

Waste Management Capacity of Micro and Small Enterprises: Case Study at Panjang Beach, Bengkulu, Indonesia

Titi Darmi¹, Iqbal Miftakhul Mujtahid², Dwi Kristanti³

¹Muhammadiyah Bengkulu University, Indonesia.

²³Universitas Terbuka Tangerang, Indonesia.

titidarmi@umb.ac.id *✉

ARTICLE INFO

ABSTRACT

Keywords:

Waste Management;
Coastal Tourism;
Micro Enterprises;
Environmental
Sustainability;
Institutional
Capacity;

Background: Micro and small enterprises (MSEs) operating in the coastal area of Panjang Beach, Bengkulu, Indonesia, generate waste that significantly disrupts visitors' experiences and negatively impacts the environment and the area's appeal. This study aimed to analyze the capacity of MSE owners to manage waste in this region.

Method: This research employed a qualitative approach with content analysis. Purposive sampling was used to select ten informants, with data sources categorized as primary and secondary. Data were analyzed using qualitative methods to examine waste management practices and the challenges faced by MSE owners in the coastal tourism area.

Results: The findings reveal that MSE owners' waste management capacity needs to be improved, as they struggle to separate organic from non-organic waste and often resort to burning to address waste accumulation. The study also highlights a lack of empowerment and guidance from stakeholders, emphasizing the urgent need for interventions and support mechanisms to improve waste management practices among MSE owners. The research underscores the critical role of institutional capacity at the local government level in fostering collaborative governance and effective waste management strategies.

Conclusion: This research contributes to the literature on environmental management and small business sustainability by applying the ecological balance model within the context of coastal tourism areas. By exploring the reciprocal relationship between MSEs and their environment, this study highlights the importance of building institutional capacities to address complex socio-environmental challenges, ultimately supporting sustainable tourism development in coastal regions.

Received: 4/5/2026

Revised: 5/20/2026

Accepted: 5/26/2026

How to cite this article:

Darmi, T., Mujtahid, I.M., Younus, M., Kristanti, D. (2026). Waste Management Capacity of Micro and Small Enterprises: Case Study at Panjang Beach, Bengkulu, Indonesia. *Sharia Economic and Management Business Journal (SEMBJ)*, 7(2), 590-601. <https://doi.org/10.62159/sembj.v7i2.1944>

INTRODUCTION

Bengkulu is a coastal area directly adjacent to the Indian Ocean. The sea area of Bengkulu is wider than the land area. Bengkulu consists of a sea area of 387.6 km² and a land area of 151.7 km². This means that around 71.8% of the Bengkulu area consists of seas (Central Bureau of Statistics (BPS) Bengkulu Province, 2018). The coastal area of Bengkulu has a beach length of ± 17 km², clean sand, mangroves, aquaculture, wild fisheries, seaweed cultivation, cages, and marine tourism (Darmi, 2017; Yuliesti, 2017).

Bengkulu has nine sub-districts. Of the nine sub-districts in Bengkulu, there are seven sub-districts located on the seashore. Bengkulu has a Nature Tourism Park with an area of ± 967 hectares, which stretches from Panjang Beach, Baai Island, starting from the Estuary of the Jenggalu River to Bangkahan Ujung. The condition of the coastal area of Bengkulu is currently experiencing environmental damage due to illegal encroachers and sand excavation. The coastal area of Bengkulu is a buffer ecosystem that was a green belt but has now changed its function to become a residential area and a tourism area development (Hartono et al., 2020). The coastal area of Bengkulu, which is a priority for tourism area development, is Panjang Beach.

The development of a tourist area in the coastal area of Pantai Panjang, Bengkulu, encourages people to become more active in various activities. However, the activities carried out by the community along the coast of Panjang Beach, Bengkulu, also have an impact on increasing waste production. Tourist activities and economic activities such as trade and provision of food and drink by local people have led to an increase in the amount of waste generated in the area. Therefore, effective and sustainable waste management is an urgent need to maintain the cleanliness and beauty of the coastal area of Panjang Beach, Bengkulu, and to protect the surrounding environment.

LITERATURE REVIEW

According to local governance theory, local governments have an important role in regulating and delivering public services, including environmental and waste management. Decentralization theory (Smith, 1985) states that devolving authority to lower levels of government can improve the efficiency of public services and accelerate the handling of local-specific problems, such as waste management in coastal tourism areas.

In addition, the collaboration theory of governance (Ansell & Gash, 2007) emphasizes the importance of involving various stakeholders, including local governments, the small business sector, and communities, to deal with complex environmental challenges. In the context of waste management in the Panjang Beach area, the active involvement of the local government in facilitating cooperation and providing infrastructure is needed to support sustainable waste management practices.

Based on observations, communities that contribute to the production of waste in the study area can be categorized into various sectors. Firstly, tourism visitors play a significant role in waste generation, as their activities contribute to the accumulation of waste on Panjang Beach. Secondly, street vendors, classified under the micro-enterprise category, also contribute to waste production through their food and merchandise operations. Thirdly, food and beverage stalls, as well as canteens, fall under the small enterprise category and play a role in waste generation due to their daily operations. Lastly, restaurants, cafes, and hotels, categorized as medium enterprises, contribute to waste production on a larger scale due to their larger customer base and more extensive operations. Understanding the waste management practices in each of these categories is essential to develop targeted interventions and support mechanisms for improved waste management in the area (Darmi and Aryanti, 2022; Nusantara, Yuwono and Yuniningsih, 2022). The tourism area becomes an object that cannot be separated from the existence of micro and small enterprises. Without micro and small enterprises, the tourism area will not be as interesting. The contribution of micro and small enterprises to national development is unquestionable. Micro and small enterprises are national assets that can absorb a higher workforce than other sectors (Rosyadi et al., 2020; Darmi, Nuryakin and Mujtahid, 2022).

In Bengkulu, micro and small enterprises are at the forefront of the middle and lower classes in meeting the needs of the owners' families and the surrounding community. Along the left road to the north of Panjang Beach, people activities are dominated by Micro and Small Enterprises (MSE). The existence of micro and small enterprises will attract visitors, and micro and small enterprises will serve

visitors various kinds of food. However, on the other hand, every day, micro and small enterprises also produce various kinds of waste, such as young coconut husks and shells that pile up around the business. Data in the field confirmed that piles of waste from micro and small enterprises that are left to pile up have an impact on environmental pollution (Woodard, 2021). In addition, a study related to the distribution of waste in the Panjang Beach tourism area showed that it produced waste with an economic value during the rainy season of around 179.21 kg/area/week and during the dry season of around 88.84 kg/area/week (Enggara et al., 2019).

The internal study of Information Recap and Online Customer System (Sircolo), a technology company from Indonesia engaged in the field of e-commerce solutions, showed that every micro and small enterprise produces a minimum of 2 kg of waste per day (Rizal, 2022). Another study also showed that waste originating from micro and small enterprises had not been managed properly (Woodard, 2021). Therefore, resource efficiency and micro and small enterprise motivation to engage in environmentally friendly practices are important (İncekara, 2022). Other studies also showed that many micro and small enterprises were not proficient at recycling or were unable to separate waste according to its type (Woodard, 2021). Therefore, reliable micro and small enterprises that can adapt to the environment are needed. The ability of micro and small enterprises to adapt will have a positive impact on the sustainability of their growth and development (Woodard, 2020).

Adaptation to environmental changes is very important as a response to business sustainability in the tourism sector (Qi et al., 2021), considering that there are still many business enterprises that have not been able to adapt to changes in the surrounding environment (Harries, 2021). Thus, the capacity of Human Resources (HR) can improve the performance of environmentally friendly human resource management, strengthening (Marrucci et al., 2021). Also, external support and capacity building can help micro and small enterprises develop and contribute to the environment (Kundurpi et al., 2021). This means that the contribution of MSE to the environment will make the atmosphere of the tourism area comfortable, peaceful, and pleasing to visitors.

A person's capacity is also reflected in their behavior and actions according to their knowledge capacity (Darmawan and Fadjarajani, 2016). Capacity, according to experts, is a series of stages to achieve goals based on the abilities of a person, individual, group, and organization (Puspitasari, Ekowati and Rizki, 2023). Capacity in the context of micro and small enterprise owners in managing waste is the skill of micro and small enterprise owners in managing the waste they produce. This skill can be seen through the actions, creativity, and ability of micro and small enterprise owners to manage waste in the hope that the waste produced can be managed properly and does not cause a pile up around the place where micro and small enterprises are located. Most importantly, small and micro enterprises can contribute to sustainable development and maintain environmental sustainability while creating sustainable business opportunities and increasing their competitiveness (Smith et al., 2022). They should be represented in the literature review to show the brand-new scientific article.

Foreign researchers have conducted studies related to the role of micro and small enterprises in waste management, among others (Hartmann, 2017; Bavel et al., 2020; İncekara, 2022). However, in Indonesia, in general, and Bengkulu, in particular, there are not many articles discussing the capacity of MSE owners to manage the waste they produce in tourism areas. Based on the results of a previous study, cleanliness is a priority for tourism sustainability (Hoang and Tran, 2022); piles of waste will cause various problems, both for the environment and health (Darmawi, 2017). The importance of a tourism area that is comfortable without waste is the reason for this study to be carried out. Therefore, this study briefly analyzed the capacity of MSE owners to manage the waste they produce every day so that the environment of the Panjang Beach tourism area is not polluted.

Despite the valuable insights provided by previous studies on waste management by micro and small enterprises (MSEs), several significant gaps still need to be addressed. Most studies have been conducted outside the Indonesian context, resulting in a limited understanding of local dynamics, particularly in the coastal tourism area of Pantai Panjang Bengkulu. Additionally, there has been a lack of comprehensive analyses exploring the capacity, behavior, and responses of MSE owners to waste management in this region. Information regarding the role and interventions of local governments in enhancing the capacity of MSE owners to manage waste is also minimal. Furthermore, the impact of waste management practices by MSEs on the environment and the tourist attractions of Pantai Panjang

has yet to be explored in depth. Addressing these gaps is essential for improving waste management strategies in Indonesia's coastal tourism areas.

METHOD

This study focused on MSE, which carries out its activities along the left road to the north of Panjang Beach, Bengkulu. The selling activities of these micro and small enterprises produce waste every day. This study aimed to analyze the capacity of micro and small enterprise owners to manage the waste they produce from their perspective. Researchers look at the capacity of micro and small enterprise owners to manage the waste they produce, then look at the extent to which their behavior is related to waste management. This was carried out by conducting discussions with them.

This study adopted a qualitative method through semi-structured interviews. The driving factor was the recent development of micro and small enterprises that carry out their activities in the tourism area in a more reflexive, critical, acute, and qualitative direction. A qualitative approach is needed to find an interpretation paradigm that recognizes the subjective experience of small and micro-enterprise owners. In this study, researchers only focused on 2 points (objects) There are Pasir Putih and Panjang Beach. The popular name of Pasir Putih is also called Panjang Beach. Panjang Beach, Bengkulu, has white sand, and along its coastal area, there are pine trees.

The research informants were as many as ten people (micro and small enterprise owners/Employee). The technique used for determining informants was purposive sampling, which analyzes the capacity of micro and small enterprise owners to manage waste in the coastal area of Panjang Beach, Bengkulu. The criteria for selecting informants were micro and small business owners who generate waste every day, have been in business for at least four years, produce more than 2 kg of waste per day, and operate in the food and beverage sector. The list of informants was compiled with a total of ten people. To obtain valid data, researchers only collect data from informants who are both owners and actors for their MSE. Another criterion for the selection of informants was whether there was a waste that piled up around the business. Researchers visited MSE and then bought and enjoyed their products while asking about the waste they produce and how it has been managed so far. Characteristics of informants are presented in Table 1.

The researchers themselves serve as the primary instrument for data analysis using qualitative methods rather than relying on other tools or sources. The main tool for analyzing data in a qualitative method is the researchers themselves, not other tools or other sources. This means that in the process of data analysis, the role of researchers is very important in interpreting the data logically and correctly. Researchers collected data through interviews with informants; from the results of the interviews, researchers then verified it with various sources and interpreted it.

Table 1. Characteristics of informants based on age, gender, education, and length of business

No.	Age	Gender	Education	Length of Business (years)	Information
1	60 y.o	Female	Junior High School	18	Owner
2	28 y.o	Male	Senior High School	6	Employee
3	25 y.o	Male	Senior High School	4	Employee
4	38 y.o	Female	Senior High School	11	Owner
5	53 y.o	Female	S1	15	Owner
6	43 y.o	Female	Senior High School	12	Owner
7	38 y.o	Female	Senior High School	12	Owner
8	30 y.o	Male	D3	8	Owner
9	58 y.o	Female	Junior High School	20	Owner
10	33 y.o	Female	Senior High School	10	Owner

From Table 1 of the characteristics of the informants, it is known that the informants in this study are mostly female. The informants, on average, are of productive age, with their latest educational degree being senior high school (SMA). On average, these businesses have been operating for more than ten years. In addition, informants #2 and #3 are not owners but employees in the MSE; they are the younger siblings of the MSE owners.

RESULTS AND DISCUSSION

Results

This chapter presents two sections. The first section provides an overview of the existing waste situation in the coastal area of Panjang Beach, Bengkulu. The second section examines the capacity, behavior, and response of informants in an environment that produces waste. This chapter also presents empirical data from the field, both primary data and secondary data and examines the capacity of MSE owners to manage the waste they produce to obtain economic value. To understand the cognitive condition of MSE owners related to the waste they produce, the concept of developing the capacity of MSE owners was used as a basis of elaboration to know the capacity of MSE owners in managing waste around their business.

The Existing Research Object

The coastal area of Bengkulu has a beach length of ± 17 km². Of these lengths, those which become the main tourism areas for Bengkulu are around 7 km² with seven tourist attraction points. In this study, researchers only focused on two points (objects), which have white sand and pine trees along their coastal area. Over time, the government provides tourism facilities and infrastructure, such as roads, jogging tracks, kiosks, gazebos, prayer rooms, toilets, and photo zones. At the same time, the business sector provides hotels, bicycle rentals, restaurants, playgrounds, cafés, as well as karaoke places. This business sector consists of medium-sized enterprises located along the right road to the north of Panjang Beach. Meanwhile, micro and small enterprises in the coastal area of Panjang Beach spread along the left road to the north of Panjang Beach, with approximately 300 MSE owners. 95% of these MSEs are engaged in the food sector, and 5% are engaged in the clothing, accessories, carpets, and household appliance sectors.

The condition of the left road to the north of Panjang Beach could be better organized. The indicator is that the waste is still visible everywhere; this means that the waste has not been managed properly. Micro and small enterprise owners seem indifferent to the waste they produce. Waste is piled up only about 2 meters from the activities of MSE. From the results of observations, micro and small enterprise owners need a solution for the waste they produce. MSE owners only put the waste they produce in a location close to where they are; there are no trash containers around the location. MSE owners are very dependent on waste transportation providers; this is an obstacle to waste management in the coastal area of Panjang Beach. Some MSE owners throw/pile up their waste around their business and do not separate between organic and non-organic waste.

Micro and small enterprise owners implicitly know the impact of waste on the environment, but they need to understand how to manage waste properly; for example, there is no knowledge about how to separate organic and non-organic waste. According to them, related parties, in this case, the Office of Tourism and Creative Economy and the Office of Cooperatives and Micro, Small, and Medium Enterprises, both at the provincial and municipal level, have not conducted training and extension regarding waste management. The results of interviews with informants #5 and #8 revealed that they still hope that the government can facilitate and provide guidance to find the best solutions to manage and deal with waste, especially the waste that micro and small enterprise owners produce. As expressed in the following excerpts of interviews:

We have felt the government's efforts to make Panjang Beach a leading tourist attraction in Bengkulu. The availability of infrastructure provided by the government has been quite helpful, but the management in the last three years has become increasingly unclear. I particularly feel that waste management is lacking; there is no training and extension or circular instructions for waste management. As a business owner who generates waste every day, I hope that the government will provide a container truck as a temporary site for waste disposal that is not far from here because if the beach is clean, visitors will be happy, and it will be profitable for us who carry out business activities here (#5).

In the past, there were officers to sweep and clean the roads, but now we are responsible for it. Sometimes, the waste disturbs the view of visitors when they visit our stall, so we collect that waste even though it is not from us; sometimes, the waste is from visitors themselves and nature. We are constrained by not having an adequate temporary site for waste disposal. The bins that we can provide are small and sometimes are not sufficient to collect the waste we produce. We want the waste we produce from our

business activities to be collected every day, and there is an adequate temporary site for waste disposal located near Panjang Beach (#8).

From the excerpts of interviews above, it can be interpreted that the lateness of the officers assigned to collect waste or the collection of waste by officers that is not every day has resulted in the pile-up of waste around the location of micro and small enterprises. Besides, a temporary site for waste disposal in the form of a container truck is not available around Panjang Beach. This causes waste to pile up in the environment where MSEs are located.



Figure 1. The potential for the coastal area of Panjang Beach: (a) Panjang Beach visitors, (b) Visitors enjoying meals, (c) visitors enjoying sunset, (d) photo spot.

Figure 1 (a) depicts residents of Bengkulu City enjoying the beauty of Panjang Beach, while 1 (b) shows them relishing their meals while witnessing the sunset. In 1 (c), residents can be seen eagerly awaiting the sunset, and 1 (d) showcases a photo spot provided by the local government. These figures highlight the potential of the Panjang coastal area. The pictures capture the afternoon atmosphere, where Bengkulu people can engage in sports activities, relax, and enjoy food sold by local businesses while waiting for the sun to set. It showcases the stunning environment of the Panjang coastal area. However, it should be noted that there are still certain points where waste accumulation is observed.



Figure 2. The atmosphere of micro and small enterprises in Panjang Beach: (a) seating area, (b) serving customers, (c) equipment vendors

Figure 2 (a) provides an empirical depiction of the availability of seating for visitors, 2 (b) illustrates a vendor serving visitors, and 2 (c) showcases various merchandise available at Panjang Beach, reflecting current micro and small business activities. Despite the apparent lack of visitors, from the afternoon until midnight, many residents of Bengkulu enjoy the nighttime Beach ambiance.



Figure 3. The condition of the pile-up of waste in Panjang Beach (a) burned waste, (b) unseparated waste, both organic and non-organic, (c,d) scattered waste near a food stall.

Figure 3 (a) illustrates the burning of waste by business operators, 3 (b) showcases accumulated and there is no separation between organic and non-organic waste, and 3 (c,d) depicts waste accumulation in close proximity to a food stall/business establishment. This highlights the condition of waste in the Panjang Beach environment that has not been properly managed. The pictures reveal a pile-up of trash, with no separation between organic and non-organic waste. Furthermore, as a means to address the issue of accumulated waste, business actors resort to burning the waste.

In general, the conditions and atmosphere of Panjang Beach's coastal area are quite suitable for both micro and small enterprise owners as well as tourists visiting the area. Figure 3 shows the condition of the pile-up of waste that is not managed properly. The activities of these micro and small enterprise owners produce various types of waste, and it can be seen that this waste is not managed properly there is no separation between organic and non-organic waste, waste is left scattered around tourist attractions, there are no bins available, and waste is burned under the bridge that should not be done. Data in the field confirmed that the capacity of micro and small enterprise owners to manage/deal with waste is inadequate. In the following section, researchers aimed to analyze the waste management behavior of micro and small enterprise owners within their business environment.

Capacity, behavior, and Response of Micro and Small Enterprises

The concept of sustainable environmental development is a priority for all countries. This is due to the concerns of countries around the world with the increasing environmental pollution caused by human activities. To overcome this, qualified individual and organizational capacities and behaviors are needed so that environmental pollution does not occur. Environmental pollution is caused by various kinds, one of which is the impact of waste that is not managed properly.

Micro and small enterprise owners along the left road to the north of the coastal area of Panjang Beach produce household waste due to their business activities. Several studies explained that if household waste is not managed properly, it will have an impact on environmental cleanliness and climate change (Rahajeng, 2017; Silvennoinen, Nisonen and Katajajuri, 2022; Hupponen, Havukainen and Horttanainen, 2023). In the context of the coastal area of Panjang Beach, Bengkulu, the activities of micro and small enterprise owners produce household waste every day, but this has not been matched by the capacity and awareness of micro and small enterprise owners to deal with various waste problems. Basically, micro and small enterprise owners understand that waste can lead to an unhealthy environment. Data in the field confirmed that out of 10 informants, seven people described that their actions of not managing waste properly would eventually damage the environment, as expressed in the following excerpts of interviews with three informants.

"I know that the household waste we produce can damage the environment, and I am willing to pay (up to) Rp. 100,000 for this waste management so that the waste can be transported to the final disposal site (routinely). I hope that the waste we produce is collected every two days, but in reality, the waste collection is not consistent. Sometimes, the waste is collected once a week, so it creates an unpleasant smell and a pile-up" (#6).

"I want the environment where my business is located to be clean of waste, both the waste we produce and the waste from nature. The government should immediately find a solution to deal with the waste, especially the waste we produce; I am willing to contribute whatever the policy is for the good of the environment" (#1).

"I am annoyed with the people assigned or the officers who have been given the mandate to transport waste; the officers should collect the waste every day or every two days at maximum; our commitment as the micro and small enterprise community is shown by paying a contribution fee (for waste management) at the beginning or, my hope is that waste will not be left to pile up for too long around our business. Because if it is not transported for more than three days, the waste we produce will start to smell unpleasant" (#9).

In addition to the three excerpts of interviews above, there are answers from 4 other informants who are similar to the excerpts (#5, 6, 7, and 9), indicating that micro and small enterprise owners are basically aware of the impact of waste on the environment. Awareness of dealing with waste and managing it properly and efficiently requires attitudes and knowledge of environmental sustainability; this is confirmed by the results of a study by (Darmawan et al., 2016). Another informant explained the way they deal with waste that has piled up, causing an unpleasant smell, as expressed in the following excerpt.

"I took another alternative to deal with the pile-up of waste. When this waste starts to smell unpleasant, I do not understand how to recycle the waste; what I can do is burn the waste" (#2).

Informants #3 and #10 also state similarly that they assumed that burning the waste would be the best solution. The unavailability of waste collection infrastructure, for example, the unavailability of a waste container with large capacity, triggers micro and small enterprise owners to take the fastest initiative. They do not realize that burning waste will have fatal consequences, such as causing fire and having an impact on health. This is because micro and small enterprise owners do not have good knowledge about the impact of burning waste. In general, Indonesian people deal with waste by burning it (Faridawati and Sudarti, 2021).

An overview of empirical data about the capacity of micro and small enterprise owners, as seen from the behavior and response of micro and small enterprise owners in dealing with waste around their business, needs to be revised. Confirmed primary data showed that MSE owners manage/deal with the waste they produce only by burning and piling up waste. The study of increasing a person's capacity in public administration sciences, namely how a person can increase their ability to manage existing resources in the context of the environment, is the ability to relate themselves to their environment is also known as environmental ecology. Environmental ecology, from the perspective of public administration sciences, adopts the balance model initiated by (Riggs, 1980). The balance related to living things and the environment is applied through their respective roles according to the nature of God.

In the context of this study, there is a reciprocal relationship between micro and small enterprise owners and organizations and the environment; this means that the role of micro and small enterprise owners in the environment should have a reciprocal relationship. As living beings who have enjoyed and utilized the physical/natural environment, it is inevitable that MSE owners should have the capacity to contribute to the environment so that the environment is not polluted, especially because of the waste they produce. This agrees with the results of the study, which explain that sustainable waste management can make a positive contribution to preserving the environmental ecosystem (Utomo et al., 2022). Obstacles that become obstacles in sustainable waste management are caused, among others, by a lack of a sense of environmental responsibility (Debnath et al., 2023).

The provincial government's efforts to deal with household waste have been shown by the issuance of Bengkulu Governor Regulation Number 19 of 2019 concerning Bengkulu Province Policies and Strategies in Household Waste Management. It is explained in Article 3, paragraph 3 that household waste handling is carried out by 1) sorting, 2) collecting, 3) transporting, 4) managing/processing, and 5) final processing. In implementing this regulation, it is important to have a strategy so that the regulations made can be implemented optimally with the following steps: 1) increasing the capacity of leadership, institutions, and human resources; 2) strengthening community involvement through communication, information and education; 3) strengthening law enforcement; 4) strengthening the involvement of the business world both micro, small, medium and large (especially large business actors who are on the right side to the north); 5) strengthening the availability of solid waste information systems; 6) application of waste management technology; 7) implementing existing norms, standards, procedures and regulations; 8) strengthening coordination among stakeholders.

The application and strategy of the regulation above, the provincial government, as a catalyst, plays an active role in providing solutions to waste problems in the coastal areas of Bengkulu, especially in the Panjang Beach tourist attractions. This is reinforced by Bengkulu Governor Decree Number A. 240.B.1 of 2018 concerning the Revocation of Governor Decree Number F. 250.I. 2013 concerning the Appointment of the Management of the Panjang Beach Tourism Area to the Mayor of Bengkulu. In this Decree, the Governor of Bengkulu Province appoints the official who has the authority to manage Panjang Beach, which is the Office of Tourism and Creative Economy of Bengkulu Province. For this reason, it is important for the Bengkulu Provincial Government to collaborate or partner with Business Actors who carry out activities every day along the Panjang Beach. Taking action to give gifts or incentives to business actors who are organized in managing waste is important as an effort to motivate business actors to comply with the rules. Obstacles that become obstacles in sustainable waste management are caused, among others, by a lack of a sense of environmental responsibility (Prasetyanti, 2017; Debnath et al., 2023).

Referring to the laws and regulations mentioned above, the Office of Tourism and Creative Economy of Bengkulu Province as a catalyst is urgently needed to increase the capacity of micro and small enterprises in managing/dealing with waste in the coastal area of Panjang Beach so that micro and small enterprise owners can have adequate knowledge capacity on how to manage the household waste they produce. However, based on data in the field, it is obtained information that the government or its representatives have not played an active role in providing solutions related to waste management in the coastal area of Panjang Beach.

Discussion

Waste management in the coastal area of Panjang Beach, Bengkulu, is not yet optimal; one of the contributing factors is the revocation of the authority to manage the beach which so far has been managed by the municipal government of Bengkulu. This mandate was withdrawn by the provincial government of Bengkulu. During the transitional period, since the revocation based on Governor Decree Number A. 240. B.1 of 2018, until this study was conducted, waste management was not carried out optimally. This is confirmed by various news, both print and online media in the field, such as the news from Rakyat Bengkulu, entitled "Sampah di Pantai Panjang Terkesan Dibiarkan (Waste on Panjang Beach Seemed to Left to Pile up)." (Rakyatbengkulu, 2022). In addition, there is also news related to waste entitled "Jangan Tunggu Pemerintah untuk Kebersihan Pantai Panjang (Do not Wait for the Government for the Cleanliness of Panjang Beach)" which was published by (Cindy, 2022). Other news regarding waste: if we search on Google.com with the keyword "darurat sampah Bengkulu (Bengkulu waste emergency)," we will get 391,000 results in a matter of 0.28 seconds. The news description explains that waste management in Bengkulu has not been carried out properly; for example, there is no blueprint for waste management. Key stakeholder intervention is very important to overcome the challenges of solid waste in Indonesia (Fatimah et al., 2020).

There is a tug-of-war between authority and interests, causing sectoral ego (silo mentality between governments) (Ramadani, 2020). Sectoral ego between the provincial and municipal governments of Bengkulu, where there was a revocation related to the policy of authority for managing Panjang Beach tourism area, had an impact on the management of the coastal area of Panjang Beach, Bengkulu, which was not managed optimally (Nusantara, Yuwono and Yuniningsih, 2022) (Dary, 2017). In addition, budget limitations in financing are an inhibiting factor in dealing with the problem of solid waste in the coastal area of Panjang Beach.

To deal with the problem of waste in the coastal area of Panjang Beach, in particular, and Bengkulu, in general, it is important for the local government to provide cleaning services and waste collection management. Based on decentralization theory (Smith, 1985), local governments have greater authority in managing public services at the regional level, including waste management. In the context of Pantai Panjang, the local government is responsible for providing infrastructure such as waste collection points (TPS) and adequate waste transportation. However, according to the theory of institutional capacity (Grindle, 1997), weaknesses in the institutional capacity of local governments often hinder the implementation of effective waste management policies. Complaints from MSE owners stated that the local government had yet to provide training or counseling related to waste management.

This is in line with the results of a study that local governments have an obligation to prepare cleaning services, manage waste collection, prepare resources, and make the right decisions (López et al., 2018). In addition, it is important for the Office of Tourism and Creative Economy to collaborate with various related parties, especially with the Office of Cooperatives and Micro, Small, and Medium Enterprises, because based on the 2019 – 2023 strategic plan for fostering and increasing institutional capacity, human resources for micro and small enterprises are the responsibility of the Office of Cooperatives and Micro, Small, and Medium Enterprises.

Finally, solutions from this study, the government, as an important catalyst, should collaborate with various relevant stakeholders so that the objectives of the laws and regulations are achieved optimally. These stakeholders are tasked with capacity building, fostering, and empowering micro and small enterprise owners through training and mentoring. Besides, replication as an effort to reduce waste from the first source is an alternative needed to dealing with waste in the coastal area of Panjang Beach, Bengkulu. Therefore, replication should be carried out by micro and small enterprise owners to form a

community that has a sense of belonging, solidarity, and mutuality between micro and small enterprise owners.

CONCLUSION

Based on the results of research and discussion related to the capacity of micro and small enterprise owners in managing and dealing with waste in the coastal area of Panjang Beach, Bengkulu, along the left road to the north of the beach, it showed that their capacity is inadequate. It is confirmed that the waste is piled up carelessly around the business environment without a container, and waste transportation is not properly scheduled. To avoid unpleasant smells due to the pile-up of waste, micro and small enterprise owners carry out burning. In terms of the behavior and response aspects of micro and small enterprise owners, the majority of micro and small enterprise owners understand the impact of the waste they produce. However, they do not yet have adequate capacity and knowledge regarding waste management techniques in a professional manner. However, the local government has also not played an active role or conducted training and extension related to good waste management. The local government also does not yet have the waste management skills to overcome waste problems in the coastal area of Panjang Beach.

The implications of the study highlight the negative consequences of inadequate waste management practices by micro and small enterprise owners in the coastal area of Panjang Beach, Bengkulu. The waste generated significantly disrupts the experience of visitors and has a detrimental effect on the environment. Besides that, ineffective waste management practices not only harm the environment but also undermine the overall appeal of the area. This implies that the presence of waste negatively affects the attractiveness and desirability of the coastal area for visitors and tourists. The limitation of this study is that it is limited by the small sample size of only ten informants. The study may rely on self-reported data from the informants, which could be subject to bias or inaccuracies. Future research can complement the qualitative findings of this study with quantitative assessments to provide a more comprehensive understanding of waste generation, disposal practices, and their environmental impact.

ACKNOWLEDGEMENT

This article is a small part of research entitled "Strategies for Strengthening the Management Capacity of Micro, Small, and Medium Enterprises to Improve the Family Economy of Business Actors," sponsored by the DRPM of the Ministry of Research and Technology with the Applied Research scheme. Therefore, the authors would like to thank DRPM Kemenristekbrin, who has provided support. The authors also thank the Bengkulu Province KUMKM Service, represented by the Integrated Business Service Center (PLUT), and the SMEs who have provided information.

REFERENCES

- Bavel, J. J. V. et al. (2020). "Using social and behavioral science to support COVID-19 pandemic response," *Nature Human Behaviour*. Springer US, 4(5), pp. 460–471. doi: 10.1038/s41562-020-0884-z.
- Central Bureau of Statistics (BPS) Bengkulu Province (2018) "Provinsi Bengkulu Dalam angka," in. Bengkulu.
- Cindy (2022) Jangan Tunggu Pemerintah untuk Kebersihan Pantai Panjang, Bengkulu News. Available at: [htTPS://www.bengkulunews.co.id/jangan-tunggu-pemerintah-untuk-kebersihan-pantai-panjang](https://www.bengkulunews.co.id/jangan-tunggu-pemerintah-untuk-kebersihan-pantai-panjang).
- Darmawan, D. and Fadjarajani, S. (2016) "Hubungan antara pengetahuan dan sikap pelestarian lingkungan dengan perilaku wisatawan dalam menjaga kebersihan lingkungan," *Jurnal Geografi*, 4(24), pp. 37–49.
- Darmawi, A. (2017) "Potensi Timbulan Sampah Pada Objek Pariwisata Baru di (Potentials Of Waste Drinking in New Tourism Object in Regency Bantul Yogyakarta)," *Jurnal Pendidikan Teknologi Industri*, 9(1), pp. 61–71.

- Darmi, T. (2017). "Capacity Building Resource Management Of Coastal Areas To Improve The Local Economic Based By Cross-Cutting Partnerships: Case Study on Panjang Darmi, T. (2017). Capacity Building Resource Management Of Coastal Areas To Improve The Local Economic Based By," in *Earth and Environmental Science*. Bali, Indonesia: IOP. Available at: [htTPS://iopscience.iop.org/article/10.1088/1755-1315/55/1/012045/meta](https://iopscience.iop.org/article/10.1088/1755-1315/55/1/012045/meta).
- Darmi, T. and Aryanti, M. (2022) "Partisipasi Masyarakat Dalam Pengelolaan Sampah Pada Kawasan Wisata Pantai," *JOPPAS: Journal of Public Policy and Administration Silampari*, 3(2), pp. 101–107.
- Darmi, T., Nuryakin and Mujtahid, I. M. (2022). "Social Capital Analysis in Small and Micro Enterprises (SMEs) Management during the Covid - 19 Pandemic," *JKAP (Jurnal Kebijakan dan Administrasi Publik)*, 26(May), pp. 47–58.
- Debnath, B. et al. (2023). "Sustainability Analytics and Modeling Modelling the barriers to sustainable waste management in the plastic-manufacturing industry : An emerging economy perspective," *Sustainability Analytics and Modeling*. Elsevier Ltd, 3(September 2022), p. 100017. doi: 10.1016/j.samod.2023.100017.
- Enggara, R., Bahrum, Z. and Suherman, D. (2019) "Kajian Mekanisme Penyebaran Sampah di Kawasan Pantai Pariwisata Kota Bengkulu Sebagai Penyebab Degradasi Nilai-Nilai Ekowisata," *Jurnal Penelitian Pengelolaan Sumberdaya Alam dan Lingkungan*, 8(2).
- Faridawati, D. and Sudarti (2021) "Pengetahuan Masyarakat Tentang Dampak Pembakaran Terhadap Lingkungan Kabupaten Jember," *Jurnal Sanitasi Lingkungan*, 1(2), pp. 50–55.
- Fatimah, Y. A. et al. (2020). "Industry 4.0 based sustainable circular economy approach for smart waste management system to achieve sustainable development goals: A case study of Indonesia," *Journal of Cleaner Production*, 269(1). doi [htTPS://doi.org/10.1016/j.jclepro.2020.122263](https://doi.org/10.1016/j.jclepro.2020.122263).
- Harries, T. (2021). "International Journal of Disaster Risk Reduction Understanding small business adaptation to natural hazards : A," *International Journal of Disaster Risk Reduction*. Elsevier Ltd, 63(November 2020), p. 102403. doi: 10.1016/j.ijdr.2021.102403.
- Hartmann, C. (2017). "Waste picker livelihoods and inclusive neoliberal municipal solid waste management policies : The case of the La Chureca garbage dump site in" *Waste Management*. doi: 10.1016/j.wasman.2017.10.008.
- Hartono, D. et al. (2020) "Studi Identifikasi Kerusakan Wilayah Pesisir di Kabupaten Bengkulu Utara Provinsi Bengkulu," *Jurnal Enggano*, 5(3), pp. 510–528. Available at: [htTPS://ejournal.unib.ac.id/jurnalenggano/article/view/11807/pdf](https://ejournal.unib.ac.id/jurnalenggano/article/view/11807/pdf).
- Hoang, C. and Tran, H.-A. (2022). "Robot cleaners in tourism venues: The importance of robot-environment fit on consumer evaluation of venue cleanliness," *Tourism Management*, 93(December 2022), p. 104611.
- Hupponen, M., Havukainen, J. and Horttanainen, M. (2023). "Long-term evolution of the climate change impacts of solid household waste management in Lappeenranta, Finland," *Waste Management*. Elsevier Ltd, 157(December 2022), pp. 69–81. doi [htTPS://doi.org/10.1016/j.wasman.2022.11.038](https://doi.org/10.1016/j.wasman.2022.11.038).
- Incekara, M. (2022). "Determinants of process reengineering and waste management as resource efficiency practices and their impact on production cost performance of Small and Medium Enterprises in the manufacturing sector," *Journal of Cleaner Production*, 356(131712).
- Kundurpi, A. et al. (2021). "Navigating between adaptation and transformation : How intermediaries support businesses in sustainability transitions," *Journal of Cleaner Production*. Elsevier Ltd, 283, p. 125366. Doi [htTPS://doi.org/10.1016/j.jclepro.2020.125366](https://doi.org/10.1016/j.jclepro.2020.125366).
- López, I. et al. (2018). "Developing an indicators plan and software for evaluating Street Cleanliness and Waste Collection Services," *Journal of Urban Management*. Elsevier B.V., 6(2), pp. 66–79. doi: 10.1016/j.jum.2017.06.002.
- Marrucci, L., Daddi, T. and Iraldo, F. (2021). "The contribution of green human resource management to the circular economy and performance of environmentally certified organizations," *Journal of*

- Cleaner Production, 319(1 Oktober), p. 128859. doi: [htTPS://doi.org/10.1016/j.jclepro.2021.128859](https://doi.org/10.1016/j.jclepro.2021.128859).
- Nusantara, B. D., Yuwono, T. and Yuniningsih, T. (2022) "Collaborative Analysis of the Bengkulu City Regional Government in Overcoming Waste at the Tourism Object," *Jurnal Aristo (Social, Politic, Humaniora)*, 10(3), pp. 598–609. Available at: [htTPS://journal.umpo.ac.id/index.php/aristo/article/view/BNTGYY](https://journal.umpo.ac.id/index.php/aristo/article/view/BNTGYY).
- Prasetyanti, R. (2017) "Ecocracy: Ecology based Democracy Pursuing Local Goals of Sustainable Development in Indonesia," *JKAP (Jurnal Kebijakan dan Administrasi Publik)*, 21(1), p. 1. doi: 10.22146/jkap.18824.
- Puspitasari, D., Ekowati, D. and Rizki, A. (2023). "Innovative work behavior in public organizations : A systematic literature review," *Heliyon. Elsevier Ltd*, 9(2), p. e13557. doi: 10.1016/j.heliyon.2023.e13557.
- Qi, H., Faisal, A. and Ka, X. (2021). "Negotiating the impacts of policy interventions among tourism organizations : Adaptation and sensemaking," *Journal of Hospitality and Tourism Management*, 47(1), pp. 467–484. Available at: [htTPS://www.sciencedirect.com/science/article/abs/pii/S144767702100070X?via%3Dihub](https://www.sciencedirect.com/science/article/abs/pii/S144767702100070X?via%3Dihub).
- Rahajeng, A. (2017) "The Roles of Kulonprogo Regional Government in Developing Tourism Economy: Nature-Based Tourism," *JKAP (Jurnal Kebijakan dan Administrasi Publik)*, 20(2), p. 50. doi: 10.22146/jkap.16592.
- Rakyatbengkulu (2022) "Sampah di Pantai Panjang Terkesan Dibiarkan," *RakyatBengkulu.com*, June. Available at: [htTPS://rakyatbengkulu.disway.id/read/458854/sampah-di-pantai-panjang-terkesan-dibiarkan](https://rakyatbengkulu.disway.id/read/458854/sampah-di-pantai-panjang-terkesan-dibiarkan).
- Ramadani, I. (2020) "a Critical Analysis of English for Ulama Program: a Collaboration Between West Java Local Government and British Council Indonesia," *JKAP (Jurnal Kebijakan dan Administrasi Publik)*, 24(1), p. 95. doi: 10.22146/jkap.54192.
- Rizal (2022) *Dorong Ekonomi Sirkular, SIRCLO dan MallSampah Mengelola Sampah UMKM*, Info Komputer. Jakarta.
- Rosyadi, S. et al. (2020). "The Multi-Stakeholder 's Role in an Integrated Mentoring Model for SMEs in the Creative Economy Sector," *SAGE Open*, 10(4), p. 2158244020963604. doi: [htTPS://doi.org/10.1177/2158244020963604](https://doi.org/10.1177/2158244020963604).
- Silvennoinen, K., Nisonen, S. and Katajajuuri, J. (2022). "Food waste amount, type, and climate impact in urban and suburban regions in Finnish households," *Journal of Cleaner Production. Elsevier Ltd*, 378(December 2021), p. 134430. doi 10.1016/j.jclepro.2022.134430.
- Smith, H. et al. (2022). "SMEs engagement with the Sustainable Development Goals: A power perspective," *Journal of Business Research*, 149(1), pp. 112–122. doi: [htTPS://doi.org/10.1016/j.jbusres.2022.05.021](https://doi.org/10.1016/j.jbusres.2022.05.021).
- Utomo, S. W. et al. (2022). "Household Waste Control Index towards Sustainable Waste Management : A Study in Bekasi City, Indonesia," *Sustainability MDPI*, 14(14403). doi: [htTPS://doi.org/10.3390/su142114403](https://doi.org/10.3390/su142114403).
- Woodard, R. (2020). "Waste management in Small and Medium Enterprises (SMEs) – A barrier to developing circular cities," *Waste Management. Elsevier Ltd*, 118, pp. 369–379. doi: 10.1016/j.wasman.2020.08.042.
- Woodard, R. (2021). "Waste Management in Small and Medium Enterprises (SMEs): Compliance with Duty of Care and Implications for the Circular Economy," *Journal of Cleaner Production. Elsevier Ltd*, 278, p. 123770. Doi: 10.1016/j.jclepro.2020.123770.
- Yuliesti, N. (2017) "Rencana Aksi Daerah Pengembangan Ekonomi Kemaritiman di Provinsi Bengkulu Tahun 2017," in 1. Khusus. Bengkulu: Bappeda Provinsi Bengkulu. Available at: [htTPS://drive.google.com/file/d/17BqBY5KJ2lauqjPmWY4gi8RnDHeypeNI/view?usp=sharing](https://drive.google.com/file/d/17BqBY5KJ2lauqjPmWY4gi8RnDHeypeNI/view?usp=sharing).