CHAPTER I
INTRODUCTION

This chapter contains the background, problem formulation, research objectives, research scopes, and outline of report.

1.1 Background

Small and Medium Enterprises (SMEs) play a vital role in the economic development of a nation, providing a solid economic base and fostering the expansion and stability of the business sector. This is due to the variety of production activities and services that SMEs offer, which can have favourable effects on several important aspects. In smaller scale operations, SMEs play a major role in job creation. SMEs can also stimulate the local economy by working with banks, suppliers, and other service providers in the area. The Ministry of Industry claims that the food industry subsector, which includes small and medium-sized businesses like SMEs in addition to large industry players, is the one that significantly contributes to the nation's economic development. In the second quarter of 2022, the food industry's small and medium-sized enterprises accounted for 1.68 million business units, contributing 1.33 percent of the country's Gross Domestic Product (GDP) (Kementrian Perindustrian Republik Indonesia, 2022). Therefore, the role that food SMEs play in boosting economic growth at the local and national levels as well as enhancing people's welfare by meeting their food needs is significant.

Despite their enormous contributions, SMEs are not immune to threats or disruptions that could jeopardize their ability to remain in business and operate profitably. One of the most frequent vulnerabilities faced by SMEs is their lack of capital, resources, and technology. They are also more susceptible to changes in the price and availability of certain raw materials. These interruptions mostly happen in a SME's supply chain. Disruptions to operations, like broken machinery, poor

product quality, or a shortage of workers, can also harm a small and medium-sized enterprise's supply chain. Unexpected shifts in consumer behaviour or industry trends can also cause disruptions, forcing SMEs to quickly adapt in order to stay competitive.

The presence of vulnerabilities and disruptions in a small and medium-sized enterprise's supply chain may cause potential risks to the SME's achievement. Supply chain risk analysis is essential to a company's ability to operate sustainably and at its best. Effective risk mitigation strategies are firmly based on the identification of potential risks, which vary from the procurement of raw materials to the distribution of finished products. When faced with obstacles like shifting market conditions, shifting governmental regulations, or unforeseen logistical difficulties, the capacity to avoid or lessen financial losses is essential. Furthermore, by permitting modifications to the processes involved in production, distribution, and inventory management, risk analysis also helps to increase operational efficiency.

A thorough understanding of the risks in the supply chain can improve operational sustainability and resilience to changes in the market. Businesses can react swiftly to emergency situations or shifting market conditions by recognizing and controlling risks. Risk analysis guarantees that businesses can reduce the possibility of contamination or regulatory violations that might damage their reputation and ability to remain in business in the context of food safety and compliance. Risk analysis and supply chain are two things that are closely related. A company needs to conduct a supply chain risk analysis with the aim of assisting the company or organization in identifying, assessing, and managing potential risks that may affect its objectives. In summary, risk analysis in the supply chain is not only necessary but also an essential aspect of strategic decision-making that sustains the enterprise's long-term resilience, sustainability, and success.

Supply chains face a variety of issues that require serious attention in the context of risk analysis. Some problem that occurs in the supply chain is the

instability of the supply of raw materials ordered. Delays in the production process and the delivery of products can both be attributed to a shortage of raw materials. Additionally, a problem that will impact a company's supply chain is the quality of raw materials (Aryncha & Mahhubah, 2021). Raw material delivery delays and suppliers who cannot keep up with demand are two more issues that frequently arise in supply chain risk. Furthermore, a common issue in the delivery and production processes is a labor shortage (Al-Basthomi, 2023). The geographic conditions of the region will also be a factor in the supply chain's problems. This may result in hazards like workplace mishaps, which may also have an impact on unstable production (Cahyolaksono et al., 2020).

An additional issue that frequently comes up in the food industry's supply chain is the rising cost of raw materials. This may be brought on by the raw materials limited availability on the global market, which may lead to changes in their cost. In addition, the increase in raw material prices can also affect the increase in domestic market prices. This can also have an influence on producers because it can affect the demand for the amount of product in the market and also cause competition between producers (Sari et al., 2023).

The above supply chain problems also occur in tempeh producers in Padang City, one of which is Tempe Azaki. Tempe Azaki is located on Jalan Lubuk Gajah, RT 001, RW 002, Banana Village, Pauh District, Padang City, West Sumatra Province. The product produced by Tempe Azaki is rectangular tempeh wrapped using plastic. Tempe Azaki has 20 workers consisting of 5 workers for wet production, 8 workers for packaging, and 7 workers for marketing. Tempeh production in one day ranges from 600 to 800 kg per day. The sizes of tempeh produced in Tempe Azaki are divided into three groups, namely 4 ounces, 3 ounces, and 2 ounces. Tempe Azaki operates for 8 hours starting from 05.00 to 13.00 WIB.

The supply chain process of Tempe Azaki starts from the supplier. The procurement of raw materials from Tempe Azaki consists of three suppliers, namely suppliers for soybeans, yeast, and plastic packaging. Soybean and yeast raw

materials are obtained from PT Wilmar. The procurement of soybean raw materials is carried out every day with an order of 60 bags of soybeans with a size of 50 kg. Meanwhile, the procurement of raw materials is carried out as much as 1 kg. However, for the procurement of yeast is not carried out every day. The next raw material is plastic packaging from Tempe Azaki. Tempe Azaki ordered packaging at PT Ervan GMDB.

The next supply chain process is the production process of tempeh. The production process consists of washing, soaking, boiling, grinding, washing, drying, moulding, and packaging, and fermentation processes. The next process is the distribution of tempeh to retailers. The retailers in this study are markets in Padang City. Tempeh that is ready for sale will be delivered by existing sales using motorbikes, pedicabs, or cars to markets in Padang City. Tempeh produced by Tempe Azaki is marketed in various markets in Padang City such as supermarkets, Bandar Buat market, Raya markets, Gaung markets, Alai markets, Nanggalo markets, Lubuk Buaya markets, Tabing markets, and Ambacang markets. **Figure 1.1** is the supply chain schematic of Tempe Azaki.

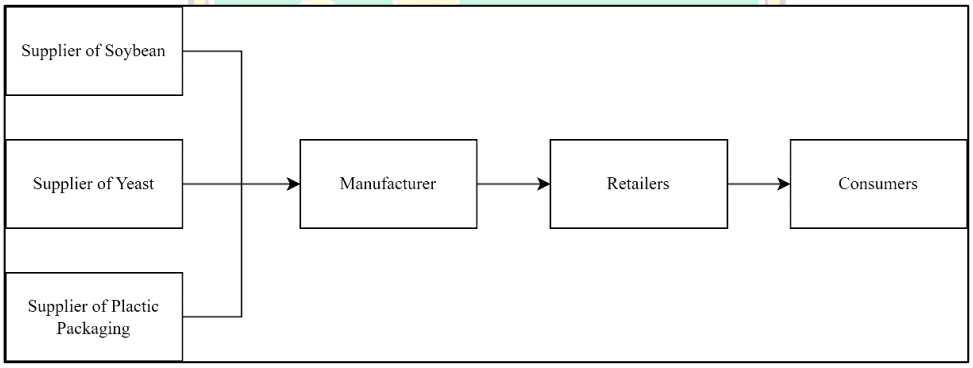

Figure 1.1 Azaki Tempe Supply Chain Scheme

The supply chain process at Tempe Azaki certainly has many risks that occur. The current problem is the increase in the price of imported dry bean soybeans in Indonesia. Based on data obtained from the Indonesian National Food Agency, it can be seen that the price fluctuations of imported dry bean soybeans in Indonesia in 2023. Increased soybean prices can cause various impacts. One of them is an increase in production costs, which will also affect the prices of products

sold to consumers. The price of imported dry bean soybeans in Indonesia in 2023 can be seen in **Figure 1.2.**

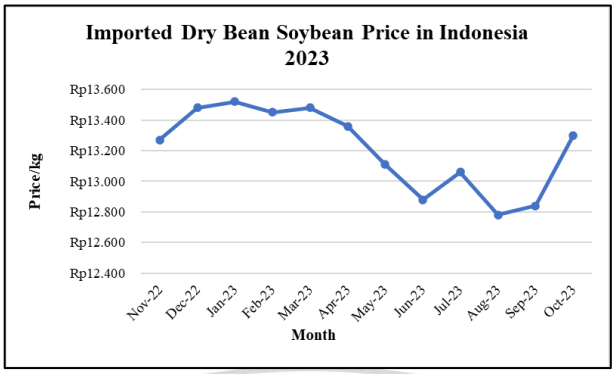

Figure 1.2 Price of Imported Dry Grain Soybeans in Indonesia in 2023 (BPN, 2023)

The problem that occurs is the number of damaged products in the production process. This is caused by several factors such as workers who are in a hurry to carry out the production process so that they are not careful in the process of making tempeh. In addition, other factors that cause damaged products are the soybean soaking process is too long and the tempeh that has been packaged and given yeast does not have enough holes so that the bacteria from the fungus die. The data used comes from Tempe Azaki's historical data for the last 6 months. Based on **Figure 1.3**, it can be seen that the percentage of defective products in the last 6 months from May to October 2023 reached 5% of the total tempeh produced. An increase in the number of defective tempeh products has a significant impact on the entire supply chain. Suppliers need higher quality raw materials, increasing procurement costs. Producers face losses and increased production costs and selling prices, leaving retailers with a shortage of quality products, reducing sales and customer satisfaction. Consumers experience a decrease in tempeh quality or an increase in price, which reduces their trust and loyalty. Percentage of defective products in 2023 can be seen in **Figure 1.3**.

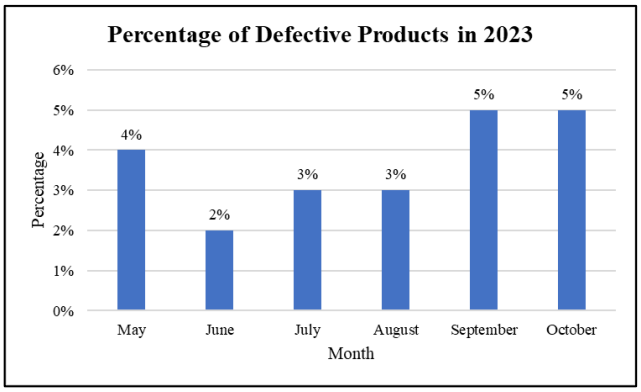

Figure 1.3 Percentage of Defective Products in 2023

In the distribution process, there are also problems that affect business processes in Tempe Azaki, namely the difference between demand and the number of orders sent to retailers. For example, a retailer orders 50 tempeh sticks, but Tempe Azaki only 15 send sticks. This leads to a decline in consumer confidence, and deprives them of valuable market opportunities. In addition, the distribution process also often causes delays in delivery. The delivery of tempeh to the market is scheduled at 10:00 WIB every day. However, there is a delay to 17.00 WIB due to sales who are late to attend or sick. Delays in delivery can lead to lost sales as products may not be available to consumers when they need them.

Another problem that occurs is the increasing number of tempeh products returned from retailers in the market to Tempe Azaki. The tempeh that was returned was tempeh that did not sell well in the market. This certa inly causes losses in production and distribution costs borne by Tempe Azaki. In addition, the impact given is the decline in the reputation of Tempe Azaki in the eyes of consumers. Based on **Figure 1.4**, we can see the percentage of goods returned by retailers in the last 6 months. The graph below shows that the highest percentage was in October 2023 which reached 18% of production. In addition, the number of returned products indicates that there is a decrease in consumer interest in Tempe Azaki. A decrease in consumer interest in Tempe Azaki can lead to a decrease in Tempe Azaki's income. Here is a graph of the percentage of products that were returned from retailers in 2023.

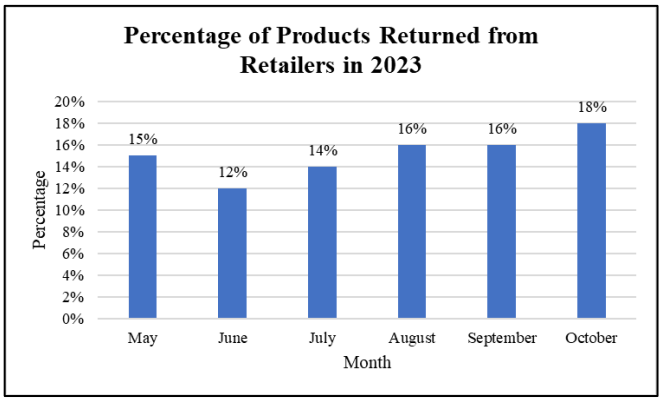

Figure 1.4 Percentage of Products Returned from Retailers in 2023

The previously mentioned issues indicate that there are potential hazards that may hinder Tempe Azaki's achievement. Fluctuations in raw material prices, an increase in the percentage of defective tempeh products, delays in delivery, and an increase in the number of tempeh products returned from retailers to producers can simultaneously disrupt the supply chain of a tempeh business. When raw material prices rise, suppliers face increased costs that can reduce profit margins and force them to source more expensive or scarce materials. Producers, on the other hand, have to bear higher production costs and deal with more defective products, which reduces efficiency and increases losses. Delivery delays worsen the situation by disrupting production and distribution schedules, causing stock shortages at the retailer level. This makes it difficult for retailers to meet consumer demand and increases the number of products returned because they do not meet quality standards or arrive in poor condition. As a result, consumers experience decreased availability of quality tempe and possible price increases, which reduces their satisfaction and loyalty. All these factors create a domino effect that forces each party in the supply chain to continuously adjust their strategies in order to survive the increasingly challenging conditions.

Tempe Azaki needs to evaluate the risks involved in the supply chain process, which starts with the procuring of raw materials and ends with product distribution to customers. In order for business owners to stay competitive in the industrial world, risk management will assist them in identifying potential risks that may arise while operating their company. There are risks associated with Tempe

Azaki supply chain activities that need to be avoided. This is to prevent the Tempe Azaki production process from being hindered and leading to a drop in the quantity and quality of tempeh production. As a result, it is necessary to conduct a supply chain risk analysis in Tempe Azaki Padang City.

1.2 Problem Formulation

The formulation of the problem in this study is as follows:

1. What are the risks that occur in the supply chain of Tempe Azaki's business processes?
2. How to overcome risks in the supply chain of Tempe Azaki business processes?

1.3 Research Objectives

The objectives of this study are as follows:

1. Analyze supply chain risks that occur in Tempe Azaki's business processes.
2. Formulate appropriate mitigations to reduce risks that occur in the supply chain of Tempe Azaki business processes.

1.4 Research Scopes

The scopes of the research problem in this study are:

1. The implementation of research based on the ISO 31000 approach on risk management has only reached the stage of risk design and analysis.
2. The formulation of risk mitigation focuses only on risks that have a high priority.

1.5 Outline of Report

The outline of this final project report are as follows.

CHAPTER I INTRODUCTION

Chapter I contains the background, problem formulation, research objectives, research scopes, and outline of report

CHAPTER II LITERATURE REVIEW

Chapter II contains theories on risk, risk management, supply chain, supply chain risk, Failure Mode and Effect Analysis (FMEA), fishbone diagram, and previous research.

CHAPTER III RESEARCH METHODOLOGY

Chapter III contains the stages carried out in this final project research. This stage is in the form of preliminary study, literature study, problem formulations, method selection, data collecting, data processing includes establishment of context, risk identification, risk analysis, risk evaluation, and risk treatment., discussion, and conclusions.

CHAPTER IV DATA COLLECTING AND PROCESSING

Chapter IV contains data collection in research such as data from the results of the risk assessment questionnaire and data processing. Data processing includes establishment of context, risk identification, risk analysis, risk evaluation, and risk treatment.

CHAPTER V DISCUSSIONS

Chapter V contains analysis of discussions based on the results of data collection and processing that have been carried out such as Risk Priority Number (RPN) analysis, Risk Assessment Matrix for RPN analysis, Risk Prioritization analysis, Fishbone Diagram

analysis, Risk Event Assessment Matrix analysis, Risk Event Mitigation Map analysis, and Risk Mitigation Proposals analysis.

CHAPTER VI CONCLUSIONS

Chapter VI contains several conclusions and suggestions obtained based on the results of the research conducted.