# Section 3-2: Preliminary Steps

Asia-Pacific Economic Cooperation
FSCF Food Safety Cooperation Forum
PTIN Partnership Training Institute Network
THE WORLD BANK
MICHIGAN STATE UNIVERSITY

Preliminary Steps

# Section Overview

The preliminary steps necessary before implementing a HACCP plan include the following, which must be addressed in sequence:

1. Assemble the HACCP Team
2. Describe the Food and its Distribution
3. Describe the Intended Use and Consumers of the Food
4. Develop a Flow Diagram Which Describes the Process
5. Verify the Flow Diagram

Another critical element that must be emphasized at this point is management commitment. It is extremely important to have full commitment to the HACCP initiative from all levels of management at the establishment. Without this firm commitment, it may be difficult or impossible to implement the HACCP plan. Commitment by top management to the HACCP system sends a strong message to all personnel that the food safety system is vitally important to the company.

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# Learning Objectives

At the conclusion of this section, the learner will be able to:

- discuss considerations when organizing the HACCP team for a food facility,
- describe factors to be considered when defining the scope of a HACCP system,
- list the elements of a food product description and list factors the HACCP team should consider when developing a comprehensive product description,
- list considerations the HACCP team should consider when describing the intended use and consumers of a food product,
- describe the populations that are particularly susceptible to developing foodborne illnesses, and
- describe the methods used to develop and verity a flow diagram which describes a food process.

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# 1. Assemble the HACCP Team

The HACCP team is the group of people who are responsible for developing, implementing and maintaining the HACCP system. Some considerations when identifying the HACCP Team include the following.

- The team should be multidisciplinary and its size proportionate to the size of the business.
- Team members should have skills and expertise in a wide variety of technical disciplines relative to the products covered by the HACCP system.
- HACCP expertise is not essential for all team members.
- Records must be maintained that demonstrate that the HACCP team has the required knowledge and experience to develop the food safety system.

One person should be designated as the HACCP Team Leader. Working with the rest of the team, this person has overall responsibility for the development, organization, and management of the HACCP program.

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# 1. Assemble the HACCP Team

In large facilities the HACCP team could have six or more persons, perhaps including representatives with the following job functions:

- Plant manager
- Food safety manager
- Quality control manager
- Production floor manager
- Maintenance and sanitation manager
- Front-line food workers

The team should be multidisciplinary and have the necessary knowledge and skills to design the overall HACCP system. Where necessary, external consultants can be hired to provide specialized assistance and expertise.

Conversely, in small facilities the team could be comprised by the owner/operator with the possible assistance of family members, employees, or outside consultants.

Photo: Leslie Bourquin

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# Scope of the HACCP Plan

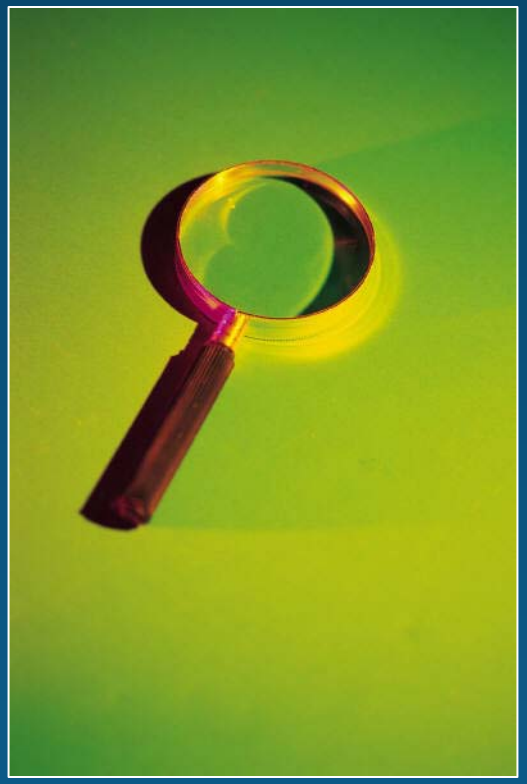
HACCP plans are specific to a food product and process. It is possible (and perhaps even common) that not all of the products produced by a firm will be subject to HACCP requirements.

Therefore, one of the first important decisions for the HACCP team is to determine the overall scope the HACCP system and written HACCP plans the system will ultimately address.

In defining the scope of the HACCP plan, the team should:

- determine the specific products and processes which the HACCP system will address,
- define the type(s) of hazards to be addressed by the plan (e.g. biological, chemical, physical), and
- define the part of the food chain to be studied.

The scope often will be influenced by regulatory requirements or specific requirements instituted by the customer. For example, in the United States HACCP regulations currently apply only to processing of meat and poultry products, seafood products, and juice products.



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# 2. Describe the Food and Its Distribution

The HACCP team first describes the food. This consists of a general description of the food, ingredients, and processing methods, packaging materials, etc. used in the formulation and preparation of the product. This description will assist the team in the identification of all possible hazards associated with the product.

In brief, the product description should include the name of the product, ingredients and composition, potential to support microbial growth (e.g. water activity, pH, etc.), brief details of the process and technology used in production, and description of the packaging used for the finished products.

The method of distribution of the finished product should be described along with information on whether the food is to be distributed frozen, refrigerated, or at ambient temperature.

The product description must be recorded for referral by the HACCP team during subsequent steps in HACCP system design and implementation.


Photo: Leonardo Bonanni / Flickr

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# 2. Describe the Food and Its Distribution

There are many factors to consider when developing your product description. The following are of examples of factors the HACCP team may need to consider as it gathers information about the product and process used in the facility.

- Suppliers
- Ingredient specifications
- Batches of ingredients
- Formulation
- Product specifications
- Facility and layout
- Types of equipment
- Equipment design
- Preparation procedures
- Processing parameters
- Employee practices
- Packaging materials
- Storage and warehousing
- Distribution
- Retail handling and display
- Product shelf-life
- Label instructions
- Operating conditions

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# 2. Describe the Food and Its Distribution

When describing the product characteristics, you must describe 1) all raw materials, ingredients and product-contact materials, and 2) the characteristics of end products. These descriptions must be documented in detail sufficient to conduct the hazard analysis (HACCP Principle 1). The following are examples of considerations for each of these categories.

## Raw Materials, Ingredients and Product-Contact Materials

- Biological, chemical and physical characteristics
- Ingredient composition, including additives
- Origin
- Method of production
- Packaging and delivery methods
- Storage conditions and shelf life
- Preparation and/or handling before use or processing
- Food safety-related acceptance criteria or specifications of purchased materials and ingredients

## Characteristics of End Products

- Product name or similar identification
- Composition
- Biological, chemical and physical characteristics relevant for food safety
- Intended shelf life and storage conditions
- Packaging
- Labeling relating to food safety and/or instructions for handling, preparation and usage
- Methods of distribution

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# 3. Describe the Intended Use and Consumers of the Food

The third preliminary step is to describe the normal expected used of the product and the intended consumers. intended use of the product refers to its normal use by end-users or consumers. The intended consumers may be the general public or a particular segment of the population (e.g., infants, the elderly, pregnant women, immune-suppressed individuals, etc.). The following is a list of questions the HACCP team should consider at this stage.

1. What is the intended use of the product? (e.g. retail, food service, further processing)
2. What is the potential for mishandling?
3. What handling and preparation procedures are required of the end users? (e.g. Is the product ready-to-eat, or does it require further preparation such as reheating, cooking, etc.)
4. Who are the intended consumers of the product?
5. Is the product intended for use by immune compromised individuals or other susceptible groups?

Consideration of these questions provides valuable information for the HACCP team as they proceed to the hazard analysis (HACCP Principle 1).

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# Susceptible Populations

Special consideration is necessary when preparing foods that will be consumed by groups that are more susceptible to developing foodborne illnesses. These groups include the following:

- Infants and young children – Infants and young children do not have a fully developed immune system and are more likely to develop certain types of foodborne illnesses such as infections by bacterial pathogens.
- Elderly persons – As people age, their immune systems naturally weaken. Elderly persons, like young children, tend to be more susceptible to infections by foodborne bacterial pathogens.
- Pregnant women – Some pathogenic microorganisms, such as *Listeria monocytogenes* and *Toxoplasma gondii*, are particularly harmful to the developing fetus. Pregnant women must be cautious about handling and consuming foods that are potential sources of these pathogens.
- Immune-suppressed persons – There are several other factors that cause persons to have a weakened immune system. For example, persons who are HIV positive, have had organ transplants, have undergone cancer chemotherapy, or have taken other immunosuppressive drug therapies, are particularly susceptible to developing illnesses caused by foodborne microbial pathogens. As modern medical treatments improve, it is important to consider that a relatively large percentage of the free-living population fits in this category.

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# 4. Develop a Flow Diagram Which Describes the Process

The next preliminary step is to develop a flow diagram for the products or process categories covered by the food safety management system. The purpose of a flow diagram is to provide a clear, simple outline of the steps involved in the process. The scope of the flow diagram must cover all the steps in the process which are directly under the control of the establishment. The flow diagram need not be as complex as engineering drawings. A block type flow diagram is sufficiently descriptive. It must be clear, accurate and sufficiently detailed.

The flow diagram provides a basis for the HACCP team to evaluate the possible occurrence, increase or introduction of food safety hazards in the product and process.

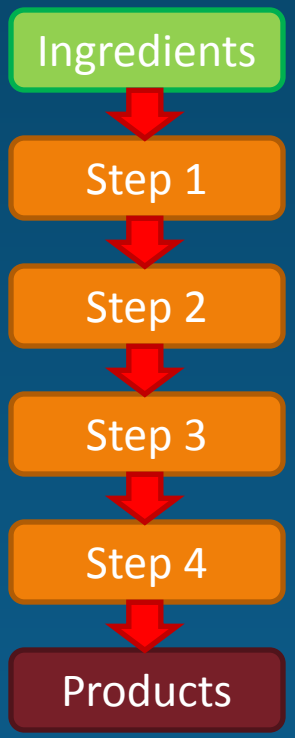


Illustration: Leslie Bourquin

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# 4. Develop a Flow Diagram Which Describes the Process

The process flow diagram will identify the important process steps (from receiving to final shipping) used in the production of the specific product being assessed. Each process step should be considered in detail and the information expanded to include all relevant process data. Data may include but is not restricted to:

- All ingredients and packaging used (biological, chemical, physical data).
- Where raw materials, ingredients and intermediate products enter the flow.
- The sequence and interaction of all steps in the operation.
- Time/temperature history of all raw materials and intermediate and final products, including the potential for delay.
- Where product reworking and recycling take place in the process.
- Equipment design features.
- Any outsourced processes and subcontracted work
- Where end products, intermediate products, by-products and waste are released or removed.

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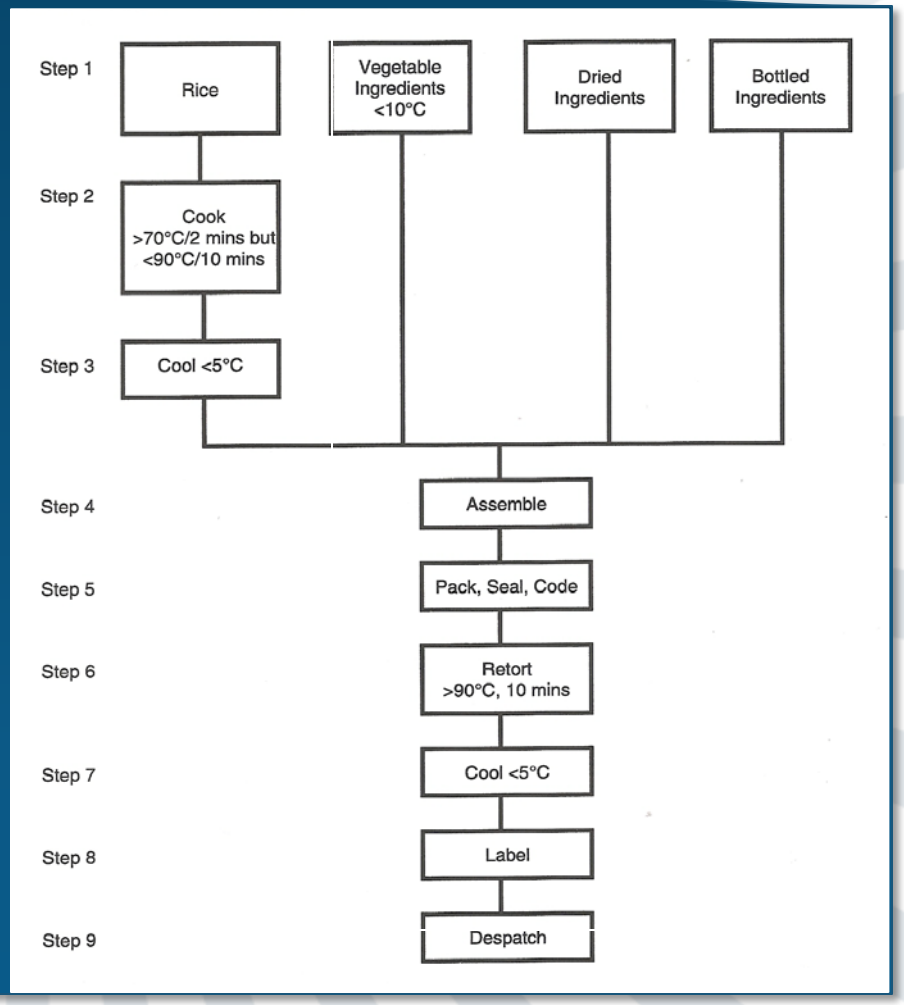
# Example of a Flow Diagram

At the right is an example of a flow diagram for a post-packaging retorted rice salad product. This example is for a product that is fully cooked and then chilled, and requires no further cooking or reheating by the consumer.

In this particular example, packaging materials are not listed. A complete product flow diagram should also account for these materials.



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# Food Plant Schematic

A simple schematic of the facility is often useful in understanding and evaluating product and process flow, and can aid in the identification of any areas of potential cross-contamination within the establishment.

The diagram should include the flow of all ingredients and packaging materials from the moment they are received at the plant, through storage, preparation, processing, packaging, finished product holding and shipping. The personnel flow should indicate employee movement through the plant, including changing rooms, washrooms and lunchrooms. The location of hand-washing facilities and footpaths (if applicable) should also be noted.

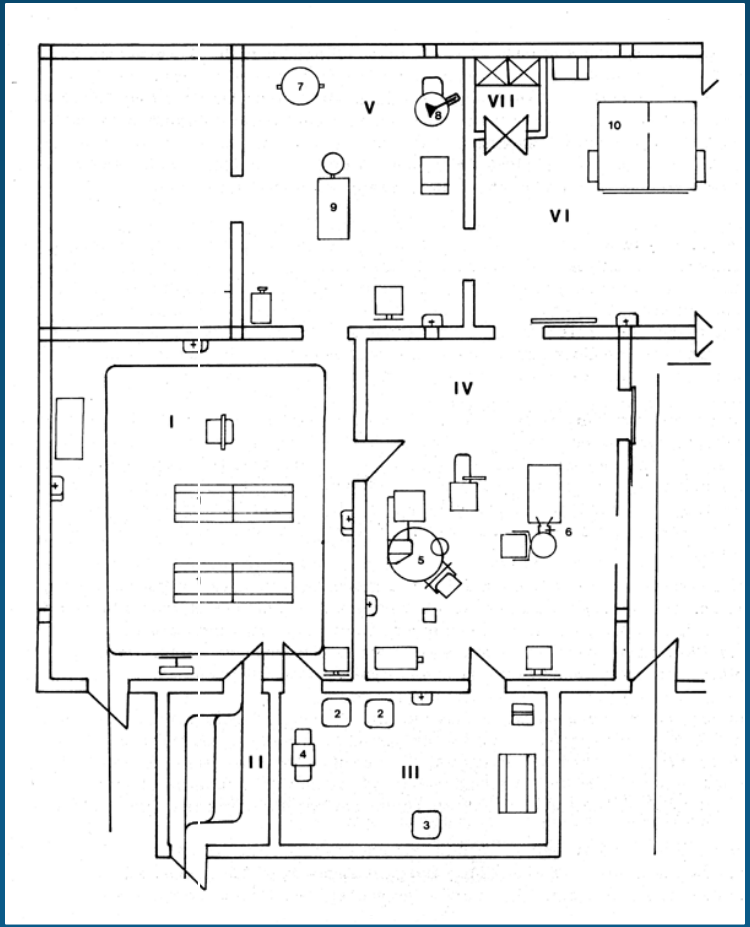


Diagram: FAO (http://www.fao.org/docrep/003/x6556e/X6556E01.htm)

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# 5. Verify the Flow Diagram

Once the process flow diagram has been drafted, it must be confirmed by the HACCP team during an on-site inspection for accuracy and completeness. This will ensure that all the major process operations have been identified. It will also confirm the assumptions made with respect to the movement of product and employees on the premises.

During this on-site inspection of the facility, equipment and operations, the HACCP team should :

- check the accuracy and completeness of the flow diagram,
- identify any deficiencies, and
- correct the document.

The complete, verified flow diagram shall be maintained as a HACCP record.

It is important to note that HACCP plans are dynamic and must be updated to reflect any changes in process or food safety considerations. Therefore, any significant changes to the process must be accurately reflected in the product flow diagram.

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# Completion of Preliminary Steps

After these five preliminary tasks have been completed, the seven principles of HACCP are applied. The subsequent sections in this module will address each of these principles in sequence.

As a reminder, the seven HACCP principles are:

1. Conduct a hazard analysis
2. Determine the CCPs
3. Establish critical limits
4. Establish monitoring procedures
5. Establish corrective actions
6. Establish verification procedures
7. Establish record keeping and documentation

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