

The importance of the
food safety
procedures
environmental
sciences essay



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2. 1 Introduction

The lifestyle of our society is very different from the one in the past. The rapid rhythm of the modern lifestyle, the raising number of single parent families or working mothers led to a change in the way the food it is prepared and consumed. Food safety cannot become a real fact unless it is seen as a responsibility of everyone involved in the process, from professionals to consumers. Inside the alimentary chain are implemented different procedures and mechanisms of control which assure that the aliments bought for consumption are eatable and the contamination risk is minimal. Following the technological flux (acquisition of raw materials, receiving raw materials area, storage, pre-cooking, cooking, cooling or serving) as a frame of the activity organization in a restaurant, hygiene and conformation to the rules is a fundamental component in assuring the profitability of the place. This paper will focus on the main types of food safety procedures, especially on the Hazard Analysis Critical Control Points (HACCP) system and its applicability in a five stars hotel in Brasov, Romania.

2. 2 Explain the importance of the food safety procedures

2. 2. 1 Legislative frame

The Government Decision 925/2005 brings under regulation the general frame of the alimentary products. It contains details about aliments, their packing process and thermic treatment, personnel training, equipment, wastes, lockers, water supplies or employee hygiene. As a field of application, the Decision brings under regulation the general implementation of the safety procedures based on HACCP system together with the

application of good work hygiene intended for the consolidation of food safety responsibilities. The food producers and food handlers must apply, implement and maintain these procedures permanently.

2. 2. 2 Food production

Food processing industry' main responsibility is to meet customer expectations, meaning that the product they are buying is safe and in accordance with the existing regulations. This industry is based on modern system of Quality Management to assure the quality and safety of the products they sell. The main three systems used are: Good Manufacturing Practices (GMP) - It assess the conditions and procedures of processing raw materials. Hazard Analysis Critical Control Points (HACCP) - While the traditional systems of monitoring food safety focus on identifying the problems that might occur in the end product, HACCP, a recent, proactive technique focuses on identifying potential risks and controlling them during processing. Quality Assurance Standards (QAS) - Assure that the food processing, catering services and other food processing services, are respecting the rules and regulations already established. The efficiency of these programs is temporarily evaluated by independent experts. These systems of quality management used by food producers include also the relation with the supplier (farmers and other producers), transportation agents and so on, to assure the quality at each level.

2. 2. 3 Challenges in the food production process

The risk that the aliments might be contaminated with chemicals or microorganisms exists during the whole process chain. Generally, food safety is threatened by factors divided in two categories: Biological contaminants-
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bacteria, fungus, viruses or parasites. To this kind of contamination the aliments present, in most of the cases, signs easy to identify. Chemical contaminants- include chemical substances came from the environment, remains of veterinary use medications, heavy metals or other remains that get into the aliments without any intention or accidentally during the processes that agriculture or animals farms, food processing, transportation or packing include. If a contaminant agent generates risks or not depends on many factors, including the absorption and toxicity of the substance, quantity and exposure time.

Microbiological contamination

The most cases of food poisoning happen because of microbiological contamination. Microorganisms are everywhere and can enter at any point in the processing chain. Quality management systems are destined to reduce at minimum the risk of microbiological contamination. Anyhow, since the majority of the aliments are not sterile, if they are not treated correspondently, the risk of contamination appears. The table presented below contains a list of microorganisms most frequently associated with food poisoning and some examples of aliments that usually generates these diseases.

Table 2. 1 Microorganisms associated with food poisoning

CAUSEALIMENTS ASSOCIATED WITH THE PROBLEMBACTERIABaccilus

cereusCooked rise and re-heated, cooked meat, puddings, vegetables and

fish. A common trait of foods contaminated with Baccilus cereus is the wrong

manipulation of the aliments after the cooking process. Clostridium

perfringesRe-heated food, meat and cooked chicken, beans, sauces, roast

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and soup. Clostridium botulinum Canned vegetables, fish, chicken, meat, opened and kept open. Escherichia coli (E. coli) Salads and raw vegetables, raw cooked meat, cheese, milk Campylobacter jejuni Raw milk, chicken Listeria monocytogenes Unprocessed milk, raw meat, chicken, vegetables Salmonella Fish or meat insufficiently cooked, salads, eggs, milk PARASITES Trichinella spiralis Pork meat or game insufficiently cooked Toxoplasma gondi Meat or chicken insufficiently cooked, raw milk VIRUSES Hepatitis A Raw fruits and vegetables.

Mycotoxins

Mycotoxins are toxins produced on certain fungus that appear on aliments such as nuts, wheat and other cereals, soya beans, feed, condiments. Toxins can appear during harvest or due to incorrect storage. Mycotoxins can interfere into aliments chain through meat products or eggs, milk or cheese as an effect of the contaminated feed. The effects that mycotoxins have on health depend on the quantity or type of mycotoxins ingested. Close monitoring and correct aliments disposal are important in preventing the development of mycotoxins.

Pesticides

An important priority for farmers is to make sure that their product is produced in a single way. For this they are assisted by a large range of counseling services that offer advices about the correct utilization of the fertilization products. Chemicals- pesticides or other product used for animals' health – make the object of some strict rules. Tests are taken before they are allowed by the national or European authorities. Tests must

demonstrate the fact that the pesticide meets the next conditions: Has a real <https://assignbuster.com/the-importance-of-the-food-safety-procedures-environmental-sciences-essay/>

value and it will work according to its purpose. Will not have any secondary negative effects in people, during its utilization at the farm. Will not have any negative impact on the environment. These are only some of the challenges that food producers can encounter during the food producing process.

Others can be:-Antibiotics and growth agents (hormones)- Industrial Pollution
- Dioxins- Heavy metals

2. 3 Hazard Analysis Critical Control Points (HACCP)

" World-class food safety programmes are based on effective systems for safe product design, prerequisite programmes and HACCP, supported by essential management practices and integrated into business management programmes. Applying a continuous improvement mindset towards achieving a world-class programme will enable food businesses to consistently meet both their obligations to consumers and their food safety regulatory requirements. This will result in a live and vibrant food safety culture operating 24/7 throughout the entire food supply chain." (Carol A. Wallace, William H. Sperber, Sara E. Mortimore, 2011, pg. 132)" Developing a HACCP plan is a key part of the development of any food safety management programme and HACCP plans, developed by HACCP teams and unique to each production facility, are essential to the production of safe food throughout the global food supply chain." (Carol A. Wallace, William H. Sperber, Sara E. Mortimore, 2011, p. 185)

2. 3. 1 What is HACCP? Why HACCP?

There is need for a new quality approach in Romanian tourism." The quality of tourist services offered by each supplier is the result of joining two

components: quantity, which is rather of material nature as it is represented
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by equipment and facilities, such as food, scenery, working methods; and quality, which is mainly behavioristic. The material component is influencing the quality of the tourist services through the demand for comfort, functionality, aesthetics, as well as ergonomics qualities of the equipment provided by certain units. One of the most important factors influencing these demands is the level of technicality, which determines the level of comfort and service quality. The higher the technicality, the better the service, as they offer heating and phonic isolation, different room facilities, such as reliable installations, which lead both to lower maintenance expenses and fewer complaints. The implementation of the electronic database has positive effects on the quality of service, as a result of eliminating bureaucracy, which facilitates the correct management of the client account and the fast billing. Thus, it is also easier to optimise the system of data transfer that allows the calculation of the specific indexes. This increases the quality of service and gives staff more time for the relation with the customer. Even if the initial investment is higher, the benefits are visible on a long term. Another important element of quality is represented by sizing and organising different spaces that must include aspects concerning the offer flexibility, in order to be able to provide complementary services such as the organisation of congresses and conferences, as well as other events. The business card of a unit is represented by the interior decorations, "the atmosphere" created by decoration, the colours, the intensity and colour of lights, the thermal comfort (air temperature and humidity), air freshness and indoor sound system, elements that complete the product. However, the most important quality component is the staff behavior within the hotel, which is usually

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neglected, as the company is mostly concerned with employing the necessary qualified number of employees to know and apply standards and working procedures. Regarding the quality management systems in tourism, the best approach is the use of an integrated quality management system which includes: the quality management system based on SR EN ISO 9001: 2001, the environment management system based on SR EN ISO 14 001: 1997, the food security management system according to the HACCP principles, based on the ISO 22000 standard and the health and labour security management system based on OHSAS 18002 from 1999. The quality management is defined according to ISO 9000 as the total amount of activities of the general management function which determine the policy in the field of quality, in order to implement the objectives and responsibilities in the quality system by specific means, such as: quality planning, quality control, quality assurance and quality improvement. The main objective of quality management is to efficiently accomplish at a maximum level of the products which entirely satisfy the client's requirements and which are consistent with the society requirements and the applied standards and specifications, which consider all aspects regarding consumer and environment protection and which are offered to the client at the established price and term." Hazard Analysis Critical Control Points (HACCP) is a systematic approach to the control of potential hazards in a food operation. A hazard is anything that could harm the consumer. It may be of a physical, chemical or biological nature. HACCP aims to identify problems before they occur, and establish mechanisms for their control at the stages in production critical to ensuring safety of food. Control is proactive since: The identification of potential hazards and preventive measures; The <https://assignbuster.com/the-importance-of-the-food-safety-procedures-environmental-sciences-essay/>

establishment of monitoring and remedial actions in advance; means that the hazard does not occur. " J. Stranks (2007, p. 204-205)The Seven Principles of HACCP (as set out in the Codex Alimentarius Commission Code 1991)Identify the potential hazards associated with food production at all stages up to the point of consumption. Assess the likelihood of occurrence of the hazards and identify the preventive measures necessary for their control. Determine the points, procedures and operational steps (critical control points-CCPs) that can be controlled to eliminate the hazards or minimise their likelihood of occurrence. A " step" means a stage in food production or manufacture, e. g the receipt or production of raw materials, harvesting, transport, formulation, processing and storage. Establish the target levels and tolerances which must be met to ensure the CCP is under control. Establish a monitoring system to ensure control of the CCP by scheduled testing or observation. Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control. Establish procedures for verification, including supplementary tests and procedures to confirm that HACCP is working effectively. Establish documentation concerning all procedures appropriate to these principles and their application." In most respects these HACCP principles correlate closely with the various system elements identified above. One area of difference lies in the contrast between the emphasis in the Codex principles on hazard identification as the first step in a HACCP study and identifying the appropriate standard as the first step in a general systems approach." (HACCP as an Industry Control System, p. 5)

2. 3. 2 Other potential risks

Hazards are classified into three categories: biological, chemical and physical. A useful approach for risk analysis is to divide the analysis into two activities - risk identification and risk analysis. Identify hazards

The first step in identifying hazards that may be associated with the production process can be considered a meeting of " Brainstorming". Following hazard identification must follow a list of possible potential hazards at each stage of the process (use diagram of the HACCP plan production processes), from receipt of raw materials to final product delivery. During the hazard identification, the team should not be limited to the likelihood of risk or its potential to cause disease. All risks should be considered potentially significant. To do this, the following list of hazards could be a help: Biological Hazards

Biological hazards are the live microorganisms that can make food unsafe for consumption. Biological hazards include: bacterial, viral and parasitological. Hazard identification of biological production processes are taken into account as an important and difficult task. Indeed, experience from the outside can be recommended for this activity. There is currently a major emphasis on the risks caused by microorganisms associated with fruits and vegetables. Some of the most important pathogens associated with fruits and vegetables are pathogenic bacteria include Salmonella, Shigella, Escherichia coli (pathogenic), Campylobacter, Yersinia enterocolitica , , Listeria monocytogenes, Staphylococcus aureus, Clostridium, Bacillus cereus, Vibrio. A large number of pathogenic bacteria associated with food poisoning caused by eating raw fruits and vegetables. Chemical hazards

Chemical hazards can be the result of a phenomenon that occurs naturally in food or that may occur during the processing of products.

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Harmful chemicals are associated with some diseases caused by food or other chronic diseases. Natural chemical hazards are those that are components of food (for example, apples and nuts can contain: Patulin and aflatoxins.) and not the result of contamination of the environment, industrial and other activities. Added chemical risks are those chemicals that are added intentionally and sometimes unintentionally in foods stages of growth, harvest, storage, processing, packaging or distribution stages. This group of chemical hazards is very broad and can include components in the feed or drinking water, plant protection products, food ingredients, and chemicals used in processing such as lubricants, cleaning materials, paints and varnishes.

Physical hazardsA physical hazard is a physical component of a food that is unexpected and can cause illness or injury to people who consume the product given. Foreign objects such as broken glass, metal shavings, and plastic are common physical hazards for fresh fruits and vegetables, due to a process or piece of equipment, which has not been properly maintained during the production of food. There are a number of situations that can contaminate foods with physical hazards:

- Contaminated materials;
- Equipment and supply areas inadequately designed or maintained;
- Packaging materials contaminated
- Inadequate attitude towards staff with major responsibilities.

Hazard analysisThe second step in the realization of the risk analysis is to identify preventive measures that could be used to monitor each risk. Preventive measures can be physical, chemical or other nature, which can be used to monitor the hazards associated with food. A form of records can be used to systematically go through the process, identifying risks that may occur at each stage of this process and preventive measures that can be used to prevent, eliminate or

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reduce each hazard to an acceptable level. Analyze and describe what Are the control measures, if there are several, specify which can be applied for each hazard. Control measures are those actions and activities that can be used to prevent risks, eliminating or reducing their frequency or impact to an acceptable level. To control / monitor a particular risk may need to apply some control measures, while some risks can be controlled using a single control measure, for example, pasteurisation or heat treatment can be used as collateral to reduce Salmonella levels so as and Listeria. Control measures must be supported by specific detailed procedures and specifications to ensure a more efficient implementation. Examples of procedures / specifications may include: health plan treatment, heat treatment parameters on peak concentrations of preservatives etc. They must comply with hygiene rules in force in Moldova and to the standards required by the customer (if the product is exported), conforming to the standard with the most demanding requirements. HACCP team should document the risk analysis and decisions. An effective way to document decisions during the risk analysis is the use of a form of risk analysis. There are several formats such records on risk analysis. It is essential that all of these formats include mandatory stages / ingredients, identifying potential risks, assessing potential risks, justifying the decision, the control measures to be undertaken recommended recordings. Figure 2. 1 making the most of HACCP Monitoring procedures Monitoring records CCP Corrective action records Corrective action procedures

2. 4 Conclusion

" We are what we eat" is an old proverb. Our nutritional status, health, physical and mental faculties depend on the food we eat and how we eat it. Access to good quality food has been man's main endeavour from the earliest days of human existence. Safety of food is a basic requirement of food quality. " Food safety" implies absence or acceptable and safe levels of contaminants, adulterants, naturally occurring toxins or any other substance that may make food injurious to health on an acute or chronic basis. Food quality can be considered as a complex characteristic of food that determines its value or acceptability to consumers. Besides safety, quality attributes include: nutritional value; organoleptic properties such as appearance, colour, texture, taste; and functional properties.'(www. fao. org)

2. 5 Summary

The chapter detailed the necessity and importance of a proper food safety system. It identified and presented the first two objectives of the study. This chapter was divided in two sections, first section presented the first objective, " the importance of a food safety system" and the second section presented the second objective " the HACCP system definition and use". In the next chapter the methodology of the project will be presented.