captures the objectives of introducing HACCP food safety system as a change mechanism to improve organizational performance in terms of providing improved food safety and reducing contamination and potential risks of illness. Consistent with OD theory, Wallace, Sperber, & Mortimore (2018), intimated that the implementation of a food safety program follows a conviction and commitment by an organization's management to address identified needs through the adoption and implementation of best practices in food safety systems. The management commitment entails articulation of vision, or how the situation will look like after the solutions have been implemented; allocation of adequate resources required to implement a plan for the food safety program which includes the prerequisite support infrastructure, activities, and practices that would lay the foundation for the introduction of the food safety program (Wallace, Sperber, & Mortimore, 2018; Jenner, Elliot, Menyhart, et al., 2007).

The implementation of the HACCP system requires the formation of a team to champion the implementation process. The team would then coordinate the sensitization and training of staff, prepare a timetable for execution, put together the resources required, plan, and execute good food manufacturing practices [GMP] as well as prepare for and execute HACCP plan, verify, and validate HACCP system

maintenance, and obtain certification (Jenner, Elliot, Menyhart, et al., 2007). GMP entails procedures to facilitate a safe production environment including control of all forms of hazards, provision of infrastructure facilities, workspaces, utilities, and necessary working equipment, creation of awareness and training of employees, and systems for handling rework, recall, and traceability of specific items as well as documentation to facilitate accountability, quality assurance, monitoring and evaluation, regulatory and legal compliance (BIS, 2008). It also comprises systems for the management of suppliers and materials, packaging, transportation, warehousing, storage, and handling (Société Générale de Surveillance [SGS] Academy, 2014). The outcome of GMP is a better working environment, higher employee productivity, and decreased incidence of customer complaints (Varzakas, 2015).

HACCP food safety system implementation requires changes in organizational structure, management systems, and staff behaviour, which are essential to enhanced productivity, process efficiency, and effectiveness in the delivery of quality products and services as well as increased business revenues (FAO/WHO, 2019). It also requires education and training, development, and implementation of a HACCP plan to ensure that food is not contaminated throughout the food supply chain, assembling the HACCP teams, defining food production, distribution safety guidelines and management systems, food description, designing workflow processes and verification of the activities (Motarjemi, et al., 2014; Société Générale de Surveillance (SGS), 2014; Varzakas, 2015). Implementing GMP or prerequisite programs mitigates the risks arising from the difficulty of entirely controlling the participants in the food supply chain (Wallace, Sperber, & Mortimore, 2018). Other implementation challenges cited in the literature relate to inadequate financial, human, and technical support which are mitigated through appropriate and adequate investment for HACCP implementation. Continual monitoring, periodic assessments, and audits by quality assurance firms with timely action taken on identified nonconformance help mitigate performance losses (Varzakas, 2015; Wallace, Sperber, & Mortimore, 2018).

Customer perception and confidence in food quality and safety

The consumer behaviour theory espoused by Schiffman and Wisenblit (2019), underlies the concepts of perception and confidence in the quality and safety of goods and services. The theory was used in this study to explain the influence of customer perceptions and confidence in the quality and safety of food and beverage sales. Building on this, Kotler et al. (2022), stated that when people see, hear, taste, feel and smell, that is, receive the physical stimuli, they select, organize, and interpret the information and form perception. These perceptions are more important than reality and they tend to motivate people to act or behave in a certain way. People may perceive the same object differently and respond differently. Because people are exposed to many different stimuli, they select what to give attention to. (Kotler et al., 2022). According to Schiffman and Wisenblit (2019), institutions seeking to draw customer attention would therefore focus on activities or actions that are worthwhile enough to warrant the notice of the target customers. Stimuli that relate more to people's needs such as food or that are anticipated because of experience or advertisement, or are significantly more profound than others, are likely to be noticed. But because food types are different and where they are served also differ, those that affect sensory or other stimuli more strongly or profoundly, tend to receive greater attention (Schiffman and Wisenblit, 2019).

According to Schiffman and Wisenblit (2019), confidence in an organization's products is observed when customers show positive attitude towards those products as indicated by repeat visits and purchases, and even increased expenditure on the products on offer, irrespective of occasional mistakes or disappointments. Confidence in a product is built by its quality, that is, how it is made, and what it can do as well as its ability to meet and satisfy the needs of a customer (Kotler et al., 2022). In a hospitality environment, confidence is built and sustained by the quality and safety of food, customer relations, well-organized, good-looking, and comfortable restaurant environment, and efficiency of service. The quality of food that customers perceive as acceptable arises from its appearance or presentation, quantity, taste, texture, temperature, additives, or

scent. When no apparent physical contaminant is present and the food looks fresh, steaming, and served in clean and dried crockery on well-laid table, customers may perceive that food as safe and fit for human consumption, (Varzakas, 2016).

The greater the confidence in the perceived quality and safety of food and beverage in a restaurant, the greater the likelihood the number of customers and revenues increase. This ideally leads to greater performance and sustainability of the business, (Davis, Pantelidis, Alcott & Lockwood, 2018). Other factors remaining the same, when the quality of a product is high, there is a higher likelihood of customers being satisfied, and they can pay higher prices, thus costs are likely to be relatively lower, and together increase the level of profitability (Kotler et al., 2022). Thus, the impact of perceived quality and safety of food and beverage in a restaurant includes increased customer satisfaction, potentially reduced operation costs, increased sales revenues and profitability, and overall improved business performance.

Effects of implementing HACCP food safety standard on business performance

The theory of strategy execution explained by Thompson, Peteraf, Gamble, and Strickland, (2022) defines the effects as desirable and unintended results achieved by implementing planned projects such as the HACCP food safety program. Results may be outputs such as uncontaminated food, outcomes such as changes in behaviour of consumers and employees, and performance of business such as changes in sales and revenues (World Bank, 2013). Other outcomes include decreased number of contamination incidents reported. Results also include impact which refers to the longer-term change in trends of patterns such as sustained increases in incomes or revenues from food sales over time, (World Bank, 2013). The strategy execution model defines the organizational management capabilities, human resources, financial resources, structures, processes, performance management framework and rewards required for program implementation (Thompson, et al., 2022). The model further observes that effective execution requires a plan with clearly specified goals, objectives, activities and assignments to teams and individuals who are well-resourced to perform assigned tasks. With results-oriented management, the actual execution should deliver the desired results. When the desired effects are achieved then implementation of the plan or program is said to have been effective. The theory of strategy execution by Thomson, et al., (2022) therefore explains the effectiveness or otherwise of implementing HACCP food safety management system and the strategy utilized in delivering the desired effects or changes.

The effective implementation of HACCP food safety system implementation can achieve the objectives of providing safe food and decreasing levels of contamination and sickness thereby protecting consumers from potential food hazards and reducing potential costs associated with illnesses (WHO, 2007). Further, effective implementation of HACCP food safety programs prevents costs of holding, testing, inspecting, and destroying products that do not meet specifications, consumer complaint resolution, claims, and staff time involved as well as saving organizational reputation and brand equity (Wallace, Sperber and Mortinmore 2018:16). Further, it controls and prevents food contamination on real-time basis at all stages as well as identify non-conformities early and take preventive or corrective action, improves food quality, reduces unnecessary waste, inspire the confidence of customers, and increase sales and profit margins (Wallace, Sperber and Mortinmore, 2018). In addition, effective implementation facilitates compliance with regulatory and local and international food safety standards (Republic of Kenya, 2012; Kenya Bureau of Standards, 2015; Varzakas, 2016; ISO, 2018). Finally, when the management appropriately empowers and motivates employees through clear role assignments, involve them in setting competitive and achievable targets, engages them in teamwork, and rewards them through performance-based compensation programs, there are chances of significant improvements in employee productivity, product quality, service pricing, profitability and overall performance and sustainability of institution business (Thomson, et al. 2022).

METHODOLOGY

This exploratory study adopted a case study design and collected quantitative data from restaurant customers comprising students, instructors, and administrative staff; and qualitative data from the senior institution and restaurant managers as well as regulatory agency representatives, using a structured questionnaire and an interview guide respectively. The researcher also personally observed the institution's restaurant setup and its operations using an observation checklist. The data obtained from primary sources was complemented with secondary data. A total of 7 restaurant staff together with 55 customers, randomly selected, participated in the survey. A total of 4 senior institution managers and 4 different regulatory agency representatives, purposely selected, were interviewed. Quantitative data were analysed using descriptive statistics and results were presented in tables, graphs, and pie charts while qualitative data were analysed thematically. The unit of analysis was the institution's restaurant.

RESULTS AND DISCUSSIONS

Management Commitment to HACCP implementation

The institution management established, documented, and disseminated the policy on HACCP food safety standards. Respondents confirmed that the management allocated adequate funds to implement prerequisite programs and the roll-out as well as provided continuing support to the HACCP implementation process. The management hired a standards implementation agency to assist in establishing standard operating procedures, staff sensitization, and designing food safety processes, structures for operations, staff roles, and training in behaviour expected, as well as customer handling. The management also established quality implementation teams and committees; and systems for control of food contaminations, procurement, and management of suppliers as well as information and recording systems for accountability, quality assurance, monitoring and evaluation, regulatory and legal compliance. Most of the restaurant staff respondents (71%) agreed that the management was committed to HACCP adoption, and implementation as shown in Figure 4.1.

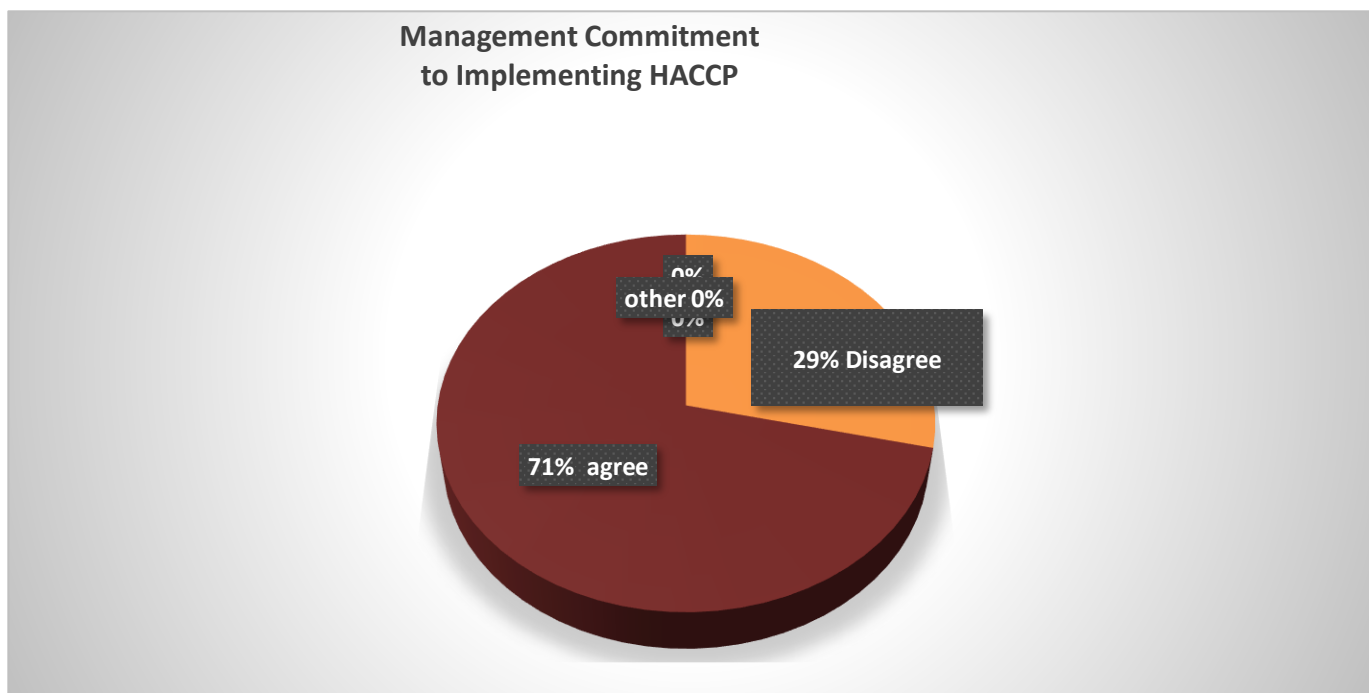


Figure 4.1. Management commitment to implementing HACCP.

Implementation of Food Quality and Safety Standards

Staff roles, capacity building, and food quality and safety.

As indicated by 71.4% of catering staff responses in Table 4.1, adequate operational staff were recruited, sensitized, trained, and allocated clear roles and responsibilities. All roles contributed to food safety and quality in the food chain through staff awareness of and following standard operating procedures and practices as confirmed by 71.5% of the respondents. According to catering management respondents, the staff met regularly in teams and as unit members to address food quality and safety issues and any other issues that affected service delivery. Staff daily performance of activities, and recording of raw materials used, food losses, sales quantities, and values were monitored and reviewed; and as required by the standard operating procedures, staff were regularly given feedback about achievements and what needs to be improved as indicated in Table 4.1. They were also given refresher training internally as well as briefings about any new developments in customer service, or other issues relevant to their work. Supervisors and managers also attend relevant upgrading programs that enhance maintenance and improvements of food quality and safety management services as well as managing work teams, handling different types of customers, managing food costs, and other relevant subjects. These continual capacity building of staff, role clarity, teamwork, supervisory support, and defined processes have made them ready and available to deliver quality and safe food over the period of HACCP implementation as attested by key informants and questionnaire respondents as shown in Table 4.1. As stipulated in the policy and standard operating procedures, employee performance was evaluated periodically against agreed work targets and quality standards set out in HACCP, and feedback on their performance as well as guidance and support to enhance their skills in delivery safe and quality food was given as indicated in the last three rows of Table 4.1

Table 4.1. Staff roles, capacity building and food quality and safety

	n	Disagree	Neutral	Agree	Mean	Std Dev
There are adequate operations staff in the kitchen, and food & beverage service in the customer dining area of the institution	7	14.3%	14.3%	71.4%	3.833	0.983
Adequate supervisory staff are deployed to oversee operations in the institution	7	0.0%	28.6%	71.5%	4.000	0.816
Staff are aware of food safety management practices, and they use policies and procedures to guide them in all the food chain activities	7	0.0%	28.61%	71.5%	4.143	0.900
Activities, events, in the food chain that do not conform to safety standards are recorded in specified forms which are filed daily	7	43.0%	28.61%	28.6%	2.571	1.272
Daily performance regarding raw materials used, food losses, sales quantities and values are recorded on a specified form	7	14.3%	42.91%	42.9%	3.571	1.134
Supervisors review daily institution non-conformance, raw materials used, food losses, and sales and reports any significant deviation to institution Manager	7	28.6%	1(14.31%)	57.2%	3.571	1.618

Each employee performance is evaluated periodically against agreed work targets and quality standards set out in HACCP	7	0.01%	42.91%	57.11%	3.571	0.535
Staff get feedback about their performance from supervisors continually	7	0.01%	57.11%	42.91%	3.429	0.535
Management and supervisors provide guidance, and required support to staff to enhance food quality and safety	7	0.01%	14.31%	86%	4.000	0.577

Of the 55 customers interviewed, 75.4% reported that restaurant staff were properly dressed and groomed to perform their respective food service roles. Further 56% of them reported that the staff delivered food and beverages efficiently as ordered by customers. In addition, 53% of the customer respondents said staff listened to their queries or complaints, acted, and provided responses within the shortest time possible. Whenever complaints were raised, 40% of the time, the staff responded and promptly addressed them or informed the customer when a resolution would be made. However, according to 24% of the customers feedback posted on the Complaints Box or by email is acted on and a response is provided within the time stated in the Customer Service Charter. Further, there were comparatively few instances (33%) when a customer requested to see a supervisor or manager, but when they did, they were informed, and they came to listen to the issues at hand. Usually, customers raised their complaints with available service staff nearest to them and may request to talk to the supervisor as necessary. These were the views of customers 57.5% of whom also agreed that the service and responsiveness of staff were very satisfactory.

Routine food quality and safety practices

Discussions with catering management staff confirmed that as part of quality standards the procurement department scheduled inspection visits to the suppliers to ensure food was safe from farm to fork. Further, the respondents demonstrated that the procurement staff ensured that storage facilities and other equipment such as freezers, chillers, and other food processing equipment were purchased, installed, and maintained. They also confirmed that maintenance manuals and maintenance contracts were reviewed from time to time.

Other quality assurance measures confirmed by catering management were that in the food production area, kitchen staff competency checks, standard operating procedures, hygiene, and sanitizations measures were given priority attention. Further, contact control measures such as having hot towels, hand gloves, sanitizers, and other personal protective equipment (PPEs) were provided to all staff. In the kitchen area, as well as different sections, working surfaces were strategically arranged so that cross-contamination was mitigated. These arrangements were personally observed by the researcher. Personal observations and catering management confirmed that at the service area, there was an adequate supply of clean crockery and cutlery well-arranged in the hot plates as well as clean and well-dressed tables. Cleaning procedures and checklists were quite visible. The staff were well groomed with service uniforms and covered their heads with hair nets.

The researcher observed a dishwashing machine that was big enough to provide for many customers. The drainage and disinfection systems were noted. The catering manager and review of periodic reports confirmed that regular fumigation was consistently done, and well-marked fumigation schedules were well filed at the quality and assurance office. Also observed at strategic points of each kitchen section, were well-lined color-coded dustbins, wash hand basins with running water, and hand wash cream. The restrooms had enough tissue paper and peddled dustbins were sufficiently provided as well as hand dryers.

Food safety and hazard/risk and management

The capacity to manage hazards and risks determines the ability of a restaurant to successfully implement a

HACCP food safety management system. At the institution’s restaurant, 72% of the employee respondents affirmed that they were aware of hazards and 71% were aware of and have been trained in procedures and controls to prevent food contamination. Fewer employees (29%) participated in internal and external audits because auditors generally sampled or selected the people they interviewed or gave feedback. The employee respondents’ scores are depicted in Table 4.2.

Table 4.2. Employee awareness and knowledge about procedures and control of food hazards

	n	Disagree	neutral	Agree	Mean	s
Staff have been made aware of physical, and other hazards that may be introduced in the process of procuring, handling, storing, cooking, to serving food and beverages to customers	7	14%	14.0%	72%	4.4	0.58
Staff have been made aware of procedures to ensure there are no hazardous contaminations during handling, storage, production and service of food and beverages to customers	7	29%	0.0%	71%	3.6	1.52
Staff have been trained on procedures and controls, and their roles in ensuring there are no hazardous contaminations in the food supply chain within the institution operations	7	0.0%	29%	71%	3.6	0.55
Staff participate in internal audit carried by Quality Control Committee and external audit by SGS/KEBS as well as inspections by the Public Health Department	7	28%	43%	29%	3.2	0.87

The summary response from institution employees that they were aware and knew to prevent and control food contamination at the institution is shown in Figure 4.3.

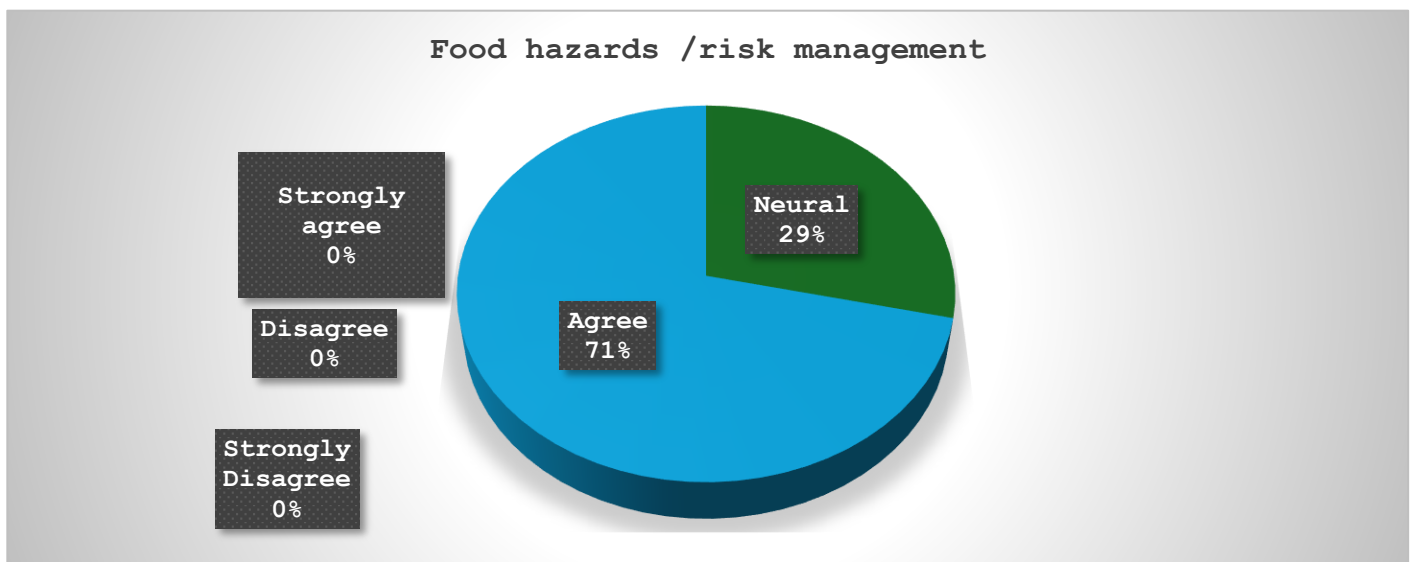


Figure 4.3: institution employee awareness and control of food contamination

The responses from restaurant employees may be seen as biased in defense of their work, but the customers who consume the food and were affected by any sort of contamination would express a different response. However, 57% and 77% of the customer respondents agreed that they have rarely seen any physical contaminants in food or heard of illnesses arising from contaminated food served in the restaurant respectively. Nevertheless, 62% admitted that occasional lapses and contaminants were seen in food, though the restaurant staff responded with a quick apology and food replacement. The summary of customer responses is given in Table 4.3

Table 4.3: Customer response about food contamination at the institution.

Statement	Disagree	Neutral	Agree	Total
Food served at the restaurant varies daily, appears well-cooked, is of appropriate colour, tasty, sizeable, and well-presented	5 (9%)	17 (31%)	33 (60%)	55 (100%)
I have rarely seen any physical contaminants in the food served at the institution	13 (24%)	10 (18%)	32 (57%)	55 (100%)
I have not experienced or heard of cases of illnesses and complaints about contaminated food served in this institution	4 (7%)	6 (11%)	45 (77%)	55 (100%)
When any form of food contamination is reported, one gets an apology, and a similar or alternative dish is offered as a replacement without charge	4 (7%)	17 (31%)	34 (62%)	55 (100%)

A review of secondary literature and responses from management staff showed that the institution had procedures for routinely receiving, recording, and following up on customer feedback and complaints. The most common procedure for complaints or feedback was where a customer verbally provided feedback or complaint to service staff or supervisor and a response was given immediately or as soon as a resolution became available. Such feedback was recorded by the staff or supervisor who received it. The researcher observed a book maintained where all customer complaints/feedback were recorded as soon as possible when they occurred. The book recorded the date and nature of the complaint, the person receiving the complaint, the action taken, and the resolution provided and when that was done. If a complaint was referred to a supervisor or manager, the fact was recorded, and the decision advised was recorded. Customers also provided feedback or complaints via electronic mail. These were responded to promptly by email as well, and a record was made in the complaints book. Other customers provided feedback by written notes placed in the suggestion box, which the manager reviewed each day and provided responses to the customers as appropriate.

Additionally, management staff intimated that there was a regular open forum where staff shared customer feedback with their supervisors and event coordinators who in turn shared with the manager during their scheduled weekly meetings. Finally, managers explained that the regular quality assurance by the internal quality committee as well as external audits and assessments were key reactive and proactive procedures for addressing customer feedback/complaints. As shown in Table 4.4, most responses (71.5%) from institution staff indicated that the procedures in place captured customer complaints concerning food quality and safety, service, and staff grooming, which feedback was regularly analysed, and appropriate action taken.

Table 4.4 Use of customer complaints procedure.

	n	Disagree	neutral	Agree	Mean	S D.
Customer complaints relating to food quality and safety, service, and staff grooming are regularly captured, analysed and action taken	7	00.0%	28.5%	71.5%)	4.400	0.548

According to the management, and the review of secondary literature, customer feedback/complaints were

reviewed daily so that action could be taken to rectify issues that affect customer satisfaction. Before the weekly or monthly catering management forum, the complaints and feedback were analysed to identify emerging trends and patterns, so that appropriate short to medium-term improvement or corrective action could be taken or proposed to the institution’s management. Thus, customer feedback or complaints were used to identify areas for customer service improvement, rectify gaps in customer service processes, improve product quality, make decisions about issues affecting the customer; and to gauge the level of customer satisfaction and loyalty. The feedback also provided an occasion for listening to them, empathising with their feelings about issues raised, and showing the customers that they are valued. Dealing with feedback and complaints efficiently helped in early resolution and prevention of conflicts and sustenance of customer loyalty. These were the views of the restaurant management staff. The complaints handling procedure influenced the perception and confidence of customers, as indicated in their level of satisfaction and retention detailed in subsection 4.3.

Limitations that affect the implementation of HACCP food safety program.

Customers confirmed occasional food contamination, including salads that were not well cleaned, stones, cockroaches, weevils, and hair in the food. However, institution management indicated that the limitations of HACCP could result from overlooking or underestimating hazards, overcomplicating, or oversimplifying Critical Control Points (CCPs), setting unrealistic or inappropriate critical limits, and neglecting or skipping monitoring, verification, or documentation. But, they said, that institution staff were aware of hazards and trained in procedures for prevention and control and surmised that the contamination incidences have been minimal and occurred a few times and far apart. In their opinion, the monitoring and audit for compliance and conformity is robust but like many issues in large systems, lapses do occur occasionally.

A key limitation in the implementation of the HACCP food safety program is that as a standard, it does not cover the whole range of food chain activities “from farm to fork” as well as prerequisite activities (Wallace, Sperber, & Mortimore,2018). According to the management, these were mitigated by developing processes to cover the food supply chain and allocation of funds to acquire necessary spaces, together with storage, kitchen and service equipment and facilities and the necessary resources to install and implement HACCP food safety program. Discussions with management confirmed that adequate resources were available to fund prerequisite programs and recruit and train staff to equip them with requisite skills. the management confirmed that the institution tapped into the expertise of the Kenya Bureau of Standards and SGS Kenya Limited to provide necessary technical support. Thus, the anticipated limitations were generally overcome.

Customer Perception and Confidence in Food Quality and Safety

Food quality is defined as having characteristics that satisfy the customer including variety, being well-cooked, of the appropriate colour, tasty, sizeable, well-presented, and without any physical or other hazards. From Table 4.5, 60% of customers indicated that the food served in the institution was of acceptable quality. A minimal 9% disagreed while slightly over 30% neither agreed nor disagreed with the statement that the food was of acceptable quality.

Table 4.5. Customer rating of food quality

	Disagree	neutral	Agree	Total
Food served at the restaurant varies daily, appears well-cooked, is of appropriate colour, tasty, sizeable, and well-presented	5 (9%)	17 (31%)	33 (60%)	55 (100%)

Managers attributed some of the food quality shortcomings to supplier-related behaviours including inappropriate transportation or equipment for handling supplies, poor handling of products, and inconsistent quality of materials. Other reasons related to the restaurant include impromptu orders from clients, inadequate storage space, substandard production equipment which compromises the quality of food, and constrained production space to accommodate all staff.

The level of customer satisfaction with the food and beverage service at the institution’s restaurant is displayed in Table 4.6. From the customer perspective, 76% of the responses indicated that they were completely satisfied with the food quality at the institution. As a result, 73% of the respondents repeatedly went to the institution restaurant for their meals; and 73% made it a place of choice for meeting their friends. The majority ((75%) indicated that their choice of the restaurant as a meeting point with their friends was the quality and safety of food. However, despite the quality and safety fewer customers (47%) would be willing to pay higher prices, meaning that at some level of pricing, they would opt for the nearby and relatively cheaper restaurants. The implication for the institution is that it must keep high level of food quality and safety while at the same time keeping the prices relatively low but sustaining a return. This is a challenge for any business, but as the results show in the next section, the institution has been able to retain a reasonable level of profitability. The relatively high level of satisfaction expressed by the customer respondents seem to indicate that the impact of the shortcomings in customer experiences with service spaces, interaction with staff, the way customer complaints are handled, as well as the little doubt about the quality of food did not create negative customer perception of the institution services as to affect their and confidence in quality and food safety in a significant way. Overall, the average customer satisfaction (CSAT) score calculated as the percentage of positive responses to the total responses, which in this case are those who agree in Table 4.6 which are $[(76\%+73\%+ 82\%+75\%+ 47\%)/5] = 71\%$. The customer retention rate (CRR) is the percentage of customers who sustainably make repeat visits to the institution. This is indicated by the question relating to the frequency of visit to the institution compared to other restaurants which is **73%**. These comparatively high CSAT and CRR indicate positive perception and confidence in food and beverage quality and safety and institution restaurant.

Table 4.6. Level of customer satisfaction

STATEMENT	Disagree	Neutral	Agree	Total
I am completely satisfied with food quality at the institution	6(11%)	13(23%)	36(76%)	55(100%)
I come to the institution much more often for meals than any other place around the institution	10(18%)	5(9%)	40(73%)	55(100%)
When meeting my colleagues and friends for work, refreshment, or meals, the institution is the place of choice	8(14%)	2(4%)	45(82%)	55(100%)
I and my colleagues chose to meet at the restaurant because the food is of high quality and safe	6(11%)	8(14%)	41(75%)	55(100%)
I and my colleagues are willing to pay a higher price at the institution compared to that of nearby restaurants because the food is of high quality and safe for consumption	23(42%)	6(11%)	26(47%)	55(100%)

Effects of the HACCP Food Safety Management Programme

The work done by the institution management in adopting, putting in place infrastructural facilities, establishing policies and operating systems as well as recruiting, training, and inducting staff before steering the implementation HACCP food safety management programme, was geared towards producing specific outcomes: food safety and quality as well as generation of additional revenues for the institution. Whereas

customers reported incidences of food safety hazards and quality shortcomings, management staff reported that this has been reducing over time. Further, the high level of perception and confidence observed in the previous section indicated that they were not significant in terms of adversely affecting overall customer satisfaction. But certainly, there is some room for improvement to address the needs of up to 24% of the customers who were not completely satisfied as shown in Table 4.6 above. From Table 4.7, most (57%) of the restaurant employee respondents agreed that food contaminations have reduced over time but a significant 43% remained neutral which might be indicative of notable incidences of food hazards. In addition, the majority (57%) affirmed that cases of illnesses and complaints relating to food contaminations have reduced over time, However, 29% did not agree that illnesses and complaints have reduced, but 71% agreed that customer feedback about the quality of food has improved over time. Significantly, 71% of the respondents agreed that the repeat and total number of customers have been increasing over time. On food waste and other losses in the food chain, 86% of the respondents intimated that these have been decreasing over time. Management staff reported incidences of food waste through overproduction, but this appears not to have notably affected the declining trend of waste over time. Finally, 86% of the respondents indicated that sales volume and revenues have been increasing over time. These responses are captured in Table 4.7

Table 4.7: Food safety and business performance

Statement	Disagree	Neutral	Agree	Total
Incidents of food contamination at the restaurant have reduced over time	0 (0%)	3 (43%)	4 (57%)	7 (100%)
Cases of illnesses and complaints about contaminated food at the restaurant have increased over time	4 (57%)	1 (14%)	2 (29%)	7 (100%)
Customer feedback about the quality of food has improved over time	0 (0%)	2 (29%)	5 (71%)	7 (100%)
The number of repeat customers coming to the restaurant has increased over time	0 (0%)	2 (29%)	5 (71%)	7 (100%)
The total number of customers visiting the restaurant has been increasing over time	0 (0%)	2 (29%)	5 (71%)	7 (100%)
Food waste and other losses in the food chain have been decreased over time	0 (0%)	1 (14%)	6 (86%)	7 (100%)
The sales volume and revenues have been increasing over time	0 (0%)	1 (14%)	6 (86%)	7 (100%)

The key bottom-line indicator of business performance is profit which is a function of the sales volume and revenues, food costs, and expenses. A large percentage (86%) of institution employee respondents agreed that the costs have been decreasing while sales volume and revenues and consequently profits have been

increasing over time as shown in the pie chart, Figure 4.4

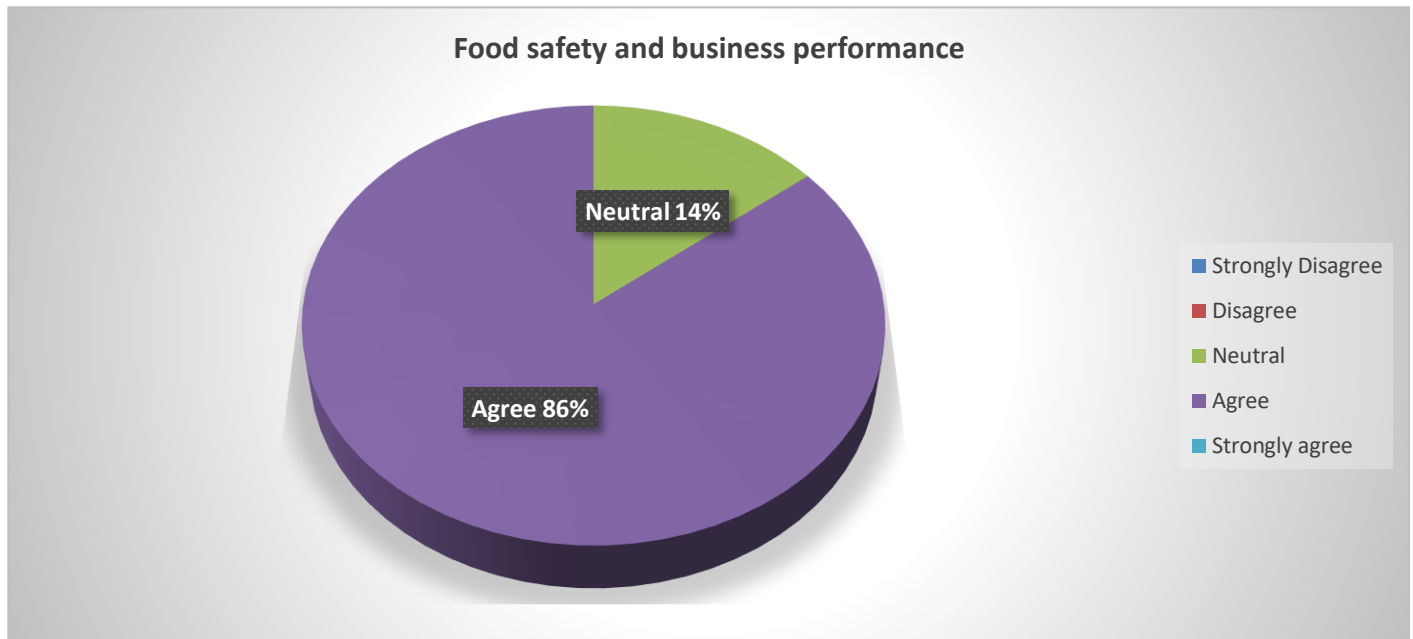


Figure 4.4: Food safety and business performance

A review of the secondary literature relating to the key indicators confirmed that the restaurant has been making variable profits over time between 2014 and 2019. The profits increased from 20 Million Kenya Shillings in 2014 to 30 Million Kenya Shillings in 2019, an increase of 10 Million over 5 years which translated to an average increase of KES 2 Million a year. Management staff indicated that the restaurant; firstly, has been self-sustaining, secondly, has been conveniently providing accessible safe, and quality food to the institution’s population, and thirdly, it has been making revenue contributions to the institution’s treasury every single year since its commencement. In terms of contribution to society, the restaurant has been supporting farmers and other suppliers while directly employing between 60 and 72 permanent employees, (See Table 4.8) and an average of 10 casuals each week. Table 4.8 summarise the financial performance of the restaurant business between 2014 and 2019.

Table 4.8: No. of employees and financial performance of the restaurant

	Baseline	HACCP Implementation Period				
YEAR	2014	2015	2016	2017	2018	2019
No. of employees	60	62	62	70	70	72
Financial Performance (in KES Millions)						
Gross revenues	140	146	150	145	153	160
Food cost	70	78	75	70	83	84
Expenses	50	430	45	47	45	46
Net profit	20	24	30	28	25	30

Note: Financial figures rounded to the nearest million.

The trends of gross revenues, food costs and expenses, and profits are shown by the line graphs labelled as Figures 4.5, 4.5a, and 4.5b. As can be seen from the graphs, the trends for indicators other than expenses have been rising over the period under study. The expenses have remained the same over the period indicating good management unlike food costs which appear to have gone up between 2017 and 2019.

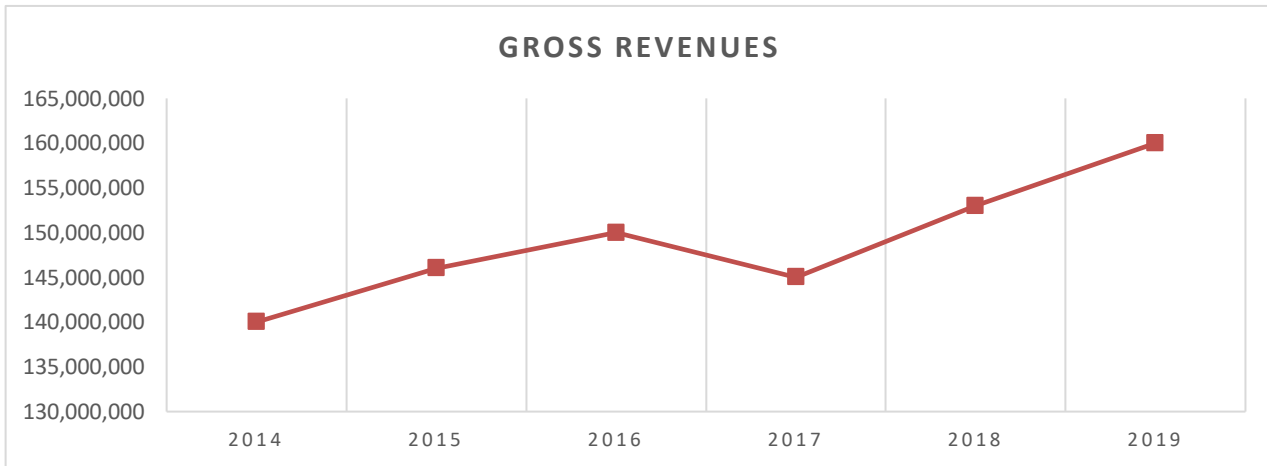


Figure 4.5. The trend of gross revenues at the institution restaurant 2014-2019

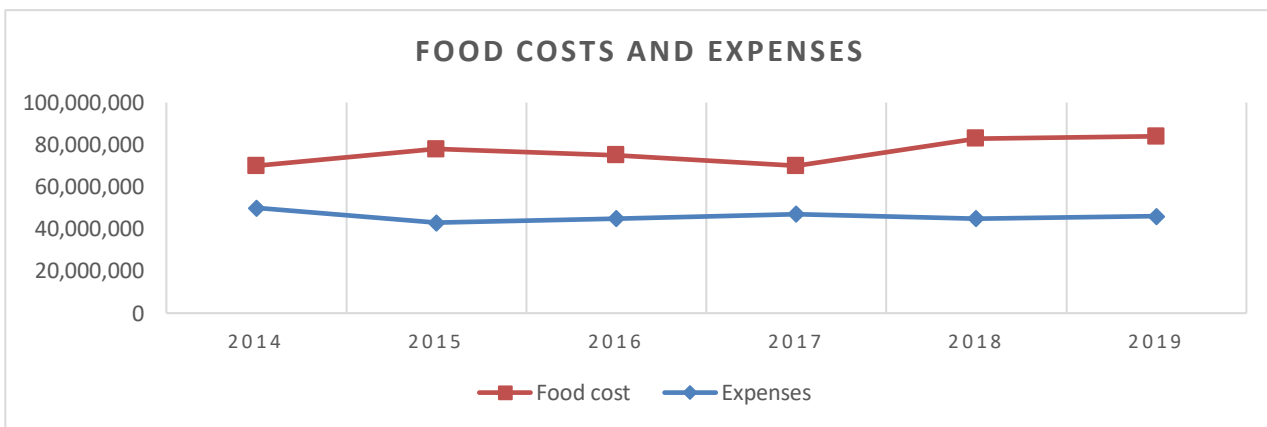


Figure 4.5a. The trend of food costs and expenses at the institution restaurant 2014-2019

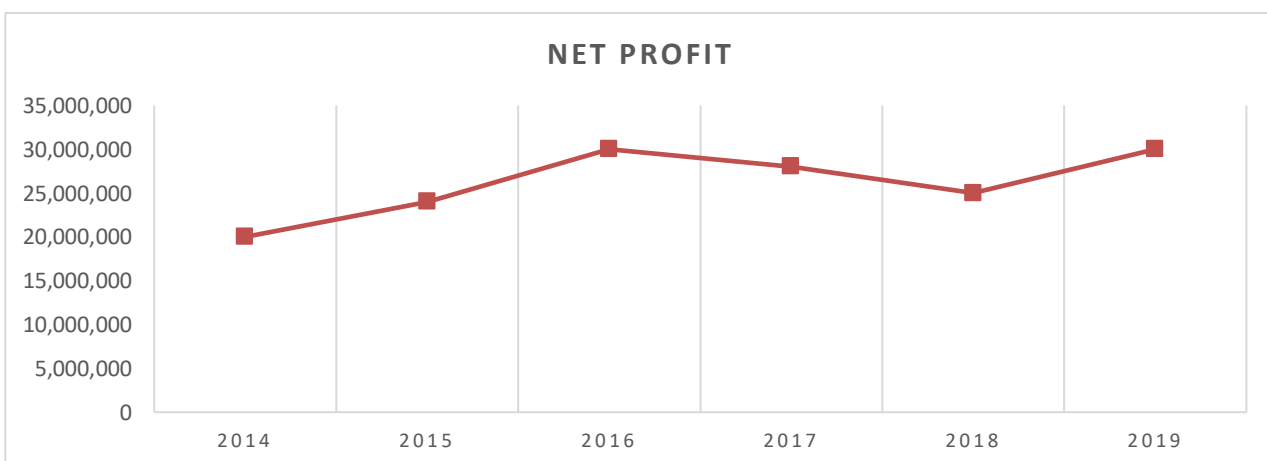


Figure 4.5b. The trend of profits at the institution restaurant 2014-2019

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The implementation of HACCP food safety program from management initiation and funding support for infrastructure, establishing policies and operating systems as well as staff recruitment and training, and steering the progress of action towards achieving the desired objectives, has realised a large degree of success in production and sales of safe food in the institution restaurant. The sales volume, measured in

revenues, which was underlined by commensurate production, increased from KES 140 Million in 2014 to KES 160 Million in 2019, an increase of KES 20 Million or 14.3%. From the findings, the increase is attributable to HACCP processes which significantly reduced the risk of food contaminants, improved food quality and customer satisfaction. The often-cited potential limitations of implementing HACCP food safety program include the fact that it does not cover the full range of supply chain activities; getting adequate human, financial and other resources, and the necessary technical support, were fully mitigated through appropriate investments in the required resources. The limitations identified in the study related to incidental food contaminants did not largely affect the overall quality and safety of food as shown by the evaluation of quality and level of satisfaction by the customers. The factors that shaped perceptions and confidence in the quality and safety of food, indicated that the experiences at the service spaces, with employees as well as overall processes in place that largely produced quality food with minimal occasional contaminants, satisfied the needs of customers as indicated by customer satisfaction (CSAT) score of 71% and customer retention rate (CRR) of 73%. The results or effects of implementing HACCP food safety program include reduced food contamination, and complaints thereof, improved food quality, increased number of customers and repeat visits, reduced food waste and other losses, and consequently increased sales volume and revenues and profits over time. It has thus performed well considering that the objectives were to provide convenient, accessible, and safe food for the institution population whilst making revenue contributions to the institution's treasury, which it has done.

The overall goal of this study was to evaluate the effects of the implementation of HACCP food safety management processes on the food and beverage safety and business performance at the institution. The findings have demonstrated that the implementation of HACCP food safety management processes has improved food safety and quality and thus availed convenient, safe, and accessible food to the institution's population. In addition, it contributed notable revenues to the institution arising from increased sales volume of food and beverage. The study has also identified unintended positive social performance consequences including support to farmers and other suppliers and employment of between 60 to 70 permanent employees excluding casual labourers.

Recommendations

Whereas the implementation of HACCP food safety program has largely been successful, the study respondents pointed out incidences of food contamination and factors that compromise food quality. It is recommended that the management budget for and take corrective actions including:

1. Training of new staff on standards operating procedures to improve food handling and service delivery and minimize food contamination.
2. Providing budget to upgrade equipment such as fridges and others
3. Providing larger production space to decongest and minimize food contamination.
4. Reevaluating existing or procuring new suppliers and training them on the requirements of HACCP food safety program and their roles in the process as well as the investments they need to make to continue as suppliers.

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