Strata Social and Humanities Studies, 2023, Vol. 1, No. 1, 1 – 9
ISSN:xxxx-xxxx
doi:xxxx
Advance Access publication April 17, 2023

STRATA
SOCIAL AND HUMANITIES STUDIES
journals.stratapersada.com/index.php/sshs

The Impact of the Rice Milling Industry on Tulang Bawang: A Sociological Approach

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Abstract

The industrial sector is considered as one of the biggest polluters and waste generators. Since the big industry started, pollution has increased rapidly. The result of the production process is not only in the form of finished goods that can be sold, but the remaining production waste can damage the environment. The purpose of this study is to describe the sociological impacts of the existence of the rice milling industry. This researcher used a literature study by reading, processing, and writing readings from various reference sources. The results of the study show that this industry has a positive impact on improving the welfare of the community and for the benefits of industrial owners. In addition, it has a negative impact on the environment, for workers, and for the surrounding community. So that prevention and control are needed from the workers themselves, the government through policy formation, control from the surrounding community and the creation of an industrial climate by taking into account Environmental Impact Analysis, environmentally friendly industries and the principles of eco-efficiency and zero waste.

Keywords: Environment, industrial sector, pollution, sociology, waste.

INTRODUCTION

Indonesia is an agricultural country where the majority of the population consists of farmers so that the agricultural sector plays an important role. The agricultural sector is a source of life for the majority of the population, especially for those who have their main livelihood as farmers. In addition, the agricultural sector plays an important role in providing food for the whole community as well as providing raw materials for industry and for export trade (Suparta, 2010). One of them, in Tulang Bawang district, has the potential for agricultural land with an area of 149,420 hectares, consisting of 47,315 hectares of wet land and 102,104 hectares of dry land, and is supported by 79,709 farmer families and 1,184 farmer groups. Of the various existing agricultural commodities, the characteristics of paddy fields are 36,714 hectares with a production of 178,705 tons and field rice covering an area of 4,376 hectares with a production of 21,314.40 tons.

Development in the industrial sector is part of national development which aims to improve the standard of living and welfare of the community. The rice mill business unit is a supporting industry for the agricultural sector which is still very much needed in central areas of agriculture, namely to convert grain into rice. Badan Pusat Statistik (2012) stated that the Indonesian rice milling industry was still dominated by small-scale rice milling businesses, reaching 94.13 percent. Medium and large scale rice milling business accounted for only 4.74 percent and 1.14 percent, respectively. In general, small-scale rice mill business units were investments in the 1960s to early 1980s (Sawit, 2011).

The industrial sector is considered as one of the biggest polluters and waste generators. Since the big industry started, pollution has increased rapidly. The result of the production process is not only in the form of finished goods that can be sold, but the remaining production waste can damage the environment. Each industry must be equipped with a standard pollution and waste treatment system to anticipate damage caused by industrial production. Therefore, waste must be made properly and treated properly as well.The sociological perspective provides an important lens in examining the impact of the rice milling industry. Various studies discussing the rice milling industry focus on the prospects for the rice milling home industry (Sadıq et al., 2021) and socioeconomic factors in the adoption of rice processing technology by women (Nasiru, 2014). A study of the rice milling industry has also been carried out in terms of the characteristics and drivers and obstacles to the growth of the rice milling industry (Horadal, 2016), for example, socioeconomic status factors affect the performance of the rice milling industry (Begum, 2022), the relationship between the partner system of rice farmers and large-scale mills on rice milling efficiency (Furuya & Sakurai, 2005).

Studies on policy aspects in the rice milling industry have also been carried out, such as studies on cluster policies in encouraging the growth of the rice milling industry (Singh & Shrivastava, 2013), especially in terms of social issues and the social performance of stakeholders in rice production (Sharaai et al., 2022). This policy is needed in facing the challenges of the impact of the rice milling industry, such as studies on the impact of the rice milling industry on the surrounding environment, agricultural production and human health status (Rahman et al., 2022). Thus, sustainable development policies are needed in facing the challenges of the rice milling industry sector (Vetrivel, 2016), for example in alleviating poverty (Okpe et al., 2014). Thus, it is important to examine the impact of the rice milling industry in a sociological perspective, the implications for sustainable development in the industrial sector. Through this writing, as explained above, the writer will identify problems related to the impact of the rice milling industry on the level of social, environmental and economic welfare.

METHOD

This study uses a type of literature study research. Literature study is an activity that includes searching, reading, and reviewing research reports and library materials that contain theories relevant to the research to be carried out. This study uses secondary data sourced from books, journals, scientific articles, and the internet related to the research topic (Ariyanto, 2022).

The stages in this literature study are: 1) defining the meaning of the study of the topic to be reviewed, 2) identifying relevant and quality reference materials through Google Scholar, 3) selecting several references from Google Scholar and grouping them based on research topic categories, 4) compiling information matrix/matrix of previous research from the articles obtained, 5) write a review, 6) conclude and apply the results of the review. Thus, researchers used keywords (keywords) references including: "industry", "rice milling", "rice milling industry", "industrial sociology", and "environment". Then, the researcher looked for article references with the help of the Publish or Perish software version 8 with a total range of approximately 200 articles and used Google Scholar via the https://scholar.google.co.id/ link. Finally, the researcher selects relevant articles and compiles the previous research matrix and concludes it. It aims to determine the impact of the rice milling industry in the village community.

ANALYSIS AND DISCUSSION

Rice Milling Industry

According to Schneider (1993) industry is a network whose strands reach almost every aspect of society, culture, and personality. Industry is also an important factor in shaping complex social problems. Industry as an activity to produce goods in bulk, with good quality to be sold and traded. According to Law Number 5 of 1984, Industry is an economic activity that processes raw materials, raw materials, semi-finished goods and finished materials into goods with a higher value for their users, including industrial design and engineering activities. Meanwhile, according to Hasibuan, micro-industry is a collection of companies that produce homogeneous goods or goods that have very closely interchanging characteristics, in terms of income formation, which tends to be macro.

The rice mill business unit is an agro-based industry, supporting the agricultural sector which is still very much needed in central areas of agriculture, namely to convert grain into rice. Rice milling has a very vital role in converting rice into rice that is ready to be processed for consumption or to be stored as a staple food reserve. In relation to the rice milling process, the physical characteristics of rice really need to be known because the rice milling process actually processes the physical form of the rice grains into white rice. Rice grains that have inedible parts, so they need to be separated. During the milling process, these parts are removed until finally a delicious edible rice called white rice is obtained. The rice supply chain system consists of several sub-systems, starting from the input provider to the marketing sub-system. The rice milling business or industry is a sub-system for processing grain from farmers' crops so that it becomes rice and other side products. As an intermediary industry, the rice milling industry plays an important role in the national rice supply chain. Milling technology determines the quantity and quality of rice produced. The ratio between milled rice and yield losses and the quality of milled rice depends on the maturity level of the beans when harvested. One of the facilities needed in processing crops is to carry out a rice milling business (Nuryani, 2013).

According to the Ministry of Industry, Indonesia's national industries are grouped into three major groups:

1. Basic industry which includes the basic metal and machine industry group (IMLD) and the basic chemical group (IKD).
2. Small industry which includes food industry, clothing and leather industry, chemical industry and building materials, non-metal mining industry and metal industry.
3. Downstream industry, namely the Various Industries (AI) group.Adapaun menurut

Badan Pusat Statistik (BPS), based on the number of workers employed, the industry is divided into four, namely:

1. Large companies/industries employ 100 people or more;
2. A medium company/industry employs 20-99 people;
3. Small companies/industries employ 5-19 people; and
4. Household handicraft industry if it employs less than 3 people (including unpaid labour).

The rice milling industry/business can be differentiated based on milling capacity, namely small capacity, medium capacity, and large capacity. The types of rice milling businesses included in medium milling and small milling are the most commonly found in rural areas in general. In general, medium mills and small mills have the characteristics of generally producing low quality rice, small economic scale and local marketing reach. Processing capacity in the rice milling business has an influence on the amount of supply of rice produced and the quality of the rice produced so that it has an impact on the selling price of rice and the income of the rice milling business (Sapta, 2018).

Based on the type, the rice milling business can be classified into three types, namely tolling, non-makloning, and combined. Another term used by Winarno (2007) is commercial rice milling for rice milling businesses with the toll type and service mills for rice milling businesses with the tolling type. Maklon type rice milling business is a rice milling business that provides rice milling services for farmers and collectors. Non-maklon type rice milling is a business in which the miller uses a milling machine to process his own grain. Therefore, rice millers usually also buy and sell grain and rice. Small-scale rice milling businesses generally only consist of huskers and rice polishers, so the yield of rice produced is low and the quality of the rice is not good.

The Impacts Arising from the Existence of the Rice Milling Industry

The object and study of industrial sociology is to examine the relationship between social phenomena that occur in society and industrial activities (Hikmat, 2019). Some of the material studied includes the role of industry in social change, activities related to basic economic activities (production, distribution, and consumption), as well as industrial relations with various structures that exist in society. This study focuses on human focus and relates it to machine factors and factory work mechanisms that are oriented towards effectiveness and efficiency.

The existence of a rice milling industry will certainly have both good and bad impacts on the surrounding community, workers, and the environment. Here are some of the positive impacts:

1. Increasing Profits of Industrial Owners

Basically every industry in increasing business results aims to increase the profits it receives. The business results obtained are assessed from the costs incurred and the revenues earned. The results of the rice milling business are obtained from rice milling during the harvest season and not the harvest season. This harvest season applies for two production times a year, namely in the period from May to June and in the period from November to December.

Apart from producing rice, the rice milling industry/business outputs in the form of other by-products, such as bran, husks, groats, and broken rice. The percentage of each yield differs from one mill to another. The price of side products is expected to be more stable than the price of rice. A rice milling business that only focuses on the activity of milling grain into rice and then selling the rice produced will obtain a lower income and level of business efficiency when compared to a rice milling business that also focuses on managing side products, such as husks, bran, groats, and broken rice.

The sources of income obtained by the rice milling business vary. This difference is reflected in the business activities carried out by each rice milling business. The components of toll-type business revenue consist of three, namely fees for services, sales of chaff, and sales of bran. As according to the research results of Putri, et al. (2013) the main source of revenue for the maklon type rice mill comes from service wages, which is around 76.37 percent. Meanwhile, chaff and bran contributed 23.63 percent to business revenue. In contrast to the maklon-type rice milling business, the largest revenue for the non-maklon-type and combined rice milling business is obtained from the sale of rice as the main output.

The biggest component of the cost of a toll-type business is labor costs, while the biggest component of business revenue comes from the wages for rice milling services. The profits obtained by the non-maklon and combined type rice milling business are known to come from two major components, namely rice and side products. Rice as the largest revenue component is not necessarily the main source of profit for side businesses, such as husks which are more stable when compared to the price of rice as the main output. In addition, by taking into account by-products, part of the cost burden borne by the business can then also be borne by by-products so that production costs can be minimized.

2. Realizing National Food Self-sufficiency

Rice milling as a link in the business chain for processing unhulled rice into rice and a rice supply tool in the Indonesian economic system, is required to contribute to the supply of national rice both in terms of quantity and quality (Sabrina, 2018). Can be used for planning materials for national rice activities or rice self-sufficiency. In 2020, the production of BPS, Tulang Bawang Regency carried out data collection on the Rice Milling Industry (PIPA) in Rawajitu Selatan District, and preliminary results revealed that the number of rice millers totaled more than 100 rice millers.

3. Absorb Village Labor and Rural Job Seekers

The rice milling industry in rural areas can become a sector for the absorption of village labor and an opportunity for the community to take advantage of the situation of the presence of job seekers in the countryside which will then be followed by land commercialization. The existence of this industry is expected to be able to absorb the maximum workforce, be able to reduce the unemployment rate, and improve people's welfare. Besides that, having a positive impact, it also has a negative impact; that is:

a. Causing Air Pollution, Noise Pollution, Water Pollution and Land Pollution as well as Health Problems

In Gapoktan Wono Agung, with the help of Open Blower rice dryers and the establishment of a rice mill factory it resulted in noise pollution, causing noise when the machine was operating and factory smoke causing shortness of breath, and miang (rice dust) flying around making skin itchy. This can be overcome by moving factories and blowers to public facilities, not to residential areas (Buletin Nasional, 2021). In the village of Wono Agung, husks from the milling process are left outside the factory until they pile up. The husks will eventually get rained on and the water from the husks will become liquid waste, which will certainly affect the quality of the soil and plants around the factory.

Air pollution is a consequence of the development of various types of industries which can affect the decline in air quality due to an increase in several air pollutant parameters including an increase in the number of dust particles. According to Wardana (2005) the impact of air pollution is a serious problem faced by industrialized countries which has very detrimental effects, both directly and indirectly, on human health and the environment.

The process of rice milling business activities generates dust which can pollute the air and can cause health problems such as respiratory organ disorders including lung function disorders. This not only threatens the people who live around the industrial area but is also dangerous for the workers who are directly involved in the industrial activities. Workers who are directly involved in the production process have a risk of experiencing lung function disorders due to exposure to dust generated from the rice milling process. If the workforce experiences such disturbances, health problems will occur which will affect the decrease in work productivity which can disrupt company activities.

The research results of Aryasih et al. (2011) showed that the dust content in the rice mill business unit ranged from 10.0079-11.6151 mg/m, working period from one to 44 years, age 20-62 years and height 155-175 cm. The condition of the milling room 93.75% did not meet ventilation requirements, 100% did not provide dust control devices, 97.75% did not provide masks and 93.75% of business units were located in residential areas. The higher the dust content, the lower the vital lung capacity, the longer the work period, the lower the lung vital capacity and the higher the height, the higher the labor lung vital capacity. The impact of exposure to dust from the rice mill business on the workforce was a decrease in the vital lung capacity of the workforce, namely the occurrence of restriction lung function abnormalities (65.62%).

Nurfitria's research results, et al. (2020), Hernanda et al. (2020), and Wickramage et al. (2018) stated that smoking and years of work will describe the duration of exposure to rice dust, which affects the status of lung function. Compliance with using masks for workers will affect the risk of impaired lung function. Years of service, smoking habits, and use of masks are determinants of impaired lung function in rice mill workers.

b. Changes in the Function Pattern of Agricultural Land Use and Commercialization

Industrial development in rural areas is related to the need for land. Land as a dual object in spatial planning has multiple uses, namely as an asset that has a sale value and land use for various purposes. In the economy, land together with other factors of production determine land use patterns (Reksohadiprodjo, 1997). Land use patterns cause changes in land use. Because rural areas are synonymous with the agricultural sector, industrial development in rural areas requires and utilizes agricultural land as industrial areas. Changes in land use from

agricultural land to industrial causes changes in the ownership and use of agricultural land. This in turn can affect agricultural activities in rural areas.

CONCLUSION

Industry is a business or activity in processing raw materials or semi-finished goods into finished goods that have added value for profit. The rice milling business or industry is a sub-system for processing grain from farmers' crops so that it becomes rice and other side products. As an intermediary industry, the rice milling industry plays an important role in the national rice supply chain. The rice milling industry/business can be differentiated based on milling capacity, namely small capacity, medium capacity, and large capacity. The types of rice milling businesses included in medium milling and small milling are the most commonly found in rural areas in general.

This industry has a positive impact on improving people's welfare as well as for the benefits of industry owners. In addition, it has a negative impact on the environment, for workers, and for the surrounding community. So that prevention and control are needed from the workers themselves, the government through policy formation, control from the surrounding community and the creation of an industrial climate by taking into account the AMDAL, environmentally friendly industries and the principles of eco-efficiency and zero waste.

The village community is expected to have good intuition so as to generate creative ideas to create a business opportunity that can become a pioneer of modern industry in rural areas. Using modern technology that is appropriate for every business sector in rural areas to get the best results from the business sector they are involved in. On the other hand, the government's role is as a controller in the industrial movement in the village so that it can run well and in accordance with the target results desired by the community and the government.

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