



The moral attitude of Tapioca SME Entrepreneurs toward the environment: A case study in Pati Regency, Central Java

Anastasia Mutia Wardani^a, Roos Kities Andadari^a, Widhi Handayani^b

^a Faculty of Economics and Business, Universitas Kristen Satya Wacana, Salatiga 50711, Indonesia

^b Faculty of Interdisciplinary Studies, Universitas Kristen Satya Wacana, Salatiga 50711, Indonesia

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Corresponding Author:

Roos Kities Andadari
Faculty of Economics and Business, Universitas Kristen Satya Wacana;
Tel. +6285865047700
Email:
roos.andadari@uksw.edu

Abstract. *The manufacturing industry has an important role in regional economic development. Nevertheless, economic development cannot be separated from environmental degradation issues. In Margoyoso District, Pati, Central Java, the disposal of tapioca flour wastewater results in environmental pollution. This situation raises a question about the awareness of entrepreneurs. This study aims to identify the moral attitude of tapioca entrepreneurs towards the environment and explore the efforts made by entrepreneurs to reduce the negative impacts of wastewater. This research utilized a qualitative method, using interviews, observations, and documentation for data collection. The results of this study indicate that the moral attitude of tapioca entrepreneurs is classified as socionomy. This implies that the moral attitude of the entrepreneurs is at a low level because the tapioca entrepreneurs run their businesses by following what other entrepreneurs usually do. Finally, the application of an appropriate eco-commitment concept, namely a continuance commitment, is required to support the objectives of the businesses in realizing environmental sustainability for their businesses.*

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INTRODUCTION

The increase in the human population and their activities has had a negative impact on the environment. Although the Government of the Republic of Indonesia has issued Law No. 32 of 2009, concerning Environmental Protection and Management (PPLH), it seems that the law has not been fully able to curtail the environmental problems, especially those caused by economic activities. The rapid developments of businesses have caused various environmental problems, including industrial waste pollution, which can negatively impact the life of flora and fauna and human health (Chen, 2011). For instance, the activities of batik small and medium enterprises (SMEs) in Cirebon discharge COD (Chemical Oxygen Demand) loads of up to 112-426 tons/year (Sulaksono *et al.*, 2015). In addition, the Central Java Provincial Government (2019) reported that in 2016-2017 there was an increase in the number of SMEs by as many as 1030 units, which could increase the burden on the water quality because generally, SMEs have not been able to manage their wastewater. The Central Java Provincial Government (2019) revealed that 8.99% of rivers are moderately polluted, 65.08% are lightly polluted, and 25.93% are in good condition. Overall, the water quality in Central Java is still of concern because the score of the Water Quality Index is still quite low, namely 51.34. Based on this situation, the

Central Java Provincial Government since 2019 has focused on the issue of low water quality and quantity, and pollution is included in it (Central Java Provincial Government, 2019).

Amid the issue of environmental damage due to economic activities, some entrepreneurs run their businesses by paying attention to the environment, being more concerned about the environment, and taking the initiative to protect the environment. Environmental issues increase public awareness of the importance of having environmentally friendly businesses, which requires entrepreneurs to not only pursue profit but also produce products in an environmentally friendly manner (Harris, 2006). Entrepreneurs who have a concern for the environment are often called ecopreneurs. Nisa *et al.* (2014) conducted research on organic plant farmers in Lawang, East Java, which showed that these entrepreneurs have several characteristics, such as they provide environmentally friendly products, pursuing businesses that pay attention to environmental sustainability instead of just making profits, and engaging in business behavior that leads to environmental sustainability. According to Isaak (1998), it is very important to develop ecopreneurship to support continued improvements in the quality of life and community welfare. Kainrath (2011) noted three ecopreneurship concepts, namely eco-innovation, eco-opportunity, and eco-commitment. Eco-innovation is an action to reduce environmental burdens; eco-opportunities is the ability to take advantage of market failures caused by environmental aspects; and eco-commitment is a willingness to work hard, devote energy, and set aside time for environmentally friendly activities (Kainrath, 2011). A study conducted by Sonya *et al.* (2018) at *Bank Sampah Bersinar* (BSB), a garbage bank in Bandung, showed that the garbage bank implements an eco-commitment because the management of the bank is continuously conducted with the aim to change people's perspectives and improve social aspects instead of just looking for profits it could earn from garbage processing.

Margoyoso, Trangkil, and Tlogowungu are the three districts that are the mainstays of the tapioca flour production in Pati Regency. In Margoyoso District, there are 400 home industry units that process tapioca flour made from cassava, spread across Ngemplak Kidul Village, Sidomukti Village, and Ngemplak Lor Village (Karunawan *et al.*, 2017). According to Albaz *et al.* (2020), industrial businesses, including small and medium enterprises, could boost economic growth which in turn will provides economic profit to the region. However, with the increasing number of industrial businesses in an area, there is an increasing amount of waste that must be disposed of. Entrepreneurs certainly have a role in their contribution to environmental damage, which, if left unchecked, will cause concerns for many parties (Koe *et al.*, 2014). Karunawan *et al.* (2017) wrote that tapioca production produces waste in the form of cassava peels, dregs, and wastewater which is directly discharged into rivers and sewers, in addition to the water pollution and unpleasant odors resulting from it. According to Djarwanti (2015), it is estimated that more than 243 industries in Margoyoso have discharged their wastewater into the Suwatu River and Bango River, which in turn causes an unpleasant odor. Meanwhile, Comeau (2008) wrote that the disposal of wastewater without prior treatment has a negative impact on the environment and people's health due to the odors, the dissolved oxygen reduction, as well as the release of organic matter, toxic contaminants, and pathogens.

This situation cannot be separated from the awareness of entrepreneurs because they can also take part in preserving the environment. Considering that environmental awareness is related to the change in perception that is needed to alter people's behavior, moral considerations are important (Hadzigeorgiou and Skoumios, 2013). Similarly, Pane and Patriana (2016) shared that moral responsibility for behavioral change and the paradigm of sustainable development are two topics that need to be included in environmental education. A person's moral attitude develops from the anomy phase or moral attitude, which only follows one's instincts; in other words, one's behavior is not controlled by regulations (Bull, 2010). The next phase is heteronomy, or a moral attitude to follow the rules set by others to control impulses (Piaget, 1960). It is usually followed by sanctions in the form of a punishment or reward (Bull, 2010). In this phase, the attitude that emerges is the fear of violation and the fear of getting sanctions in the form of punishment. The next moral attitude is socionomy, which is a moral attitude that is formed because a person needs approval from the people around oneself. Finally, the moral attitude that is formed is autonomy, which is when a person can regulate oneself because this moral attitude is driven by conscience (Bull, 2010). Knowledge of this moral attitude can be used to study

the awareness of tapioca industry entrepreneurs in Margoyoso regarding their responsibility to the environment. Environmental awareness itself is related to several domains, namely, from the cognitive, affective, and conative aspects or tendencies to act (Ham *et al.*, 2016; Mei *et al.*, 2016). Mei *et al.* (2016) even wrote that the higher a person's level of understanding of various environmental issues, including their causes and impacts, the more likely that person will show environmental care behavior. Therefore, this study aims to identify the moral attitude of tapioca flour entrepreneurs in Pati Regency, Central Java, towards the impact of industrial waste and explain the efforts made by these entrepreneurs to reduce the negative impacts of tapioca production waste on the environment.

RESEARCH METHOD

Research Location and Time

This research was conducted in Margoyoso District, Pati Regency with the consideration that this district has the largest number of tapioca flour firms compared to other districts. Tapioca flour producers in Pati Regency are spread over three districts, namely Margoyoso, Trangkil, and Tlogowungu. Furthermore, ten entrepreneurs were selected as the research subjects with the following criteria: (1) the duration of the business is more than ten years; (2) the monthly turnover is stable or even increasing; and (3) there is a factory for making ready-to-use tapioca flour. These criteria were used with the consideration that the selected industry is one that can survive for a long time and is stable so that it has experienced over time and can provide the expected answers.

Data Collection Method and Data Analysis

This research was conducted using an exploratory qualitative method that is interactive in digging up information widely to find out the causes or things that affect the occurrence of something from the object to be studied. Then it is developed, and a conclusion is drawn (Arikunto, 2006). Ten entrepreneurs were selected as informants for this research, in addition to one company employee, one staff member from the Industry Service Office of Pati Regency, Central Java, and one informant from the Environmental Service of Pati Regency, Central Java. The names of the companies and the names of all the informants in this study were changed to respect the privacy of the informants.

Primary and secondary data were used in this study. The primary data was obtained by interviewing thirteen key informants, making observations on ten tapioca flour production plants, and taking photo documentation. The interviews with the respondents were conducted twice, each with approximately 30 minutes per interview. The data validity was determined by triangulation. The data is analyzed descriptively by first coding the qualitative data manually, using the predetermined moral attitude measurement indicators. Data related to tapioca wastewater quality was obtained through interviews and secondary data from research articles. Finally, the research results were presented in a narrative form.

RESULTS AND DISCUSSION

Overview of Tapioca Flour Production in Margoyoso

Margoyoso District consists of 22 villages with potential in the industrial and trade fields because of their strategic location, crossed by the Pantura route, with around 204 tapioca flour home industry units in 2017. The tapioca flour industry in Margoyoso District emerged in the 1960s, which at that time was used as an ingredient for making snacks from cassava. It was then developed into tapioca flour by the villagers. In the 1970s, the tapioca flour industry grew rapidly and had a positive impact on the community's economy. At first, the manufacturing of tapioca flour was still very simple, completely using manual labor, but in its development now, the tapioca flour industry also uses machine power. In the home industries that do tapioca flour processing

in Margoyoso, 99% of them still use sunlight in the drying process, while the cassava milling process uses (semi-modern) machines.

The tapioca home industries can be divided into two categories, i.e., those which are called "*perusahaan grosok tepung*", and those which produce a finely ground powder. The former usually produces coarse flakes derived from starch drying resulting from cassava processing. The flakes are usually sold to other entrepreneurs for milling and then sold. The ready-to-use tapioca flour factory processes raw materials (cassava) into fine tapioca flour ready to be packaged and sold in the market. The process of making tapioca flour in Margoyoso District is still done using a semi-modern method (Figure 1).

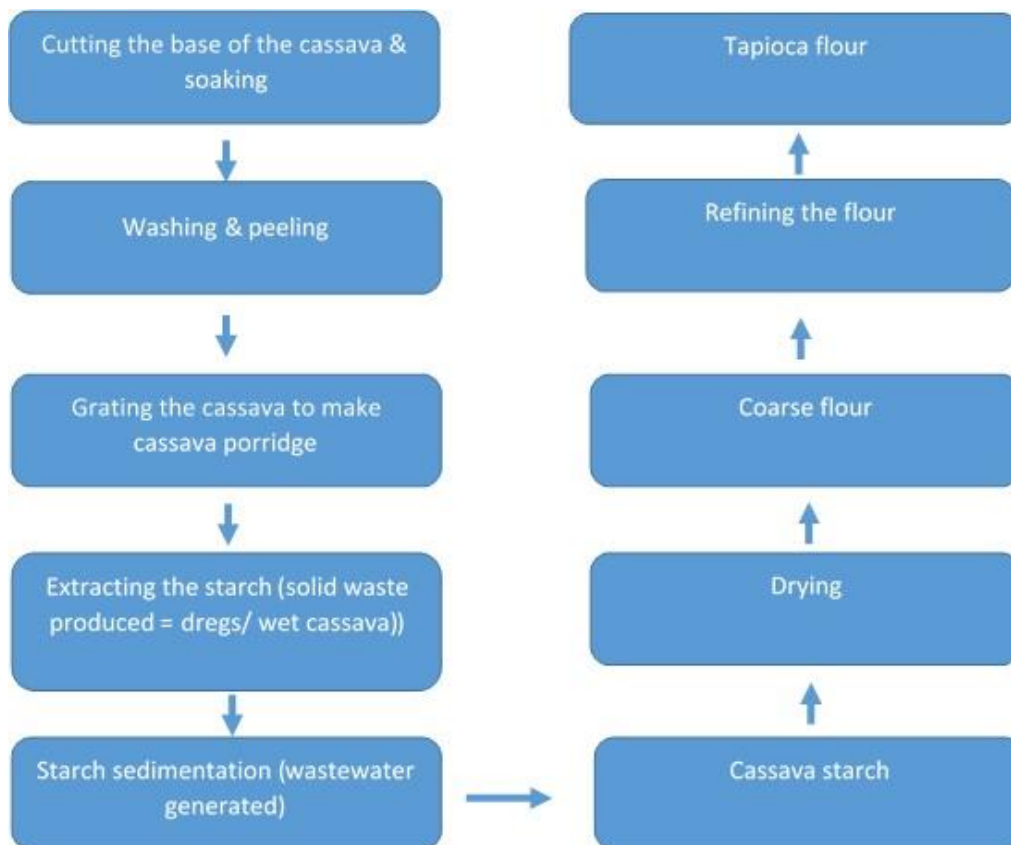


Figure 1 The stages of the tapioca flour production process made from cassava

Profile of The Tapioca Flour Business in Margoyoso

The profile of the tapioca flour industry respondents can be seen in Table 1. Tapioca flour businesses, in general, are quite old. The average age of a business is 25 years, with a minimum age of 15 years, and some even reach 42 years (more than 1 generation). The entrepreneurs start these businesses because of the condition of Margoyoso District, the majority of whom have jobs in the tapioca flour sector. In addition to this field being a potential business opportunity, the process that drives the opening of a business is being introduced through the family and the environment, and from learning how to run a tapioca flour business which is considered to be profitable business opportunity. This demonstrates that environmental conditions can encourage the emergence of businesses to form industrial clusters.

In general, a tapioca flour business is a small business with a workforce of fewer than 20 people, with an average of 17 employees. The production capacity per day varies from 8 tons, with an average production of 15 tons/day. Meanwhile, its products are sold domestically to the Java market. The average entrepreneur is 50 years old, but most of them are over 50. Only four entrepreneurs are less than 50 years old, and the youngest is 37 years old. The entrepreneur education is generally low.

Table 1 Profile of the tapioca flour industry respondents

No.	Company Name	Name of Owner	Age (years)	Education	Age of Business (years)	Number of Employees	Production Capacity (tons)	Sales Area
1	PO WO	WO	38	3-year diploma	15	25	10-15	Central Java and East Java
2	UD HS	HS	53	Islamic high school	28	16	10-15	Java, Tasik, Bandung, Surabaya
3	UD ST	ST	54	High school	22	20	30	Java Island
4	PO KN	KN	44	Middle school	19	15	30	Bandung, Semarang, Solo, Jogja, Surabaya
5	PO SY	SY	65	Elementary school	42	10	7-15	Java Island
6	UD SH	SH	56	Middle school	20	16	10-12	Central Java
7	UD RT	RT	56	Bachelor's Degree	29	26	10-15	Central Java and East Java
8	UD SN	SN	37	3-year diploma	31	15	10-15	Banyuwangi, Pasuruan, Malang, Kudus, and Purwodadi
9	UD JD	JD	56	Elementary school	22	12	6-10	Central Java
10	UD AF	AF	42	Middle school	23	15	15	Central Java, West Java, and East Java

Table 1 shows that seven respondents are elementary to high school graduates, two are 3-year diploma graduates, and one is a Bachelor's Degree graduate. However, the level of education does not necessarily guarantee a person's ability to manage a tapioca flour business because managing a business requires knowledge from making tapioca flour to processing waste. Higher education levels are not necessarily accompanied by the interest and curiosity of the respondents towards training or socialization regarding tapioca flour waste processing. The results of the interviews found that not all respondents had attended training or socialization about tapioca flour waste treatment because the socialization was not considered mandatory to be followed.

The Moral Attitude of Tapioca Flour Entrepreneurs Towards The Environment

In this study, the moral attitude of tapioca flour entrepreneurs in Margoyoso District was assessed based on three components of environmental awareness, namely cognitive, affective, and conative/tendency to act (Ham *et al.*, 2016) which can be seen in Table 2. Or in other words, the three components of awareness shown by entrepreneurs can be used to assess the level of their moral attitudes. Table 2 shows that six respondents belong to the level of socionomy awareness, and four people belong to a combination of autonomy and socionomy. This proves that the moral attitude shown by the respondents is still based on what other people or the general public do, instead of an action they believe is right. They believe that the work they carry out as

well as their knowledge of waste management, is only based on common things that have often been done and that occur in the surrounding environment.

Table 2 Moral attitude of tapioca flour entrepreneurs towards the environment

No.	Company Name	Moral Attitude Towards The Environment		
		Cognitive	Affective	Conative/Tendency to Act
1.	PO. WO	<i>Socionomy</i>		
.		Knowledge about waste is limited towards general aspects, which commonly happens and is practiced.	Aware of regulations, but the work done is a usual thing to do and is commonly done in the environment.	No specific action is taken, following the provisions in the form of 'compensation' given, which is a matter of commonality and has existed for a long time.
2.	UD. HS	Autonomy		Socionomy
		It has knowledge-based in waste management from the training he has attended and is aware of the regulations.	Aware that there are regulations that need to be followed in terms of waste management, their implementation is difficult. Sees that many things are needed to be prepared and sacrificed. As a small industry, it is not profitable.	Recognizes the impact of industrial waste, but the actions taken in terms of waste prevention are minimal because it has become a common thing to do and be done.
3.	UD. ST	Autonomy		Socionomy
		Making and processing the tapioca flour has been done since childhood through training and being taught by their parents. They know there are regulations in waste treatment.	Aware of the regulations regarding waste handling, but its implementation is not in accordance with the existing regulations, because they are considered difficult in an industrial environment.	Knows the actions that must be taken in terms of handling waste, but its application is still considered minimal in prevention because they have seen production activities like this for a long time.
4.	PO. KN	Autonomy		Socionomy
		Has a knowledge base from previous training and lessons learned from previous work in the tapioca flour field. Knows some rules that need to be followed.	Realizes the need to follow the rules through training that has been followed, but in reality, it is difficult to implement.	The work that is being done at this time has become a usual thing to do. No special actions are taken because they think there are no problems and it has become commonplace in the environment.
5.	PO. SY	Socionomy		
		His knowledge is limited to general matters regarding tapioca flour processing. Assumes waste is not	Aware of the problems caused by the waste produced, but considers it to be a common thing in the environment.	Knows the impacts waste can cause in terms of environmental damage, but there is no action to handle/prevent the impacts

No.	Company Name	Moral Attitude Towards The Environment		
		Cognitive	Affective	Conative/Tendency to Act
		dangerous and is commonplace, so there is no desire to develop it.		because they feel it has become a common occurrence.
6.	UD. SH	Socionomy		
		Does not have basic knowledge of waste management, only limited to the general things of running a business. There is no desire to develop or learn more about the industry they are running.	Aware of the importance of socializing waste management but feels that there has been no notification from the government regarding this matter. The work done is usual routine.	Limited knowledge results in the absence of the will/desire to act in a good way. The work that is done is only based on the habits that are done and have become a common occurrence.
7.	UD. RT	Socionomy		
		The knowledge possessed in running the business is based on knowledge obtained through parents; no training is followed or only self-learned.	There is a rejection of the existing regulations but the individual is aware of the existing regulations that can be followed, but the individual is hindered by the government which does not provide further information.	The work activities carried out have become a common thing to do. The actions taken to handle waste are considered to adjust to the surrounding environmental conditions and are fairly common.
8.	UD. SN	Autonomy	Socionomy	
		Has an understanding and knowledge of the business being run. Knows that the business being carried out has positive and negative impacts on the environment.	Aware that the business being carried out causes pollution, but there has been no further development from high authorities so that it has not run until now.	No special action is taken because the work done is the usual thing to do.
9.	UD. JD	Socionomy		
		The knowledge possessed is limited to general things from running a business, because it has been going on for a long time and is used to being done. There is no desire to develop in terms of knowledge.	Aware that there are regulations that need to be followed but considers it the government's domain to implement and socialize it.	No action is taken in terms of waste management. Generally, the individual just does work and activities that have become routine.

No.	Company Name	Moral Attitude Towards The Environment		
		Cognitive	Affective	Conative/Tendency to Act
10.	UD. AF	Socionomy		
		The knowledge possessed is only about the basic things in running a tapioca flour business based on training from the parents who also have the same business.	There is resistance in terms of regulations about governing waste because it is considered normal, and it has been resolved through funds in the form of 'compensation' collected by the village.	No action is taken in terms of waste management. The form of handling is handed over to the village because they think they have no interest in handling it.

The socionomy moral attitude is still classified as a low moral attitude because it only "follows" by looking at what other people usually do. The compensation payment as a form of concern for environmental damage is something that has been done and agreed upon for a long time or is a "custom" in the area because the business being carried out brings benefits to the community or provides jobs for the majority of the residents, so it is mutually beneficial.

The Characteristics of Tapioca SMEs' Wastewater and The Efforts to Reduce The Negative Impacts of Tapioca Production

The quality of tapioca production's wastewater is presented in Table 3. The data indicates that tapioca wastewater tends to be acidic because its pH can reach a value of 4.0. If its pH can reach 6.5, actually the value has fulfilled the standard quality. Prayitno (2008) noted that fresh tapioca wastewater has a pH in the range of 6.0-6.5, but microbial decomposition, which results in organic acids, could drop the pH to 4.0. This microbial activity is related to the BOD5 (Biochemical Oxygen Demand) score, which describes the need for oxygen to carry out aerobic biodegradation, as reported by Tusseau-Villemin *et al.* (2003) that BOD5 is one of the bioassays that can be used to predict the biodegradability of wastewater.

Table 3 Quality of tapioca wastewater

No.	Parameter	Unit	Data Source		Quality Standard (Ministry of Environment of Indonesia, 2014)
			Balai Penelitian dan Pengembangan Industri, Semarang (2015)	Prayitno (2008)	
1	pH	---	4.0-6.5	6.0-6.5	6.0-9.0
2	TSS	mg/L	1 500-5 000	1 500-5 000	100
3	CN	mg/L	0-15	---	0.30
4	BOD5	mg/L	2 000-5 000	3 000-6 000	150
5	COD	mg/L	4 000-30 000	7 000-30 000	300

The high COD concentrations, as presented in Table 3, indicate the oxygen required to decompose organic and inorganic materials in wastewater, as noted by Samudro and Mangkoedihardjo (2010). Furthermore, we calculated the mean concentrations of BOD5 and COD to determine the BOD5/COD ratio. The results showed that the BOD5/COD ratio according to data from the Balai Penelitian dan Pengembangan Industri in Semarang is 0.147, while the BOD5/COD ratio according to Prayitno (2008) is 0.243. The BOD5/COD ratio in the range of 0.10-1.00 indicates that the wastewater is biodegradable (Samudro and Mangkoedihardjo, 2010). However, Ghaly *et al.* (2009) suggested that the BOD5/COD ratio should be above 0.30, as biological decomposition is expected to happen easier. After all, biodegradability is time-related (Handayani *et al.*, 2018). Even if it is

biodegradable, the continuous discharge of wastewater may be faster than its natural rate of decomposition, which will lead to accumulation. Therefore, controlling pollution through waste treatment and shifting to cleaner production will help entrepreneurs to reduce environmental pollution.

According to the Head of the Bureau for Water, Soil, and Air Pollution Control, the Environmental Agency of Pati Regency, several methods can be conducted to reduce the negative impacts of tapioca wastewater, i.e., by controlling the wastewater quality, ambient air quality standards, and seawater quality standards. Some options include: (1) providing a filtration or wastewater settlement basin to reduce the concentration of solids (by having more than one settling process, the solid content in the wastewater will decrease) and (2) providing industrial wastewater treatment first before it is discharged into a water body through the construction of a wastewater treatment plant (WWTP) to treat tapioca wastewater communally. Fortunately, the Environmental Agency has facilitated a wastewater treatment plant through the construction of a communal WWTP that can be used collectively by several SMEs.

The efforts of entrepreneurs to reduce the negative impacts of tapioca wastewater are presented in Table 4. Three out of ten informants made three or four tanks to collect the wastewater. Five informants said they needed a reservoir or wastewater treatment system without a detailed explanation. Meanwhile, two informants did not know what efforts could be done to reduce the negative impacts of the wastewater that they did not take any action in resolving.

Table 4 Entrepreneurs' efforts to reduce the negative impacts of waste

No.	Company Name	Efforts to Reduce the Negative Impacts of Waste
1	PO WO	There is no effort.
2	UD HS	There is a settling basin to treat waste so that it can be useful and not harmful.
3	UD ST	It has a 2/3 sedimentation tank so that the hazardous content in the waste can be reduced. It needs a large area of land.
4	PO KN	It has three settling basins of wastewater before being discharged into the river.
5	PO SY	It disposes of waste into the river, not along with the dregs.
6	UD SH	It creates waste storage so that it can be useful.
7	UD RT	It has a 3/4 tub wastewater reservoir.
8	UD SN	It does waste treatment.
9	UD JD	It has a sewage treatment plant with its wastewater channel so that it does not get mixed with other water.
10	UD AF	There is no effort.

Basically, most of these business owners are aware of the need for action to be taken to reduce the impacts of tapioca flour waste, but the implementation has not been as expected. Even so, there are still some industry players who are still not aware that it is necessary to handle tapioca flour waste properly. Meanwhile, the enforcement of regulations related to aligning the quality of wastewater in accordance with the quality standards set by the government still needs to be optimized.

A Gap in Understanding

The availability of wastewater treatment plants (WWTPs) is required by tapioca SMEs. Unfortunately, those of related interests do not always share a similar understanding. Although a WWTP is provided by the local government to handle tapioca wastewater and this facility should be used by several SMEs, some entrepreneurs do not get informed about the facility. According to an informant, the local government monitors the WWTP regularly once every three months. In addition, to monitor the condition of the WWTP and the wastewater content, the local government provides socialization to the tapioca SMEs. However, those activities

are not yet known by the entrepreneurs. According to the entrepreneurs, the government has provided the wastewater treatment facility, but now it is no longer working because no one is taking care of it.

However, it is emphasized by the government that the role of SMEs or entrepreneurs is vital to handle wastewater treatment, particularly in terms of improving the management of WWTP. The role of the entrepreneurs will affect to what extent the handling of wastewater is going well. Based on observations, the handling of tapioca wastewater still needs to be optimized. According to an entrepreneur, they only know that there are WWTP facilities to accommodate and treat wastewater without knowing their functions and uses in detail. Some informants even stated that the WWTPs that had been made were not well maintained or did not work well enough to treat the tapioca wastewater.

Discussion

The results of this study indicate that the moral attitude of entrepreneurs in the tapioca flour industry towards the environment is included in the socionomy category. Cognitively, the tapioca flour industry entrepreneurs only have general knowledge regarding waste management. They are aware of the need for waste management, but in its implementation, it has not been fully carried out. This discrepancy between knowledge and action is influenced by the entrepreneurs' ignorance of how to treat waste so as not to damage the environment. Increasing the knowledge of entrepreneurs needs to be done because the cognitive aspect is one of the factors that affect one's environmental awareness, in addition to various other factors such as demographics, social-psychological reasons, and views on human-nature relations (Du *et al.*, 2018; Mei *et al.*, 2016; Liu *et al.*, 2014).

Affectively, the attitude shown by entrepreneurs towards the dangers of tapioca flour waste is a rejection stating that the wastewater is not dangerous, but with uncertainty, the entrepreneurs try to provide another explanation, besides also arguing that the disposal of the wastewater is a common occurrence. Meanwhile, some entrepreneurs show acceptance that the wastewater from tapioca flour is harmful to the environment. This acceptance occurs when humans try to take various actions to fulfill their needs without thinking about the environmental conditions and the impacts of the business they are running on the environment. This thinking shows an anthropocentric mindset, which values nature or the environment because it can satisfy human needs (Thompson and Barton, 1994). In addition, the behavior of other industries that also do the same thing is used as an excuse not to follow the existing regulations. Besides, it is a common practice because it has become a routine for tapioca flour processing entrepreneurs in Margoyoso District.

From the conative side, the desire to improve the environment still needs to be realized because entrepreneurs themselves consider that their work is routine. Even though entrepreneurs are aware of the regulations regarding waste handling, they are not moved to be involved in it because they are considered to be used to the routine so far. Lifestyle factors play a role in reducing people's environmental awareness by only following trends in the surrounding environment and by taking actions that instantly result in environmental exploitation. According to Widhiastuti *et al.* (2020), environmental care behaviors, such as being active in environmental organizations and being willing to make financial contributions to support environmental activities, are indicators of environmentally friendly behavior. Entrepreneurs provide wastewater storage tanks, but limited knowledge and funds have made it difficult for them to make WWTPs independently.

On the other hand, waste treatment technology in the form of WWTPs is also not a simple technology that can be operated by everyone because it requires specific knowledge and skills to manage WWTPs. Based on this understanding, it is natural for entrepreneurs to seem less concerned about the WWTPs because they cannot yet manage the WWTPs. Djarwanti (2015) noted that the lack of adequate human resources to manage the WWTPs was one of the reasons the WWTPs in Margoyoso stopped operating, in addition to problems with the continuity of funding sources and the lack of attention to WWTP management. Poverty is also one of the problems that hinder the knowledge possessed by entrepreneurs in waste processing. A low level of education

of entrepreneurs could lead to the mindset of fulfilling their daily needs without considering the impacts of the wastewater on the environment and on themselves in the long run. Therefore, if entrepreneurs are going to have to treat the wastewater, a simple and effective technology will be adequate so that they can treat the wastewater independently and maintain the intended technology in order that it can continue its function. Many efforts need to be made for the cleaner production of tapioca flour because of the three limiting factors for cleaner production, i.e., the lack of awareness, additional investment, and lack of knowledge about technology, have not been resolved (Hossain *et al.*, 2018).

Based on the moral attitude shown by the entrepreneurs, the entrepreneurs' full commitment is needed in running their businesses. Entrepreneurs need to implement a continued commitment because tapioca flour entrepreneurs currently find it difficult or are unable to change. Moreover, there is no desire to make changes personally or as a whole. They imagine the losses they will suffer if they have to pay for processing waste because they think that waste management is the responsibility of the local government instead of small and medium entrepreneurs. Efforts to direct entrepreneurs to pay attention to social values by focusing on the welfare of the community around the business location need to be carried out, including cooperation to obtain benefits that can be enjoyed by the community without having to endanger the environment for a shared future. A study conducted by Yu *et al.* (2019) found that connectedness to nature is one of the factors that increase an eco-commitment towards sustainability. In addition, research by Jansson *et al.* (2015) on 450 SMIs in Sweden supported the influence of market orientation, entrepreneurial orientation, and sustainability practices on a commitment to sustainability. Environmental commitment is also an important predictor of the sustainability practices of SMIs in Uganda (Sendawula *et al.*, 2021). Therefore, entrepreneurs need to be directed to seek eco-opportunities to reduce or prevent environmental damage and to utilize waste in products that are environmentally friendly and beneficial to the community.

Some actions can be taken to reduce the negative impacts of tapioca wastewater by providing two or three settling tanks, as well as controlling the quality of wastewater according to quality standards. Although entrepreneurs already understand various ways to prevent the negative impacts of tapioca wastewater, entrepreneurs have not directed their efforts towards it because of capital or investment constraints. In addition, although tapioca wastewater can be processed into biogas, the management of WWTPs is still of concern. The entrepreneurs also want to be fully informed about the functions and benefits of WWTPs. The problem is that entrepreneurs are still doubtful because the existing WWTPs are not well maintained. This situation indicates that a gap exists, as the government program has not achieved its aims as expected, including by still providing concessions for business actors who are negligent in reducing wastewater pollutants as indicated by the quality standards for tapioca wastewater.

With the implementation of efforts that can be made to prevent the negative impacts of tapioca waste, later, entrepreneurs can be directed to implement eco-opportunities as a form of concern for the environment from tapioca flour processing waste. The application of eco-opportunities is positive when viewed from the side of entrepreneurs and the environment. On the business side, the application of eco-opportunities creates environmentally friendly products to reduce environmental degradation, while on the environmental side, exploitation of the environment can be reduced and maintained.

CONCLUSION

The moral attitude of most of the tapioca flour industry business players in the Margoyoso area towards the environment is included as socionomy. This moral attitude is classified as a low moral attitude because the consideration in acting is still based on what is done by the general public or just going along to get approval from others. The appropriate eco-commitment behavior to be applied by tapioca flour business actors is a continued commitment so that later they will be able to realize eco-opportunities to reduce or prevent environmental damage. Tapioca flour entrepreneurs need to make an effort to deal with their waste by providing two or three settling tanks to precipitate the wastewater before it is finally discharged into the waters.

Special attention is still needed to the waste from tapioca flour because the quality is still far from the quality standards set by the government.

Increasing awareness of tapioca flour entrepreneurs in Margoyoso District needs to be realized, in particular by encouraging entrepreneurs to be involved in any training on tapioca wastewater treatment. In addition, the existing WWTPs should be reconstructed, and information should be shared with the entrepreneurs, including regarding the technical issues of the WWTPs to help them understand the principles of tapioca wastewater treatment by the available WWTPs. The construction of WWTPs needs to be adjusted according to the number of tapioca flour firms, and periodic monitoring is important to update the data on the number of tapioca flour firms in Margoyoso District. The management and routine monitoring of wastewater quality are also essential to be carried out to ensure that the discharged wastewater is properly treated.

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