Strategy for the development of large scale rice milling industry in Maros Regency

by Rindam Latief

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Abstract. Maros Regency had rice production of 295,800 tons in 2019, supported by 642 units of rice milling facilities, including 12 large-scale mills that spread across several districts. However, the existence of the facilities was not able to maximize the processing of rice production. The objectives of this study were (1) to analyze the current state *(existing)* rice milling facilities in Maros, (2) identify and analyze the factors inhibiting and supporting the development of rice milling facilities in Maros, (3) formulate development strategies of rice milling in the Maros Regency. The data analysis included Internal and External Strategic Factor Analysis by identifying the factors that have been made, IFAS Matrix Analysis (*Internal Strategic Factor Summary Analysis*), and EFAS Matrix (*External Strategic Factor Analysis Summary*) by determining the weight and rating on the IFAS matrix and EFAS and Swot analysis are carried out using a SWOT matrix analysis, by conducting a merger interaction (merger) of the internal factor group (*Strength*, *Weakness*), with the external factor group (*Opportunity*, *Threat*). The study results indicate that *Strength - Opportunity* (SO) produces the highest weight, namely 6.18, so the large-scale rice milling facilities in Maros Regency should take advantage of all strengths to seize and take advantage of the most significant opportunities.

1. Introduction

Maros Regency contributes about 5% of the rice availability in South Sulawesi province. The rice crop harvested in Maros Regency in 2019 reached 49,300 Ha with rice production of 295,800 Tons of Harvested Dry Rice. The amount of Dry rice production certainly requires proper post-harvest handling so that it can produce quality rice. One of the stages or post-harvest rice processing can be found in the rice milling industry, which includes the drying process, storage process, milling process, packaging, and marketing processes [1].

The existence of 642 unhulled mills supports Post-harvest processing of rice in Maros Regency spread across several sub-districts consisting of 12 large-scale milling units with capacities above 2-4 tons per hour, 42 medium rice mills with a capacity of 1-2 tons per hours, and 588 small-scale rice mills with a capacity of less than 1 ton per hour [2].

The abundant amount of unhulled rice production in the harvest season in Maros Regency has made it difficult for several large-scale rice milling industries to absorb and process them. This is due to a lack of processing capacity or production capacity and a lack of capital in several large-scale rice milling industries in Maros Regency. Meanwhile, post-harvest processing of Harvested Dry Rice must be carried out quickly and precisely and supported by extensive processing or production capacity. This is to avoid damage to the rice and decrease the quality of the harvested Dried Unhulled Rice processing, which ultimately affects the decline in the selling value of rice and rice [3].

Limited facilities, infrastructure, and capital owned by several large-scale rice milling industries in Maros Regency have had a significant impact on post-harvest processing of rice in Maros Regency, one of which is the lack of local unhulled rice absorption, especially during high harvest, so that a lot of Harvest Dried Rice which is eventually sold outside the district and this condition shows the lack of ability of the rice milling industry in Maros Regency to process rice production in its area. Apart from that, the rice milling industry's limitations also impact the quality of the production that is not optimal. This requires the attention of various parties who can support a large-scale rice milling industry in Maros Regency.

2. Methods

2.1. Research design

This research design was based on research problems, namely how the current conditions (existing) of the rice milling industry, what factors support and hinder the rice milling industry's development, and how the rice milling industry's development strategy in Maros Regency. This research was used in-depth interview techniques with related parties and documentary studies. The tools were used to compile strategic factors were the SWOT matrix, while the methods were used in this study were qualitative and quantitative. This study aimed to formulate a development strategy based on the internal and external conditions of the large-scale rice milling industry in Maros Regency [4].

2.2. Data collecting methods

2.2.1. Primary data collecting. Researchers used data collection techniques through interviews and questionnaires to several rice milling business actors in Maros district, farmers, and related agencies to obtain primary data.

2.2.2. Secondary data collecting. This study secondary data collection process was obtained from related agencies or offices, such as the Office of Agriculture and Food Security of Maros Regency and the Statistics Central Bureau of Maros Regency. Secondary data in this study were obtained from library sources in documents, reports, journals, or books related to research.

2.3. Data analysis

The data analysis method used in this research was SWOT analysis (Strength, Weakness, Opportunities, Threat) to formulate a development strategy for rice milling in Maros Regency with the following stages [5]:

- Identifying strategic factors in the development of large-scale rice milling industries in Maros Regency obtained from observations, interviews, and questionnaires was then carried out to analyze internal factors and analyze external factors.

- Conducting SWOT research on the internal matrix of IFAS (Internal Strategic Factor Analysis Summary) and EFAS (External Strategic Factor Analysis Summary) through weighting and ranking on IFAS and EFAS.
- Using the IFAS and EFAS matrices to perform a SWOT analysis test (Strength, Weakness, Opportunity, Threats).
- SWOT Analyst Expert assessment of these internal-external factors will produce a group of factors: Strength, Weakness, Opportunity, Threat. Then conducted a SWOT matrix analysis by working on a merger interaction of the internal factor group (Strength, Weakness) with the external factor group (Opportunity, Threat).

The combination of strategy interaction results: SO, WO, ST, and WT, as described above, shows as many as four strategic choices that could be taken in seeing the respondents' perceptions of the various possibilities in making policy decisions that could be made. The results of the interaction between the internal strategy and the external strategy could show the best dominant strategy for the solution chosen as the mainstay strategy [6]. In the SWOT matrix analysis, there was a combination of strategy interactions which include a combination of internal-external strategy interactions consisting of:

- SO (Strength-Opportunity) Strategy, create a strategy that uses strength to take advantage of opportunities.
- ST (Strength-Threat) strategy creates a strategy that uses strength to overcome threats.
- WO (Weakness-Opportunity) strategy, create a strategy that minimizes weaknesses to create opportunities.
- WT (Weakness-Threat) strategy creates a strategy that minimizes weaknesses to overcome threats.

3. Results and discussion

3.1. Identification of the development strategy factors of the rice milling industry in Maros Regency

3.1.1. Internal factor analysis. The following are some of the factors that include internal factors [7]:

3.1.1.1. Strength

- Availability of raw materials (Harvest Dried Rice) is adequate.
- Availability of adequate human resources.
- Partners and Networks of Purchasing Dry Harvest Rice and marketing rice within Maros Regency
- Availability of land/location owned by the rice milling industry in Maros Regency
- Adequate rice/rice transportation fleet
- Industrial locations close to raw materials

3.1.1.2. Weaknesses

- Lack of capital for business development.
- Limited facilities and infrastructure for the rice milling industry.
- Lack of ability to absorb and process local rice at harvest time.
- Absence of industrial labels or brands
- not optimal in producing superior products
- Lack of experts in operation/repair of rice milling equipment.

3.1.2. External factor analysis. The following are some of the factors that include external factors [8]:

3.1.2.1. Opportunity

- Partners and Networks for purchasing Dried Unhulled Rice and marketing rice outside Maros Regency
- Increased market demand for rice needs
- The technology of increasingly sophisticated rice milling equipment, such as integrated rice milling
- There are investors from outside the district or province to partner with rice milling business actors in the district of Maros.
- Facilities and infrastructure assistance to support the rice milling industry from the Government, particularly from the Ministry of Agriculture.
- There is a capital loan facility for agricultural businesses.

3.1.2.2. Threats

- There is a price game for Harvested Dry Rice at the collector level
- More and more rice milling industries are more complete and integrated, especially outside the district
- The entry of imported rice into Indonesia at low prices threatens domestic rice products
- Price fluctuation of Harvest Dry Rice and rice price
- The effect of erratic weather

3.2. SWOT Analysis

After determining internal factors, namely strengths and weaknesses and external factors, opportunities and threats, then determining strategies for the development of a large-scale rice milling industry in Maros Regency, which was analyzed using the SWOT matrix [9], as used in table 1 below:

Table 1. SWOT Matrix for the development strategy of the large-scale rice milling industry in Maros Regency.

		Internal Factor	
		(STRENGTH)	*(WEAKNESS)*
External Factors	(OPPORTUNITY)	Utilizing adequate processing of raw materials through increasingly sophisticated technology. Improve working relationships with existing partners and networks Develop existing land/locations through capital loans or cooperation with investors Utilizing adequate labor in operation or post-harvest processing of the rice milling industry Submitting a request for	Improve relationships with partners to increase local rice absorption. Utilizing sophisticated technology milling equipment in producing superior products that are supported by production labels Applying for assistance for facilities and infrastructure at the Ministry of Agriculture and utilize investors for business development. Apply for a capital loan

	assistance for facilities and infrastructure to the Ministry of Agriculture	
(THREAT)	Maximizing adequate processing of raw materials to reduce rice imports	Conducting surveys or visits to some of the more sophisticated rice milling industries outside the district
	Strengthening relationships with partners and networks to reduce activities of middlemen/collectors	Applying for a business capital loan to support production facilities and infrastructure

After making the SWOT Matrix, we are then weighting is based on the questionnaire results as in table 2.

Table 2. The weighting of the results of the SWOT questionnaire.

EFAS	**IFAS**	S = 3.00	W = 2.16
	O = 3.18	SO = 6.18	WO = 5.34
	T = 3.00	ST = 6.00	WT = 5.16

Based on table 2, strategic priorities are arranged based on the combination of strategies that have the highest to the lowest scores, as shown in table 3 below:

Table 3. The sequence of alternative SWOT strategies.

PRIORITAS	**STRATEGI**	**BOBOT NILAI**
1	Weakness – Opportunity(WO)	5.34
2	Strength – Opportunity (SO)	6.18
3	Weakness – Threat (WT)	5.16
4	Strength – Threat (ST)	6.00

Based on table 3. The sequence of alternative SWOT strategies, Strength – Opportunity (SO), produces the highest weight, so the rice milling industry in Maros Regency should take advantage of all strengths to seize and take advantage of the most significant opportunities. The Strength - Opportunity (SO) strategy based on the SWOT matrix in Table 3 has several policy strategies as follows [10] :

- Utilizing adequate processing of raw materials through increasingly sophisticated technology
- Improve working relationships with existing partners and networks
- Developing existing land/locations through capital loans or cooperation with investors
- Utilizing adequate labor in operation or post-harvest processing of the rice milling industry
- Submitting requests for facilities and infrastructure assistance to the Ministry of Agriculture

4. Conclusion

Based on research conducted on the development strategy of large-scale rice milling industries in Maros Regency, it could be concluded that: Alternative strategies were obtained in the following order:

- Weakness - Opportunity (WO) with a weight of 5.34
- Strength - Opportunity (SO) with a weighting value of 6.18
- Weakness - Threat (WT) with a weight value of 5.16
- Strength - Threat (ST) with a weighted value of 6.00

From the order above, it is obtained that Strength - Opportunity (SO) produces the highest weight, namely a strategy that uses all strengths to seize and take advantage of the most significant possible opportunities.

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