

Regional HACCP and Training Requirements to the Year 2000

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Abstract

Basic HACCP requirements for the region, and the role of the Project and the ASEAN Network are outlined. Training materials developed by the Project in prerequisite requirements and curriculums developed for HACCP training packages intended for Managers, non-QC Supervisors, QC-Supervisors/Managers and Line Workers are detailed.

In today's world of global markets and the WTO, where the agreement on the application of the Sanitary and Phytosanitary Measures and the Technical Barriers to Trade are being acted upon, worldwide initiatives have been taken to remove internal and external trade barriers, producing a more open "food marketplace" marked by :

1. gradual elimination of non-tariff barriers;
2. equal regulatory treatment of domestic and imported products;
3. actions such as legislative/regulatory reviews to ensure domestic regulations are consistent with tenets of trading agreements, based upon sound science and risk analysis;
4. greater transparency in all aspects of food legislation and regulation;
5. harmonization of domestic standards with international standards such as Codex, unless higher levels of protection can be justified.

How in fact is this being achieved? Well, governments are looking at their own legislation and the legislation of their major markets, and attending international meetings, such as those of the Codex Alimentarius Commission, where international codes of practice and standards are being elaborated.

One such program which has more or less been universally accepted is the Codex Committee on Food Hygiene's "Code of Practice General Principles of Food Hygiene" and its accompanying annex, "Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its Application."

The above mentioned Code of Practice provides Good Manufacturing Practices (GMP) for food hygiene and the annex, a system of controls to ensure food safety (HACCP).

You need a HACCP program. Everyone is saying this, but what is it? The HACCP system, which is science-based and systematic, identifies specific

hazards and the measures for their control to ensure the safety of food. HACCP is a tool to assess hazards and establish control systems that focus on prevention rather than relying mainly on end-product testing. HACCP when implemented is a management system for ensuring safety of products prepared in an establishment.

All companies have management systems, such as financial management, personnel management, production management and quality management systems. Quality management systems may be simple, such as the processor's unwritten understanding of the process (no organized system), or complex such as the ISO 9000 series. The application of HACCP is compatible with the implementation of quality management systems and is the system of choice in the management of food safety within such systems. HACCP systems must be considered as essential for any enterprise that deals with fishery products whether or not other organized management systems are in place; therefore, HACCP systems must be capable of operating independently of other quality management systems.

The reason why HACCP has developed is that regulatory authorities for food products have a duty to ensure that foods offered to the consumer are safe to eat. In the past they have required a positive approach of using GMP, producing food in a hygienic manner and by inspection of finished product. It is now realized that inspection of finished product gives a poor control over the safety of foods. Regulatory agencies are increasingly requiring establishments to take a preventative approach to safety based on the principles of HACCP. This requirement might be incorporated in primary legislation on food control, or be applied by executive action of the regulatory authority. The management of the establishment must then be able to produce for the regulatory authority a documented HACCP plan, and be able to demonstrate that the plan is being effectively implemented.

When implemented, this system will help bring about equivalency, harmonization and transparency so as to minimize any barriers to international trade with respect to food safety. There is, however, a trend for countries to customize their HACCP programs to meet local realities. While there is nothing wrong with that, a danger exists that the customization of HACCP programs due to valid

social, economic and cultural reasons could be challenged in negotiating Mutual Recognition Agreements (MRA's) or equivalent agreements. MRA and similar negotiations dictate that measurement criteria against which other countries' HACCP programs are to be assessed be developed. These measurement criteria may become increasingly unique and have only limited applicability to other countries' HACCP programs; therefore, we must return to the basics of HACCP when assessing other countries' HACCP programs to establish a common baseline and common-policy approach. This will become increasingly important as the Codex Committee on Food Import and Export Inspection and Certification Systems (CCFICS) provides a framework to determine equivalency of inspection systems between countries.

HACCP is not a stand-alone control system; it is one part of a larger system of control procedures. HACCP plans apply to specific products and to specific processes and are in addition to appropriate food safety legislation by the responsible authority and codes of practice for hygiene or any codes of good manufacturing practice that might be in force for the establishment as a whole. You need certain prerequisite programs in place to operate a HACCP system. Prerequisite programs may be defined as universal steps or procedures that control the operational conditions within a food establishment allowing for environmental conditions that are favourable to the production of safe food.

Various prerequisite program areas may include:

Premises

Outside property, building, hygienic facilities, water quality program

Receiving/Storage

Receiving of raw materials, ingredients and packaging materials, storage

Equipment Performance and Maintenance

General equipment design, equipment installation, equipment maintenance

Personnel Training Program

Manufacturing controls, hygienic practices, controlled access

Hygiene

Sanitation program, pest control program

Health and Safety Recalls

Product identification program and coding, recall system, recall initiation

Labelling

Meeting requirements for the market intended

Prerequisite programs are the foundation of the HACCP plans and these must be adequate and effective. For example, when Sanitation Standard Operating Procedures (SSOP) are in place, HACCP can be more effective because it can concentrate on the hazards associated with the food or processing and not on the processing plant environment. However, when aspects of hygiene directly impact food safety, it may be more appropriate for those hygiene controls to be handled with the HACCP plan. If any portion of a prerequisite program is not adequately controlled, then additional critical control points would have to be identified, monitored and maintained under the HACCP plans. Effective prerequisite programs will simplify HACCP plans and will ensure that the integrity of HACCP plans are maintained and that the manufactured product is safe.

Further, consumers and clients want not only safe food; they want food of acceptable quality, properly labelled and which has an actual weight that matches the weight designation which appears on the label. Such considerations must be met by the quality management system of both industry and government.

While HACCP is an excellent, though narrowly defined, food safety system that does not deal with quality or economic fraud, its principles can be applied to non-safety hazards such as the prevention of economic fraud in relation to labelling, grading, weights, etc., or other aspects of food quality. One should consider incorporating the HACCP system into the present quality control/quality assurance program leading to a system of Total Quality Control.

For example, the Canadian Fish Inspection Service developed a Quality Management Plan (QMP) which was implemented in 1992, largely based on HACCP principles. It is currently in place at 1200 processing plants and independent national and international reviews found that :

- QMP provides appropriate levels of consumer protection;
- The framework ensures production of safe food;
- Reduced inspection effort has not increased food safety risks.

The reviews resulted in a number of recommendations to improve the QMP, including incorporating all HACCP principles in the QMP, eliminating paper burdens, and better and more training. The inspection service of DFO is now restructuring QMP to provide for a three- pronged approach :

- Pre-requisite Programs: universal requirements, ie: construction & equipment, sanitation, grounds, recall, etc.;

- QMP Critical Control Points: Established through HACCP Hazard Analysis;
- QMP Defect Action Points: Established through Regulatory Hazard Analysis. Identifies regulatory quality and fair marketing practices (eg: labelling and weight) requirements that products must meet.

Other countries are taking similar approaches, such as mandatory adoption of HACCP by EU and the US seafood industry in 1997 and requiring that fish exported to their countries were processed in a plant with an approved HACCP plan in operation. The plant must also meet international requirements for construction and hygiene.

While all this is going on at an international level, how does the ASEAN-Canada Fisheries Post-Harvest Technology Project - Phase II fit into the picture?

The ASEAN-Canada Fisheries Post-Harvest Technology Project-Phase II started in 1992. When the Project was designed, it had very specific outputs relating to :

- improving the quality of fish and fish products, and strengthening fish inspection services within the ASEAN countries;
- assist in the development and promotion of improved technology in fish processing, preservation and packaging; and
- enhance the transfer of appropriate technology to the fish processing industry in the region.

Through the use of country activities and training workshops on fish inspection, the Project facilitated regional development. Three Regional Centres (RC) in the fields of Fish Inspection and Quality Control (FIQC), Fish Processing Technology (FPT) and Information Preparation and Dissemination (IPD) have been created. Eleven activities were conducted in Pilot Project (PP) countries and RC's, and nine-product specific information packages/manuals have or are being developed. In the process of developing the materials, competency in FPHT of staff of participating institutes and industry was built up. For example, as a result of consultant-related training from the Project, by the end of 31 March 1996, more than 2255 persons received training from the Project, of which 64% came from the private sector, and 56% were female.

As the Project evolved, new work plans were developed such as the development of core information materials that were required of every activity. These could be considered as prerequisite information/training packages. The four which are being developed relate to :

1. Hygienic Design of Fish Processing Plants.
2. Hygienic Design of Equipment, Utensils and Working Surfaces in Fish Processing Plants.
3. Sanitation and Hygiene Control.
4. Personnel Hygiene.

The first is now available as a video/workbook for a one-day course and the others are in various stages of preparation.

Additionally, realizing a need for sustaining the Project's activities, ASEAN took steps to develop a sustainability program. The ASEAN Ministers of Agriculture and Forestry (AMAF) established an ASEAN Network of Fisheries Post-Harvest Technology Centres (ASEAN Network) upon which a program for Project sustainability could be built.

One of the work items identified for the ASEAN Network was to harmonize quality assurance of fisheries products through HACCP programs in the ASEAN region. This is, of course, taking the recommendations from Codex on the world scale and applying them to ASEAN. How can it be done? The idea, developed by the ASEAN Network/Project, was to develop an ASEAN HACCP curriculum for standard training of industry. A HACCP Curriculum Development Working Group was set up. Its first meeting was held on 10 - 15 June 1996. At that time it was noted that a number of HACCP curriculums were in development by various developed countries, but they were all aimed at training a HACCP team. It was decided to develop sets of job competencies for four (4) types of users of HACCP :

1. Managers.
2. Non-QC Supervisors.
3. QC Supervisors/QC Managers.
4. Line Workers.

Competencies developed at the meeting were validated by experts and industry in the various ASEAN countries and a second WG Meeting was held in Penang from 26 - 30 August 1996. At that meeting, the summary of competencies for HACCP training was refined (Annex I) and curriculums developed (Annexes II - V). Training packages are now being developed and should be available by March 1997 for trial runs.

As can be seen, the Project is one means to lower technical barriers to trade. It is one of a large set of wheels moving towards the goal. With the materials developed by the Project, a significant training program aimed at the industry has been proposed to the year 2000.

In addition to what has been mentioned above, the Project is also trying to harmonize Good Laboratory Practices in fisheries laboratories within the region, and to provide information and exchange of information with an electronic information network located in Singapore on the Internet at <http://www.asean.fishnet.gov.sg>

The Project will terminate on 31 March 1997. While the initiatives taken by the ASEAN Ministers lay the foundation for Project sustainability, it is estimated that a transitional phase of two (2) years to the end of March 1999 would be necessary to hand over the direction from the Project to the ASEAN

Network. Further, an extension would significantly assist the implementation of training with the materials that have been developed by the Project. A proposal has been put to Canadian International Development Agency (CIDA), and a decision is expected by the end of the year. If the Project is not extended, the ASEAN Network and its program will still exist and continue.

Annex I

SUMMARY OF COMPETENCIES FOR HACCP TRAINING

Contents:

1. HACCP COMPETENCIES FOR ALL MANAGERS
2. HACCP COMPETENCIES FOR NON-QC SUPERVISORS
3. HACCP COMPETENCIES FOR QC SUPERVISORS/QC MANAGERS
4. HACCP COMPETENCIES FOR LINE WORKERS CONDUCTING HACCP-RELATED ACTIVITIES

HACCP CURRICULUM DEVELOPMENT WORKING GROUP

26 - 30 August, 1996 Penang, Malaysia

1. HACCP COMPETENCIES FOR ALL MANAGERS

STC-A : EXPLAIN THE HACCP CONCEPT

1. Differentiate "food safety", "quality" and "economic fraud".
2. Describe quality management systems in use.
3. Describe the HACCP concept.
4. Explain how HACCP relates to the company's quality assurance program.
5. Outline the prerequisites for implementing HACCP.
6. Describe the components of a HACCP Plan.
7. Outline the process flow for relevant products.
8. Identify potential hazards associated with relevant products.
9. Explain national regulatory requirements.
10. Outline briefly the costs and benefits of using HACCP.

STC-B : ENSURE HACCP PLANS ARE WORKING PROPERLY

1. State company policy for HACCP and the standards for products produced.
2. State the responsibilities of the management team related to HACCP.

3. Describe where knowledge levels and responsibilities of employees begin and end.
4. List sources of current information on HACCP.

2. HACCP COMPETENCIES FOR NON-QC SUPERVISORS

STC-A : EXPLAIN THE HACCP CONCEPT

1. Differentiate "food safety", "quality" and "economic fraud".
2. State product standards and market requirements for products produced.
3. Describe the HACCP concept.
4. State the rationale for HACCP.
5. Describe how HACCP fits into the Q.A. Program.
6. Outline the prerequisite requirements for implementing HACCP.
7. Outline company's process flow and sanitation program.
8. Describe potential hazards for products produced.
9. Define CCPs for your products.

STC-B : ASSIST HACCP TEAM

1. Describe the role of the non-QC supervisor in the development of HACCP plans and manuals.
2. Describe the role of the non-QC supervisor in the verification of the HACCP plans.

STC-C : IMPLEMENT COMPANY POLICY RE: HACCP

1. State company policy regarding HACCP.
2. State how the prerequisite requirements for HACCP can be met.
3. Outline non-QC supervisor's role in HACCP and role(s) of his workers.
4. Perform duties as defined in the HACCP plan.
5. Co-operate with the QC supervisor in implementing HACCP.
6. Support HACCP program in the company.

3. HACCP COMPETENCIES FOR Q.C. SUPERVISORS/Q.C. MANAGERS

STC-A : EXPLAIN THE HACCP CONCEPT

1. Differentiate "food safety", "quality" and "economic fraud".
2. State product standards and market requirements for products produced.
3. Describe Q.A. Programs in use.
4. Describe the HACCP concept.
5. State the rationale for HACCP.
6. Describe how HACCP fits into the Q.A. Program.
7. Explain basic food safety, the sanitation program and prerequisite requirements for HACCP.

8. Describe the components of a HACCP plan.
9. Describe the food processing operations for products produced.
10. Identify potential hazards.
11. Define CCPs for your products.

STC-B : EXPLAIN THE RESPONSIBILITIES OF THE HACCP TEAM

1. Describe the steps in developing a HACCP plan.
2. Describe the roles of members of the HACCP team in developing HACCP plans and manuals.

STC-C : IMPLEMENT COMPANY POLICY REGARDING HACCP

1. State company policy regarding HACCP.
2. State how the prerequisite requirements for HACCP can be met.
3. Describe the duties of personnel performing HACCP-related activities.
4. Perform his/her duties as defined in the HACCP plan.
5. Support HACCP program in the company.

STC-D : ASSESS TRAINING NEEDS FOR HACCP

1. Determine employees' competencies in conducting HACCP-related duties.
2. Specify training requirements for employees to perform HACCP-related duties.

4. HACCP COMPETENCIES FOR LINE WORKERS CONDUCTING HACCP-RELATED ACTIVITIES

STC-A: EXPLAIN HOW THE HACCP PROGRAM FITS INTO THE PROCESSING OPERATION

1. Explain basic process of spoilage/contamination.
2. Outline basic HACCP concept and rationale.
3. State prerequisites for HACCP required of the employee.
4. Briefly describe product process flow.
5. Describe characteristics of the product at his/her area of responsibility.
6. State hazards at his/her area of responsibility.
7. Describe CCPs at his/her area of responsibility.
8. State tolerances/deviation limits for his/her area of responsibility.
9. State the control(s) required at his/her area of responsibility.

STC-B : PERFORM HACCP DUTIES

1. Identify his/her duties in the HACCP plans.
2. Explain the reason(s) why duties are necessary.
3. Demonstrate the proper use of equipment related to HACCP at his/her area of responsibility.
4. Identify defects/problems at his/her area of responsibility.
5. State actions to be taken when deviations occur.

Annex II

COURSE AIMS AND MAJOR TOPICS

COURSE TITLE : DRAFT TRAINING COURSE ON HACCP OMPETENCIES: MANAGERS

COURSE DURATION : 1 Day

COURSE AIMS : After completing the course, the participant will be able to:

1. Describe the HACCP concept and its application in food processing plants.
2. Explain the importance of HACCP in ensuring food safety in food production.
3. Perform an effective role in HACCP implementation.

MAJOR TOPICS :

1. INTRODUCTION
2. HACCP
3. ROLES IN HACCP IMPLEMENTATION
4. MODEL HACCP PLAN
5. COURSE EVALUATION

COURSE OUTLINE

1. INTRODUCTION

- 1.1 Quality Management Systems
- 1.2 Prerequisite Programs
- 1.3 National & International Regulatory Requirements

2. HACCP (Hazard Analysis Critical Control Point)

- 2.1 Principles
- 2.2 HACCP Plan
- 2.3 CCPs Determination

3. ROLES IN HACCP IMPLEMENTATION

- 3.1 Company Policy for HACCP
- 3.2 Standard for Product Produced
- 3.3 Responsibilities of the Management Team Related to HACCP

4. MODEL HACCP PLAN

- 4.1 Model Plan
- 4.2 How It Suits the Current Operation
- 4.3 Costs & Benefits

5. COURSE EVALUATION

Annex III

COURSE AIMS AND MAJOR TOPICS

COURSE TITLE: DRAFT TRAINING COURSE
ON HACCP COMPETENCIES:
NON-Q.C. SUPERVISORS

DURATION : 1 Day

AIMS: At the end of the workshop, the participants will be able to :

- 1. Define the HACCP concept.
- 2. Recognize the importance of HACCP in ensuring food safety.
- 3. Apply the HACCP concept.

MAJOR TOPICS :

- 1. INTRODUCTION
- 2. PREPARING FOR HACCP
- 3. PRINCIPLES OF HACCP
- 4. APPLYING AND MAINTAINING HACCP

COURSE OUTLINE

1. INTRODUCTION

- 1.1 Food Safety And Quality Assurance
- 1.2 What is HACCP?
- 1.3 Why We Need To Use HACCP

2. PREPARING FOR HACCP

- 2.1 Review Operation
- 2.2 Prerequisite Requirements for HACCP
- 2.3 Who Would Be Involved?
- 2.4 Resource Requirements

3. PRINCIPLES OF HACCP

- 3.1 The Seven Principles of HACCP

4. APPLYING AND MAINTAINING HACCP

- 4.1 How to Fit HACCP into Your Q.A. Program
- 4.2 Developing a HACCP Plan
- 4.3 Your Role in Developing and Implementing HACCP
- 4.4 Information on HACCP

Annex IV

COURSE AIMS AND MAJOR TOPICS

COURSE TITLE: DRAFT TRAINING COURSE
ON HACCP COMPETENCIES:
QC MANAGERS /QC
SUPERVISORS

COURSE DURATION : 4 Days

COURSE AIMS: After completing the course, participants will be able to:

- 1. Describe the HACCP concept and its application in food processing plants.
- 2. Explain the importance of HACCP in terms of safety in food production.
- 3. Play an effective role in the implementation of HACCP in their own food processing plants.

MAJOR TOPICS :

- 1. AN INTRODUCTION TO FOOD SAFETY
- 2. MARKET REQUIREMENTS
- 3. QUALITY ASSURANCE PROGRAM AND HACCP CONCEPT
- 4. PREREQUISITE REQUIREMENTS FOR HACCP
- 5. HACCP PRINCIPLES AND THEIR APPLICATION
- 6. GROUP PRESENTATION ON CASE STUDIES

COURSE OUTLINE

1. AN INTRODUCTION TO FOOD SAFETY

- 1.1 Important Factors Affecting Food Safety.
- 1.2 Regulatory Hazards involving Food Safety.

2. MARKET REQUIREMENTS

- 2.1 National and International Regulatory Requirement
- 2.2 Product Standards

3. QUALITY ASSURANCE PROGRAM AND HACCP CONCEPT

- 3.1 What is a Q.A. Program and HACCP
- 3.2 The Benefits of Implementing HACCP

4. PREREQUISITE REQUIREMENTS FOR HACCP

- 4.1 General Food Hygiene, Sanitation Centres and GMP's
- 4.2 Implementation of Prerequisite Program

5. HACCP PRINCIPLES AND THEIR APPLICATION

- 5.1 Sequence of Steps in Developing a HACCP Plan.
- 5.2 Hazard Analysis and Preventive Measures
- 5.3 CCPs Identification
- 5.4 Critical Limits
- 5.5 Monitoring System
- 5.6 Corrective Actions
- 5.7 Verification Procedures
- 5.8 Record Keeping
- 5.9 Implementation of HACCP
- 5.10 Assess Training Needed for HACCP

4. HACCP - RELATED DUTIES

- 4.1 Monitoring.
- 4.2 Corrective Action.
- 4.3 Record Keeping.

6. GROUP PRESENTATION ON CASE STUDIES

- 6.1 Groups 1, 2, 3 and 4

Annex V

COURSE AIMS AND MAJOR TOPICS

COURSE TITLE: DRAFT TRAINING COURSE
ON HACCP COMPETENCIES:
LINE WORKERS

COURSE DURATION : 1 Day

COURSE AIMS: At the end of the training, the participants will be able to :

- 1. Acquire the basic knowledge in HACCP needed to perform their HACCP-related duties.
- 2. Play an effective role in the implementation of HACCP in the plant at his/her area of responsibility.

MAJOR TOPICS :

- 1. BASIC PRINCIPLES OF FOOD SAFETY
- 2. INTRODUCTION TO HACCP
- 3. PREREQUISITE PROGRAMS FOR HACCP
- 4. HACCP - RELATED DUTIES

COURSE OUTLINE

1. BASIC PRINCIPLES OF FOOD SAFETY

2. INTRODUCTION TO HACCP

- 2.1 Concept and Rationale.
- 2.2 Food Hazards.
- 2.3 Critical Control Points (CCPs).

3. PREREQUISITE PROGRAMS FOR HACCP

- 3.1 Personnel Hygiene.
- 3.2 Plant Sanitation.
- 3.3 Good Manufacturing Practices (GMP).