A proposed Food Safety Management Framework for Catering Services

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Abstract: - Safe food is essential for life and food safety has become a watchword in most catering organizations. Despite the widely accepted gains emerging from adopting food safety management system models worldwide, food catering sectors seem not to have made benefit towards deploying such systems in improving their food safety and hygiene practices. The problem lies in the nature and complicated requirements and norms of the current frameworks and associated roadmaps towards effective implementation of food safety management initiatives. The present paper proposes a food safety management framework for food services and catering sector based on integrating several internationally recognized food safety and food quality management systems; the international standard ISO 22000:2005 requirements for any organization in the food chain , Hazard Analysis and Critical Control Points (HACCP), Codex Alimentarius Commission, together with the quality management system ISO 9000:2008 series. It is expected that the proposed framework overcomes limitations inherent in other food safety management concepts and approaches. The proposed framework is distinguished by its agility among constituents, and can be used to self-assess organization's food safety management initiatives and efforts to assess their progress over time. The proposed framework is appropriate, feasible for implementation, and was tested in an educational organization; it provides information and guidance for caterers, to help them provide healthier and safer food for their customers.

Key-Words: -Food safety and quality management systems, food regulations, HACCP, 22000:2005 standard, International standards, guidelines and recommendations, catering services, product development.

1 Introduction

Delivering safe food products with a level of quality that meets customer requirements is essential to business success. Indeed, in the fierce competition of today's markets, the level of quality needs to exceed what customer already expect, and at a safe condition. Achieving this quality will involve the entire organization and often suppliers and customers as well. It requires good management system and practices throughout the organization. It means having well-trained and motivated employees, standardized work procedures, and effective control. Global consumers nowadays are more concerned about safety of their food. The solution they call for is for food of high quality and integrity, safety guarantees and transparency. Governments are imposing new legislation; retailers are making new demands on their supply chains. Food supply chains are reacting by implementing several systems to improve their product quality in

an attempt not only to guarantee the safety of the products, but also to raise the common community's awareness of their efforts. Such efforts are performed at the level of either an individual organization or a complete supply chain network. Food safety therefore is considered to be an important issue for all stakeholders in the domain of food production as well as governments in setting new legislation regarding food safety. Quality control has become a cornerstone of food safety policy over the past decade in the food industry development [1]. More focus has been on integrated quality management systems. These integrated systems include all steps in the food production chain, such as supply of raw materials, food manufacturing, packaging, transportation and logistics, research and development, maintenance of production equipments, and training and education of staff. Moreover, food quality is associated with a proactive policy and the creation of controls to maintain a safe food supply. The business

community in the food supply chain regards the call for safety from their customers, consumers, government and other stakeholders as an important driving force for continuous innovation. These innovations has been focused on implementing systems to improve the product quality, guarantee its safety as well as raise awareness of these innovations throughout their supply chain stakeholders. One of the important tools used to ensure food safety against hazard contamination is the hazard analysis and critical control points (HACCP) system, which is a systematic approach to identify, evaluates, and control of steps in food manufacturing that are critical to product (food) safety. The introduction of the (HACCP) in food industry have resulted in taking greater responsibility for control of food safety risks, and take corrective actions [1]. HACCP application is a mean of assuring proper food handling, processing and retail sale to consumers. Although quality control in general and HACCP in particular, have been implemented in manufacturing industries for decades, they are clearly ineffective and almost incapable of detecting food safety defects that occur at a low incidence, as there has been a lack of defining the critical control point which have the function of eliminating or controlling identified hazards [2]. In addition HACCP statements are confusing to the average caterer and it was noted that complex microbiology language and intermittent use of these terms restricted assessability of documents.

2 Food Quality standards

The international organization for standardization (ISO) standards is international standards focuses on management in order to achieve uniformly and prevent technical barriers to trade throughout the world. The ISO 9000 series of standards is a management quality standard its aim is to evaluate a firm's ability to effectively design, produce, and deliver quality products and services. The standard only provides a framework to develop product/service quality continually, and prevent nonconformity based on the organizations requirements. This version of standard tries to enhance customer satisfaction by including top management involvement, continual improvement, and system approach which is one of the eight quality principles [3]. The essence of an ISO 9000-based quality system is that all activities and handling must be established in procedures, which must be followed by ensuring clear assignment of responsibilities and authorities. On September 2005

the ISO 22000 series: global standards for safe food supply chains, specially aiming at managing safety in the food chain has been published [4].The ISO 22000 is a standard that specifies the requirements for food safety management system for all types of organizations within the food chain. The standard is in close cooperation with the Codes Alimentarius Commission based on national legislation and HACCP guidelines. The body jointly established by the United Nation's Food and Agriculture organization (FAO), and the World Health Organization (WHO) to develop food standards. A major benefit of integrating standards is that ISO 22000:2005 standard for food safety can be applied in combination with quality management system ISO 9000:2008, the focus of which is quality management. Moreover ISO 22000:2005 standard will make it easier for organizations to implement the HACCP system in harmonized manner which does not vary with the country. ISO technical specification ISO/TS 220002-1:2009 sets out requirement for prerequisite programs needed to realize safe products and provide food that is safe for human consumption. It is intended to be used in conjunction with and support ISO 22000:2005 standard.

2.1 15161 ISO: 2001 "integration of ISO 9000 and HACCP"

The guidelines ISO15161:2001"guidelines on the application of ISO 9000series for the food and drink industry" is a document which illustrates the interaction of the quality management system ISO 9000 with HACCP system, and gives directives on the implementation of ISO 9000 series in the food industry. According to this standard, food safety is considered a part of quality [5]. However, certification by ISO 15161:2001 was not possible and businesses in the food industry were certified according to ISO 9000 instead. The standard was later revised by ISO 22000 with the aim to ensure quality of all aspects of food production and its goal is continuous improvement of food safety processes. The standard is a more procedural oriented guidance than a principle based one and developed the ISO22001 guidelines on the application of ISO 9001 instead of ISO 15161:2001.

2.2 ISO 22000:2005 Food safety management system requirements for any organization in the food chain.

The ISO22000:2005 standard is a generic food safety management system (FSMS), it dynamically combine the HACCP principles and application

steps with prerequisite programs using the hazard analysis to determine the strategy to be used to ensure hazard control by obtaining the critical control points and eliminating them. Currently HACCP principles are the basis of most food quality and safety assurance systems. The standard is applicable to all organizations regardless of size, which are involved in any aspect of food chain and want to implement systems that consistently provide safe products. The ISO 22000:2005 standard is to be used for registration purposes, so that once a company has met the established requirements it can apply to a certification body to be audited and issued an official certification stating that all FSMS requirements have been examined and met.

2.3 Other Food Safety Guidance Notes

The intense competitive pressures provide the motivation for continued efforts to deliver safer food and better business. The continuing demand for safe food has resulted in a proliferation of requirements for conducting the issue. In fact the market is flooded with methodologies for food safety and quality. As an example of the wide range of private standards that exist, the following quality guidance standards are presented. For more about safety policies and advices and to further strength rules on declaration of interest [6,7,8].

2.3.1 British retail consortium (BRC)

This standard for food safety originally developed by a trade body in UK is a private standard landscape that is highly dynamic with new forms of standards. The standard is much more specific about how to achieve certain goals and how to operationalize process standards than in the case with public standards. Recently it is applied to suppliers in multiple countries [9]. In 1998 organizations took the initiative to define common criteria for the inspection of food product's suppliers. Inspections are carried out by certified inspection organizations. BRC norms are covering with HACCP norms, although more attention is paid to a documented quality management system, factory environment and facilities, product and process control, and personnel. BRC is considered the wide umbrella which cover mostly all the requirements identified by ISO9001, ISO 22000, and HACCP.

2.3.2 Eurep-Gap

Eurep-Gap is an organization of more than 25 large European retailers and purchase organizations [10] .

Gap stands for good agricultural practice; it provides holistic approach and a package of norms aiming to guarantee environment-friendly, safe and high quality products. Eurep-gap pays more attention to food safety, human resources management and environmental measurements. The Eurep-gap norms are more rigid than the EU governmental demands; its disadvantages are that it takes the legislation of the country where it is implemented as a starting point and that there is still no norm certification scheme.

2.3.4 Safe quality food (SQF)

This program aims at quality assurance from total supply chain perspective. It is based on the principles of ISO 9000 series norms, HACCP, and quality management systems. The program is designed specifically for food sectors as a food safety and product quality. It provides two standards based on the type of food supplier. The SQF 1000 code for primary production and SQF 2000 code for manufacturing and distribution, each code is divided into three certification level [11].

3 The proposed Framework

In the present research, data for the framework building was obtained from primary and secondary sources. The primary source involves the use of questionnaire that was designed considering expert views on food safety and food quality. Personal interviews and direct observation during site visits was carried out to obtain additional information on specific areas that the questionnaire instrument did not cover. Employees with different levels of responsibility and who are particularly knowledgeable were interviewed. The secondary data source was extracted from the organization's annual report, journals, and other relevant document study. The main reason for using many sources of data was to increase the validity of the study. The proposed framework [12] consists of four stages to provide multiple levels of guidance, namely

1-review of existing data gathered from interviewees.

2-Creation of the framework where a series of workshops conducted over the duration of the case study.

3-Piloting and evaluation: the framework was tested within the catering facility during the period of conducting the research and escorted by experienced
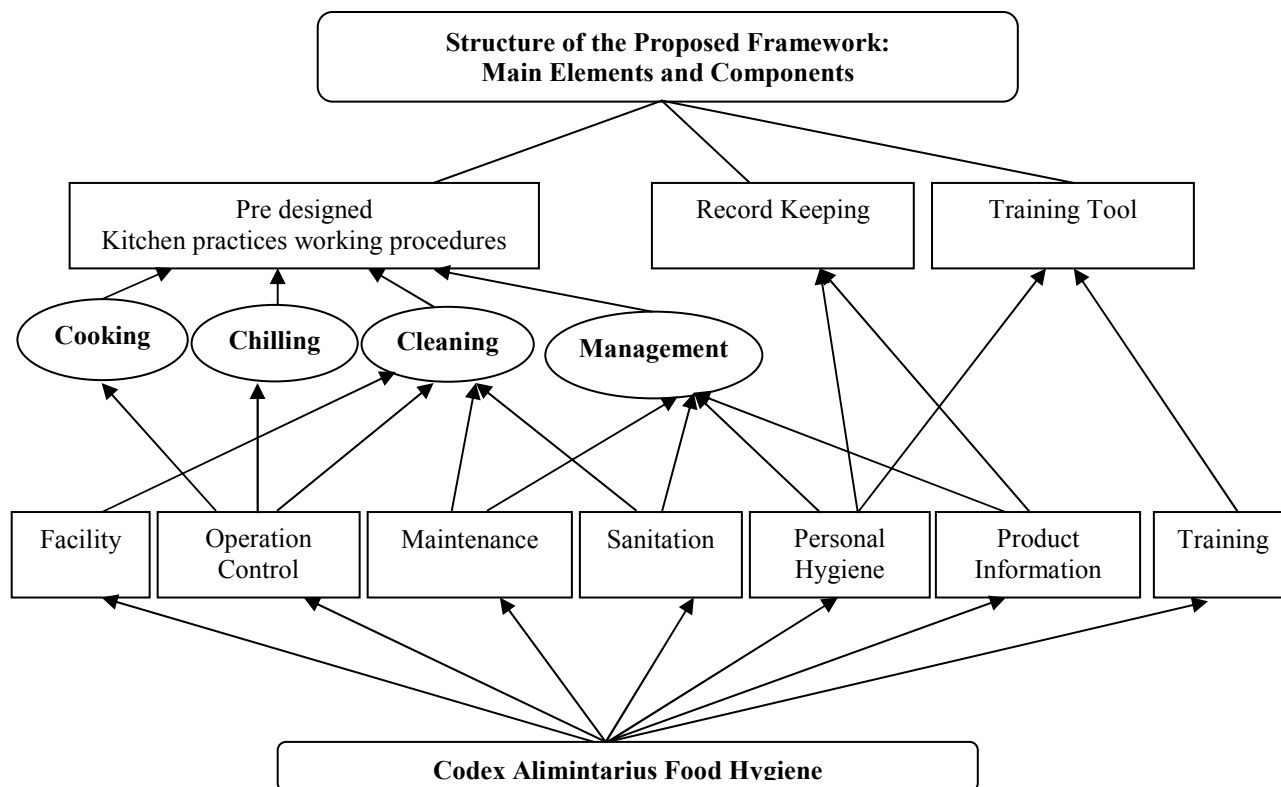
caterer, veterinarians, and food safety managements consultants along with certified food safety auditors.

4-Modification and validation

The utility, appropriateness and technical accuracy of the framework were determined through detailed analysis of the field testing outcomes , the proposed framework of managing food safety catering industry was then constructed. The theoretical framework consists of a set of documented safe working methods with a record keeping and training tools that is fundamental in risk assessment system such as HACCP and is seen as a burdensome and over complicated. The main elements of the proposed framework are:-

●Predesigned kitchen practices working procedures.

●Record keeping tool

●Training to be imparted at different levels [12].

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│   Structure of the Proposed Framework:   │
│      Main Elements and Components         │
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Pre designed Kitchen practices working procedures — Record Keeping — Training Tool

Cooking · Chilling · Cleaning · Management

Facility · Operation Control · Maintenance · Sanitation · Personal Hygiene · Product Information · Training

Codex Alimintarius Food Hygiene

Relationship and cross reference between the proposed framework and key requirements of codex Alimitarius requirements

Conclusion

A proposed food safety management framework for catering sector is presented based on integrating internationally recognized and globally applicable food safety and food quality management standards. The proposed framework is practical and feasible to be implemented at different stages of the food safety management system. It is expected that the proposed framework overcomes limitations inherent in other food safety management concepts and approaches. Moreover, the framework can provide additional ideas on how to improve the implementation efforts. Facility's weak areas of food safety management implementation can be identified by comparison with the implementation framework. Catering organizations may use the framework to self-assess the management efforts, and further improve their food safety and hygiene management implementation. It is believed that the framework has a major role to play in helping both the regulators and the food industry achieve a higher degree of compliance with regulations and with good practice generally. Understanding of food safety and quality issues must be instilled throughout the organization through continuous training.

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