

Coastal Traders' Adaptation: Farming as Secondary Livelihood Amidst COVID-19

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Abstract. Amid the economic disruptions from the COVID-19 pandemic, coastal communities in Bantul Regency, particularly Baru Beach and Goa Cemara Beach, experienced vulnerabilities and potential poverty, challenging the SDGs' first priority of eradicating poverty. This study aimed to evaluate community characteristics and assess livelihood diversification strategies during the pandemic. Using purposive sampling in the selected regions, descriptive analysis revealed that the majority of business individuals were of productive age, held high school education, had over ten years of trading experience, and mainly worked in commerce, with farming as a secondary occupation. Despite the pandemic's economic challenges, these communities displayed resilience through diversification into commerce, agriculture, and service sectors, with a notable shift from offline to online activities. This diversification not only buffered against immediate economic shocks but also suggested avenues for sustainable livelihoods, aligning with the broader ambitions of environmental sustainability and ecological balance in the context of the Agricultural Environment, Ecology, and Resources.

Keywords: Coastal Communities, Livelihood Diversification, COVID-19 Pandemic, Poverty Vulnerabilities, Sustainable Livelihoods

1 Introduction

The Sustainable Development Goals (SDGs) encompass initiatives to continuously enhance individuals' economic well-being and the enduring sustainability of their social lives. The Sustainable Development Goals (SDGs) contain a set of global and national commitments to enhance societal well-being. Consisting of 17 goals, one of these objectives is eradicating poverty, commonly called "No Poverty." [1]. FAO supports the implementation of the transformative 2030 Agenda for Sustainable Development. One of FAO's strategic objectives concerning the SDGs is to increase livelihood resilience to threats and crises to have a sustainable and poverty-free livelihood. The fight to end poverty must also be fought in rural areas, where people depend directly or partly on farmland, fishing, or forestry for income and food. [2]. In 2019, a crisis shook human life due to the Covid 19 pandemic, which impacted health, economy, and politics.

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The Covid 19 pandemic has affected all industries in Indonesia, including the commercial sector in the Coastal Tourism Area. Currently, there is an estimation that the Covid-19 pandemic has resulted in tourism losses amounting to IDR 11.9 billion in Bantul. Numerous tourist objects, including those managed by the community, tourist villages, and those managed by the government, are closed and devoid of visitors [3]. The South Coastal Area of Bantul Regency is a popular tourist destination that attracts many visitors. The adjacent village community and local traders rely heavily on their primary source of income derived from engaging in commerce and selling goods from the coastal tourism region. To maintain family life in the household, the head of the family and his family members make a living from various types of work. From these various types of work, households generate various sources of income [4], [5]. The Beach Tourism Area experienced significant financial effects due to the Covid-19 pandemic. The primary source of income for households is generated through participation in trade activities related to tourism. However, this sector has experienced a decline in consumer demand due to implementing the PPKM ban and concerns surrounding the transmission of Covid-19 in crowded settings. Consequently, a significant proportion of individuals who rely on Beachside sales as their primary source of livelihood are actively seeking alternative sources of income, such as engaging in agricultural activities, establishing fish ponds, and pursuing other forms of occupational diversification.

Livelihood diversification is a commonly used strategy for coping with economic and environmental shocks and has a role in poverty eradication [6]. Recognizing the strategic significance of diversification in rural livelihood systems is increasingly gaining traction. Livelihood systems are called dynamic systems that interact with other systems and utilize various resources and assets to generate sustainable livelihoods. In this context, the household is the central livelihood activity entity. Diversification refers to the systematic approach employed by households to construct livelihood portfolios encompassing a more comprehensive range of resources and assets, thereby enhancing their diversity [7].

Surviving the Covid 19 pandemic is challenging, and some individuals meet their requirements by switching from their primary profession in the tourism industry to jobs outside the tourism industry [8]. To ensure their survival, businesses, including small enterprises, must adopt and implement strategies for adaptation [9]. Various occupations, social groups, and genders are susceptible to vulnerability and crisis due to social restrictions on economic and community activities [10].

Several studies have been conducted on livelihood diversification. In a similar study, [11], this study examines the livelihood strategies employed by fish processors in Kwaru Beach, Bantul Regency, during the pandemic. Specifically, it focuses on the diversification strategies adopted by these processors, such as selling frozen fish and implementing intensification and extensification strategies in their businesses. Another study, [12], analyzed the types of job sectors that diversify the work of coastal communities in Greges Village, Jember Regency. [13] Also identified the types of jobs that serve as livelihood diversification strategies in three areas of Bengawan Solo watershed (upper, middle, and lower). [14] Analyzed side jobs as livelihood diversification from fisheries and non-fisheries sectors using percentages in Gusung Island, Bontang City. [15] identified forms of adaptation as livelihood strategies in the form of intensification, extensification, and diversification. The form of strategy differs between the onset of the pandemic and the continuation of the pandemic. Factors such as financial, natural, and physical resources have a significant relationship in determining the adaptation of diversification strategies.

The research's novelty resides in its focus on the research sites and samples, specifically examining livelihood diversification during a pandemic. The research investigates rural

communities in various occupations within the South Coast Tourism Area of Bantul Regency. The study was conducted at Pantai Baru and Goa Cemara Beach, where the locals rely on tourism-related activities for their livelihoods. These individuals are residents who reside close to the tourist zone. This study aims to identify the South Coast of Bantul Regency's community livelihood features, pinpoint community livelihood diversification during Pandemonium 19 and examine the community's income from these efforts.

2 Research methods

The primary research method is the descriptive-analytical method. The research location was taken using a purposive sampling method and selected Baru Beach in Srandakan District, and Goa Cemara Beach in Sanden District as new tourist areas that interest tourists and has coastal agricultural land in Bantul Regency. Respondents were taken from as many as 50 traders of food products, goods, and services randomly. The research was held from August to September 2022.

Descriptive analysis is used to answer the three objectives of this study, which are to analyze the characteristics of the people conducting business in the South Coast of Bantul Regency, to identify the diversification of people's livelihoods during the Covid-19 pandemic, and to determine the income from the community's livelihood diversification..

3 Result and discussions

3.1 *Characteristics of Coastal Communities on the South Coast of Bantul Regency*

Sustainable livelihood is the availability of sufficient stock, food, and cash to meet basic needs. Security refers to ownership of and/or access to resources and all activities that generate income, including capital to deal with risks, reduce pressure or disturbance and meet all eventualities that may occur [16], [17]. Livelihood capital is grouped into five categories: natural, physical, financial, human, and social [18-20]. One of the community livelihoods relies on human capital owned and explained by age, education, work experience, and type of work performed [21], state that human capital is inherent in human capital, including education, health, and migration. Human capital is the most important thing in people's livelihoods because in making decisions, especially to increase income, people must be able to think about various aspects (economic, social, and environmental aspects). After all, it will impact the continuity of the farming being carried out. In his research, [22] also stated that human capital significantly affects income. The human capital owned by the coastal communities of the South Coast of Bantul Regency is described through the distribution of age, education, trading experience, and work can be seen in Table 1.

The productivity of individuals in contributing to the sustainability of their household's livelihood is significantly influenced by their age. The age distribution of respondents in Baru Beach and Goa Cemara Beach reveals a higher proportion of individuals in the active age group than those in the unproductive age group, specifically farmers. This implies that most of the population possesses the requisite physical capacity to engage in strenuous labor. According to [23], individuals in their productive years demonstrate a heightened ability to exert more significant effort and a propensity for readily accepting, comprehending, and assimilating innovations and technologies. Nevertheless, there exists a

cohort of elderly individuals who continue to engage in labor activities at Goa Cemara Beach due to the absence of familial support, as their relatives have migrated abroad in pursuit of economic opportunities.

Table 1. Distribution of the South Coastal Community of Bantul Regency by age, education, trading experience, and employment

Characteristics	Baru Beach		Goa Cemara Beach	
	Frequency (n=25)	Percentage (%)	Frequency (n=25)	Percentage (%)
Age				
a. Productive (15 - 63 years old)	25	100	23	92
b. Non Productive (≥ 64 years old)	0	0	2	8
Education Level				
a. No School	0	0	1	4
b. Primary School	3	12	10	40
c. Junior High School	3	12	2	8
d. Senior High School	18	72	11	44
e. Diploma/Bachelor Degree	1	4	1	4
Trading experience				
a. ≤ 5 years	4	16	4	16
b. 5-10 years	1	4	7	28
c. > 10 years	20	80	14	56
Main Job				
a. Trader	21	84	16	64
b. Farmer	2	8	7	28
c. Teacher	1	4	0	0
d. Parking attendant	1	4	2	8
Side Job				
a. Farmer	3	12	3	12
b. Trader	9	36	9	36
c. Farmworker	1	4	3	12
d. Others	1	4	3	12
e. No side job	11	44	7	28

Source: Primary Data Analysis (2022)

Most of the respondents in Baru Beach and Goa Cemara Beach possess a high school education, indicating a cognitive ability conducive to strong critical thinking skills. Education has a big effect on a person's brain structure and performance, which affects their ability to run and manage their economic activities in a way that helps them make more money. Roy and Bhattacharyya [24] also said that education significantly impacted rural communities' livelihood techniques and culture. The higher the level of education, the greater the impact on socioeconomic status and social opportunities

Most people on the South Coast of Bantul Regency depend on their livelihoods working as traders in tourist areas. Due to Bantul Regency's famous agriculture and tourism sector, farmers and traders are the community's main livelihoods. The majority of people have 10 to 13 years of combined trading experience since Baru Beach and Goa Cemara Beach were first launched in 2010. Communities with less than five years of work experience are generally itinerant traders who do not have permanent stalls in the coastal area. Some

people do not have side jobs because they feel that the income from their main job is sufficient for household needs, and they do not have free time outside of their primary job.

3.2 The diversification of community livelihoods pre and post the Covid-19 pandemic.

Several countries' economies have slowed down because of the COVID-19 outbreak. Different places, economic situations, and populations have different effects. [25]. According to Harris et al. and Wang et al. [26], [27] the pandemic increased unemployment, reduced income from daily labor, decreased food insecurity, depleted savings, and required help in India. The COVID-19 epidemic has also had a significant impact on people's livelihoods, dietary habits, and level of food security. According to FAO [28], Farming households have been impacted by the pandemic because it has made it difficult to get labor, reduced the demand for agricultural labor, and decreased sales of agricultural products.

In this study, the Covid 19 pandemic affected the community's economic activities in the Bantul Regency's South Coastal Area. Large-scale social restrictions (PSBB) and strategies of social isolation are used to prevent people from engaging in the community's economic and social life. As a result of the social limits put in place to stop the spread of COVID-19, the number of tourists in the Coastal Area has decreased, impacting business. [29] Stated that The COVID-19 pandemic cast a ghostly shadow over society's future. The epidemic has interrupted economic activity and caused a sharp decline in commerce. Macroeconomic volatility increases vulnerability [30] and can lead to adverse livelihood conditions [31].

Adger and Suadi et al. [32], [33] argue that diverse communities residing in various geographical locations encounter distinct challenges, resulting in the adoption of unique adaptive strategies to sustain their livelihoods. This study examines coastal communities' response in the South Coastal Area of Bantul Regency to livelihood vulnerability resulting from the Covid-19 pandemic. It is observed that these communities have adopted a strategy of livelihood diversification as a means of adaptation. This finding aligns with the research conducted by Nissa et al. [34], which indicates that individuals employ various livelihood diversification strategies when confronted with challenges related to their livelihoods. Nevertheless, within the scope of this investigation, a portion of individuals persisted in their primary occupation, while others opted to transition to alternative employment opportunities. Figures 1 and 2 depict the changes in the diversification of livelihoods among the coastal communities in Baru Beach and Goa Cemara Beach, both before and following the onset of the Covid-19 pandemic.

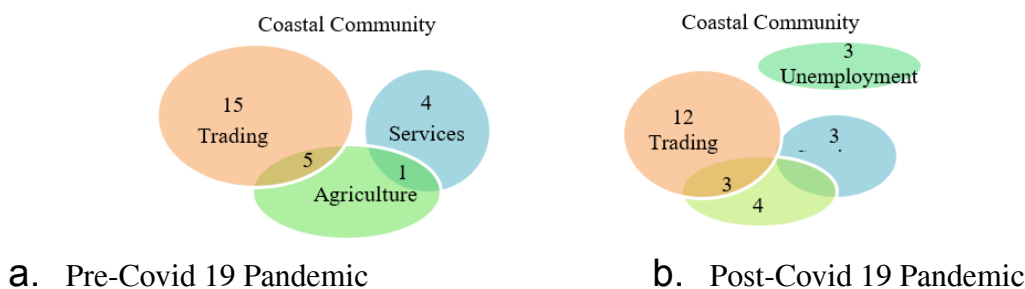


Fig. 1. Diagram of Livelihood Diversification of Baru Coastal Communities. (a) Pre-Covid 19 Pandemic (b) Post-the Covid 19 Pandemic. Source: Primary Data Analysis (2022)

The Covid-19 pandemic has significantly influenced the loss of individuals' income sources while concurrently giving rise to novel means of subsistence resulting from community

adaptations. According to Asegie et al., the COVID-19 pandemic substantially impacted various aspects of livelihood diversification strategies. The COVID-19 pandemic has significantly impacted the non-farm and off-farm livelihood activities of smallholder farmers. Livelihood diversification encompasses a range of activities, namely on-farm, off-farm, and non-farm pursuits [35]. Ncube [35] adds that the term "on-farm activities" pertains to the engagement of households in the cultivation and commercialization of crops and livestock. Off-farm activity relates to the involvement in remunerated labor, whether through monetary compensation or non-monetary means, within the premises of another individual's agricultural establishment. Non-agricultural activities encompass the engagement of individuals or households in various non-agricultural pursuits, including but not limited to cottage industry and small-scale trade.

In this study, the condition of the livelihood diversification of coastal communities in Baru Beach is illustrated in Figure 1. Most individuals relied on the trade sector as their primary source of income and the agriculture sector as a secondary one before the Covid 19 Pandemic. A tiny percentage have agriculture as a side job and primary employment in the service sector. The option that offers the most potential for the growth of coastal community activities is the trade/service sector. Before the epidemic, individuals opened food and souvenir stands, sold clothing and children's toys, and worked physically in stalls at tourist destinations. Within the service sector, the community provides a range of amenities, including ATV rental services, children's swimming pools, parking facilities, and the maintenance of booths.

Following the outbreak of the Covid-19 pandemic and the subsequent closure of the tourist area, the local community faced the challenge of sustaining their livelihoods. Most individuals continue to engage in economic activities within the trading sector, albeit with alterations in methods and forms of work. The trading practices that were formerly conducted in physical stalls located in tourist areas have transformed, with a shift towards online food sales facilitated by the utilization of social media platforms such as Whatsapp and Instagram for promotional purposes. Individuals who previously prioritized employment in the trade sector while engaging in agriculture as a secondary occupation have shifted their focus to primarily managing agricultural activities due to its increased potential during the ongoing pandemic. Another option is for those who lack the resources and abilities to support themselves to choose not to work and rely only on family members' income.

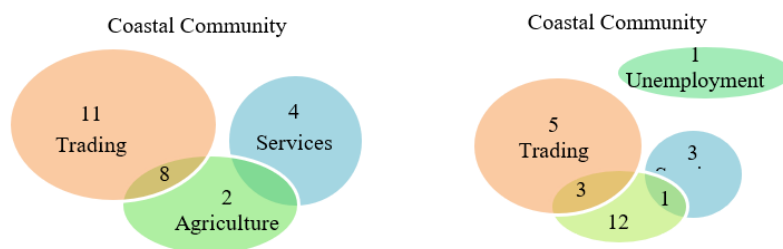


Fig. 2. Diagram of Livelihood Diversification of Goa Cemara Coastal Communities. (a) Pre-Covid 19 Pandemic (b) Post-the Covid 19 Pandemic. Source: Primary Data Analysis (2022)

The livelihood diversification practices undertaken by Baru Beach residents exhibit distinct characteristics compared to those implemented by the coastal communities residing in Goa Cemara Beach (Figure 2). Prior to the onset of the pandemic, the inhabitants of Goa Cemara Beach predominantly relied on the trade sector as their primary source of employment while engaging in agricultural activities as a supplementary occupation. Like the inhabitants of Baru Beach, individuals engage in commercial activities by establishing food stalls, souvenir shops, and retailing garments. Within the community service sector,

there is a practice of renting out all-terrain vehicles (ATVs) and offering parking services. Additionally, it is worth noting that some individuals engaged in this sector also hold primary occupations as teachers. Following the outbreak of the pandemic, numerous activities were subject to restrictions, and tourist destinations were compelled to close, resulting in a significant number of individuals transitioning to the agricultural sector as their primary source of livelihood.

Goa Cemara Beach has a much larger agricultural area than Baru Beach. Even before its development as a tourist destination, the community's primary source of income was horticultural crops (shallots, spinach, kale, and others) grown on coastal land. After the closure of the tourist area, they continued to engage in agricultural activities, as they had managed Sultan Ground land previously. Before the tourism district opened, the bulk of the inhabitants in this region, unlike those on Baru Beach, was employed as fishermen. Due to unsafe sailing circumstances, relatively few individuals actively participate in fishing operations; thus, most seafood is imported from the port of Semarang.

The livelihood diversification carried out by the coastal communities of Bantul Regency, both in Baru Beach and Goa Cemara Beach, was carried out to increase income and maintain their family's life from the shock of the pandemic, which limited their access and activities. However, with the assets owned by the community, they can survive the various social, economic, and environmental changes caused by the Covid 19 pandemic.

3.3 Diversification of Bantul Regency's Coastal Communities' Livelihoods Pre and Post-Covid 19.

The implementation of livelihood diversification by individuals residing in the Coastal Area as their primary and supplementary occupation leads to alterations in both economic and social activities. The Covid-19 pandemic altered individuals' economic pursuits, resulting in corresponding income-level shifts. Coastal communities engage in various economic activities as adaptive livelihood strategies to sustain their livelihoods. Table 2 shows the revenue generated by livelihood diversification, a type of livelihood adaptation, for persons.

Table 2. Average monthly income from diversification of livelihoods in Bantul Regency coastal communities pre and post covid 19.

Sectors		Post-Covid 19 Pandemic (Rp.)			
No.		Pre-Covid 19 Pandemic (Rp.)	2020	2021	2022
Baru Beach					
1.	Trading	4.195.000	2.012.500	3.801.923	3.398.529
2.	Services	2.487.500	800.000	1.153.100	2.092.000
3.	Agriculture	1.383.333	2.600.000	2.745.000	6.025.000
Goa Cemara Beach					
1.	Trading	3.791.667	1.685.000	1.577.500	2.500.714
2.	Service	6.164.000	933.333	2.100.000	4.065.000
3.	Agriculture	1.485.714	891.818	1.427.500	1.170.000

Source: Primary Data Analysis (2022)

Table 2 illustrates the average monthly income from the community's livelihood diversification before and after the Covid 19 Pandemic. Most people in Baru Beach still stick to the trade and service sectors as their main occupations. Even though in the first year of the Covid 19 Pandemic there was a decrease in income, in the last three years post-pandemic recovery in 2022, the trade sector had increased and has almost returned to normal as before the pandemic occurred in both the people of Baru Beach and Goa Cemara

Beach. Changes in income before and after the pandemic were significantly different, however, during the last 3 years of recovery, this inequality began to decrease and returned to almost normal conditions like before the pandemic[36].

The people of Goa Cemara Beach engage in agricultural activities on marginal land within the agricultural sector to meet their daily needs. While the results may not be substantial, the agricultural sector meets its fundamental needs. The Baru Beach community engages in the cultivation of plants on marginal land. However, there has been a significant increase based on the average income. This can be attributed to individuals who have discovered new sources of income within the agricultural sector. One such example is the establishment of shrimp ponds, which offer promising prospects and profits. Consequently, these shrimp ponds continue to be cultivated even post-pandemic. Therefore, for most individuals, the epidemic marks a turning point in their exploration of alternative sources of income.

4 Conclusion

People who do business in Bantul Regency's South Coastal Area have a majority of productive age, a high school education, a main livelihood as a trader and a side job farming, and a majority of trading experience of more than ten years. During the Covid 19 epidemic, the community's livelihood diversification efforts included the commerce, agriculture, and service sectors. In general, individuals continue to earn a livelihood in the same field but conduct economic activities in a variety of methods, mainly by shifting from offline to online activities. The income generated by the community's livelihood diversification can provide a solid livelihood, survive the economic shock caused by the Covid 19 epidemic, and provide a sustainable livelihood.

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