
ADVANTAGES AND CHALLENGES ASSOCIATED WITH THE IMPLEMENTATION OF FOOD RISK ASSESSMENT IN NILE CRUISERS

SAFWAT ADAM
LUXOR HOTEL INSTITUTE (EGOTH), EGYPT

ABSTRACT

Food risk analysis provides an internationally accepted framework for assessing and managing risk posed by hazards in the food supply, food risk analysis consists of food risk assessment, food risk management, and food risk communication. The aims of this research were to determine advantages, challenges and effectiveness of the implementation of food risk assessment process in three and four-star Nile cruisers operating between Luxor and Aswan by using questionnaire instrument.

Two hundred sixty questionnaire forms were distributed to the food and beverage managers and supervisors in three and four-star Nile cruisers, two hundred thirty were fully completed and returned, the questionnaires elicited information on the concept of food risk assessment, barriers hindering implementation and advantages that motivate three and four-star Nile cruisers to implement food risk assessment.

The results revealed that the respondents had not a sufficient awareness about food risk assessment, while just less than half of respondents (42%) gave the right definition of food risk assessment and the results revealed that the most important challenges of food risk assessment process implementation in Nile Cruisers are missing exposure data , inadequate assessment of hazardous properties ,the lack of training and qualification of manpower, mixing between the functions of risk assessment and risk management, the blurred tasks of the management of food risk assessors, lack of a clear risk assessment policy prior to implementation.

The study also showed the advantages and motivation for the implementation food risk assessments was; create awareness of hazards and risks. Identify who may be at risk (employees, cleaners, visitors, contractors, the public, etc.), determine if existing control measures are adequate or if more should be done, prevent injuries or illnesses when

done at the design or planning stage, prioritize hazards and control measure.

The study recommends that cruisers should establish an independent department for food safety risks management. The heads of such departments and supervisors should be adequately aware of food risk assessment concept.

KEYWORDS: Food Risk Assessment, Hazards, Challenges, Food Safety, Food Risk Analysis

INTRODUCTION

Management of food safety has made major progress in the last three decades. Today managers of food businesses have a choice of systems and technological tools to meet food safety (Motarjemi, 2014). According to Wallace (2014) hazard analysis and critical control point (HACCP) is recognized as a key part of food safety management practice in the global food industry and can be applied at any stage of the food supply chain.

Risk analysis provides an internationally accepted framework for assessing and managing risk posed by hazards in the food supply, risk analysis consists of risk assessment, risk management, and risk communication, the risk assessment process consists of four components, namely hazard identification, hazard characterization, exposure assessment, and risk characterization. Similarly, risk management also consists of four components, namely risk evaluation, option assessment, option implementation, and monitoring and review however, risk communication links all of the processes together from the critical exchanges between risk assessors and risk managers to the important dialog with industry, consumers, and other stakeholders (Moy, 2014).

Figure 1 Risk analysis process



Source: (WHO 2010)

The basic problem in three and four-star Nile cruisers operating between Luxor and Aswan lies in the lack of sufficient awareness about the importance of food risk assessment, as well as the benefits, motivations and the challenges facing the management when applying the process. Therefore, there is a need to study the current situation to measure the effectiveness of food risk assessment application to identify the most important obstacles and challenges that might hinder such application.

LITERATURE REVIEW

FOOD RISK ASSESSMENT

Risk assessment is a systematic and science-based method to quantify or compare risk, or better understand how risks arise, over the past several decades, food safety management has focused on the control of hazards, one of the most prominent developments in more recent years is the move toward risk-based approaches to food safety control at the governmental level led by Codex Alimentarius. Under the auspices of the parent organizations, World Health Organization (WHO), Food and agricultural organization of the United Nations (FAO), governments around the world adopted the risk analysis framework as a basis for their decision-making (Ross, 2014). A prominent part of the risk analysis framework is risk assessment, which is the process of assessing and characterizing the risk of a hazard in a food for a certain population. Risk assessment generally follows four key steps: hazard identification, hazard characterization, exposure assessment, and risk characterization (Gorris and Yoe, 2014).

Risk assessment identifies the likelihood of the occurrence and the magnitude of the consequences of exposure to a hazard on human health (Cheang, 2002) and Codex Alimentarius Commission, (2007)

THE ADVANTAGES OF FOOD RISK ASSESSMENT

According to OSHA; (2013) risk assessments are very important as they form an integral part of a good occupational health and safety management plan. They help to:

- Create awareness of hazards and risks.
- Identify who may be at risk (employees, cleaners, visitors, contractors, the public, etc.).
- Determine if existing control measures are adequate or if more should be done.
- Prevent injuries or illnesses when done at the design or planning stage.
- Prioritize hazards and control measure.

HSE (2012) indicated that a risk assessment is an important step in protecting workers and business, as well as complying with the law, it helps focus on the risks that really matter in workplace– the ones with the potential to cause harm. In many instances, straightforward measures can readily control risks, for example, ensuring spillages are cleaned up promptly so people do not slip or cupboard drawers kept closed to ensure people do not trip for most, that means simple, cheap and effective measures to ensure your most valuable asset –your workforce– is protected.

Lammerding and Fazil (2000) stated that risk assessment represents a systematic process for identifying adverse consequences and their associated probabilities arising from consumption of foods that may be contaminated with microbial pathogens and microbial toxins.

CHALLENGES ASSOCIATED WITH THE IMPLEMENTATION OF FOOD RISK ASSESSMENT

Liesbeth, J., et *al.*, (2016) stated that the process of food safety risk management consists out of three components, food risk assessment, food risk management and food risk communication.

AL-Mutairi (2015) and Macheke et *al.*, (2013) listed the challenges of implementation system:

- Lack of experts and specialists.
- The absence of training and qualification of manpower, and the neglect and indifference of many of the owners of food establishments on the application of these regulations.
- Giving priority to profit compared to the health aspect.
- Poor coordination, cooperation and communication between the parties related to food safety.

Munckej et *al.*, (2017) listed the challenges of food risk assessment as follows:

- A lack of information about risks, namely, chemical, biological and physical.
- A lack of information about risks chemical, biological and physical identity.
- Inadequate assessment of hazardous properties.
- Missing exposure data.
- Companies don't make decision about the safety of some food contact chemicals.

Figure 2: Food Safety Risk Assessment Process

Source (CAC, 2007)

Codex Alimentarius Commission (2003) stated that the most important challenges of food risk assessment are:

- Mixing between the functions of risk assessment and risk management.
- The blurred tasks of the management of food risk assessors.
- Lack of a clear risk assessment policy prior to implementation.

FOOD RISK ASSESSMENT PROCESS

According to Codex Alimentarius Commission (2007) food safety risk assessment process includes four steps as follows:

- Hazard identification.
- Hazard characterization.
- Exposure assessment.
- Risk characterization.

According to WHO (2010) and Deininger and Sur (2007) hazard identification is the identification of biological, chemical, and physical agents capable of causing adverse health effects and which may be present in food or group of foods. Hazard characterization is the qualitative and quantitative evaluation of the nature of the adverse health effects associated with biological, chemical and physical agents which may be present in food, for chemical agents, a dose-response assessment should be performed, for biological or physical agents, a dose-response assessment should be performed if the data are obtainable (FAO and WHO,2005).

Exposure assessment is the qualitative and quantitative evaluation of the likely intake of biological, chemical, and physical agents via food as well as exposures from other sources if relevant, Risk characterization is the

qualitative and quantitative estimation, including attendant uncertainties of the probability of occurrence and severity of known or potential adverse health effects in a given population based on hazard identification, hazard characterization and exposure assessment (Health and Safety Executive, 2003). WHO (2010) and Burgon (2013) indicated that there are no fixed rules on how a risk assessment should be carried out, but there are a few general principles that should be followed:

Step 1: Identify the hazards. In order to identify hazards there is a need to understand the difference between a ‘hazard’ risks, a hazard is ‘something with the potential to cause harm’, and a risk is ‘the likelihood of that potential harm being realized. Hazards can be identified by using several of different techniques such as walking round the workplace, or asking your employees (Health and Safety Executive, 2007).

Step 2: Decide who might be harmed and how. Once you have identified the hazards there is a need to understand who might be harmed and how, such as ‘people working in the warehouse or members of the public (Burgon, 2013).

Step 3: Evaluate the risks and decide on control measures. After ‘identifying the hazards’ and ‘deciding who might be harmed and how’ are then required to protect the people from harm, the hazards can either be removed completely or the risks controlled so that the injury is unlikely (Canadian Standards Association, 1996).

Step 4: Record your findings :findings should be written down it’s a legal requirement where there are 5 or more employees; and by recording the findings it shows that you have identified the hazards, decided who could be harmed and how, and also shows how you plan to eliminate the risks and hazards (Burgon, 2013).

Step 5: Review your assessment and update as and when necessary should never forget that few workplaces stay the same and as a result, this risk assessment should be reviewed and updated when required. (Burgon, 2013).

RESEARCH METHOD

INSTRUMENT

A descriptive analytical Approach was used to achieve the study aims. The questionnaire, as data collection tool, was designed and distributed to food and beverage managers and supervisors in three and four-star Nile

cruisers. Data collected was analyzed by SPSS "statistical package for social science" version 20.

POPULATION AND SAMPLE

The study population is all three and four-star Nile cruisers operating between Luxor and Aswan in this study a total survey method was used on search population due to small size of the population. According to **Egyptian Hotel Association (2016)** there are (24) three star cruisers and (46) four-star cruisers with a total of (70) three and four-star Nile cruisers operating between Luxor and Aswan

RESEARCH OBJECTIVES

The research aims to determine barriers, benefits and effectiveness of food risk assessment process in three and four-star Nile cruisers operating between Luxor and Aswan. To attain this aim the objectives of the study were as follows:

1. Evaluating the respondents' awareness about the concept of the food risk assessment in the surveyed cruisers.
2. Assessing the awareness levels of the respondents about food risk assessment benefits.
3. Identifying the most important challenges facing the Implementation of food risk assessment Process.
4. Evaluating the effectiveness of the implementation food risk assessment process.

HYPOTHESIS

Based upon the research objectives, the following hypotheses were formulated.

- There is a positive significant relationship between the effectiveness of implementation food risk assessment and the respondents' awareness about the concept of food risk assessment.
- There is a positive significant relationship between the effectiveness of implementation food risk assessment and the respondents' awareness of food risk assessment advantages.
- There is a positive significant relationship between effectiveness of implementation food risk assessment and the respondents' awareness of food risk assessment challenges

RESEARCH RESULTS AND DISCUSSION

QUESTIONNAIRE RESPONSE RATE

Two hundred sixty questionnaires were distributed to food and beverage managers and supervisors in three and four-star Nile cruisers operating

between Luxor and Aswan and two hundred thirty were fully completed and returned.

Table 1 Questionnaire response rate

| | No. of questionnaire |
|---------------------------|----------------------|
| Number targeted | 260 |
| Number returned and valid | 230 |
| Response rate | 88.46 % |

Table 2 The respondents' awareness of the concept of Food risk assessment

| The concept of food risk assessment | S.D | M | P | R |
|---|-------|-------|-------|---|
| 1. Provides an internationally accepted framework for assessing and managing risk posed by hazards in the food supply. | 1.118 | 3.16 | 14.3% | 3 |
| 2. Risk assessment is a systematic and science-based method to quantify or compare risk, or better understand how risks arise. | 1.009 | 3.85 | 42.6% | 1 |
| 3. Is intended to help consumers make informed decisions about risk, through shared knowledge and understanding. | 1.166 | 3.60 | 33.5% | 2 |
| 4. Risk assessment is an important step in protecting workers and business, as well as complying with the law, it helps focus on the risks. | 1.143 | 1.143 | 9.5% | 4 |
| S.D = standard deviation M = mean P = percentage R = Ranking | | | | |

The results showed that the concept varies among the respondents and each group of the respondent indicated the meaning of food risk assessment according to his own knowledge and depending on his work experience. Respondents' definitions are categorized respectively according to the most chose concept as follow:

- Risk assessment is a systematic and science-based method to quantify or compare risk, or better understand how risks arise (42.6% of respondents).

- Is intended to help consumers make informed decisions about risk, through shared knowledge and understanding. (33.5% of respondents).
- Provides an internationally accepted framework for assessing and managing risk posed by hazards in the food supply (14.3% of respondents).
- Risk assessment is an important step in protecting workers and business, as well as complying with the law, it helps focus on the risks (9.5% of respondents).

These results indicated that less than half of respondents (42.6%) gave the right definition of food risk assessment and this agree with who mentioned by Ross (2014) risk assessment is a systematic and science-based method to quantify or compare risk, or better understand how risks arise.

Table 3 The Advantages of Food risk assessment according to respondents' views

| The Advantages | S. D | M | P |
|--|-------|------|------|
| 1. Create awareness of hazards and risks. | 0.753 | 3.97 | 79.5 |
| 2. Identify who may be at risk (employees, cleaners, visitors, contractors, the public, etc.). | 0.453 | 3.71 | 74.3 |
| 3. Determine if existing control measures are adequate or if more should be done. | 1.372 | 2.89 | 57.7 |
| 4. Prevent injuries or illnesses when done at the design or planning stage. | 1.166 | 2.60 | 52 |
| 5. Prioritize hazards and control measure. | .498 | 3.56 | 71.1 |
| 6. Achieving the goals of the administration. | 1.272 | 2.76 | 55.1 |
| 7. Meeting the minimum legislative requirement. | 1.233 | 2.90 | 58.1 |
| Grand Mean | | 3.20 | |
| S.D = standard deviation M = mean P = percentage R = Ranking | | | |

To determine the advantages of food risk assessment the respondents were asked to identify from their point of view the benefits of food risk assessment. The results in table (3) indicated that the Grand mean is (3.20), this value refers to ‘Neutral’ option Table (3) also showed the results of advantages items were; create awareness of hazards and risks (79.5 %), identify who may be at risk employees, cleaners, visitors,

contractors, the public, etc. (74.3%), determine if existing control measures are adequate or if more should be done. (57.7%), Prioritize hazards and control measure. (71.1%) prevent injuries or illnesses when done at the design or planning stage. (52 %) - achieving the goals of the administration (55.1%), - meeting the minimum legislative requirements (58.1%). most of respondents had not sufficient awareness about the benefits of food risk assessment.

Table 4 The implementations of Food risk assessment process

| The implementations of risk assessment process | S. D | M | P |
|--|-------------|----------|----------|
| 1. Identify sources of hazard which can be exposed to the food at the hotel. | 0.725 | 3.57 | 71.5 |
| 2. Identify Hazard characterization. | 0.765 | 2.99 | 59.8 |
| 3. Evaluating how to exposure assessment. | 0.747 | 3.02 | 60.3 |
| 4. Decide who might be harmed and how. | 0.725 | 2.57 | 51.5 |
| 5. Arrangement of risks automatically to study a negative impact and record your findings. | .842 | 2.84 | 56.9 |
| 6. The management put the safety procedures to control the risks the food is exposed to. | 1.034 | 3.45 | 69 |
| 7. The choice of those responsible for risk assessment with full transparency. | 1.385 | 2.59 | 51.8 |
| Grand mean | 0.889 | 3.01 | |
| S.D = standard deviation M = mean P = percentage | | | |

To identify the extent of applying food risk assessment process the researcher put the processes in a Likert scale. as shown on table (4): The mean score of respondents was more than the value 2.5 from a Likert scale (1 never, 2 seldom, 3 sometimes, 4 often and 5 always) for all process.

The result in table (4) pointed out that the process of identify sources of hazard which can be exposed to the food at the hotel (mean = 3.57), identify hazard characterization (mean = 2.99), evaluated how to exposure assessment (mean= 3.02),decide who might be harmed and how (mean= 2.57), arrangement risks automatically to study a negative impact and record your findings (mean=2.84), the management put the safety procedures to control the risks the food is exposed to (mean= 3.45), the

choice of those responsible for risk assessment with full transparency (mean= 2.59).

These results revealed that respondents apply the stages of risk assessment is ineffectively. These results agreed with what mentioned by WHO (2010) and Codex Alimentarius, (2007) when they mentioned that the risk assessment process is (identify sources of hazard, identify hazard characterization, evaluated how to exposure assessment, decide who might be harmed and how, arrangement risks automatically to study a negative impact and record your findings, review your assessment and put preventive measures to control the risks posed to food, review your assessment and put preventive measures to control the risks posed to food)

Table 5 Challenges facing the application of food risk assessment

| | Items | S. D | M | P | R |
|---|--|-------------|----------|----------|----------|
| Challenges related to management | 1. Mixing between the functions of risk assessment and risk management. | 0.765 | 3.11 | 60.2 | 4 |
| | 2. Companies don't make decision about the safety of some food contact chemicals. | 1.121 | 3.14 | 62.8 | 3 |
| | 3. The blurred tasks of the management of food risk assessors. | 1.277 | 3.73 | 74.6 | 2 |
| | 4. Lack of a clear risk assessment policy prior to implementation. | 0.765 | 4.01 | 80.2 | 1 |
| | Items | S. D | M | P | R |
| Challenges related to employee | 1. Lack of a high skill team. | 1.405 | 4.00 | 80 | 1 |
| | 2. Lack of training and qualification of manpower. | 1.061 | 3.99 | 79.8 | 2 |
| | 3. Dispensed some experienced staffs and bringing others with less experience. | 1.166 | 3.40 | 68 | 4 |
| | 4. Resignation of some | 0.825 | 3.83 | 76.7 | 3 |

| | | | | | |
|--|--|-------------|----------|----------|----------|
| | workers. | | | | |
| Challenges related to the process itself | Items | S. D | M | P | R |
| | 1. A lake of information about chemical, biological and physical identity. | 1.175 | 3.58 | 71.7 | 2 |
| | 2. Missing exposure data. | 0.988 | 3.17 | 63.3 | 3 |
| | 3. Inadequate assessment of hazardous properties. | 1.129 | 3.83 | 76.7 | 1 |
| S.D = standard deviation M = mean P = percentage R = Ranking | | | | | |

The respondents were asked to identify the challenges that face the application of food risk assessment as shown on table (5). There are three types of challenges facing investigated hotels to apply food risk assessment, which were, challenges related to management, challenges related to employees and challenges related to the process itself.

The Mean score of responses was more than 3.4 for all challenges, which refers that respondents approve with all challenges with varied degrees. The results on table (5) pointed out that the respondents considered the challenges related to employees with higher percentages as the most important challenges, this dues to many reasons that included; the lack of a high skill team (80%), lack of training and qualification of manpower (79.8%), resignation of some workers (76.6%) and Dispensed some experienced staffs and bringing others with less experience (68%) The respondents considered the challenges related to management as the second important which included; Lack of a clear risk assessment policy prior to implementation (80.2%).

The blurred tasks of the management of food risk assessors (74.6%), companies make decision about the safety of some food contact chemicals (62.8%) and Mixing between the functions of risk assessment and risk management (60.2%) The result also pointed out that the challenges related to the process as the third type , which included; inadequate assessment of hazardous properties (76.6%), a lake of information about chemical, biological and physical identity (71.7%), missing exposure data (63.3%).

These agree with Al-Mutairi (2015), Trienekens and Zuurbier (2008), Sur and Deininger (2007), Codex Alimentarius Commission (2003) and Munckej *et al* (2017).

TESTING HYPOTHESIS

- **The first hypothesis** is there is a positive significant relationship between the effectiveness of implementation food risk assessment and the respondent’s awareness of the food risk assessment concept and this hypothesis achieved through the first question

Table 6 Correlation between the effectiveness of Implementation FRA and respondent’s awareness of FRA concept

| | Correlation | Respondents awareness |
|---|---------------------|------------------------------|
| The effectiveness of implementation food risk assessment. | Pearson Correlation | .932** |
| | Sig. (2-tailed) | .000 |
| | N | 230 |
| ** Correlation is significant at the 0.01 level (2-tailed). | | |

to identify the relation between the effectiveness of implementation food risk assessment and respondents awareness of food risk assessment concept, by using Pearson correlation results indicated that value = .932 correlation is significant at the 0.01 level (2-tailed) Hence there is a positive, significant, and very strong correlation between variables.

Table 7 Impact of respondents' awareness of the concept of food risk assessment on the effectiveness of implementation food risk assessment

| | | Sum of Squares | df | Mean Square | R² | F | Sig. |
|----------------|----------------|-----------------------|-----------|--------------------|----------------------|----------|-------------|
| Concept | Between Groups | 1493.767 | 9 | 64.95 | 0.765 | 287.72 | .000 |
| | Within Groups | 965.967 | 220 | 26.83 | | | |
| | Total | 2459.733 | 229 | | | | |

To measure the effect of respondents awareness of food risk assessment concept on the effectiveness of implementation food risk assessment by using regression (R2) results showed in table: (7) indicated that respondents awareness about food risk assessment concept: R2value = 0.765, DF= 9, F= 287.72, and P < .05, then it is revealed that there is a significant effect of respondents awareness on the effectiveness of implementation and this means that the respondent’s awareness about the

concept of food risk assessment effect on the effectiveness of applying food risk assessment percentage is (76.5%).

- **The second hypothesis** is “there is a positive significant relationship between the effectiveness of implementation food risk assessment and the respondents' awareness of the advantages of food risk assessment and this hypothesis achieved through the second question.

Table 8 Correlation between the effectiveness of implementation food risk assessment and respondent’s awareness of the benefits of food risk assessment

| | Correlation | Respondents awareness about the benefits of food risk assessment |
|--|---------------------|---|
| The effectiveness of implementation food risk assessment. | Pearson Correlation | .862** |
| | Sig. (2-tailed) | .000 |
| | N | 230 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | |

To identify the relation between the effectiveness of implementation food risk assessment and respondents awareness of the benefits of food risk assessment by using Pearson correlation the results indicated that: P value= .862 Correlations is significant at the 0.01 level (2-tailed). It is revealed that there is a positive, significant, and very strong correlation between variables.

Table 9: Impact of respondent’s awareness of benefits of food risk assessment on the effectiveness of implementation food risk assessment

| | | Sum of Squares | df | Mean Square | R2 | F | Sig. |
|--|----------------|-----------------------|-----------|--------------------|-----------|----------|-------------|
| The respondents awareness about the benefits of food risk assessment | Between Groups | 584.717 | 9 | 27.84 | 0.711 | 410.23 | .000 |
| | Within Groups | 1702.133 | 220 | 44.79 | | | |
| | Total | 2286.85 | 229 | | | | |

To measure the effect of respondents awareness of the benefits of food risk assessment on the effectiveness of implementation food risk assessment by using regression (R2) results showed in table: (9) indicated that respondents awareness about the benefits of food risk assessment R2value = 0.711, DF = 9, F=410.23, and P < .05, then it is revealed that there is a significant effect of respondents awareness about the benefits of food risk assessment on the effectiveness of implementation and this means that the respondents awareness about the benefits of food risk assessment effect on the effectiveness of implementation food risk assessment percentage is (71.1%).

- **The third hypothesis** is “There is a positive significant statistical relationship between the effectiveness of implementation food risk assessment and the challenge that facing during processing

Table 10: Correlation between the effectiveness of implementation food risk assessment and challenge that facing during applying

| | Correlation | challenge that facing during process applying |
|--|---------------------|--|
| The effectiveness of implementation food risk assessment | Pearson Correlation | .871** |
| | Sig. (2-tailed) | .000 |
| | N | 230 |

** Correlation is significant at the 0.01 level (2-tailed).

The using Pearson correlation is to identify the relation between the effectiveness of implementation food risk assessment and the challenge that facing during processing. The results indicated that: P value = .871 correlations are significant at the 0.01 level (2-tailed).it is revealed that there is a positive, significant, and very strong correlation between variables.

Table 11: Impact of challenge that facing during process applying on the effectiveness of applying food risk assessment

| | | Sum of Squares | df | Mean Square | R2 | F | Sig. |
|---|----------------|-----------------------|-----------|--------------------|-----------|----------|-------------|
| The challenge that facing during processing | Between Groups | 2016.21 | 9 | 96.01 | 0.740 | 644.64 | .000 |
| | Within Groups | 2701.19 | 220 | 71.08 | | | |
| | Total | 4717.4 | 229 | | | | |

Using regression (R²) to measure the effect of challenges that facing during processing on the effectiveness of implementation food risk assessment the results showed in table: (11) indicated that the challenge that facing during processing of food risk assessment: R²value = 0.740, DF= 9, F=644.64, and P < .05, then it is revealed that there is a significant effect of challenge that facing during processing on the effectiveness of applying and this means that the challenge that facing during processing applying effect on the effectiveness of applying FSRM percentage is (74%).

CONCLUSIONS AND RECOMMENDATIONS

Management of food safety has made major progress in the last three decades. Today, managers of food businesses have a choice of systems and technological tools to meet food safety. The hotels industry in Egypt has a paramount importance in recovery tourism process, and hotels occupancy rate are one of the important indicators in the evaluation of significant activity through number of tourist nights spent.

Through the study conducted by the researcher found that there were many food risks facing this sector and have negative impact. Thus pushing the research to study the current situation identifies the effectiveness of applying food safety risk assessment.

RECOMMENDATIONS

The researcher suggested a set of recommendations based on the study results, these recommendations introduced to Nile Cruisers, Egyptian federation hotels, and scholars as follows:

- Nile Cruisers in Luxor and Aswan should apply one of effective quality systems.
- Heads of departments and supervisors in Nile Cruisers in Luxor and Aswan should be adequately aware of the food risk assessment concept, benefits and challenges
- Hotel managers should identify the gap in employee perceptions about food risk assessment and don't overlap between food risk management and food risk assessment
- A risk should be assessed or ranked against an end-point, in this case against the health of the consumer.
- producing an information pamphlet for food risk assessment process and importance in Nile Cruisers
- The personnel in Nile Cruisers were found to have a positive attitude towards food safety systems, but the knowledge, training

and involvement of those employees directly operating on the site where the control actions take place were found deficient.

- The management of Nile Cruisers must know the importance of food risk assessment and the role in increasing the market share and reducing the cost
- Provide staff with continuous training and not just rely on the ministry's free training program.
- Developing and improving content and structure of food safety risk analysis educational courses at Egypt universities.

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