جهــاز أبــوظبـي للرقابة الغذائية
ABU DHABI FOOD CONTROL AUTHORITY

CODE OF PRACTICE

No. (18)/2012

A Guide to the Preparation of a HACCP-Based Food Safety Management System for Hotels

Endorsed by BOD

24 December 2012

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ACKNOWLEDGEMENTS

The Abu Dhabi Food Control Authority has consulted with many industry stakeholders in the development of this Code of Practice. The Authority would like to acknowledge this valuable input and support.

In particular, the Authority would like to express its thanks and appreciation to the following organizations:

Abu Dhabi National Hotels

Al Heel Restaurant

Al Hossam Construction

Al Jaber Company

Al Khaleej Hospitality

Ascon Construction

Beach Rotana (Abu Dhabi)

Bin Thani Restaurant

'D Club' Life Line Group

Consolidated Contractors International Company

El Dorado Restaurant

Emirates Fast Food LLC Mc Donalds

Forte Hotel

Global Emirates Company

Hotbrands International

Jumeirah Hotel (Abu Dhabi)

Khalidiya Palace Rayhaan by Rotana

Kuwait Food Company Americana

National Catering Company

Rainbow Catering

Royal Catering

Soulfull Restaurant

ABBREVIATIONS

ADFCA	Abu Dhabi Food Control Authority
CCP	Critical Control Point
CPU	Central Production Unit
EFST	Essential Food Safety Training
FAO	Food and Agriculture Organization
FSA	Food Standards Agency (UK)
FSAI	Food Safety Authority of Ireland
FSMS	Food Safety Management System
GHP	Good Hygiene Practice
HACCP	Hazard Analysis Critical Control Point
MSQA	Meat Safety Quality Assurance System (Australia)
NZFS	New Zealand Food Safety Authority
PRP	Prerequisite Program
SOP	Safe Operating Practices
WHO	World Health Organization

PART 1: INTRODUCTION

1.1   BACKGROUND

1.1.1 Meeting the needs of Abu Dhabi food service businesses

This Code of Practice is the output of a 2 year research and development project - HACCP for Catering (2010 - 2012) - conducted by the Abu Dhabi Food Control Authority (ADFCA). The project was initiated to ensure that any guidance would reflect international best practice but importantly, would also be specific to the current needs of Abu Dhabi businesses.

The project involved a process of international benchmarking followed by a gap analysis to identify business needs, alongside an extensive stakeholder engagement process. The project is summarised in Annex 4.4 and further details can be found on the ADFCA website www.adfca.ae.

1.1.2 What is a food safety management system (FSMS) ?

A food safety management system is a risk based method of controlling operational food safety hazards in businesses. As can be seen in Figure 1, it involves the control of both general and specific hazards through the implementation of food safety practices based on GHP (Good Hygiene Practice) and HACCP (Hazard Analysis Critical Control Point) respectively.

The term "good hygienic practices" is based on the definition of food hygiene in the Codex General Principles of Food Hygiene[1]. For consistency, the term GHP is used throughout the document as an equivalent term to Pre-requisite Programs (PRPs).

As can be seen from Figure 1 the design and construction of the food premise, along with the necessary facilities and equipment is a pre-requisite for a safe system. In the Emirate of Abu Dhabi there is a licensing program whereby ADFCA ensure that food service businesses meet these basic requirements. This Code is only applicable to food businesses that have a current license.

GHP and HACCP have a relatively long history. They were elaborated by the International Codex Alimentarius Commission in 1969 and 1993 respectively[1]. Whilst the requirements of GHP are applicable to the whole food chain, the 1993 methodology was developed for manufacturing, and attempts to implement this 'classical 12 step method' in the food service industry have largely failed[2,3].

Figure 1: An overview of the components of a food safety management system
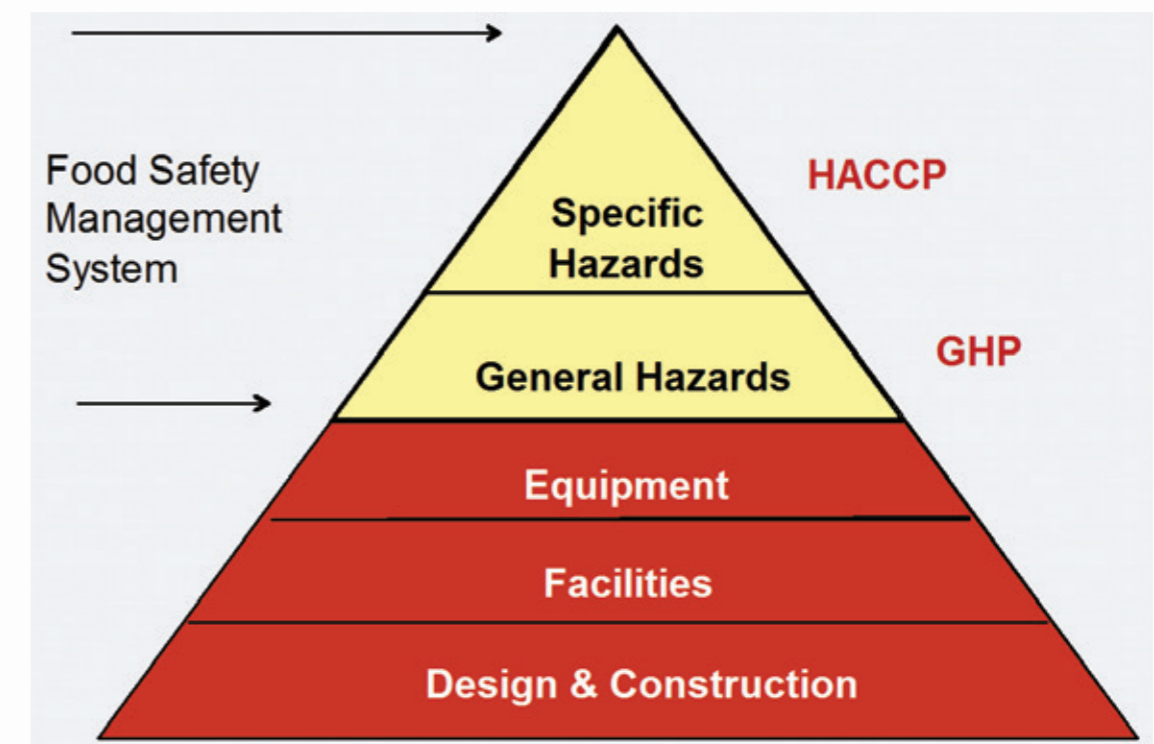
1.1.3 A FSMS for the food service industry?

The methodology for applying HACCP principles in sectors other than large scale manufacturing has been the subject of much research and development in the current decade[2, 3]. In 2001, the UK Food Standards Agency (FSA) commissioned work at Salford University which resulted in the development of an innovative new method of HACCP for the food service industry[4,5,6]. The characteristics of the method are listed in Figure 2. The FSA subsequently adapted the method to suit the needs of small food service businesses in a product known as 'Safer Food Better Business[7,8].
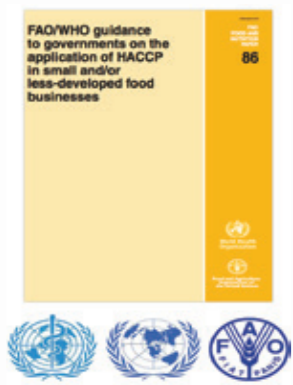
This 'new method of managing food safety' was a result of a rigorous process of development, research and evaluation that confirmed its effectiveness and utility [9,10,11]. It has subsequently received recognition by the Codex Alimentarius Commission, the Food and Agriculture Organisation and World Health Organisation and established as a benchmark for new 'evolving methodologies[2]. It has been adopted by many national governments with elements incorporated into best practice guides worldwide[12,13,14]. ADFCA have adopted and further developed this new method to meet the needs of Abu Dhabi businesses.

Figure 2 Characteristics of the new method of HACCP for food service[2].

1. Merging both the general (GHP) and specific (HACCP) hazards into one food safety management system.
2. Grouping similar hazards and controls to facilitate the operation of HACCP by the business.
3. Using validated sensory parameters for critical limits of cooking and chilling practices.
4. Supplying businesses with information on risks and hazards in order to reduce the levels of scientific knowledge and judgment required by the business.
5. Utilizing methods that reduce the quantity of record keeping (e.g. use of a "diary" or simplified records based on "management by exception")
6. Verification done routinely by self-audit, i.e. activity is undertaken by the manager responsible and intermittently by official enforcement officers
7. Underpinned by the 7 HACCP principles.

Further details of how this method aligns with the 12-step manufacturing method of applying HACCP principles can be found in Annex 4.3.

1.1.4 Why is FSMS needed?

Despite great advances in modern technology, producing safe food and keeping food safe remains a worldwide public health problem. Available data indicates that most cases of illness result from the mishandling of food at some stage along the food chain, and that with appropriate management, it is preventable.

The implementation of a HACCP-based food safety management system (FSMS) is internationally agreed as the most effective business intervention to protect the public from food borne disease. As a regulator, ADFCA has a responsibility to ensure that industry practices result in safe food. As part of a continuing effort to strengthen food control ADFCA has issued new legislation (Regulation 6, 2010) that requires HACCP-based food safety management systems in all food businesses across the Emirate.

The food service industry has been identified as a priority given it is the largest and most diverse

food industry sector with well documented difficulties of managing food safety, a predominance of small businesses, lack of technical expertise, language problems and minimum resources.

This Code of Practice will provide a framework for food service businesses to develop an effective FSMS and consistently achieve good food safety outcomes and compliance with ADFCA requirements. Another important output of a FSMS is the improvement of overall business performance through modern standardised, rigorous management approaches[9].

1.2 SCOPE

This is one of a series of Code of Practice documents designed to support businesses in the implementation of a HACCP-based food safety management system (see Figure 3).

Figure 3 Guides to the development of a HACCP-based Food Safety Management System.

Codes of Practice (1-8)
1   Food Service Contractors
2   Hotels
3   International Restaurant Chains
4   Local Restaurant Chains
5   Schools & Hospitals
6   Traditional Kitchens
7   Labour Camps
8   Small Businesses

The Code is divided into 4 parts. Part 1 describes a framework in which to develop and design the operational procedures that will drive the FSMS. This is followed by Part 2 which gives a step by step guide to the requirements of the system. Part 3 outlines the process for gaining ADFCA approval of the system. Part 4 provides an Annex of supplementary documents.

1.2.1 The hotel industry

A hotel can be described as a business that caters primarily for residential customers with the provision of food and beverage as required. This can be on a 24hr basis with varying levels of night service.

The food and beverage operation of many hotels involves complex recipes and large menus that may change frequently. The structure of the kitchen(s) is usually divided into separate specialist areas such as the main kitchen (cooking and service of hot dishes), larder (cooked cold and raw preparation) and pastry (preparation of deserts, confectionery products and bread). Some of these areas may be sub divided for the basic preparation of raw meat, fish, vegetable, fruit, salad and bakery.

Smaller hotels cover the same basic production functions but on a smaller scale with less specialisation. Importantly, in all kitchens, of whatever size, there will be a planned production arrangement involving standard procedures and routines.

All kitchens will have a person taking overall responsibility who is usually referred to as the Chef, (or Head Chef, Executive Chef, etc). This person is the head of the kitchen department with a wide range of responsibilities including health and safety, quality control, staff management, time management, perishable and non-perishable materials storage, purchasing, maintenance, pest control and food safety.

Figure 4 Example of a Hotel kitchen

1.3 RELATED DOCUMENTS

The following relevant ADFCA legislation should be available in the business as a reference whist developing a FSMS, particularly the Code of Practice for Food Hygiene for the Food Service Industry. Soft copies can be downloaded from the ADFCA website.

   a. ADFCA Regulation No (1) for the year 2008 *Description of Violations Related to Food & its Handling.*
   b. ADFCA Food Law No (2) for the year 2008 *Food Law.*
   c. ADFCA Regulation No (4) for the year 2011 *Food Traceability & Recall.*
   d. ADFCA Regulation No (6) for the year 2010 *Food Hygiene throughout the Food Chain.*
   e. ADFCA Code of Practice No (6) for the year 2011 *HACCP for the Food Manufacturing Industry.*
   f. ADFCA Code of Practice No (13) for the year 2011 *Food Hygiene for the Food Service Industry.*

1.4 DEFINITIONS

In this Code of Practice the terms and expressions of Law No 2 (2008) shall apply, in addition to the following, unless the text indicates otherwise:

Food Service*	Food and beverage serving activities providing complete meals or drink fit for immediate consumption, whether in traditional restaurants, self service or take away restaurants, whether as permanent or temporary stands with or without seating.
Food Safety Management System	A risk management system that controls both specific and general operational hazards using the seven principles of HACCP (Hazard Analysis and Critical Control Point) and Good Hygiene Practices (GHP) as described by the Codex Alimentarius Commission.
HACCP	A systematic approach to the identification, evaluation and control of food safety hazards based on seven principles described by the Codex Alimentarius Commission.
GHP	A system of controlling general food safety hazards that are relevant to most food businesses, as described by the Codex Alimentarius Commission.

1.5 FSMS DOCUMENTS AND RECORDS: PRESENTATION STYLE

Hotels are required to document their system, describing all procedures employed within the scope of their operation, to ensure that food safety issues are addressed. Whilst the hotel's FSMS may cover operations outside the scope of ADFCA requirements these will not be subject to regulatory compliance audits.

It is important to recognise that, in the context of a FSMS, the terms 'documentation' and 'record keeping' represent two distinct parts of the system. FSMS 'record keeping systems' confirm what actually takes place on a day-to-day basis and provides evidence of actual events e.g. internal audits or temperature checks. FSMS documentation provides the evidential base for the HACCP system e.g. the procedures and supporting documents for all food safety related practice in the business

1.5.1 *'FSMS Manuals'*

The method of developing and retaining food safety related documents and records are not prescribed by ADFCA. Businesses can present the relevant aspects of the FSMS in any way they find useful, as long as all required components are included (see Section 4.1 Template 7) and are easily identifiable for ADFCA audit purposes.

* The term 'catering' is used by some Governments to describe the same general activity.

However, most hotels in Abu Dhabi choose to provide a *FSMS Manual* that acts as a guide or index to the full food safety management system. It is important to recognise that this Manual does not replace the need for appropriate FSMS documents and records in each kitchen. For example, there may be a *Company FSMS Manual* linked to a number of smaller *Kitchen FSMS Manuals* (one in each kitchen). In addition, there should be a method of storage of all records generated to ensure they are accessible for trend analysis, internal reviews, regulatory audits etc

Format & Layout

The fundamental purpose of documents and records is to guide employees. To meet this purpose, documents and records must be:
a. Fit-for-purpose
b. Easy to understand
c. Concise

To achieve this, the following general principles should be considered:
a. Use tables, diagrams and other forms of easily assimilated instructions wherever possible.
b. Group similar sections together, rather than scatter references.
c. Cross-reference thoroughly, particularly recording sheets or logs.
d. Identify recording sheets or logs by a title and form or document number, both of which should be quoted whenever the form is referred to.
e. Clearly label flow charts, diagrams, tables and checklists for easy reference.

To facilitate amendments, the *FSMS Manual* should:
a. Be prepared in loose leaf form.
b. Provide an adequate numbering system to identify each page and the total number of pages in each Section (e.g. Page 1 of 23) and the date of issue
c. Include a Table of Contents.

Major sections or chapters should be tabbed for quick reference. A well structured *FSMS Manual* assists all parties, being easier for both hotel staff and auditors to use.

Given that the essence of a food safety management system is to strive for improvement, no *FSMS Manual* is ever finalised and should be constantly reviewed and updated.

1.5.2 Control of FSMS documents and records

The FSMS should be kept up-to-date at all times. Procedures should be developed that identify methods for adding, amending or deleting documents and record keeping forms as well as the approval for their issue.

The larger the business the more processes and procedures are needed to control the documents and records related to food safety. However, most hotels already have 'document control procedures' in place (for quality assurance purposes) so this element of the FSMS will be routine. ADFCA will not review the 'document control' procedures.

1.5.3 Starting a new FSMS or converting an existing one.

Many hotels will have a system in place for managing food safety prior to the publication of this Code of Practice. They should therefore study the requirements of this document and then decide whether to develop new *FSMS Manual(s)* or convert their existing ones. In either case a phased implementation should be planned, documented and discussed with ADFCA if necessary.

When all the components of the hotel's FSMS (as detailed in this Guide) have been written and implemented, the hotel may then apply to the ADFCA HACCP Audit Team for approval of the system (see Part 3). Hotels are encouraged to liaise with ADFCA during the development phase to ensure that best practice is followed. Stakeholders will be invited to attend workshops and training on a regular basis.

PART 2: CONTENTS OF THE MANUAL

2.1 THE HOTEL

2.1.1 Hotel operation

In order to assess the food safety management system of a hotel, ADFCA requires a total 'picture' of the operation.

In food safety terms the operational unit is the kitchen. The hotel may have multiple kitchens operating over more than one site. This can be a complex organization operation and a flow chart or diagram is best used to illustrate this as shown in Figure 5.

Figure 5 Flow chart to show an example of the operational structure of a hotel
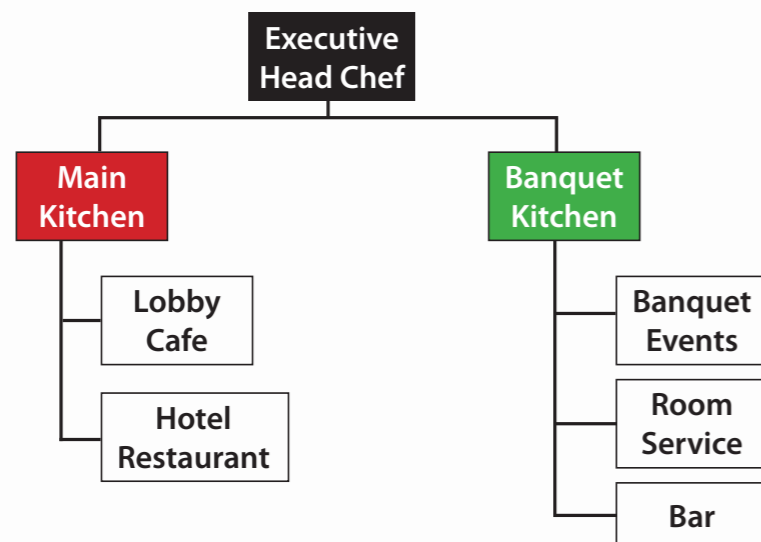
2.1.2 Food premise: structure, facilities and large equipment

A simple floor plan should be included in the FSMS to show the location of partition walls, facilities, preparation areas, loading and receiving areas, facilities and large equipment. Work flow should be indicated if possible and also any separation of high and low risk areas. An example is shown in Figure 6.

Figure 6 Example of kitchen floor plan
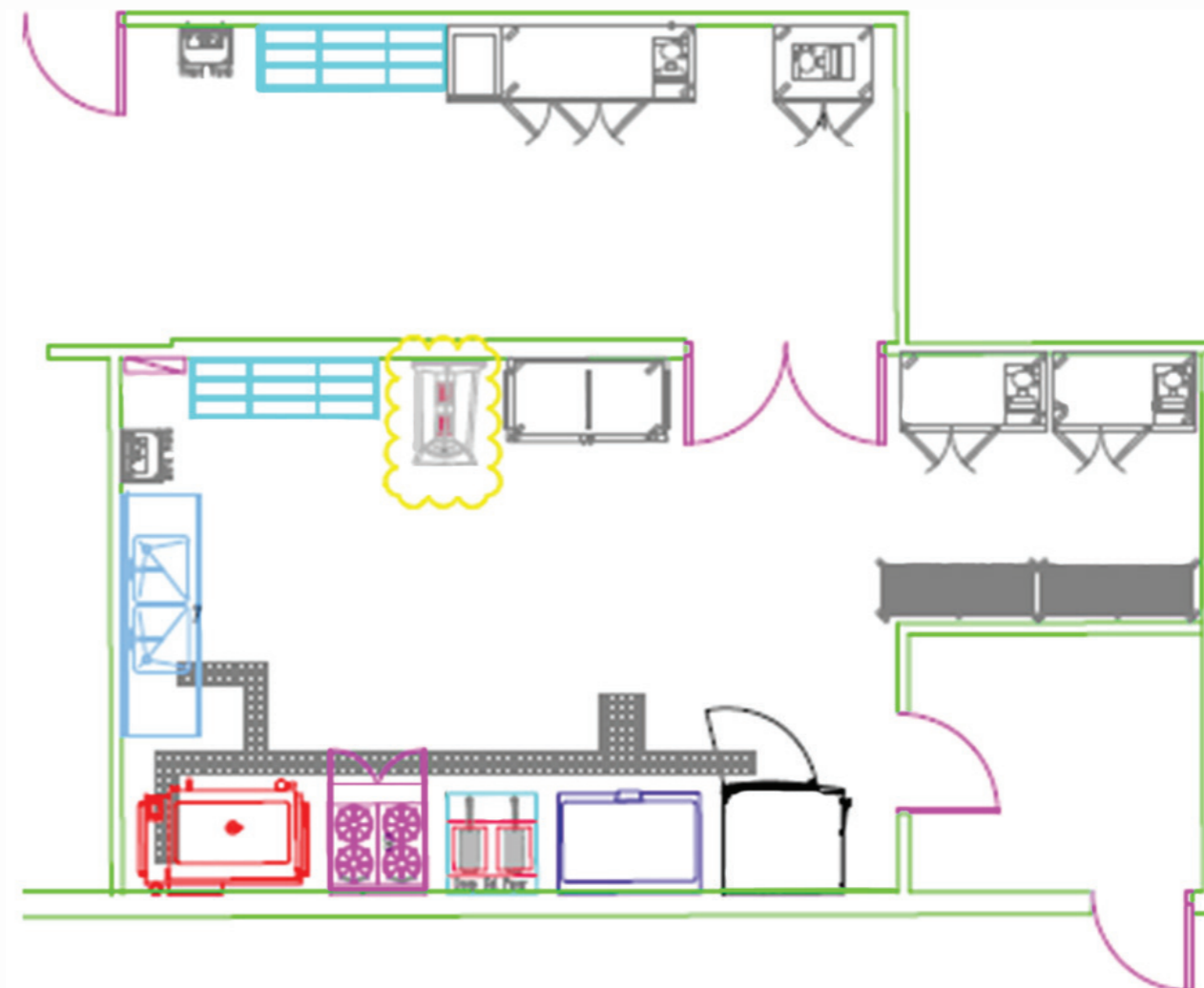
2.2 ROLES AND RESPONSIBILITIES

ADFCA clearly identifies the person responsible for the safety of food served to customers as the 'food business operator' (Regulation 6, Article 3). This is either the owner or, when the owner is not involved in the day to day operation, a person to whom the responsibility is delegated.

Whilst it is possible for the owner to also work in the business and manage the kitchen (referred to as the 'owner-manager') it is usual for most organizations to have a number of people sharing the responsibility on a day-to-day basis.

The first step in establishing a food safety management system is to identify the roles and responsibilities of all those involved. This is important for accountability (i.e. in the case of an outbreak of food borne disease, customer complaints or an external audit) as well as ensuring efficient and safe operational activities.

2.2.1 Responsibilities inside the kitchen

At the centre of any food service business is the kitchen. Every kitchen has someone in charge of food preparation. This person, often called the 'head chef' is ultimately responsible for aaspects of the daily output of the kitchen, including food safety. In the language of food safety management he/she is the 'kitchen food safety manager'. For the purposes of FSMS the 'title' is not significant, what is important is the identification of the person responsible for food safety and who he/she delegates responsibility to when they are off the premises.

2.2.2 Responsibilities outside the kitchen

Hotels have a relatively complex organizational structure, compared to many food service businesses. Responsibility for food safety outside of the kitchen(s) is divided between departments managing functions such as: purchasing, maintenance, transport, contracts, stock control and storage. There may also be one or more 'hygiene managers' employed to assist with food control.

2.2.3 Documentation of roles and responsibilities

The roles and responsibilities of all those involved in decision making, with respect to food safety, should be identified in a clear and consistent manner. An organizational structure may be useful.

In particular the food safety manager of each kitchen should be identified. This should include the person(s) that share this responsibility (e.g. during holidays and days off).

Each of the people named in the structure should have their role in food safety elaborated in their job description. This part of the job description should be either (1) copied and added to the FSMS or (2) referenced in the FSMS with location identified in other hotel documentation for example, HR records. For each kitchen the food safety manager (who is in charge of food production) should be identified. The person(s) who assumes responsibility when this person is not on duty should also be identified. The HACCP team structure, to identify the hierarchy of decision making with regard to food safety, should also be identified.

It is also important to keep records of all food safety issues discussed at company meetings, including specific HACCP meetings.

2.3 CONTRACTUAL ARRANGEMENTS

If the hotel produces food for any external 'special events' then relevant contractual information needs to be documented in the *FSMS Manual*. This includes food produced for clients in homes,

wedding halls or temporary kitchens etc. See Section 2.16 for further details.

2.4 FOOD SAFETY PRACTICES

The requirements of a food safety management system, just as with quality assurance systems, focus on written procedures. However, for the FSMS only those activities that have an impact on food safety are required. These include practices that relate to the direct handling of food (Section 2.5 Kitchen Practices) and also those activities that indirectly contribute to the safety of menu-items (Section 2.6 Management Practices) such as purchasing and training.

To determine the practices that need to be documented it is useful for the manager to consider the answers to the following questions, that relate directly to the ADFCA 'five pillars of food safety' (see Figure 7).

    a. How do you know food is safely cooked?
    b. How do you know food is safely chilled?
    c. How do you prevent cross contamination?
    d. How do you know your premises are clean?
    e. How do you manage these practices?

In addition to documented practices, appropriate records are required to demonstrate that the practices are competently followed and that deviations are dealt with promptly and appropriately.

Figure 7 The ADFCA five pillars of food safety
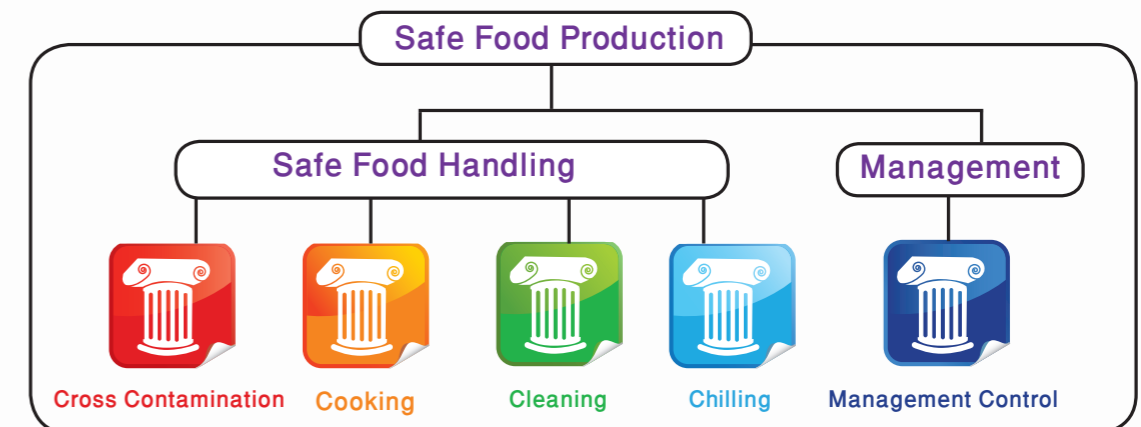
In summary, if a business has (1) documented safe practices for all relevant activities and (2) records to demonstrate they are managed at all times , then they have the evidence to prove they have an effective food safety management system.

2.4.1 The menu(s)

The starting point for the development and documentation of food safety practices in any food service business are the food items prepared in the kitchen. The menu(s) are therefore an essential part the FSMS and should be included in the *FSMS Manual* and updated as required.

2.4.2 Documentation requirements: Safe Operating Practices (SOPs)

A Safe Operating Practice (SOP) is a set of instructions detailing all relevant steps that need to be followed to complete a task successfully. SOPs can be used as part of training programs, providing evidence for auditing or inspection and may also be used in the preparation of a legal defense, if ever needed.

How to write Safe Operating practices

The aim of SOPs is to document 'work instructions' to be performed in a business to make sure that they are carried out consistently. There is no prescribed method of writing, designing and formatting SOPs, but the following general principles should be followed:
a. SOPs should be written in a step-by-step, easy-to-read format. Given the multi-national workforce in Abu Dhabi, and well recognized literacy problems, the use of photographs should be used wherever possible.
b. The ideal SOP should ensure that someone with limited experience or knowledge of the procedure, but with a basic understanding, can successfully reproduce the procedure when unsupervised.
c. SOPs should be developed with the employees that are to use them, for example the chefs for 'cooking' SOPs.
d. SOPs should be tested to ensure they can be followed correctly, without supervision, by the employees that are to use them.
e. If not written correctly SOPs are of limited value, but of course the best written SOPs will fail if they are not followed exactly. Therefore the use of SOPs needs to be reviewed and re-enforced by management, preferably the direct supervisor (see Training Section 2.12).

How many SOPs will be required?

SOPs are required for all procedures that involve reducing or eliminating food safety hazards. For example:
a. A typical caterer with a varied menu might require at least 40 SOPs in total, including GHP, HACCP and management.
b. A small business with a simple menu might require less (a small cafe serving only cold food may require only 20).

Where to keep SOPs?

The location of the SOP must be at the point of use; for kitchen practices this is obviously the kitchen but for others it will depend on the managerial organization of the hotel.

SOP technical data

Whilst the SOPs are developed to reflect actual practices within the business their aim is to ensure the safety of the food, so evidence may be needed to support these documented procedures. This may include:
a. References to industry best practice or scientific papers.
b. Validation data to demonstrate that the procedures meet legal requirements.

The development of SOPs therefore requires an understanding of legislation, industry best practice and food safety. In most hotels there is a designated person whose responsibilities include providing support in these areas (i.e. hygiene manager). It is important that this person keeps up-to-date and is encouraged to get involved with the frequent ADFCA stakeholder events, particularly the Hygiene Managers HACCP Working Group.

Figure 8 Example of ADFCA SOP for small businesses
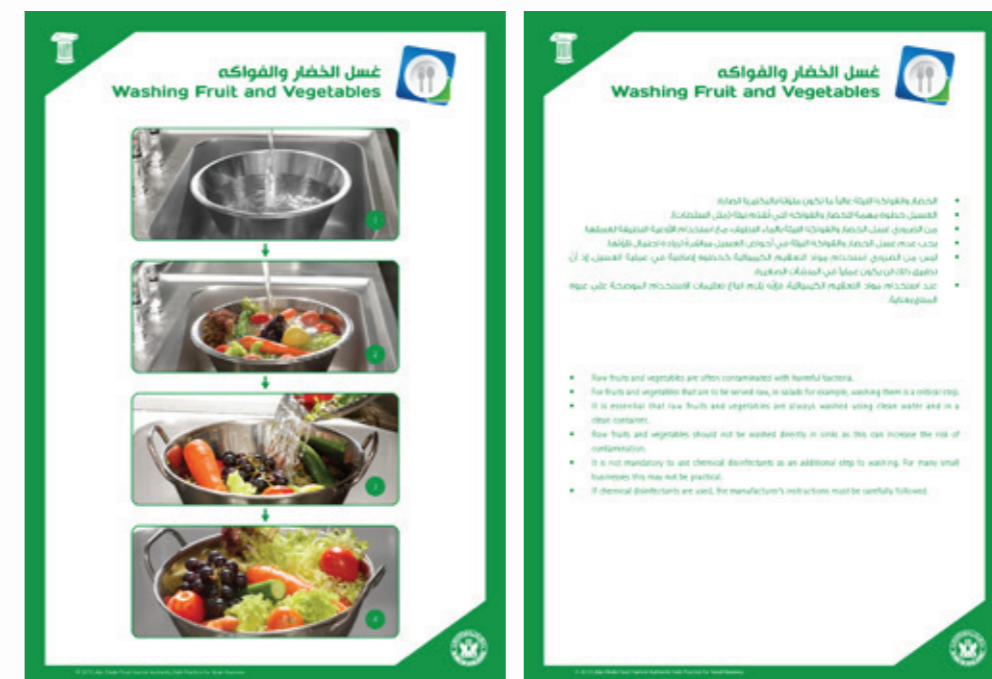
Competency in SOPs

The development of SOPs should be followed with training to ensure that employees are competent in the food safety practices they are involved with. Subsequent checks of competency should be built into the training program.

This focus on internal SOP training gives assurance to the hotel that its SOPs are relevant and followed. Internal training is also a cost effective method of securing food safety.

2.4.3 Record keeping requirements

Record keeping in a FSMS relates to the monitoring of food safety SOPs. As outlined in the introduction, the level of monitoring depends on the level of risk. Those practices that are identified as 'critical' should be monitored at all times.

However, the requirement to 'record' that monitoring has been carried out is based on practicality (see Section 5.4). The essential ADFCA requirement for the food service industry is for 'exception reporting'.[9] This means that all deviations should be recorded with an explanation of how the problem was corrected (i.e. corrective action). This is the most important aspect of HACCP record keeping and unfortunately the one that is least understood or followed through in practice.

2.5 KITCHEN PRACTICES: GHP DOCUMENTATION & RECORDS

The components to be included within GHP will vary but it is likely to include personal hygiene, kitchen practices, cleaning, maintenance, control of physical and chemical contaminants etc. Each of these activities should be accompanied by SOPs and supporting documentation. Copies of all documents should be included in the FSMS, but it is important that SOPs are located in the area of the operation where they are to be used.

In summary, the following three elements are required:

2.5.1 GHP Standard Operating Procedures

- Details of how the process is conducted safely in the specific kitchen. This requires a step by step account of all parts of the process that relate to food safety.
- Photographs/diagrams to show important steps in a clear way for employees to follow.

2.5.2 GHP supporting technical documents

- Validation data if relevant. For example, technical information to demonstrate efficacy of cleaning procedures.

2.5.3 GHP record keeping requirements

- Evidence of control of GHP should be recorded on a daily basis (unless the risk indicates otherwise) with any deviations documented along with an explanation of how the problem was corrected (i.e. corrective action).

2.6 KITCHEN PRACTICES: HACCP DOCUMENTATION & RECORDS

The concept of HACCP is that specific food safety practices identified as critical require monitoring and control at all times. Additional technical data is therefore required to demonstrate the correct identification of criticality, valid controls and practical corrective action. In summary, the following documents are required:

2.6.1 Standard Operating Procedures

- Details of how the process is conducted safely in the specific kitchen (i.e. a step by step account of all parts of the process that relate to food safety).
- Details of monitoring procedures.
- Photographs to show critical steps in a clear way for employees to follow.

2.6.2 Supporting technical documents

- A technical summary, specifically for each HACCP SOP, including justification of decisions made and corrective actions. This can be documented in any way, but commonly a 'HACCP Chart' is used for this purpose (see Template 6).
- Evidence of on-site validation (e.g. evidence that critical limits are achieved in practice) as illustrated in Section 2.11.

2.6.3 Example 1: HACCP SOPs required for Chicken Curry

The requirement for HACCP documentation depends on the menu of the business, and their products and processes. The following is a summary of the SOPs that may be required for curry with rice. It is to be cooked, held hot and then served.

Figure 9 Typical SOPs required for chicken curry with rice

Food Item	FSMS Documentation Requirements	
Poultry	Cooking SOP (specific for poultry)	Supporting Technical Evidence
Curry	Cooking Sauces SOP	Supporting Technical Evidence
Salad	Cold Preparation SOP	Supporting Technical Evidence
Rice	Hot holding SOP	Supporting Technical Evidence
Curry	Hot-holding SOP	Supporting Technical Evidence

2.6.4 Example 2: HACCP SOPs required for Prawn Salad

The requirement for HACCP documentation depends on the menu of the business, and their products and processes. The following is a summary of the SOPs that may be required for a prawn salad.

Figure 10 Typical SOPs required for Prawn Salad

Food Item	FSMS Documentation Requirements	
Prawns	Cooking SOP (specific for prawns)	Supporting Technical Evidence
Cooling hot food	Cooling SOP	Supporting Technical Evidence
Prawns & Salad	Cold Storage SOP	Supporting Technical Evidence
Washing Salad	Washing SOP	Supporting Technical Evidence

2.6.5 HACCP record keeping requirements

The monitoring of critical practices is an essential part of HACCP and this should be done on a continuous basis. However, record keeping should focus on deviations and corrective actions. Whilst generic steps (as shown on HACCP Charts) can be a useful over view, it is essential for each incident to be reported in detail to demonstrate effective control of food safety.

2.7 MANAGEMENT PRACTICES: DOCUMENTATION & RECORDS

Details of how food safety is managed in a hotel vary depending on its organization. However, a number of generic activities can be identified. Examples include the following: purchasing, delivery & transport, stock control & labeling, control of physical & chemical hazards, calibration, training, validation and verification.

The FSMS should identify the specific food related management activities and ensure that procedures are documented, a record keeping system is in place and that its effectiveness verified routinely.

In summary, the following three elements are required:

2.7.1 Standard Operating Procedures

- Details of how the activity is managed in the hotel. This should be step by step account of all parts of the process that relate to food safety.
- Details of any internal monitoring procedures to ensure compliance (i.e. audit).

2.7.2 Supporting documents

- Details of any specific ADFCA requirements (e.g. EFST training), scientific data (e.g. to support calibration frequencies or expiry dates).

2.7.3 Record keeping requirements

It is important to recognize that some aspects of management are critical to food safety. This is the case, for example, with the purchase of ready-to-eat high risk foods or the calibration of temperature measuring devices. Thus, whilst documentation requirements are consistent, the record keeping requirements will vary depending on criticality (see Template 2 & 3). The level of monitoring reflects this i.e. critical processes requiring more monitoring than non-critical management procedures, extending the HACCP approach to management as well as kitchen practices.

Examples of templates that hotels may find useful can be found in the Appendix 4.1. This is not an exhaustive list, but reflects records that have been shown to be inadequately documented in many Abu Dhabi food service businesses.

2.8 SUPPLIER SAFETY ASSURANCE

2.8.1 Criteria for supplier safety assurance

It is important to be satisfied that all materials purchased are safe. An essential element of the FSMS is therefore a system of supplier safety assurance. Any supplier, including new suppliers, must be chosen and approved on a systematic basis, and only suppliers approved on this basis should be used. The system of approval should relate both to the supplier and the product supplied.

The control of the safety of incoming food and food contact material is one of the most challenging areas of a FSMS, for any food business. The most important criteria is evidence that (1) the supplier has implemented a food safety management system and (2) provides detailed food safety information to the hotel if requested.

2.8.2 Food safety specifications for foods and food contact materials

For each food item/ packaging material a written specification should be provided by the supplier that includes food safety requirements. This should be reviewed, prior to issuing a contract, to ensure that it is appropriate. If a written specification is not available, or it is not appropriate, a specification should be discussed with the supplier and agreed. The specification may be used to determine acceptance or rejection criteria for incoming materials.

2.8.3 Critical suppliers

Within a FSMS the suppliers of high risk ready-to-eat foods are critical, because there is no further step in the kitchen that will reduce or eliminate the hazard, if present. The level of control for suppliers of these foods should be enhanced with detailed food safety criteria established, monitored and verified. For example the purchase of oysters, cooked meats and fruit/ vegetables to be served raw and unpeeled (see Template 3).

2.8.4 Documentation & record keeping requirements

The documents and records required are summarized below:

2.8.4.1 Standard Operating Procedure (SOP)
- Procedures for the approval of suppliers should be developed, with food safety specifications established where appropriate.

2.8.4.2 Supporting technical documents
- The rationale for technical decisions, especially for items critical to food safety, should be included.

2.8.4.3 Supplier records
- Records should be kept of all approved suppliers using, for example, Template 4. Receipts / invoices of purchase should also be traceable for audit purposes.

2.9 TRANSPORT AND DELIVERIES

In addition to the receipt of purchased ingredients and food items (see Section 2.8 above) the caterer often has the additional operation of moving ready prepared foods off-site. The transport and delivery logistics add to the food safety risk of the operation so must be included in the FSMS.

2.9.1 Documentation & record keeping requirements

The documents and records required are summarized below:

2.9.1.1 Standard Operating Procedure (SOP)
- Procedures for the receipt of ingredients / foods including fresh, frozen and chilled, including ready-to eat high risk items.
- Procedures for the delivery of menu items transported off-site for special events, including labelling of products and instructions for use where appropriate.
- Procedures for ensuring transport vehicles are cleaned and maintained.
2.9.1.2 Records
- Checks undertaken on receipt of foods (including delivery notes).
- Transport vehicles licenses with any associated ADFCA required documentation.
- Transport records (including evidence of temperature maintenance throughout journeys).

2.10 CALIBRATION

2.10.1 The Calibration Register

It is essential to have in place a system to ensure that equipment used to monitor food safety parameters is calibrated to ensure the results are valid.

A register should be established and maintained for all equipment used for inspection, measuring or testing (thermographs, automatic chlorine controllers/recorders, all thermometers (portable and fixed).

The register should identify:
a. Location of the equipment.
b. Identifying marks, brands, serial numbers, etc.
c. If applicable, staff to whom the equipment is issued / or used.
d. Frequency of re-calibration or renewal of equipment.

Temperature probes

Hotels often choose to purchase probes that have a limited warranty (e.g. 12 months). These are designed to be discarded at the end of the warranty period, rather than re-calibrated. This is often a more cost effective method of ensuring probes consistently monitor accurate temperatures.

Temperature controlled equipment

It is also important that temperature controlled equipment is working at the required temperature. Whilst such equipment can be checked routinely using 'calibrated' test equipment e.g. probes, it is important to follow the manufacturer's instructions with regard to calibration.

Calibration should be carried out by engineers as part of routine (preventative) maintenance. The decision as to who should carry out the maintenance checks will depend on the size and nature of the business with larger businesses often conducting the required maintenance in-house.

2.10.2 Documentation & record keeping requirements

The documents and records required are summarized below:

Standard Operating Procedures (SOP)
- Procedures for the calibration of equipment should be developed. Both the methodology and frequency should be identified.

Supporting technical documents
- The technical detail of how and when to calibrate should be based on the manufacturer's instructions or, if not available, a recognised authority.

Calibration records
- Records must be kept of the method and dates of the calibration of each piece of equipment. Receipts / invoices should also be traceable for audit purposes.

2.11 TRACEABILITY & RECALL

The ADFCA Regulation No 3 requires that hotels establish an appropriate system of 'tracing', and if necessary 'recall', of all food items. Reference should be made to this document for details. A summary of requirements is provided below.

2.11.1 Product / ingredient identification

Hotels will need to describe their methods for how ingredients and menu-items are identified at all stages of preparation and transport. For example, from receiving to final delivery to the customer. The hotel should also be able to demonstrate how they maintain control over product groups which are specifically referred to in ADFCA regulations, such as Halal food items.

2.11.2 Receipt of foods

The records relating to each delivery into the hotel stores must be sufficiently detailed as to allow the origin and any prior processing to be traced. The following information should be available, either through invoices, delivery notes or other methods of record keeping:
  a. Food item.
  b. Supplier contact details.
  c. Production/preparation details (e.g. batch numbers / date).
  d. Date of receipt.
  e. Quantity received.

2.11.3 Product recall

A product recall procedure is required so that any food ingredient, product or menu-item can be readily traced and recalled, if appropriate. This should include:
  a. A nominated person(s) who has responsibility for acting on all requests for trace back and recall, including the recovery, handling and disposal of product, and the follow-up and review of incidents.
  b. An information system that allows easy access to production details (e.g. batch numbers / date of production), quantities sold and delivery dates.
  c. Criteria for initiating a company product recall.
  d. Procedure for informing ADFCA, if necessary.

2.11.4 Documentation and record keeping requirements

The documents and records required are summarized below:

Standard Operating Procedure (SOP)
- Procedures for the management of incoming food items, preparation & production, despatch and transport (if applicable) to enable traceability and recall.
- Procedure to be followed in the event of a product recall.

Supporting technical documents
- The specifications of all in-coming ingredients and despatched menu-items.

Essential records
- Records must be kept of approved suppliers (Section 4.1, Template 4), any external client

contracts (Section 4.1, Template 1), and purchase receipts / invoices of purchase, delivery notes etc.

• Where these procedures are documented in other locations (i.e. not in the FSMS), reference to that location needs to be clearly identified.

2.12 VALIDATION

As described by Codex, validation is the activity of ensuring that control measures are suitable and effective, and that they will control the hazard at levels required to meet safety requirements[15]. It is a one-off process that is repeated only when changes are made to your system.

2.12.1 Requirements for validation

The caterer needs to provide information that shows that any control measures used to control food safety are effective. Evidence must be provided at the time of the first ADFCA FSMS audit and subsequently whenever significant changes are made to the system.

2.12.2 Critical limits

If a caterer uses critical limits that are identified in ADFCA Regulations, then those limits can be used as a reference, with no further scientific justification required. The business has only to check that their practices (SOPs) meet these criteria. This situation applies to most food safety practices. For example, cooking times and temperatures or the shelf life of foods prepared in the kitchen. These are described fully in the ADFCA Code of Practice: Food Hygiene for the Food Service Industry.

However, if a hotel uses Critical Limits that are not prescribed by ADFCA, they must provide references that demonstrate that the limits are scientifically based. The hotel may use references from the literature (e.g. shelf life of vacuum packed foods) or conduct its own studies.

2.12.3 Example: Validation of safe hot-holding procedures.

The following case study is based on a small business in Abu Dhabi. It demonstrates how businesses can 'prove' that they meet ADFCA criteria for example, temperature / time controlled processes, using a probe and clock.

ADFCA Criteria for safe hot-holding: less than 2 hours in the danger zone (5˚C – 63˚C)
[Reg 6, Article 37]

Figure 11 shows a real example from a small, but busy, kitchen serving many different types of rice based menu items. The usual procedure is that rice is cooked at 11 am in the morning and left in

a large pan next to the hot-holding cabinet during the lunch period, after which any leftovers are served to staff. The chef decided to check if this was safe practice. After cooking a batch of rice he took the temperature every 20 minutes until 2.30pm, when service time finished.

The actual times and temperatures show that the maximum time the rice was in the danger zone was less than 2 hours. This demonstrates that if the quantity and method remain the same every time, then the hot-holding process meets ADFCA requirements.

2.12.4 Documentation and record keeping requirements

The documents and records required are summarized below:

Standard Operating Procedure (SOP)
• Procedures for the validation of SOPs, including the person responsible.

Supporting technical documents
• The reference documents for ADFCA requirements or scientific evidence if safety criteria are not established by ADFCA.

Essential records
• Records must be kept of the 'evidence' that the procedures (SOPs) meet the regulatory criteria for the control measures.
• Where no ADFCA criteria exist, evidence of experimental records must be kept to demonstrate compliance with hotel derived criteria.

Figure 11 Times and temperatures of cooked rice prior to service

Hot-holding cooked rice for service	
Time	**Temperature**
11.17 am (Immediately after cooking)	98.3˚C
11.32 am	91.2˚C
11.52 am	87.0˚C
12.12 am	78.9˚C
12.32 am Service Started	75.3˚C
12.52 pm	71.8˚C
1.31 pm	62.2˚C
1.51 pm	61.0˚C
2.12 pm	56.5˚C
2.32 pm	45.7˚C

Less than 2 hrs below 63˚C

2.13 TRAINING

A well-planned and implemented training program is essential for all employees. This is the only way to ensure that they have the necessary skills and knowledge to perform their functions to the standard that is expected of them in the FSMS system.

2.13.1 Induction training

A procedure should be written that details the initial training in personal hygiene of all food handlers. This should be delivered before the food handlers carry out any work in food preparation areas.

2.13.2 Essential Food Safety Training (EFST)

All food handlers in Abu Dhabi are required to successfully complete: (1) an EFST training course (with internal or external ADFCA approved trainers) using the EFST curriculum and (2) a short examination at an ADFCA approved centre.
   a. A procedure should be written that details the hotel plans to meet the requirements of the ADFCA EFST program
   b. Appropriate records should be kept with original or copies of individual Records of Attendance and EFST Certificates.

2.13.3 On-the-job training

A training procedure should be written for the process of ensuring competency of food handlers involved in food safety related practices. This should include:
   a. The process by which new employees are instructed and supervised in those kitchen practices that they are required to undertake. (GHP & HACCP SOPs).
   b. Competency assessments on a regular basis with re-training if necessary.

2.13.4 Food safety management / HACCP training

ADFCA conduct regular stakeholder workshops on the requirements of this Code of Practice. These will be announced on the web-site. However, additional training in food safety management (GHP & HACCP) may be required for at least one person in the business, depending on existing internal skills and experience.

It is also important that someone in the hotel has the ability to develop and deliver a training program to ensure that all employees are competent in their specific food safety activities (see Section 2.12.3).

2.13.5 Documentation and record keeping requirements

The documents and records required are summarized below:

Standard Operating Procedure (SOP)
   • Training procedures for all internal and on-the-job training.

Supporting documents
   • Training course curricular / training materials.
   • Experience and qualifications of internal and external trainers.

Essential records of food safety related training
   • Schedule(s) of training activities.
   • Individual records of completed training and competency assessments.
   • Copies of any Records of Attendance / Certificates.

2.14 VERIFICATION

Codex identifies 'verification' as a process that ensures that processes are valid (see section on validation above) and that the hotel complies with them at all times. The most important mechanism to monitor compliance is audit and review.

2.14.1 Audit

Properly conducted and recorded internal audits are an essential management tool to verify that the FSMS system is in place. Results from these audits, fed into a management review process, help the hotel assess and improve the effectiveness of their FSMS.

Both the methodology and procedures (SOPs) for audit and review should be documented. Hotels with quality assurance systems will already have appropriate methodologies, procedures and trained staff in place to undertake this task.

An example of a method of internal auditing is the use of 'rolling audits'. Rolling audits are scheduled so that all the different areas of the FSMS system are audited sequentially over a given period. The audit schedule should be planned and documented well in advance to ensure all areas are covered. As a guide, a different area could be audited monthly so that the entire system is audited once within a year. Reviews of appropriate daily, weekly or monthly food safety records will also be required.

Internal quality audits must be properly planned and scheduled, and cover all the requirements of the FSMS over a given period of time, normally 12 months. 'Who', 'when' and 'how' will depend on

the size and structure of the organisation. Audit protocol(s) should be developed for all internal audits.

2.14.2 Management review

Audits and reviews are mechanisms where compliance is monitored but also present an opportunity to improve performance. The process should develop confidence that food safety standards are being met (or exceeded) under the FSMS system or a realisation by the hotel that the FSMS system needs amendment.

To ensure the ongoing effective operation of the FSMS system there must be a documented plan in place for the regular review of the system at managerial level. The management review procedure should state the frequency, method and personnel responsible for the review along with the person(s) responsible for maintaining records of the management review. Such review structures will be determined by the nature and size of the hotel.

The structure of the management review meetings should be documented in the FSMS clearly stating who is responsible for recording the actions and outcomes of the meeting. The minutes of these meetings should be retained and be available to ADFCA auditors on request.

2.14.3 Additional verification activities.

A FSMS will produce significant amounts of data that can be used to assess whether the system is being complied with over time, in addition to audit results. A regular analysis of this data should take place to highlight trends towards a loss of control (at CCPs for example) can prompt investigations or corrective action.

Types of data that may be useful include:
    a. Daily food safety records.
    b. Customer complaints.
    c. Customer audits.
    d. Regulatory visits.
    e. Pest control records.
    f.   Minutes of FSMS review meetings.

Microbiological sampling as a method of verification

The microbiological or chemical testing of samples of menu-items (i.e. end product testing) is not a valid method of FSMS verification for the food service industry (see Section 4.2) ADFCA does not require any microbiological / chemical analysis to be undertaken by food service operators.

Many food service operators take a small number of samples of menu-items at the end of each day to meet the demands of consultants/auditors that insist that this is required for HACCP verification.

It is important that operators know that the practice of end-product testing of a small number of unrepresentative samples of menu-items on a daily basis is not an appropriate method of 'verification' in a their businesses, either for the purpose of validating the system or checking compliance.

However, some types of microbiological testing can enhance the FSMS but only if it scientifically valid and if the results are understood and acted upon by the hotel. Advice and guidance on this aspect of the FSMS can be sought from the ADFCA audit team.

2.14.4 Documentation & record keeping requirements.

The documents and records required are summarized below:

Standard Operating Procedure (SOP)
    • Procedures for internal audits/reviews should be developed. These should be based on the ADFCA FSMS Checklist, as provided in Template 7. Both the methodology and frequency should be identified. Any additional verification methods should be similarly documented.

Supporting technical documents
    • Supporting documents should include specifications for the minimum qualifications and experience of the internal auditors. In addition, the technical data to support any other verification methods should be established.

Verification record
    • A schedule of internal audits / reviews should be established and included in the FSMS Manual. The results of audits should be recorded with the outputs of associated management reviews. The results of any other verification activities should be also documented.

2.15 SPECIALIST PROCESSING TECHNIQUES

For food service businesses that are involved with processing methods normally found in the food industry, a classical HACCP study will be required to be completed for each process. A flow chart should be constructed and used to undertake a hazard analysis with subsequent identification of appropriate controls. Evidence of technical decision making and validation will also be required. Examples include extending shelf life using vacuum packing,[16] bulk production of chilled and frozen food,[17,18] curing of fish, extrusion and processes associated with 'molecular' cuisine.

2.16 SPECIAL EVENTS

Many food service businesses are involved with providing prepared meals for 'special functions'. These often require quantities of food that far exceed normal production, special menu items outside of the norm, additional food handlers to be employed for the occasion, the use of premises and equipment belonging to the client, reduced control over holding and service etc. In general terms the management of food safety in such situations is extremely challenging.

2.16.1 Apply for a permit for public events

For ADFCA purposes 'special events' are divided into two categories:

Private events where food is provided to the client directly. After delivery the client takes over the responsibility of food safety e.g. wedding party

Public events where the hotel is managing the sale of food items direct to the consumer e.g. Yas Island Formula 1 Concessions.

For all public events the hotel needs to obtain a Temporary Food Business Permit from ADFCA. Food inspectors will normally conduct one or more inspections during the event.

2.16.2 Plan ahead

The importance of forward planning cannot be over emphasized. If the event is off the premises then a visit to the site should be conducted well in advance to assess the location, facilities and logistics. An example of a typical checklist is included in the (Section 4.1, Template 5).
For large events a HACCP-style flow chart should be constructed and used to undertake a hazard analysis with subsequent identification of appropriate controls, especially if new menu-items are involved. New SOPs should be created if necessary.

2.16.3 Contractual arrangements for 'Special Events'

The contractual arrangements for special event catering can be complicated as the contract may involve food produced for clients in hotel kitchens, client kitchens or temporary kitchens with any number of additional catering operations. It is important for all hotel operations related to food safety to be documented in the *FSMS Manual*.

2.16.4 Documentation requirements for individual contracts

The menu
The menu is the starting point for developing food safety SOPs. This requires that the menu associated with each contract should be included in the *FSMS Manual*.

Individual contract data
In addition to the menu, a number of associated activities (related to the categories described above) also need to be added. It is recognized that much of the client contracts will contain commercially sensitive data, so that it is unreasonable for the Regulator to ask to see the actual contracts. Template 1 is a data sheet template identifying the key food safety information required (Section 4.1). For each contract a copy of this template should be prepared and added to the *FSMS Manual*. When the contract ceases the associated data sheet should be removed (see Traceability Section 2.11).

PART 3: REGULATORY COMPLIANCE

3.1 FSMS APPROVAL

ADFCA require all food safety management systems to be approved through a process of audit. ADFCA auditors will ensure compliance with Regulation No 6 requirements through (1) an off-site review of documents and records followed by (2) an onsite verification of the system. Once approved, maintenance of the approval will require periodic surveillance audits. The process is shown in Figure 12 and 13 and is based on international best practice[19,20].

3.1.1. ADFCA compliance audit procedure

Figure 12 ADFCA Compliance Audit Procedure

Step 1

  a. Hotels request an ADFCA FSMS audit.
  b. ADFCA request FSMS documents and examples of records to be submitted to HACCP audit team.

Step 2

  a. Audit team to conduct desk audit of all documentation provided by the hotel.
  b. Report issued to hotel with requests for additional documentation etc.
  c. Complete set of documents assembled.
  d. Final review
  e. ADFCA to arrange audit.

Step 3

  a. On-site audit (1-3 days depending on size of business) using ADFCA FSMS Audit Protocol

Step 4

  a. Audit Outcome- Pass
    I. Transferred to regulatory compliance audit team for routine surveillance audits.
    II. Routine inspections cease.

  b. Audit Outcome - Fail
    I. Routine inspections continue.
    II. Business to review, modify and re-submit FSMS/HACCP plan.
    III. Re-apply for Regulatory Audit.

Figure 13 ADFCA Compliance Audit overview
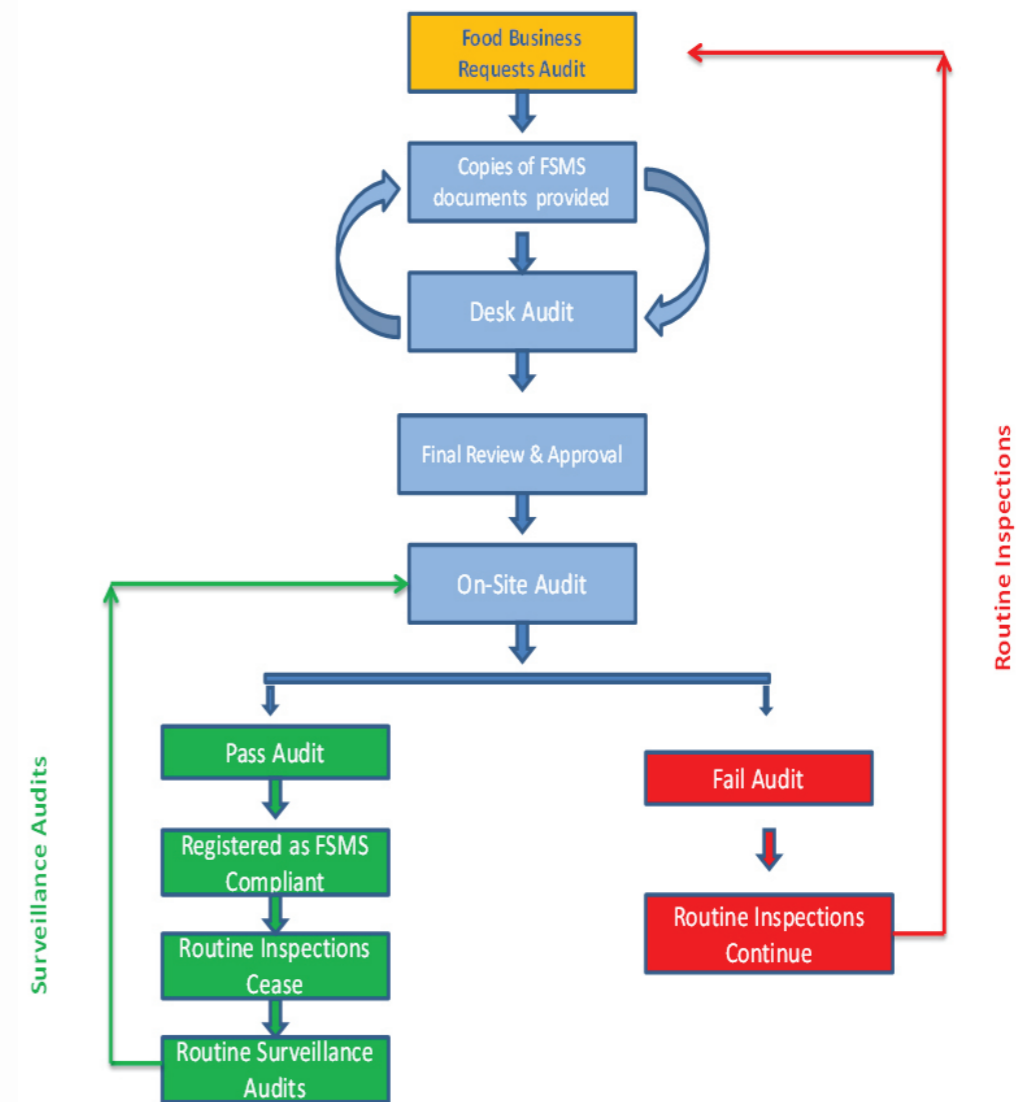
3.1.2 Commercial Third Party Audits & FSMS Certification

ADFCA does not require HACCP Certification or any other commercial Standard, as evidence of the implementation of a food safety management system.

ADFCA will conduct a Third Party Regulatory Audit to assess compliance of the hotel FSMS, in line with international best practice[19].

HACCP Certification schemes are operated by many commercial companies to recognise compliance with an agreed 'HACCP Standard'. These are 'private standards' designed to independently 'assess' the adequacy of HACCP-based food safety management systems.

3.2 SAMPLING AND TESTING

3.2.1 ADFCA Requirements

HACCP has become synonymous with food safety. It is a worldwide-recognized systematic and preventive approach that addresses biological, chemical and physical hazards through anticipation and prevention, rather than through end-product inspection and testing[2].

Modern food safety management focuses on preventative HACCP-based food safety management systems, not end product testing.

ADFCA have no requirements for microbiological / chemical sampling by food service operators.

3.2.2 End-product testing

ADFCA does not require food service operators to conduct end product testing.

Prior to the introduction of HACCP, it was common for businesses to test the safety of their products via 'end-product testing'. [This is the measurement of physical properties, chemical analyses and microbiological testing in a sample of the finished product].

However, even with the introduction of HACCP, many hotels continue to regularly test a number of menu-items for a range of microbes, in the mistaken belief that testing unrepresentative samples (of items perceived to be high risk) is a HACCP verification requirement (see Section 2.14).

[For further details see Section 4.2.]

3.2.3 Official sampling by ADFCA

ADFCA conducts a structured program of food sampling across the food chain on a regular basis. These official samples are for 'surveillance purposes' to inform the regulator, and other stakeholders, on the levels of various contaminants in foods consumed in the Emirate. These official samples are collected by ADFCA food inspectors and records of such visits should be kept in the FSMS.

It is important to recognize that the data collected for surveillance purposes is not made available to individual hotels. This is because it has no direct relevance to the food safety of the establishment (see Section 4.2 concerning representative samples).

3.2.4 Temporary storage of food samples

ADFCA has no requirements for the storing of samples of menu-items in food service businesses.

Many hotels keep samples of a selection of what they perceive to be 'high risk' menu items for 3 days in a chiller or freezer with the mistaken assumption that this will prove the safety of their foods in the event of an outbreak. However, such samples are not representative of the entire batch, as explained in Section 4.2, nor include all the foods served. In addition many pathogens require more than a 72 hr incubation period (e.g. *Listeriosis* cases are often detected 70 days after contaminated food is consumed) and the temporary storage conditions will invariably cause changes to the bacterial population.

More importantly, the keeping of samples provides a false sense of security to the hotel. In the actual event of an outbreak, the number of people sick and their symptoms will invariably be used to track down the cause[21]. In these situations negative samples will be no protection against the law.

The best way for a hotel to protect itself from causing an outbreak, and being able to defend itself from prosecution, is to implement a FSMS as outlined in this Code of Practice.

PART 4: ANNEXES

4.1 ADFCA DOCUMENTATION & RECORD KEEPING TEMPLATES

4.1.1 Template 1: Contract Information (one to be completed for each contract)

Contract Information						
1. Client Details						
Client Name						
Location(s)						
Contact Name(s)						
Contact Number(s) 24/7						
Contract Start Date			End Date:			
Contract Delivery Days						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

2. Type of Contract		
	Yes / No	Sector Served - Oil & Gas, Schools, Hospitals, Offices, Hotel, Weddings, Others (please specify)
Special Event		
On-site Contract		
Off- Site Contract		
Others		

3. Quantity of Food	
Number of Meals	
Meals per Day	
Total Number	

4. Responsibility for Meal Transportation (tick)	Contractor		Client	

5. Responsibility for Meal Service	Contractor		Client	

6. Menu (please attach menu)
7. Additional Food Safety Information

4.1.2 Template 2: Summary of Approved Suppliers

Ref. No*	Supplier	Foods	Critical Y/N*	Contract Details	
				Contact Name	Emergency Contact (24/7)

- **If yes, enter safety criteria in Template No 3
- * Link to full address.

4.1.3 Template 3: Approval Criteria for Critical Suppliers

Supplier [Ref]	Food Item	Hazard(s)	Critical limit(s) (specification requirement for approval)	Monitoring (at receipt)	Corrective Action Plans

4.1.4 Template 4: Calibration Records

Equipment	Code	Calibration			
		Planned Date	Actual Date	Company	Invoice (Ref)

4.1.5 Template 5: Pre-assessment for Special Events

	Category	Details	Requirement	Assessment	Action Taken
1	Kitchen Equipment	Cooking			
		Reheating			
		Holding			
2	Storage	Ambient			
		Chillers			
3	Receiving & Dispatch	Loading Area			
		Unloading Area			
4	Power Supply	Power Source			
		3-Phase Supply			
5	Space	Preparation Area			
		Holding Area			
		Clearance Area			
6	Facilities	Toilets / Hand washing			
		Water & Drainage			
		Refuse			
		Air conditioning			
7	Extra Staff	Cooking			
		Service			
8	Transport & Logistics	Type of Truck(s)			
		No of Truck(s)			

4.1.6: Template 6 Example of a HACCP Chart (technical summary)

Step	Hazard	Control measures	CCP	Critical Limit	Monitoring	Corrective Action
Cooking poultry (chicken pieces)	Survival of *Salmonella, and similar organisms*	Cooked according to SOP **(Ref: SOP)**	Yes	Details of Sensory check validated to achieve – 75 C for 30 second **(Ref: Validation Data)**	Chef checks largest piece in every batch - following method illustrated in SOP **(Ref: SOP)**	Do not serve the undercooked product. Cook for longer, change / speed cooking process, or serve an alternative menu item if required. Investigate the source of the problem (revalidate SOP, check equipment, etc.) Record what happened and action taken in corrective action records. **(Ref: SOP)**

4.1.7 Template 7: Checklist of ADFCA Requirements for FSMS Documents & Records

Code of Practice Section	Ref	ADFCA Requirements	
		Documents	Records
Organisation			
Business Structure		Operational Chart	
Roles & responsibilities		Organizational Chart Food safety responsibilities HACCP Team members	Details of all food safety issues discussed at meetings, including HACCP team meetings
Client contracts		Food safety data for each contract	
Menu items		Itemized list of all menu items purchased or prepared by hotel.	
Kitchen Practices			
GHP		SOPs Validation data Supporting documents	Cleaning & maintenance schedules Daily kitchen monitoring records Daily records of problems & corrective actions
HACCP		Menus SOPs Validation data Supporting documents	Daily kitchen monitoring records Daily records of problems & corrective actions
Management Practices			
Supplier Contracts		SOP Specifications	Approved supplier list Approval criteria for supplies critical to food safety.
Stock control		SOP Technical data Labels in use	Daily records of problems & corrective actions
Receiving		SOP(s) Validation	Delivery records Daily records of problems & corrective actions
Transport & delivery		SOP(s) Vehicle Permits	Transport & delivery records *(Evidence of temperature maintenance throughout journeys)* Daily records of problems & corrective actions
Control of allergens		SOP	Records of problems & corrective actions. Additional checks identified in procedures.
Calibration		SOP Purchasing specifications Manufacturer's instructions	Records of calibration
Training		Details of relevant internal & external training.	EFST SOPs *Any other relevant training.*
Traceability		SOPs Supplier lists	Invoices Stock control data (see above) Recall data sheets
Verification		SOPs (internal audit) SOP (selection of external auditors, if appropriate)	Audit records (internal & external) Other verification activities
Other management practices relevant to food safety			

4.2 END PRODUCT TESTING

4.2.1 Limitations

There are a number of limitations of end-product sampling that make it an unreliable way to assess the safety of foods produced in food service facilities (see Figure 14).

It is inappropriate to 'spot check' menu items for microbiological contamination.
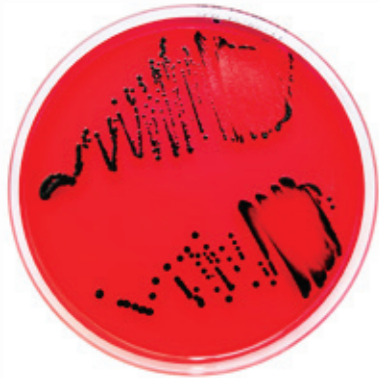
The major problem with end product testing is that the number, size and nature of the samples taken for analysis greatly influence the results of testing. It is not possible in a food service unit to take enough 'end-product' (e.g. meal samples) to be representative of the entire production. Even within an individual batch the hazard (i.e. the presence of a pathogen) can be very unevenly distributed and the probability of detecting it is usually very low[22,23].

4.2.2 HACCP-based management

One of the main benefits of the HACCP methodology is that it is a proactive, preventative approach to managing risks within a food business. Control is taken out of the laboratory and into the food system.

HACCP moves away from testing the final product and instead emphasizes the importance of controlling significant hazards throughout the food production system.

4.2.3 Validation of control measures

For food businesses with some sectors of the food industry, microbiological testing can be used to support HACCP systems, especially in testing the efficacy of control measures.

However, for food service businesses, most control measures are identified by regulations and validation is usually a process of checking times, temperatures and procedures to 'prove' that prescribed criteria are being met. In the case of cleaning materials, however, it is the responsibility of the chemical supplier to demonstrate efficacy not the hotel.

Figure 14 Limitations of end-product testing[22,23]

Unreliable: The chances of finding a hazard are variable, but most often they are very low. False positives and false negatives are common.

Representative samples: The ability to test a statistically random sample is not feasible in most food service situations.

Retrospective: It can take several days before results are available and in many cases the food is consumed or sold before test results are obtained.

False sense of security: The hard work of sampling and testing can give a sensation of' being in control' and create a strong but false sense of security.

Technical requirements: It requires technical abilities to design statistically valid sampling plans, follow sampling procedures and interpret results. Sampling should also carried out by staff trained in laboratory techniques and delivered immediately to an internationally certified laboratory

Cost: The number of samples, personnel involved and laboratory costs are high if adequate sampling plans are followed.

4.3 THE APPLICATION OF CODEX HACCP PRINCIPLES IN FOOD SERVICE

This section explains the concept of the 'new method' of applying HACCP principles in the food service industry.

4.3.1 A comparison of the classical and new method of applying HACCP principles

The following text is a summary of the main similarities and differences between (1) the classical 'manufacturing' method of HACCP illustrated in Figure 15, and (2) the 'new evolving method' developed specifically for the food service industry that has been adopted by ADFCA. It highlights how the new method solves the problems of trying to 'fit' a system developed for manufacturers into a food service operation.

The two main references are both Codex texts and are highly recommended as further reading. The first is published by Codex[1] and the second was initiated by the Codex Food Hygiene Committee and subsequently published by FAO[2].

Figure 15: The Classical 12 step application of Codex principles

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┌─────────────────────────────────────────────────────────┐
│             Good Hygiene Practices (PRPs)                │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌─────────────────────────────────────────────────────────┐
│          Preliminary Procedures (Step 1-5)               │
│  (Assemble team, describe product, identify intended     │
│   use, construct flow diagram, confirm flow diagram)     │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌─────────────────────────────────────────────────────────┐
│               Principle One (Step 6)                     │
│               Conduct a Hazard Analysis                  │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌─────────────────────────────────────────────────────────┐
│               Principle Two (Step 7)                     │
│            Determine Critical Control Points             │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌─────────────────────────────────────────────────────────┐
│              Principle Three (Step 8)                    │
│               Establish Critical Limits                  │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌─────────────────────────────────────────────────────────┐
│               Principle Four (Step 9)                    │
│             Establish Monitoring Systems                 │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌─────────────────────────────────────────────────────────┐
│               Principle Five (Step 10)                   │
│             Establish Corrective Actions                 │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌─────────────────────────────────────────────────────────┐
│               Principle Six (Step 11)                    │
│                Establish Verification                    │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌─────────────────────────────────────────────────────────┐
│              Principle Seven (Step 12)                   │
│        Establish Documentation & Record Keeping          │
└─────────────────────────────────────────────────────────┘
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4.3.2 Preliminary procedures (Step 1 – 5)

Classical HACCP: 'The application of HACCP principles consists of the following tasks: Assemble HACCP team, describe product, identify intended use, construct flow diagram, on-site confirmation of flow diagram…Within businesses with multiple products, e.g. food service operations, it may be effective to group products with similar characteristics or processing steps, for the purpose of development of the HACCP plan.' (Codex, 2003[1])

Evolving HACCP-based methodologies: Group similar hazards and controls to facilitate the operation of HACCP by the business (FAO, 2006 [2]).

Problem: In manufacturing businesses the limited range of product lines makes the creation of detailed product descriptions and flow charts useful and achievable. Food Service businesses have a great variety of products and processes and cannot create product descriptions and flow charts detailed enough to meet HACCP requirements (i.e. to locate all specific hazards and controls).

Solution: A modular approach (e.g. Cooking, Cooling, Cold Preparation, GHP and Management) focusing on important safety points and mapping complex food service processes in an easy-to-use way (i.e. grouping sections based on specific hazards and controls) while not missing the essential detail required for HACCP. The development of a detailed HACCP flow diagram is not possible because of the complexity of the operation.

4.3.3 Principle 1: Hazard Analysis (Step 6)

Classical HACCP: 'The HACCP team should list all of the hazards that may be reasonably expected to occur at each step … Next conduct a hazard analysis … Wherever possible the following should be included: the likely occurrence of hazards and severity of their adverse health effects, the qualitative and/or quantitative evaluation of the presence of hazards, survival or multiplication of micro-organisms of concern, production or persistence in foods of toxins, chemicals or physical agents, and conditions leading to the above … Consideration should be given to what control measures, if any exist, can be applied for each hazard' (Codex, 2003[1]).

Evolving HACCP-based methodologies: Supply businesses with information on risks and hazards pertinent to their particular type of food production in order to reduce the levels of scientific knowledge and judgement required by the business (FAO, 2006 [2]).

Problem: The vast majority of those working in the food service industry do not have the technical knowledge or time to undertake a hazard analysis for each of their products, nor do they have the finances to 'buy in' such expertise.

Solution: ADFCA have provided businesses with information on risks and hazards (e.g. Regulation 6 and Code of Practice: Food Hygiene for the Food Service Industry) in order to reduce the levels of scientific knowledge and judgement required by the business. For small businesses the SOPs are to be supplied in picture format with the inspector giving advice and guidance.

4.3.4 Principle 2 : Identify CCPs (Step 7)

Classical HACCP: CCP: A Step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level … There may be more than one CCP at which control is applied to address the same hazard' (Codex, 2003 [1]).

Problem: Lack of technical expertise makes decisions regarding criticality problematic for scientifically untrained food service employees. Previous attempts to provide 'generic' CCPs for this sector have led to a lack of focus and control; almost every step is critical for at least one product or process, and to generalise means that, in effect, everything becomes critical.

Solution: Decisions on criticality that are pre-determined within a system must be specific to the individual product or process in question. The steps that are critical should have a higher level of control designed into the SOP than those that are not.

4.3.5 Principle 3: Identify Critical Limits (Step 8)

Classical HACCP: 'Critical limit: A criterion which separates acceptability from unacceptability. Critical limits must be specified and validated if possible for each CCP ...Criteria often include ... sensory parameters such as visual appearance and texture' (Codex, 2003 [1]).

Problem: In the manufacturing industry, critical limits for CCPs such as cooking are often numerical and highly specialised technical equipment is used to effectively monitor these. As a result, critical limits are often also set for food service in numerical terms, such as cooking a product until it reaches 70°C for two minutes. Unfortunately, the business is cooking many different menu items often in large quantities, and has no way of monitoring the temperature of every menu-item and cannot sample because of product and equipment variability. Temperatures are therefore usually not the most effective critical limit.

Solution: For all critical SOPs, practical critical limits should be provided, using sensory criteria that are achievable in practice where necessary. These should be validated to make sure they meet safe temperatures (e.g. encouraging the use of temperature probes to test the safety of all sensory checks). Where a critical limit is set by government (e.g. safe cold storage temperature)

the system must be flexible and allow the business to request and document this specific information in order to comply with their local regulations.

The new method used in this Code provides practical critical limits for all cooking SOPs, such as the juices of a whole bird running completely clear from blood and the flesh having no signs of pink, processed red meat changing colour from red to brown throughout, or liquid dishes bubbling throughout when stirred.

These 'sensory parameters' are recommended because they are:
 • achievable in a busy kitchen.
 • currently used extensively in the industry.
 • representative of practical skills that chefs are taught during training.

Importantly, it is still essential for the technical validation or 'checking' of all sensory checks, to ensure safety, to be undertaken and recorded.

4.3.6 Principle 4: Monitoring (Step 9)

Monitoring is the scheduled measurement or observation of a CCP relative to its critical limits. The monitoring procedures must be able to detect loss of control at the CCP … If monitoring is not continuous, then the amount or frequency of monitoring must be sufficient to guarantee the CCP is in control (Codex, 2003 [1]).

Problem for caterers: HACCP requires stringent monitoring at all CCPs, in real time, every time. In the manufacturing industry, where products and equipment are more uniform, sampling can sometimes be carried out without compromising control of the CCP. However, in most food service situations, this is not possible. Those who attempt to monitor by probing random items throughout a shift are not ensuring safety.

Solution for caterers: Monitoring must be effective and achievable. Monitoring 'every time in real time' is required only where control is critical to food safety, and can be based on industry practice (i.e. sensory checks) rather than the addition of unnecessary methods (e.g. temperature probes where they are not practical). Where monitoring is required as part of GHP rather than HACCP, and not linked to a CCP, there can simply be the requirement for enhanced supervision.

4.3.7 Principle 5 Corrective Actions (Step 10)

Classical HACCP: 'Systematic corrective actions must be developed for each CCP in the HACCP system in order to deal with deviations when they occur. The actions must ensure that the CCP has been brought under control … and must also include proper disposition of the affected product. Deviation and product disposition procedures must be documented in the HACCP records' (Codex, 2003 [1]).

Problem: In many HACCP plans, corrective actions are either not identified or are unrealistic, such as 'call the manager' or 'throw away product'. Very few have detailed, practical guidance. Consequently, when problems occur businesses do not have documented guidance that they can or are willing to follow, and as a result food safety can be compromised.

Solution: Systems must include detailed corrective action as part of the SOP or as a supporting document. These should contain practical and realistic advice on safe options that could be taken if there was a problem, as well as space for the chef to document their own solutions. Each corrective action needs a link to record keeping, and a method of facilitating 'continuous improvement' with suggestions for taking action to prevent a similar problem from happening again.

4.3.8 Principle 6: Verification (Step 11)

Classical HACCP: Verification is 'the application of methods, procedures, tests and other evaluations, in addition to monitoring to determine compliance with the HACCP plan. Validation: Obtaining evidence that the elements of the HACCP plan are effective (Codex, 2003 [1]).

Evolving HACCP-based methodologies: Refocus enforcement and audit requirements onto the business understanding and control of processes (this might be typified as "self-audit" monitoring).(FAO, 2006 [2])

Problem: Validation is a complex technical task. Verification is normally considered to be the function of third-party auditors within large manufacturing companies; however, it should be a core part of a business's internal activity.

Solution: All critical limits need to be validated to ensure they meet local legal requirements and / or international best practice. Businesses then need to be taught how validate their own methods against recommended standards. Verification should be internally managed through self-audit by the manager, with optional external audit if required.

### 4.3.9 Principle 7: Record keeping (Step 12)

Classical HACCP: Efficient and accurate record keeping is essential to the application of a HACCP system. HACCP procedures should be documented. Documentation and record keeping should be appropriate to the size and nature of the operation (Codex, 2003 1).

Evolving HACCP-based methodologies: Utilize methods that reduce the quantity of record keeping (e.g. use of a "diary" or simplified records based on "management by exception") (FAO, 2006 2).

Problem: Documentation and record keeping are problematic for most food service employees who do not manage their business using extensive paperwork. Most hold their practical knowledge and skills 'in their heads,' and do not often have the time or motivation to document all of this in safety terms. There is evidence that many see routine record keeping as onerous and pointless, and some admit to falsifying such records at times when they are busy.

Solution: Documentation needs to turn HACCP and scientific jargon into the practical language of the industry. Only a small amount of additional documentation should required to make each SOP specific to the individual operation and thus highly specific and useful. Record keeping should be focused on the identification of a responsible person and the instigation of corrective actions when things change or go wrong (i.e. times when food safety could be compromised). This ensures that records are meaningful and achieve process control at minimum costs of time and effort.

4.4 OVERVIEW OF HACCP FOR CATERING PROJECT
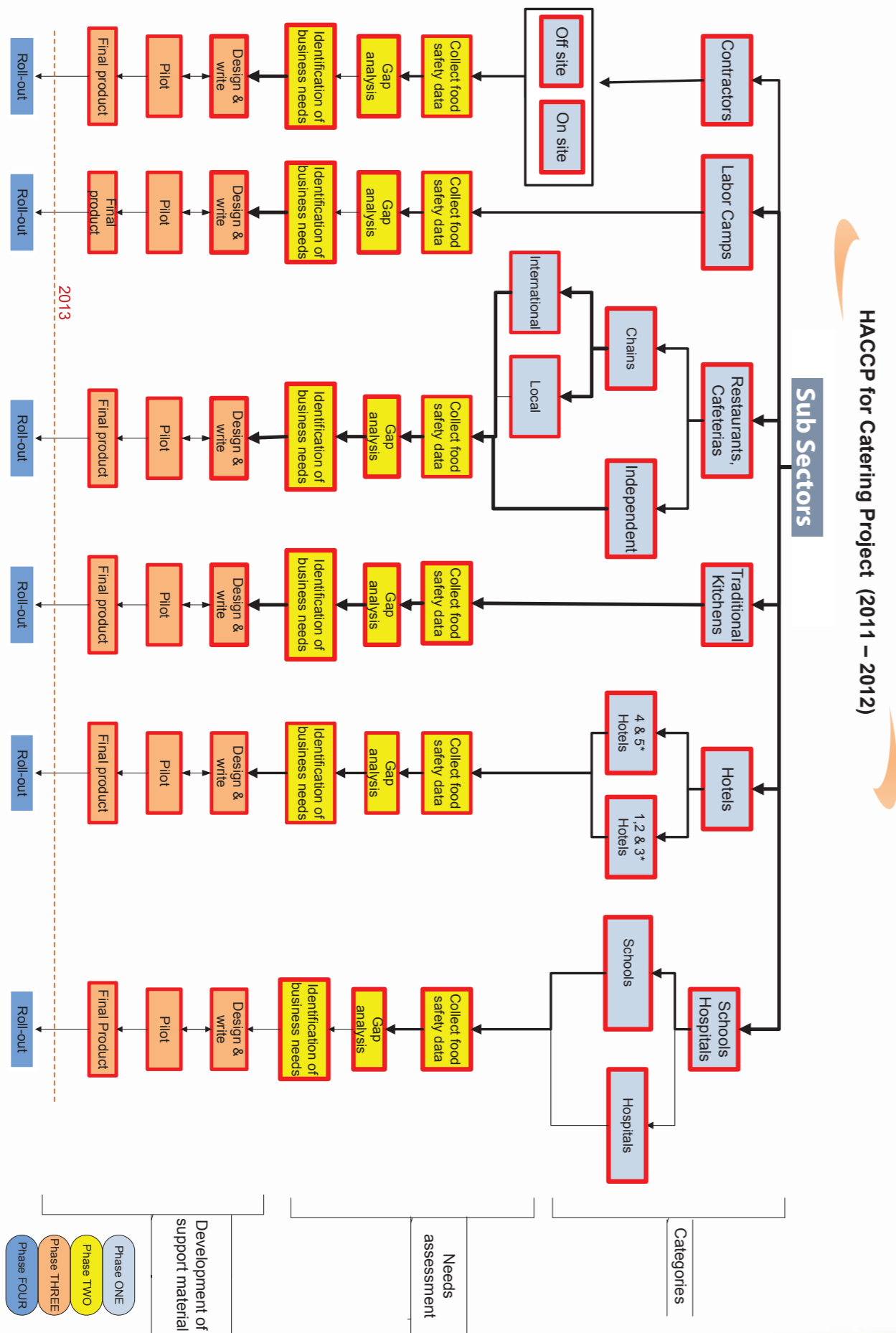
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