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RISK OF RICE AGROINDUSTRY BASED ON SUPPLY CHAIN

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Abstract

This study aimed to identify all possible risks faced by the rice agroindustry in Kolaka Regency regarding the supply chain system. This study was a descriptive type of agroindustry in Kolaka. The results of this study were the risks faced by the rice agroindustry in terms of the supply chain and found several sources of risk factors that impact business risk. The supply chain system in the rice agroindustry consisted of 2 groups: the flow of suppliers of raw materials (grain) and the flow of product distribution (rice). The flow of raw material suppliers (grain) was dominated by grain collectors, with a market share of 60% of the total volume of yearly purchases.

Meanwhile, wholesalers dominate the distribution of products (rice) and have a share of 65% of the total annual sales volume. Supply chain flows resulted in potential business risks. Identifying sources of business risk in the rice agroindustry was in the supply/procurement, transportation, storage, and processing of raw materials.

Keywords: *rice agroindustry, supply chain, risk*

INTRODUCTION

The agricultural sector is the lifeblood of the Indonesian people facing an economic crisis. However, establishing the agricultural sector as a leading sector in the development process takes work. The food industry is vital in providing basic needs and supporting various human activities and behaviors. After being harvested or produced, food must be stored, shipped, and resold until it reaches the final customer on the due date (Zhong et al., 2017).

Agroindustry interprets in two ways: agroindustry is an industry that makes from the primary raw material of agricultural products. One of the agribusiness's subsystems is agroindustry, an industry that processes agricultural products into semi-finished or finished goods (Soekartawi, 2000). One of the technology applications is rice milling, which is a process of removing husks and bran from grain into milled rice. Rice is rich in genetic diversity, with thousands of varieties grown worldwide. Rice has become one of the essential human foods. Today, this unique grain helps sustain two-thirds of the world's population and is billions of people's lifeblood. Thus rice cultivation is deeply embedded in the people's cultural heritage. About four-fifths of the world's rice is produced by small-scale farmers and consumed locally. Milling converts rice grains into a suitable form for human consumption (Dhankhar, 2014).

Rice mills are in the middle of the chain and play three critical roles: purchasing rice from farmers or collectors, converting grain into milled rice, and distributing milled rice to

consumers. Many rice mills vary in type of business, scale, and technology. Some indigenous agricultural cooperatives can buy rice from member farmers and run rice mills. From a supply chain management perspective, most agricultural cooperatives face several common problems: ineffective logistics management, no access to markets, and lack of collaboration along the supply chain, which leads to high logistics costs and lower-quality rice. In addition, rice milling is a very competitive business, so each rice mill seeks to reduce operational costs or improve rice quality to gain a competitive advantage (Wiratchai et al., 2018).

One of the efforts to provide food for the community is to support the growing movement of small industries in the villages. A food farming business must be supported by market desires so that consumers expect the products produced. Consumers act as determinants of product users in the marketing system. Marketing is one of the main activities that need to be carried out by the company to maintain the viability of its business and earn a profit to develop its activities that are directly related to consumers. In this era of increasingly competitive business competition, every business actor is increasingly paying attention to marketing strategies in market competition and to marketing management (Malau, 2017). There is a significant complication in the case of perishable goods, where SCM travel durations are short, and buffers against demand and transportation uncertainty rarely use.

In addition, on a world scale, complexity is getting worse, which has resulted in the focus from a single level, such as food production shifting to the efficiency and effectiveness of a holistic supply chain. Thus, resources such as trucks, warehouse facilities, transportation routes, and workers in the food supply chain will efficiently ensure food quality and safety through effective measures such as optimization decisions (Wu et al., 2016).

The market is one component of the supply chain system. Due to the many benefits of supply chains in current business environments, supply chain management has become a significant part of enterprise management systems. Agricultural supply chain in Ghana, there are several possible risks, and not all of the overall risks are in the supply chain. While some risks, such as market-related risks, are unavoidable in the supply chain, others, such as politically-related and weather-related risks, occur in agricultural supply chains. Even though there is no or weak ability to manage/control financial-related risks, it is effectively done by managing/controlling risks originating from operations and related managerial (Yeboah et al., 2014).

Agribusiness is indispensable in the world economy as a significant source of food supply. Agribusiness products have three unique characteristics that make risk management for supply chain agribusiness (ASC) more complicated compared to risk management for supply chain manufacturers. These characteristics are seasonality, supply spikes (sometimes called "Bulkiness," and perishability. Dealing with seasons requires planning because growth is seasonal, while consumption is year-round (Behzadi et al., 2018). Risk exists in all walks of life of human beings. Also, in agriculture. Risks in agriculture, for example, risks in production, post-harvest, or marketing. Fluctuations in prices result in fluctuations in the product produced, so farmers' profits also fluctuate. Conditions faced by farmers like this are price risks faced by agricultural businesses (Bahari, 2017).

(Pandaran, 2016a) explains that a risk is an event or occurrence that can occur and adversely affect the company's success in making a profit. Furthermore, according to (Hanafi, 2006), the risk is the magnitude of the deviation between the expected return –ER with the actual return. Most agricultural products have an extended supply of lead times that naturally change. Due to inventory, harvesting and post-harvest activities, including packaging, processing, storage, and transportation, can be very demanding. In addition, post-harvest activities often have significant time pressure as most agricultural products are perishable. Also, because they are perishable, there is a need for special handling, storage, and inventory management. If not appropriately managed, delays in transportation can lead to a substantial loss of product value (Behzadi et al., 2018).

Chain food supplies are complex, which makes them more susceptible to disruption and can sometimes lead to spectacular and irreversible collapses. Furthermore, the potential impact of quality violations on food is also more significant than on other products, as contaminants are often not easily observable and can only be tested in the laboratory (Schoenherr et al., 2015). Various problems are found in the rice agroindustry in the distribution of raw materials and products because the supply chain of agricultural commodities greatly affects the product, and there are many actors in the activities of the production process to its marketing process. These have threats and opportunities as manifestations of uncertainty or risks that must manage to ensure the achievement of the goals and objectives of the success of a business (Susilo & Viktor, 2018).

The market is one component of the supply chain system. Supply chain management has become a significant part of enterprise management systems due to the many benefits of supply chains in today's business environment. The supply chain is a network of companies

that work together to create and deliver a product to end users, while supply chain management is a method, tool, or approach to supply chain management. SCM is the integrated planning, execution, coordination, and control of all business processes and activities required to manufacture and deliver, as efficiently as possible, products that meet the market. The supply chain is a series of physical activities and decision-making linked to material and information flows, money, and property that cross organizational boundaries (Bahari, 2017). Understanding SCM is important as a millennial generation based on consumer values is becoming increasingly influential in the market. Companies must develop strategies, risk management, transparency, and organizational culture ready to demonstrate an integrity-laden approach to supply chain management (Castillo et al., 2018).

In the supply chain concept, there are stages in the material flow. Raw materials are distributed to manufacturers to form a physical supply system, manufacturers process raw materials, and finished products are distributed to consumers to form a physical distribution system. Raw materials distribute to suppliers, and manufacturers carry out processing to become finished goods ready to be distributed to consumers through distributors. Product flows from suppliers to consumers, while the reverse flow of this flow is the flow of requests and information. Distributors translate consumer requests, and distributors convey them to manufacturers so that manufacturers transmit this information to suppliers of material flow (Astuti et al., 2012).

The agricultural supply chain in Ghana has several possible risks and not all of the overall risks in the supply chain. While some risks, such as market-related risks, are unavoidable in the supply chain, others, such as political and weather-related risks, occur in agricultural supply chains. Even though there is no or weak ability to manage/control financial-related risks, it effectively does by managing/controlling risks originating from operational and managerial related (Yeboah et al., 2014). Sources of risk in the rice milling business are the supply of raw materials, commodity prices that tend to fluctuate, and marketing patterns that tend to have the potential to reduce the profits of rice milling business actors (Astuti, 2012; Mor et al., 2015).

Risk, according to, is a form of uncertainty about a situation that will occur later (future), with decisions taken based on various considerations. The potential magnitude of loss caused by an undesirable event is a measure of risk. Risk is something that everyone must face. Actions to avoid risks are tricky, so the easiest thing is how to deal with them by

managing these risks appropriately. A well-managed risk will minimize the losses obtained (Sejati et al., 2019, 2020).

Risk in business is a crucial thing to consider. The risk generally divides into three categories: financial, operational, and strategic. In addition, the risk of bias, both internal and external, to the institution. Internal risks are mainly within the entrepreneur's control system because they relate to operating systems and management decisions. External risks are largely beyond the control of entrepreneurs because they are related to nature, such as natural disasters and uncertain weather (Goldberg & Palladini, 2011).

The study (Asrol, 2018) shows that risk is all things that can result in losses for the company. Meanwhile (Melly et al., 2019) explains that risk defines as uncertainty with a known level of probability of occurrence or quantifiable uncertainty that can cause loss. Risk can also be the spread and deviation from targets, goals, or expectations.

Susilo & Viktor (2018) explain that risk is uncertainty that impacts targets. The impact is the deviation from the expected target. This deviation can be negative or positive, or both. These impacts can arise due to an action or the failure to address an opportunity or threat. Goals can take many forms and categories and apply to different levels of the organization. At the same time, the risk express in terms of the source of risk, events that can occur, the impact of these events, and the possibility of these events.

Sources of risk described by (Kanters, 2012) that in developing countries, there are several sources of risk on agricultural commodities from the market supply, namely, global sources of risk occur due to insufficient local supplies and too high prices, number of qualified suppliers, market capacity constraints, increasing market prices vulnerable to dynamic exchange rates and geopolitical climates that lead to disasters

The risk found by (Ali et al., 2016); is everywhere and part of every operation, and the agricultural company is very vulnerable to various risks due to the perishable nature of the product, uncertain weather conditions, changing consumer preferences, and food safety regulations that are stringent and changing rapidly.

The phenomenon is that the existing supply of rice farmers will impact the supply of raw materials for the rice agroindustry. This results in risks and uncertainties from the continuity of the production and marketing processes in rice agroindustry activities. The balance between rice supply and rice demand in supply chain activities requires a balance of raw material supply and increased production with the volume of market demand supported by infrastructure and government policies on rice prices. All aspects of managing several

types of risk, from the risk assessment system, vulnerabilities in the agricultural supply chain, business operations, and managers, will impact business risk.

These parties often have different interests. The complexity of the supply chain influence to the following: (1) A large amount of information, goods, and the flow of funds between suppliers, manufacturers, and distributors, (2) Supply chain members who are also members of other supply chains, (3) Frequent changes in structure supply chain network, (4) Each member has its purpose, (5) Differences in language, time zone, and culture between companies. The next challenge is uncertainty.

Based on the phenomena that occur in the rice agroindustry in Kolaka Regency, this study aimed to identify the risks faced by the rice agroindustry in Kolaka Regency regarding the supply chain system so that the problems of the risks faced can discuss further in terms of the supply chain of the rice agroindustry.

METHOD

Time of study

The study was carried out on the rice agroindustry in Kolaka Regency from February - April 2022. The selection of this study area considers that, based on statistical data from Southeast Sulawesi Province in 2021, Paddy Production (ton) in Kolaka Regency amounted to 55.953 tons and rice production amounted to 37 498,43 tons, while food needs are around 538 tons. (BPS. 2021)

Data Collection Techniques

The scope of this study was to examine the risks in the rice agroindustry in terms of the supply chain system, whose object of study is the rice agroindustry in Kolaka. The study was to identify and analyze the magnitude of the risk that occurs from the impact of the supply chain system.

Data collection techniques are as follows:

a. Primary data; information gathered through direct interviews and surveys with respondents using a series of questions in the form of cross-sectional data describing the mechanism and overall supply chain actors in the rice milling sector. The results of the interviews obtained data information on the amount of production and sales, transportation systems, distribution, supply, as well as actors in the supply chain, namely consumers, rice

milling businesses, grain collectors' traders, grain-producing farmers, wholesalers, retail traders, BULOG and involved supply chain institutions.

b. Secondary data needed to be related to the study is in the form of time-series data from related institutions. The information was from related agencies, namely the Central Statistics Bureau of the Republic of Indonesia (BPS) of Southeast Sulawesi and other related institutions, literature, and other relevant publications.

Data Analysis Techniques

The studies included explanatory and mixed methods (quantitative and qualitative). According to (HL et al., 2020), qualitative and quantitative data are essential for the study that collects both data.

Study Stages

Steps in studying hazards in the rice agroindustry in the supply chain system determine what risks arise in the rice milling business, describing the risks that arise along the supply chain of the rice agroindustry in Kolaka. The steps taken were to understand and know the results of the interviews to find the risks that arise due to the company's business processes. Risk identification methods include determining risk units, understanding business processes, determining products and people/institutions that exist in these activities and determining the form of losses that may occur based on the source of the risk owner, and using measurement criteria according to Susilo and Kaho (2018).

RESULT AND DISCUSSION

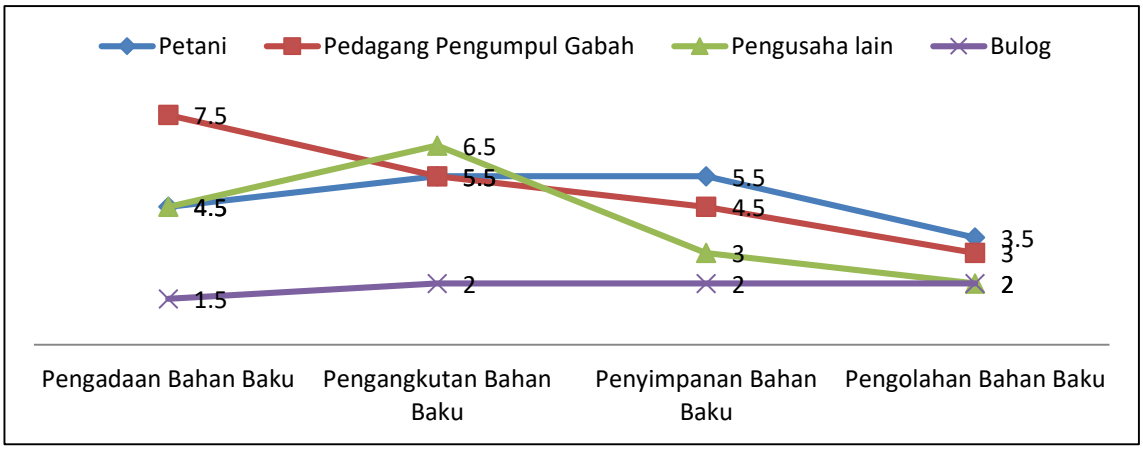
The Rice agroindustry is one of the dominant agricultural businesses cultivated in potential rice areas. Fulfillment of market demand and sustainable production must support by the supply of raw materials or the availability of raw materials. One of the efforts made by the company is to fulfilling consumer demand for rice, even though it has to bear the risk.

The potential risks these findings face are that business actors find several sources of risk factors. The primary sources of risk are the supply chain system, the flow of goods, the flow of information, and the flow of money—the risk impact of factors for raw material supply/procurement, transportation, storage, and processing.

The study of risk in the rice agroindustry regarding the supply chain system illustrated that grain traders are the main actors in the supply system. With the impact of the supply

chain system, entrepreneurs face various risks. Competition among entrepreneurs to obtain raw materials and the possibility of conditions of uncertainty, of which entrepreneurs did not obtain raw materials (grain). According to (Astuti, 2012), harvest suppliers always experience competition with each other.

To control the impact of uncertainty, the company carries out several strategies. The company's ability to take into account every condition that occurs by making decisions to compete with other entrepreneurs. The entrepreneur's strategy in procuring raw materials outside the business area is to determine the price by providing a warehouse price quote and the difference per kilogram of goods to receive in the warehouse. Entrepreneurs compete with other entrepreneurs by buying grain directly from farmers. The identification results also found several risks from the source of risk factors for procurement of raw materials by farmers, entrepreneurs preparing workers, losing grain, and taking the risk of reducing volume. The risk that occurs in the rice agroindustry can see in Figure 1.



Source: processed data of study result

Figure 1 Graph of Average Percentage of Risk Value Based on Risk Source

The risks depicted in the graph Figure 1 shows that those faced by entrepreneurs have an impact and have the potential for production continuity. Based on data for the 2017-2021 period, the average risk value is the difference between the average ideal cost and the costs incurred. The graph of the highest average risk value for grain traders with a percentage of 7.5%, namely at the stage of procuring raw materials. At the same time, the average value of the lowest risk is Bulog, with a percentage of 1.5%. The graph shows that procuring raw materials is the highest investment/capital used and bears the highest risk.

The highest percentage at the stage of transporting raw materials was found in the flow of goods from farmers to the place of business at 6.5%. This finding also shows the risk

impact caused by competition between grain collectors and other entrepreneurs (rice milling industry). Competition in price, additional fees, or incentives to obtain raw materials, and the strategy carried out is a consequence that must take in deciding policies on business processes—consequences resulting in a risk that the entrepreneur must bear. For example, the flow or distribution chain of the grain trade is quite long, starting from farmers and collectors to the milling industry. According to (Melly et al., 2019), the supplier's game is to raise and lower the price of crops.

Activities in the grain supply chain that occur in the study area indicate various problems rice agroindustry actors face. For procuring raw materials, the company obtained them directly from farmers and collectors. In purchasing grain directly from farmers, the company collects raw materials at the rice harvesting site (paddy fields), the possibility of a loss of grain, and additional costs that must incur with additional labor, and it takes quite a long time. When purchasing grain from traders, the company also issues incentives or additional costs in the form of fees from the cost of goods purchased per kilogram. It is due to price competition with other companies. This finding aligns with the study (Kanters, 2012) that, in developing countries, there are several sources of risk in agricultural commodities. Sources of risk from the market supply are; global sourcing occurs due to insufficient local supplies and too high prices, and market competition.

The rice agroindustry supply chain is simply a sequence in a series consisting of suppliers, distributors, processors, and consumers. The rice agroindustry supply chain will involve many parties, including farmers, grain collectors, wholesalers, retailers, Bulog, other companies, and other indirect related parties. Establishing a sound supply chain system can determine the efficiency of the rice commodity market in rice production centers. The supply chain of the rice agroindustry has various schemes or patterns of chain channels that vary due to a large number of institutions, both suppliers of raw materials (grain and peeled rice) and rice marketing. According to (Astuti et al., 2012), suppliers have a structure from the bottom that directly connects farmers to the top level.

Overall, agroindustry activities viewed from the supply chain aspect, which manages several types of risk from the risk assessment system in the agricultural supply chain, will impact the continuity of production. Risk management aims to minimize losses and increase opportunities, or opportunities in the supply chain. The main objective of implementing risk management is to protect the company against potential losses. It hopes that future business challenges in the form of business uncertainty can be adequately handled by managing and

reducing risks in the supply chain to produce a resilient supply chain (Setianingrum & Susilowati, 2020). A study conducted by (Astuti et al., 2012) strengthens the results of this study, suggesting that one of the most crucial supply chain goals is to reduce risk after building financial strength and increasing access to information.

The concept of business risk originating from managerial is in line with the opinion (Padangaran, 2016b), which explains that management is a way to achieve company goals through planning, organizing, coordinating, and controlling various available resources. Specifically, the management of agricultural companies has its own structuring rules, which must pay attention to four factors: (a) The production process must be seen as a system consisting of location, factory area, and layout of machines, (b) The location of the factory depends on the production pattern. , production style, and physical-chemical properties of raw materials, as well as the availability of labor, market location, and incentives from the local government concerned, (c) The size of the factory depends on the scale of business, the effect of season on the availability of raw materials, and the number of products, and (d) the layout of plant machinery and equipment depends on the sequence of processes that will be passed by raw materials and supporting materials, especially for tiered products, problems with handling raw materials, as well as the availability of transportation within the factory.

The continuity of rice production in the rice agroindustry is highly dependent on the production of rice farmers as suppliers. Findings in the company's area show that, in general, the growing season is only twice a year. Fulfilling raw materials is the main factor for the company's sustainability in production, so the company purchases raw materials in other areas.

Entrepreneurs' concerns about weather conditions that are sometimes uncertain are one of the risk factors for the volume and quality of grain. During the rainy season, there is a decrease in the volume and quality of grain from farmers as grain suppliers. The decline in rice yields or the decline in grain production and the low quality of the grain are indicators of good rice quality. The risk that entrepreneurs are very worried about is that during the rainy season, the grain contains a reasonably high water content. Grain harvested during the rainy season contains a moisture content of 24.85%-25%. Under these conditions, the quality of the grain is black and easy to germinate. The risk impacts the addition of unexpected costs and affects the increase in the treatment cost of the processing, which is the grain drying stage using a dryer machine takes a longer time. Rice products produced by rice mills with low

quality affect the color and distinctive aroma of rice, which will reduce the level of rice price determination.

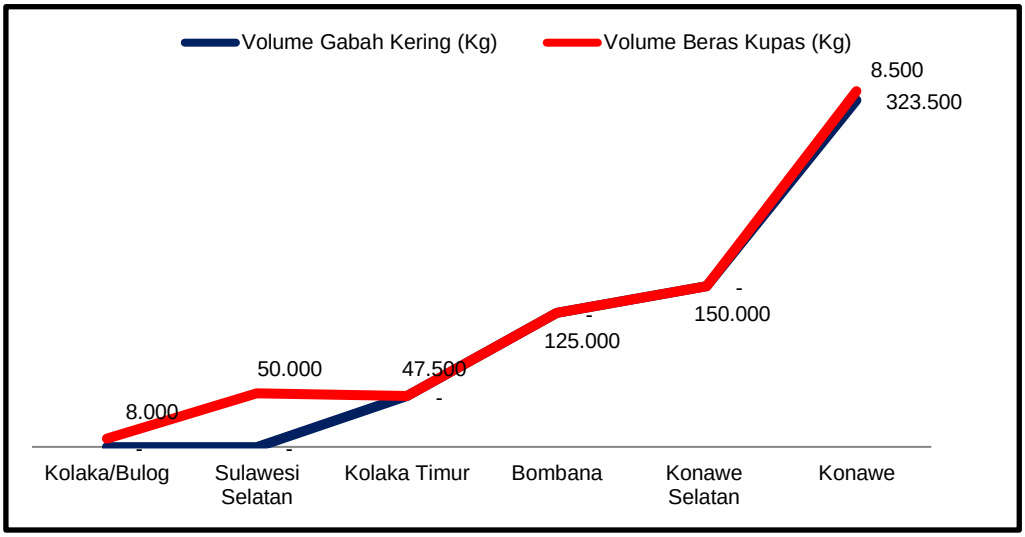
Findings that cause entrepreneurs to bear the risk due to weather conditions that impact industrial raw materials decreasing or low in volume and quality, then production costs will increase, and rice quality will decrease. This impact will result in a decrease in quality and is directly proportional to the price of rice. Mutisari's study also found that price volatility (price risk) is also one of the risks often faced by farmers because prices tend to fluctuate. Opinions (Damhuri et al., 2018; Sejati & Daryono, 2013) also explain that supply chains for food and agribusiness companies, commodity procurement depends on farmers' production, there is supply risk due to the season of climate change and increasingly uncertain weather patterns. Weather conditions also affect agricultural productivity and increase the cost of procuring raw materials—agricultural supplies with low capital are increasingly a threat, affecting the entire supply chain.

The supply chain flow in the rice agroindustry illustrates that there are two groups, namely the flow of raw materials and the flow of products (rice). Grain traders control the grain supply chain system. Competition between companies to get raw materials carries out several strategies, namely, one of them is by providing incentives. While the product distribution flow (rice), the highest percentage value of 55% per year is in the wholesaler flow, and the lowest value is 5% per year in the final consumer flow. The flow of product distribution (rice) is highest in the flow of wholesalers, and this shows that the most extensive rice market is outside the Southeast Sulawesi region (inter-island trade). According to (Kasnar et al., 2020), groupings can map, and the surrounding areas are generally interrelated.

The supply chain system has a unique phenomenon: the inter-island rice trade. Even though it is in the Southeast Sulawesi Province during the harvest season, where at the same time there is an income and expenditure on rice, the amount of rice that comes in is much more significant. Trade conditions are differences in planting seasons between South Sulawesi and Southeast Sulawesi. Rice from Southeast Sulawesi (inter-island trade) is mainly done during harvest, while imports make during famine season.

The company's raw material procurement supply chain flow cannot depend on the planting season/harvest in the company's area (Kolaka). Generally, the planting season is only twice a year, namely in the planting season period of October-March and April-September. The raw materials for unhulled grain and peeled rice obtain in various areas with potential rice, including East Kolaka, Konawe, South Konawe, Bombana, South Sulawesi,

and Bulog Kolaka. The total volume of procurement of raw materials for 2017-2021 can see in Figure 2.



Source: processed data of study result

Figure 2 Graph of Total Volume (Kg) of Procurement of Raw Materials 2017 -2021

Based on the graph of the procurement volume of raw materials in grain and unhulled rice, data for 2017-2021 showing in Graph 2. The data shows the total volume in kilograms of procurement of raw materials for grain and peeled rice in each region. The most considerable grain raw materials procured was 323,500 Kg in Konawe, and the lowest volume was 8000 Kg in the company's territory (Kolaka). Meanwhile, raw material for peeled rice, with the highest volume of 50,000 Kg in South Sulawesi (Sidrap and Pinrang) and the lowest volume of 8,000 Kg in Bulog Kolaka. The total volume of procurement of raw materials shows that in the company's area (Kolaka), raw materials are deficient, which causes entrepreneurs to purchase raw materials in other areas.

The mechanism of the supply chain system in the rice milling business starts with farmers, collector traders, other milling businesses (peeled rice suppliers), rice milling businesses (rice suppliers), wholesalers, retailers, and Bulog to the final consumer. Supply chain flows result in the possibility of potential business risks (Abadi et al., 2019).

The findings on the rice agroindustry in the study area show potential risks in each supply chain flow. The potential risk is due to the scarcity of raw materials in the company's area (depending on the growing or harvesting season). In addition, another potential risk is that the planting or harvesting season is only twice a year, so the company makes purchases in several areas with the potential for lowland rice. Uncertain weather conditions, frequent

flood disasters, easily damaged raw materials, unstable prices, distribution of raw materials (grain) which takes a long time due to inadequate infrastructure, and very long distances during the distribution of raw materials are also problems—potential risk. According to (Amaluddin et al., 2019), accessibility is influenced by transportation facilities, modes of transportation, and travel time, which indicate whether or not the location is easy to visit.

The rice agroindustry has several risk factors, from the impact of a process of its business activities, which triggers the occurrence of business risks. Business risk factors in the rice agroindustry include the need for raw materials, mismatching supply and demand, and price competition. In addition, the purchase of grain directly in the fields/farmers, lack of supervision during the procurement process of raw materials, and fluctuations in inventory occur at every point of the supply chain. Other business risk factors could be more accurate forecasting, purchase of raw materials outside the business area, long distances, inadequate delivery and infrastructure reliability, and rainy season at harvest: Post-harvest handling, wet and unripe grain quality, warehouse storage, and activities to increase uncontrolled costs. According to (Astuti et al., 2012) agricultural suppliers are related to businesses with many risks. In this case, it can be in the form of losses, especially for damaged materials, before they reach the market or purchases by the consumer.

Based on the literature study, there are several sources of business risk in the rice agroindustry: supply/procurement, transportation, storage, and processing of raw materials. The results of the rice milling business identification show that the data are not measurable but a statement or an illustration because it is only an information experience from the subjects and risk owners. The risk factors find from several sources of risk in the rice agroindustry impact the business risk list in Table 1.

Table 1 Results of Identification of Risk Factors Based on Risk Sources for Rice Agroindustry

No	**Risk sources**	**Risk Details**	**Risk Factors**	**Impacts**
1	Procurement of raw materials	Collection of raw materials	Raw material requirements	Incur additional fees (fees) to get raw materials
			Price competition	Provide the highest price.
		rafting	Purchase of grain directly in the fields or farmers	Need workforce

			Lack of supervision	Much grain wasted.
				The length of the rafting process
		Weighing	Purchase of grain directly in the fields	Need workforce
			Lack of supervision	Invalid volume
		Storage	Purchase of grain directly in the fields or farmers	Tendency to lose grain
2	Transportation of raw materials	Loss	Lack of supervision	Loss of volume
		Distance	Purchase of materials outside the region	Need an additional cost.
			Poor infrastructure	Material late to the warehouse
Time			Collection	stay overnight at the collection point
				Lack of men power
			Distance	Additional cost
3	**Storage of Raw material**	**original shrinkage**	**Rainy season**	**Gabah basah**
				Gabah berkecambah
			Post-harvest	Grain still unripe
		Susut Hama	warehouse	Storage method
				Warehouse condition
				Mites, birds, mice
4	Processing of Raw material	Weighing	Volume	invalid
		Drying	Wet grain	Take a long time Yield
			Unripe grain	
		Brown Rice	Wet or unripe grain	Loss of yield quality

	Polished Rice	Wet or unripe grain	Loss of yield quality

Source: processed data of study result

CONCLUSION

Based on the results of the study, The hazards that the rice agroindustry faces in terms of the supply chain discover. To be several sources of risk factors that impact business risk. The supply chain system in the rice milling business consisted of 2 groups: the flow of suppliers of raw materials (grain) and the flow of product distribution (rice). The flow of raw materials suppliers (grain) dominates by Grain Collecting Traders who have a share of 60% of the total volume of purchases per year. Meanwhile, wholesalers dominate the distribution of products (rice) and have a share of 65% of the total annual sales volume. Supply chain flows result in potential business risks. Sources of business risk in the rice agroindustry were the supply /procurement, transportation, storage, and processing of raw materials. The strategy to avoid business risks is; that the owners of the rice agroindustry cooperate and establish a partnership pattern between the government, namely the local Bulog, suppliers of raw materials, through a cooperation contract.

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