

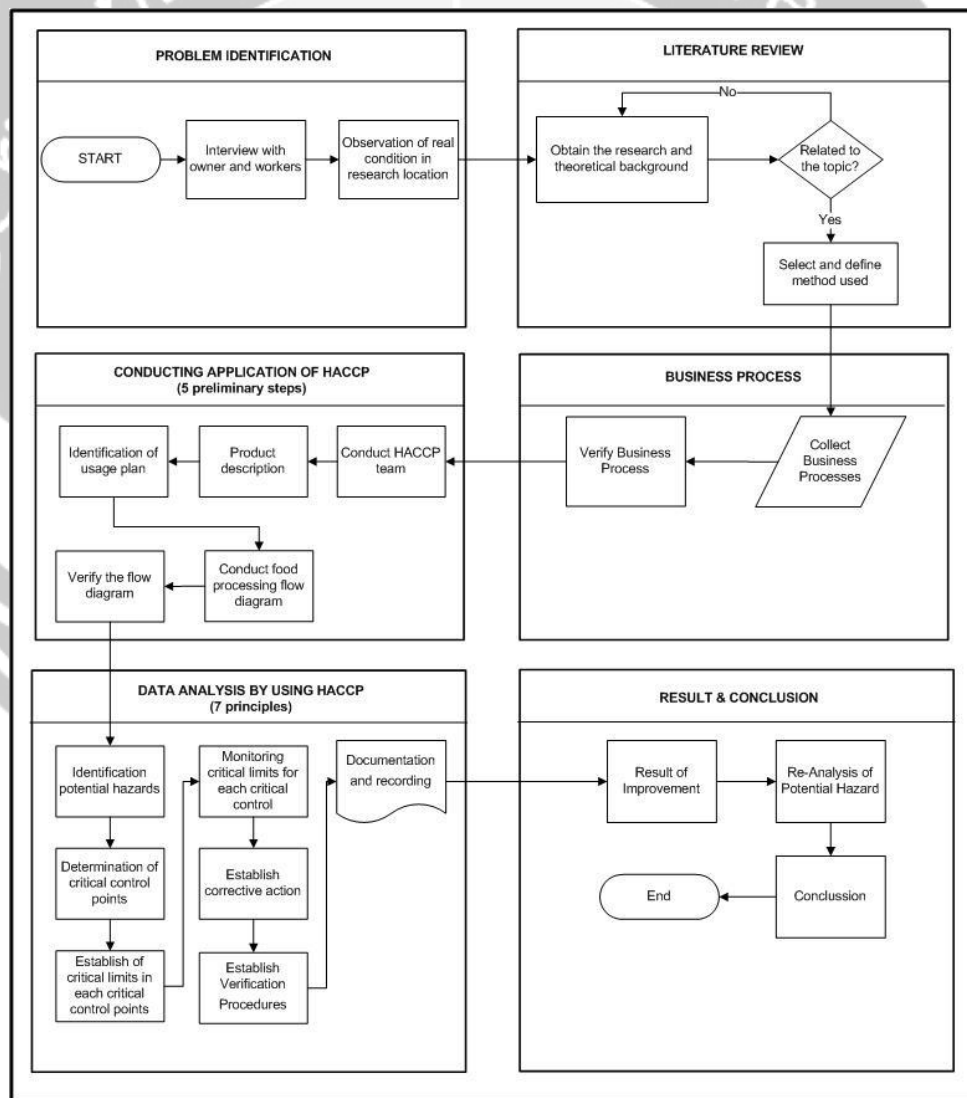
## CHAPTER 3

### RESEARCH METHODOLOGY

The steps of conducting the research to achieve the research objective are entirely explained in this chapter

#### 1.1. Research Methodology

The research methodology in the form of flow diagram is shown in the following figure.



**Figure 3.1. Research Methodology**

#### **1.1.1. Problem identification**

The purpose of this step are to identify the problem and understand the current situation as a whole. on the other side, this step is used to assist in defining the problems occurred, diagnose the problem and conducting the method as problem solver.

An interview and observation were conducted to gather the information from the owner and employees in Restaurant “X” on March 2017. The information which was collected from the owner and employees are about the business process of departments and operation process at Restaurant “X”.

##### **1.1.1.1. Interviewing Management and Employees**

This process was conducted in order to collect information related to the problem facing by Restaurant “X”. The interview is divided into two sessions, such as: (1) Interview sessions with management and (2) Interview sessions with the employees with related departments. The information which was collected from the management is about the overall business process. Meanwhile, the information was collected from the employees of Kitchen and Service Department are about the food processing flow and list of raw material.

##### **1.1.1.2. Direct Observation**

After collecting the food processing flow by interview, an observation is purposed to verify the food processing flow with the real condition either in Kitchen and Service Departments. An observation also purposed to analysis the current condition and it helps in data analysis by using HACCP Method.

#### **1.1.2. Literature review**

This step is performed to study previous research related to the Quality Management System and obtain the theoretical background in order to select and define method used.

#### **1.1.3. Business Process**

This step is purposed to collect data related to business processes such as reservation flow diagram, food processing flow diagram and list of available raw material. These data are used to be analyzed by using HACCP method.

#### **1.1.4. Conducting application of HACCP (5 Preliminary Steps)**

This step is contains of 5 preliminary step of conducting the application of HACCP. The preliminary steps have the similarity of data collection, since it contains of data and information needed before conducting the 7 principle as data analysis. The preliminary steps of conducting application of HACCP as follow below:

a. Conduct HACCP team

HACCP team is a group of people within the company who are tasked for designing, implementing, and controlling the HACCP system. Team building will be related to the scope of system implementation to analyze segments in the food chain that implements HACCP.

b. Product description

Product description is contains the details of complete information about the products such as : (1) Raw materials or ingredients used, (2) Storage condition, (3) Preparing process, (4) Production process and (5) Serving process to customer. The physical properties of products should be checked such as size, color, and other physical properties. Storage condition is checked to give a complete information according to storage temperature and humidity. Serving process have to be described to prevents the damage and contamination during the process.

c. Identification of usage plan

This stage is to know the target of consumer of the products made. In the risk analysis, a hazardous level of product is related to the target of consumer. Infant, pregnant women, elderly, sick people and immune endurance are the category of population consumption which must be considered.

d. Conduct a flow diagram which describes the processes

A flow diagram have contains any steps in the production process. The description of flow diagram must be able to illustrated the real condition of production process.

e. Verify the flow diagram

The purpose of this stage is to evaluate the flow diagram by direct observation.

#### **1.1.5. Data Analysis by using HACCP (7 Principles)**

This step contains 7 principles of HACCP which are the important part to get the objectives of this research. Data of food processing and list of available raw material in Restaurant "X" will be used to be analyzed by using HACCP method. The following 7 principles to be used, such as:

a. Identification potential hazard (Principle 1)

In this stage, HACCP team make a list of possible hazards at production steps, from receiving to serving process. This stage consists of two steps such as hazard analysis and determination of risk category. Hazard analysis is systematic evaluation against the specific of food and raw material to determine the risk. Food safety risk that have to be checked such as contaminations of chemical, physical, and biological (microbiologic).

b. Determination of critical control point (Principle 2)

Critical Control Points is every points within specific food system, where the loss of control point cause the probability of health risks occurrence is high. In this stage, any products within in step of production must be give a critical control limit to control the food and it helps to reduce/prevent/remove the risk when food is consumed.

c. Establish critical limits in each critical control points (Principle 3)

Critical Limits shows the differences of safe or unsafe products to be produced. Critical limits have to be fulfilled to ensure that a critical control points effectively control the hazards.

d. Monitoring critical limits for each critical control points (Principle 4)

In this stage, HACCP team is responsible to check the handling and production process towards the critical control points in under control.

e. Establish corrective action (Principle 5)

The corrective action is conducted to remedy or correct the caused of control lost and the product is not meets the requirements.

f. Establish Verification Procedures (Principle 6)

Verification consists of four types of activities, such as: HACCP validation, Reviewing the result of monitoring, product tested, and auditing. A verification in

this stage can be done by Verification agencies, authorized technical institutions or government controlling entities. Since the verification cannot be conducted by the person without certification or special authorities, therefore this sixth principle cannot be done in this study.

g. Documentation and recording (Principle 7)

All the documents and recording have to be documented. By applying the documentation and recording sistem will help the company to provide the efidence of food safety related to the processes and procedures, ensure the safety products, monitoring and controlling products produced.

**1.1.6. Result and conclusion**

The final result of this reserach will be concluded from the data analysis that has been done about the quality management system in Restaurant “X” by using HACCP system.