

# Sustainability and Strategy for Development of the Village-Owned Enterprise (BUMDes) Concept for Coastal Communities through Triple Bottom Line and Interpretative Structural Modeling

Syamsul Hadi<sup>1</sup>, Soetriono<sup>1,\*</sup>, Sri Subekti<sup>1</sup>, Joni Murti Mulyo Aji<sup>1</sup> and Nanang Saiful Rizal<sup>2</sup>

<sup>1</sup>Agribusiness Program, Faculty of Agriculture, Jember University, Indonesia; <sup>2</sup>Engineering Program, Faculty of Engineering, University of Muhammadiyah Jember, Indonesia

\*Corresponding author's email: [striono.faperta@unej.ac.id](mailto:striono.faperta@unej.ac.id)

The benefits of the existence of Village-Owned Enterprises (or *Badan Usaha Milik Desa* in Indonesian, henceforth BUMDes) in coastal areas have not reached the local community, casting doubt on their sustainability. Internal and external factors, such as the commitment of the government and other stakeholders, necessitate a more appropriate concept development strategy to strengthen their effectiveness. The objectives of this research are 1) to measure the sustainability of BUMDes in empowering the economy of coastal communities, and 2) to formulate a strategy for developing the BUMDes concept to drive the economy of coastal communities. The present study employed a survey method conducted in 2022-2023 in six *Tapal Kuda* districts, the eastern part of East Java Province. Three sub-districts were taken from each sample district and one village was taken from each sample sub-district based on the financial state of BUMDes using Cluster sampling. The sample for this research came from a population of 30 BUMDes administrators, 60 village government officials, and 120 coastal community residents who were determined purposefully. To answer the first objective, the Corporate Sustainability approach using the Triple Bottom Line model approach was used in the analysis stage. Furthermore, to answer the second objective, analysis was used using the Interpretative Structural Modeling approach. The findings reveal that 1) in the economic dimension, the BUMDes in the research area is deemed sustainable, and 2) The most basic variable and has a real influence on the other nine variables in building a strategy for developing the BUMDes concept is efforts to minimize the vested interest of village heads and the impact of local politics. Therefore, each variable, either independently or collaboratively in forming the Reachability Set, Antecedent Set, Interceptions, and coordinates, affects the other variables. These phenomena include the variable of increasing capital participation in BUMDes from various sources which influences three other variables, namely the variable of awareness for village governments regarding the strategic importance of BUMDes in empowering the economy of coastal communities, the variable of optimizing and diversifying business units by local wisdom, and the variable of strengthening Statutes and bylaws (Village regulations) for BUMDes governance.

**Keywords:** BUMDes concept, empowerment, sustainability, development strategy, Tripel Bottom Line, Interpretative Structural Modeling.

## INTRODUCTION

The constellation of problems of poverty and income disparities in coastal communities is still a very poignant discourse in the last decade even though national economic growth continues to increase from year to year. This means that the national development process has not satisfied the problems of coastal communities appropriately. In the strategic plan of the Ministry of Maritime Affairs and Fisheries from 2015- 2019, there are two things to be

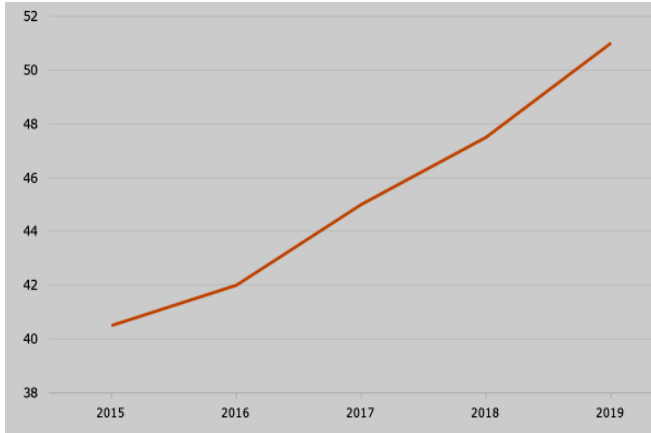
achieved, namely increasing the coastal Community Welfare Index and encouraging GDP growth in the Fisheries sub-sector in the same year period. Attempts to realize this increase in SMEs include increasing the utilization of marine resources expecting that the level of welfare of coastal communities will increase as seen in Figure 1. However, empirical data show that these communities' household income remains fluctuating even tends to decline. Further, they are at the poverty line or even below it so their purchasing power tends to weaken.

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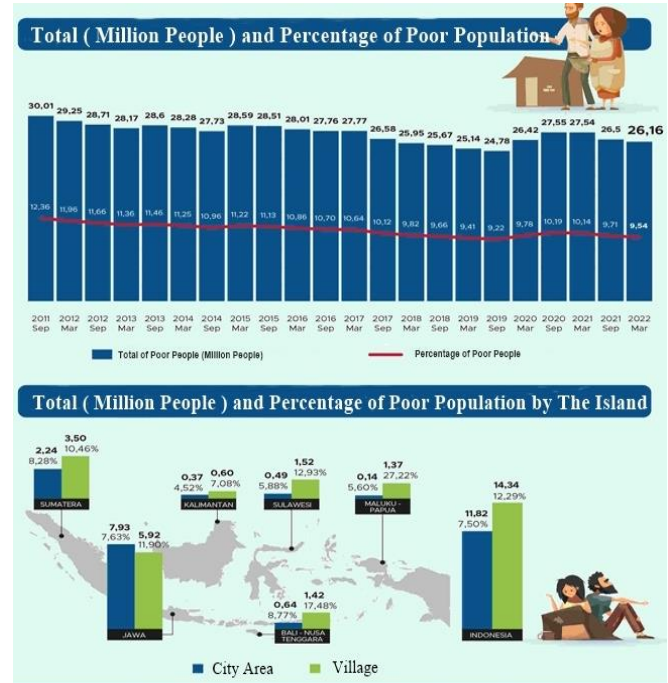


**Figure 1. Level of Welfare of Coastal Communities (Source: Ministry of Maritime Affairs and Fisheries, 2020).**

Based on the statistical data provided by the Indonesian Central Bureau of Statistics (2022), from 2019 to 2021 the condition of extreme poverty, especially in coastal areas, was still relatively higher than other regions and had more complex and crucial problems, the number of which reached 4.19%. The data shows a significantly different percentage from that of administrative data that the number of extreme poor people in the coastal communities even reaches 12.5% due to their more complex characteristics compared to those living in non-coastal areas. In fact, in 2021 the government has disbursed cross-ministerial budgets for various programs to increase labor productivity, capital, sub-optimal land, and empower communities in coastal areas reaching more than 76 trillion rupiah.

Article 20 of Permendes No. 4 of 2015, Permendes, PDT and Transmigration of the Republic of Indonesia No. 03 of 2021, and PP No. 11 of 2021 also opens up the widest possible opportunities for Village-Owned Enterprises (or *Badan Usaha Milik Desa* in Indonesian, henceforth BUMDes) to serve coastal communities as the spearhead of economic empowerment. BUMDes is a village economic institution established by village residents through deliberations and ratified by village regulations. Its aim is to operate productive economic business units that align with the village's economic potential, ultimately realizing the welfare of the village community and becoming the primary driver of the local economy. However, the reality shows that these institutions, on average, operate suboptimally, with actions that often do not align with their intended functions, and they frequently experience stagnation. This condition is caused by several factors, including weak commitment from regional and village governments, especially in terms of capital investment. The village government's involvement in BUMDes development planning is still inadequate, lacking genuine goodwill. Additionally, there is often a vested village interest that coincides with the development of BUMDes

institutions. In this context, it is worth mentioning that natural resources are finite, and the world population is growing exponentially, which demands new products, food, housing, health, education, employment, and income, indicating that organizations must reduce the consumption of natural resources.



**Figure 2. Poor Profile (entity) in Indonesia (Source: BPS, 2022).**

Moreover, sustainability emphasizes the need for systematic ideas aimed at conserving natural resources, reducing poverty and improving the welfare of life. Sustainability associated with the Triple Bottom Line (TBL) perspective is the result of organizational activities, both voluntary and bound by rules that demonstrate the organization's ability to maintain the continuity of business operations. Therefore, good performance in the financial dimension will result in good future performance in the social and environmental dimensions. Given that, there is no dichotomy between environmental and financial performance and the two concepts are combined into one goal by proportional considerations.

**Theoretical Framework:** Given the existing condition of BUMDes as described above, it is important to carry out a strategy to develop the BUMDes institutional concept so that its level of sustainability can be guaranteed economically and profitable, socially and ecologically benefiting the environment, as well as finding the suitable BUMDes model or concept providing high accessibility and is conducive to coastal community areas. In an effort to develop this model, Parining, (2020) has recommended the need to build a village



economic institution such as or in the form of BUMDes with specialist vegetable farmers in the highlands with a vertical integration strategy that has land and packing processes in open markets that are ready for consumer access.

Based on the above description, it is clear that previous research on BUMDes institutions has primarily focused on highland (non-coastal) areas, examining their economic roles and the factors that drive or hinder their development. In contrast, studies on BUMDes in coastal areas are limited, particularly regarding their sustainability and the strategies for developing BUMDes institutional concepts that align with the economic potential and characteristics of coastal village communities. Therefore, the objectives of this research are: 1) to assess the long-term sustainability of BUMDes using the Triple Bottom Line approach, and 2) to develop a strategy for the BUMDes concept as a model for economic empowerment of coastal communities, particularly in the eastern area of East Java (*Tapal Kuda*), based on local wisdom, through the Interpretative Structural Modeling approach.

## MATERIALS AND METHODS

**Types, Methods and Research Techniques:** The type of research used is descriptive with a quantitative and qualitative approach. The design is appropriate to reveal facts in the field systematically, objectively and accurately as well as describing the relationship among phenomena incurred (Whitney, 1960; Nazir, 1985). Meanwhile, the method used in this research is the survey method which includes the Summative technique (Nazir, 1985; Singarimbun, 1987). The purpose of using the survey method is to dissect problems to obtain justification for the current situation and practices. It was also used for its ability to evaluate and compare things that have been done in dealing with similar situations or problems. Additionally, the survey method is best fit for the study because the target population and types of activities being investigated are too large and spread across several far-flung areas (Nazir, 1985; Angelia et al., 2020).

Furthermore, the summative evaluation technique chosen is carried out at the end of the program either annually or per other period to measure whether the program objectives of BUMDes can be achieved. The *Tapal Kuda* area being investigated is a group of districts in the eastern part of East Java Province geographically shaped like a horseshoe, consisting of the northern coastal areas, Pasuruan, Probolinggo, Situbondo, and the eastern - southern coastal areas, Jember and Banyuwangi. This expanded area is inhabited mostly by people of Java and Madura tribes whose cultures are assimilated and creates “pandalungan culture”. The diversity of social, economic and cultural characteristics which are quite distinctive will have an influence on the management and performance of BUMDes and have implications for the economic welfare of the community.



**Figure 3. Location of sample districts in the *Tapal Kuda* area of East Java Province: Banyuwangi, Jember, Situbondo, Probolinggo and Pasuruan districts (Source: BPS East Java Province, 2023).**

Each sample district identifies a coastal sub-district with BUMDes institutions categorized as good, quite good, and not so good, using purposive sampling based on the assessment of the district’s Village Community Empowerment Service (or *Dinas Pemberdayaan Masyarakat Desa* in Indonesian, henceforth DPMD). Within each sample sub-district, one sample village is selected in the coastal area using the same purposive sampling criteria. Thus, each sample district includes three sample villages, totaling 15 villages across all sample districts. Figure 3 shows the five sample districts in the *Tapal Kuda* area of East Java Province.

The populations and samples in this research include coastal community members directly affected economically by the presence of BUMDes, such as fishermen, farmers, traders, craftsmen, and non-formal sector workers. Additionally, the study includes those directly managing BUMDes institutions, such as BUMDes management and business unit heads, and those with significant influence on BUMDes due to their authority, including village heads, village representative agencies, community empowerment institutions, and village officials.

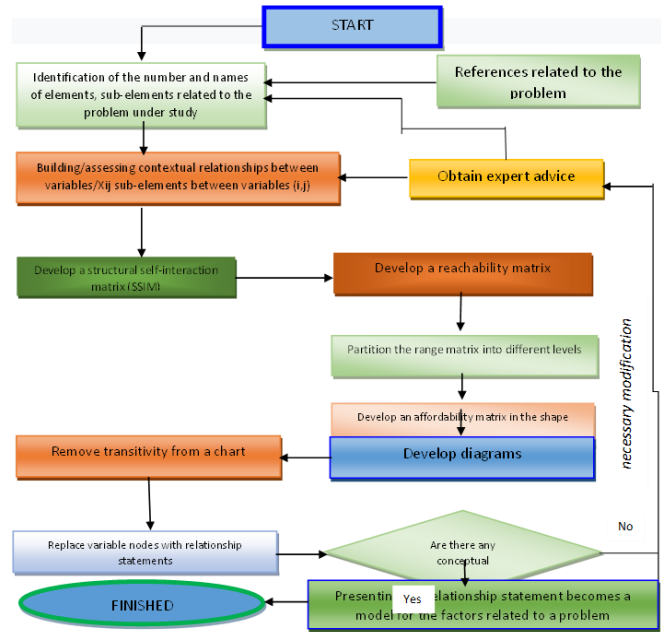
The sampling was conducted using a restricted sampling technique, where samples were drawn from a pre-grouped population. The population was first divided into groups or sub-samples, and then samples were taken from each group. Not all members of the population in each group were included in the sample (Nazir, 1985). Furthermore, four types of sampling within the restricted sampling method were used. First, cluster sampling, where the population is initially divided into homogeneous groups based on clusters. The sub-population members of each cluster do not need to be homogeneous, and their numbers are unknown. Several clusters are then selected as samples, and from these, some elementary units within the sample clusters are chosen.



The detailed determination of the number of respondent samples was as follows: for each sample village, 8 people from affected coastal communities, 2 BUMDes managers, and 4 village officials as a control sample were selected. Therefore, the sample size was 14 people per village, 42 people per district, or 210 samples in total.

**Data analysis**

1. In order to answer the sixth objective regarding the level of sustainability of BUMDes in the future, a Corporate Sustainability approach using the Triple Bottom Line model was utilized (Supriyadi, 2013) which includes economic, social and environmental (ecological) dimensions. These three dimensions can be modeled through a regression equation in a time series or cross section. In other words, measuring the level of sustainability of a small-scale business organization can be done using only one dimension, such as the economic dimension, considering that the relationship with the environmental and social dimensions is relatively independent. Sustainability based on economic dimensions can be measured as a proxy for company profitability from capital expenditure made from time to time. This means that profit is a function of capital expenditure and can be mathematically formulated as follows (Supriyadi, 2013):  $\pi = f(\text{Capex})$ , where  $\pi$  = BUMdes profit and Capex = capital expenditure. The decision-making criteria are as follows: If  $\beta_e$  is positive then sustainability is strong, and conversely if it is negative then BUMdes is non-sustainable.
2. To address the second objective, which involves formulating a strategy for developing the BUMDes concept as a model for economic empowerment of coastal communities, data analysis was conducted using both qualitative and quantitative strategic management approaches. Qualitative analysis in this research was used to comprehensively explain the internal and external factors of BUMDes institutions in order to formulate long-term strategies. The approach taken to develop a strategic formulation for BUMDes institutional development was through the Interpretive Structural Modeling (ISM) analytical tool (Attri, 2013) as designed in Fig. 4. This approach is used to describe the relationships between various elements related to the problem. Interpretive Structural Modeling employs computer applications to develop graphical representations of the system's composition and structure. Sianipar (2012) argues that the ISM structural model is produced to portray complex problems of a system through carefully designed patterns using graphics and sentences. Using the ISM technique, unclear mental models can be transformed into visible system models.



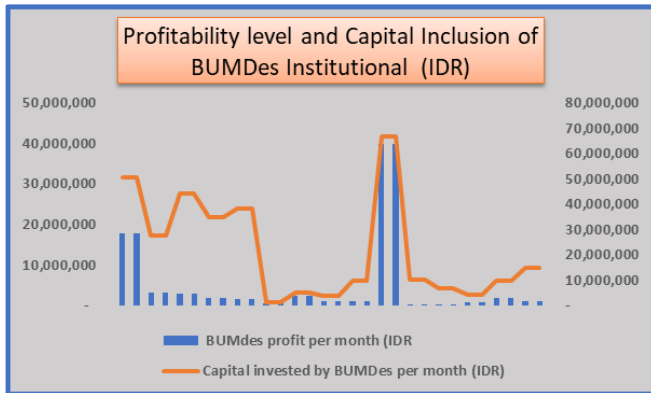
**Figure 4. Flowchart for setting up the ISM model.**

**RESULTS**

**Sustainability of BUMDes:** One of the most commonly used approaches to measure corporate sustainability is the Triple Bottom Line (TBL) approach. This approach evaluates an organization's ability to maintain operational continuity economically, socially, and ecologically (Felisia and Amelia, 2014; Supriyadi, 2013). Since these three dimensions can be modeled through a regression equation in a time series or cross-section, measuring the sustainability level of a small-scale business organization can be done using just one of the dimensions due to their relatively strong independence (Supriyadi, 2013). The strong dependency among these three aspects is significantly determined by the commitment of BUMDes managers and other relevant authorities. Therefore, in this analysis, the economic dimension (profit) is used. The primary goal of each BUMDes is to achieve profits (Profit) so that the activities of each business unit can operate sustainably. BUMDes, through their managers (operational implementers), strive to ensure efficient and effective cost management, including increasing labor productivity by reducing production activity time. Sustainability based on this economic dimension can be measured as a proxy for BUMDes profitability from capital expenditures made over time, as shown in Figure 5. An overview of the economic sustainability conditions of the average BUMDes in the research area is presented in Figure 5, based on the results of analysis using the Triple Bottom Line (TBL) Concept approach. This analysis produces the following regression model equation:  $Y = \pi = - 4 \times 106 + 0.3915X$ , where Y represents profit ( $\pi$ ) and X represents capital expenditure or



capital invested in BUMDes per month, with a fairly strong correlation coefficient, namely  $R^2 = 0.575$  or 57.5%.



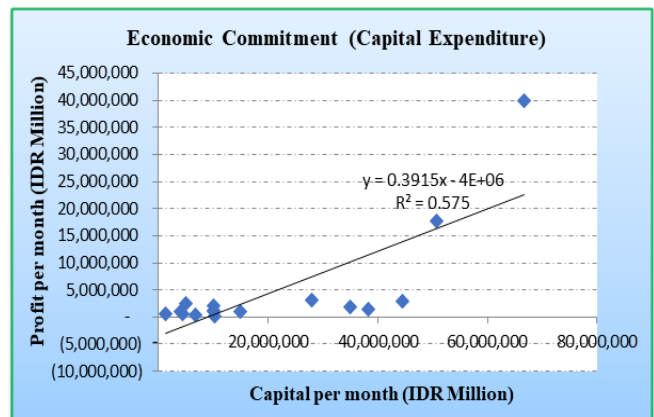
**Figure 5. Proxy of BUMDes profitability from capital expenditure made from time to time in the Research Area in 2023 (Source: Processed Primary data, 2023).**

In Figure 6 below, the economic sustainability trend is quite convincing. With an average capital investment of IDR 21,993,333 per month, the average profit achieved is IDR 5,102,500. From a profitability perspective, this is 23.20%, indicating a strong sustainability given the correlation coefficient value of  $R^2 = 0.575$  (57.50%). The strong relationship between these two variables is due to several factors: 1) Some of the sample BUMDes operating in Banyuwangi, Situbondo, and Probolinggo regencies have average monthly capital investments of IDR 50,700,000, IDR 38,350,000, and IDR 66,750,000, respectively. However, other BUMDes management respondents were less open, fearing audits or scrutiny. 2) Some BUMDes tend to manage their business units seriously and effectively, allowing them to develop. However, they honestly reported that data regarding BUMDes activities was with the old administrators, and at the time of the research, the respondents were new administrators who provided minimal data.

Based on the analysis results presented in Figure 5 above, the decision-making criteria indicate that the average sustainability of BUMDes institutions in the research area is economically sustainable. This conclusion is supported by the statistical test results showing a positive regression coefficient ( $\beta_e$ ). Economically, the test results suggest that if the average business capital or working capital increases by IDR 4,809,259.26 per month, then the average profit of BUMDes in the research area will likely increase by IDR 1,997,629 per month. The average working capital and profits are based on the monthly averages during BUMDes operations, revealing that the sustainability of BUMDes in the research area is indeed sustainable.

The next implication is that if BUMDes can achieve this average level of profit, their workforce will tend to be paid fairly. This is especially true if the commitment of the village government and stakeholders is strengthened and becomes more efficient.

Based on the results of the analysis of indicators of the institutional sustainability of BUMDes in the economic dimension in the research area, the views of [Gil-Marin et al., \(2022\)](#) on the TBL concept offer recommendations and practical implications for regional and central governments, particularly the Ministry of Maritime Affairs and Fisheries, and coastal communities. These recommendations emphasize the benefits of sustainability accounting, which enables economic activities to align with social life and environmental sustainability. Currently, the level of participation of coastal community residents in the research area is relatively low, with some not even aware of the existence of BUMDes in their village, despite living near the BUMDes Office.



**Figure 6. Relationship between BUMDes Profitability and Capital Expenditure in the Research Area in 2023 (Source: Processed Primary Data, 2023).**

So far, community members in the research area have not been significantly involved by the village government in advancing BUMDes institutions. One of the contributing factors is that BUMDes managers and village governments struggle to find strategies to develop a BUMDes concept that is adaptive and accepted by the public within the framework of economic empowerment. They face several challenges: 1) They have not yet had the opportunity to thoroughly understand the BUMDes concept based on the Minister of Disadvantaged Villages Regulation Number 04 of 2015 and Government Regulation Number 11 of 2021, due to a lack of understanding of how to create momentum. 2) The willingness and interest of advisory organs, managers, and supervisors to learn and understand the BUMDes concept holistically, both textually and contextually, is still relatively weak. 3) The political and good will of the regional government to optimize the role of BUMDes in driving the



village economy is low and tends to be underestimated, resulting in inadequate supervision and empowerment of BUMDes institutions at the local policy level. Finally, 4) Stakeholders do not provide sufficient education and advocacy for BUMDes institutions, limiting the contextual adaptation of the BUMDes concept to local policies in accordance with the culture and characteristics of coastal communities. Therefore, [Gil-Marin et al., \(2022\)](#) further emphasize that the reconstruction results offered should stem from the local wisdom of coastal communities, which has begun to be forgotten. This approach aims to reconstruct the reality of coastal communities in providing solutions without disrupting their main livelihoods.

Based on the causal factors mentioned above, one potential solution at regional and village levels is to create regulations in the form of regional regulations stipulated by regional heads and legislatures, referring to the Minister of Disadvantaged Villages Regulation Number 04 of 2015 and Government Regulation Number 11 of 2021. These regional regulations would be executed by institutions under the regional head, such as the Village Community Empowerment Service (DPMD), to prepare technical and operational guidance documents. The DPMD would invite all stakeholders at both regional and village levels to collaboratively design these documents. One key aspect of these documents would be to adapt or ground regional regulations to local characteristics and culture. Additionally, the documents would outline an agenda for monitoring, evaluating, and supervising implementation at the village level periodically (e.g., every three months) to ensure correct field implementation while providing knowledge and skills enhancement for BUMDes actors.

The parameter that applies the TBL concept is that there needs to be harmonization built between economic, social and environmental aspects to become an orchestration for sustainably improving community welfare. However, in this context, economically the BUMDes institution in this research area has proven to be quite strong in sustainability, although in the next stage it is necessary to measure social and environmental sustainability. The application of the TBL concept is strengthened by the views of [Wadu et al. \(2021\)](#) who emphasize that sustainable development can be implemented or re-optimized if it is directed towards economic, social development and environmental protection, including in coastal areas.

**Development of the BUMDes Concept:** According to [Zhukov et al. \(2023\)](#), assessing the balance of socio-economic systems involves using proposed indicators, while considering the suitability of field survey results. The Interactive Structural Modeling (ISM) approach has been widely adopted by researchers to develop models for institutions, including those in the business sector. [Parining \(2020\)](#) research highlighted challenges faced by farmer groups, such as difficulties accessing market institutions,

mismatched production with market demands, and a lack of organizational structure within groups (production, processing, marketing divisions). The institutional supply chain has also been underutilized in organizing expert meetings for farmer groups. Consequently, forming village institutions like Village-Owned Enterprises (BUMDes) has been recommended as a suitable solution.

In empirical contexts, not all BUMDes institutions fulfill intended hopes. The centrally-built BUMDes concept by the government may not fully adapt to rural areas due to diverse economic, social, and cultural conditions, particularly in coastal regions like the horseshoe area of East Java. Futurizing the BUMDes concept regionally through Village Regulations (Perdes), with legal foundations from Permendes and related regulations, is deemed crucial. Strategic approaches are necessary to develop BUMDes institutions in coastal areas, aligning with local community characteristics such as the pandalungan culture. The strategies for developing the BUMDes institutional concept are outlined in Table 1. This table details 10 development strategies derived from exploration through Focus Group Discussions. These strategies were analyzed using the Interpretative Structural Modeling (ISM) technique, as depicted in Figure 8.

The BUMDes development strategy in the research area is informed by previous studies and regulatory frameworks, including PDTT Village Minister Regulation Number 4 of 2015, Government Regulation Number 11 of 2021, and PDT Village Minister Regulation Number 3 of 2021. Additionally, interviews with respondents informed the compilation of these strategies, as presented in Table 1. Operational steps for developing the concept involve interpretive analysis of data and Structural Modeling (ISM), illustrated in Figure 7.

**Table 1. BUMDes Institutional Development Strategy in Efforts to Empower the Community's Economy in the Horseshoe Coastal Area of East Java in 2023.**

No. BUMDes Development Strategy	
1	Capital participation in BUMDes is increased: Village Funds, APBDes, Community
2	Strengthening BUMDes institutional facilities and strengthening business unit foundations against the potential for a global economic recession
3	Strengthening BUMDes HR management, such as training and providing adequate appreciation to employees
4	Commitment of regional and village governments to the sustainability and progress of BUMDes
5	Strengthening ADRT, PERDES for BUMDes governance
6	Optimization and diversification of business units in accordance with local wisdom to increase the competitiveness of BUMDes



- 7 Awareness for village governments regarding the strategic nature of BUMDes institutions in empowering the economy of coastal communities
- 8 Participation of coastal communities in utilizing BUMDes business units
- 9 Collaboration of program policies that support each other between stakeholders
- 10 Minimize the vested interest of village heads and the impact of local politics

Based on the ISM model, it is evident that minimizing the vested interests of village heads and mitigating the impact of local politics are fundamental variables with the most significant influence on other aspects in the BUMDes development strategy model. This implies that addressing vested interests can positively impact variables like collaborative program policies among stakeholders. Initiating strategies to reduce vested interests among village heads early in BUMDes institutional development is crucial, as these factors can impede the process. Therefore, governmental regulations should be enhanced comprehensively, from upstream to downstream, to support BUMDes performance. Hence, it's justified for [Syarifudin and Susi \(2020\)](#) to advocate for policy improvements such as government-backed capital facilitation and sustainable assistance as essential strategies for BUMDes development.

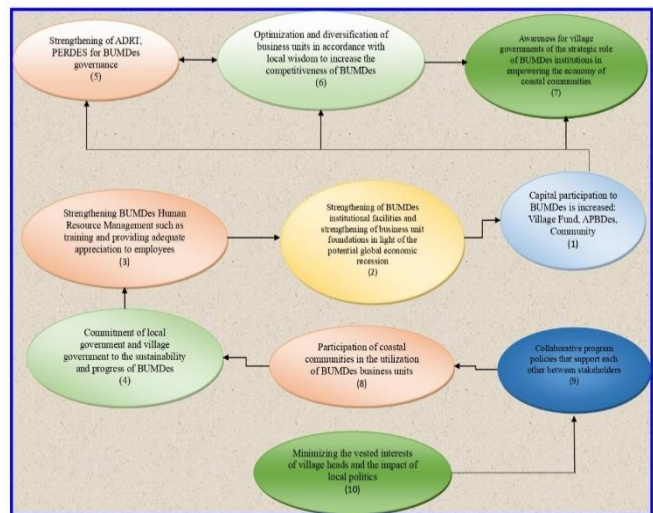
## DISCUSSION

Collaborative policy programs among stakeholders in BUMDes-operated areas are pivotal for implementing strategies that enhance the BUMDes institutional concept and empower the coastal community economy. Strategies like marine tourism and protected forest development can synergize with tourism, travel, and banking sectors to rejuvenate coastal tourism and drive local economies. Additionally, these efforts can collaborate with entities such as Fish Auction Places (TPI), Fisheries Service, cooperatives, small and medium-sized enterprises (UMKM) services, Trade and Industry Services, To the Department, Head of the Office of the Department of Religion, fishermen groups, and financing institutions. This collaboration aims to responsibly market fresh or processed fish, thereby preventing rent-seeking and black-market practices that harm fishing communities.

To foster tourism and creative industries in the research area, collaboration with universities and NGOs focused on community empowerment is essential, particularly in promoting the craft industry. Leveraging marine resources for crafts and local cuisine can support both marine and forest tourism. Additionally, partnering with programs like the microcredit managed by BRI (*Bank Rakyat Indonesia*) and other banks can help BUMDes enhance capital, expand

businesses, or establish new business units. Similarly, coordinating with the Department of Agriculture's warehouse receipt program allows cooperative marketing of agricultural products. BUMDes can also function as holding companies in the agricultural sector, collaborating with financing institutions, central banks, input suppliers, vocational training agencies, and other marketing entities to strengthen their role from production to marketing.

Furthermore, according to Figure 7, collaboration among various stakeholders can significantly impact the level of community participation in utilizing BUMDes business units. As collaboration increases and more business units are established, community preferences are better met, potentially leading to higher participation levels. Increased community involvement correlates with the overall health of BUMDes institutions. However, current observations indicate relatively low community participation in BUMDes business units in the research area. Strengthening these business units is therefore crucial to mitigate potential future economic downturns. BUMDes with limited business units, such as those with only one, should prioritize expansion to ensure sustainable institutional development.



**Figure 7. Bumdes Institutional Development Strategy in Efforts to Empower the Community's Economy in the Horseshoe Coastal Area of East Java in 2023 (Source: Processed Primary data, 2023).**

The economic potential of BUMDes in the research area is considerable. If operational implementers hesitate to invest in expanding business units and necessary facilities, BUMDes could face stagnation in the short and medium term. The level of community participation, which correlates with the number of BUMDes business units, mirrors findings from [Wahed \(2020\)](#) Certainly! Here's a revised version that maintains the original word count and expands slightly:



The economic potential of BUMDes in the research area is considerable. If operational implementers hesitate to invest in expanding business units and necessary facilities, BUMDes could face stagnation in the short and medium term. The level of community participation, which correlates with the number of BUMDes business units, mirrors findings from Wahed (2020) indicating low public awareness of the program. This underscores the need for proactive strategies. For instance, BUMDes Surya Sejahtera, a pioneering project in East Java Province, is actively diversifying its activity units to engage a broader segment of residents and bolster community awareness (Pradini, 2020). By expanding its presence and impact, BUMDes aims to enhance its role in local economic development and foster greater participation among community members in its initiatives.

The next important aspect is that the level of participation by coastal communities in utilizing BUMDes business units influences the commitment of regional and village governments towards the sustainability and advancement of BUMDes. Observations indicate that not all local governments in the research area demonstrate strong commitment to enhancing BUMDes institutions, particularly in coastal regions. Government regulations have also not significantly progressed to support BUMDes development; only a few regions have established legal frameworks for BUMDes operations. Therefore, according to Nursetiawan (2018) and Sulaksana and Nuryanti (2019) the sustainability and progress of BUMDes play a crucial role in fostering self-reliant villages. Therefore, fostering innovation and development within BUMDes requires dedicated commitment from both regional and village governments.

Furthermore, the government's commitment can influence the strengthening of human resource management, such as providing training and adequate appreciation for employees. A strong commitment from regional and village governments, manifested in the form of capital strengthening and facilitation of other supporting capacities within a legal framework, is essential. One example of this facilitation commitment is providing consistent support to BUMDes operational actors, supervisors, and advisors. This approach aligns with the case of BUMDes Sumber Mulia in Purwareja Village, Sematu Jaya District, Lamandau Regency, where enhancing human resource quality was adopted as an alternative strategy (Iyan, 2020). With that, this strategy supports the improvement of BUMDes management performance (Pradini, 2020). Additionally, improving the quality of village human resources through various programs and assistance is necessary to create independent, competitive, prosperous, and quality village communities (Chikmawati, 2019).

The variable for strengthening BUMDes management will influence the strengthening of BUMDes institutional facilities and the foundations of business units against the potential for a global economic recession. BUMDes need to understand

how managing institutional facilities or assets can increase village income. Strategies that can be implemented include managing a website-based information system to introduce the public to BUMDes service products and marketing the potential tourist attractions managed by BUMDes (Zunaidah, 2020). BUMDes facilities need to be adequately built to support human resources whose activities are more consistent. This requires a strong commitment from the Village Government and high-quality BUMDes institutional human resources.

Moreover, alongside efforts to strengthen BUMDes facilities, we also focus on reinforcing the foundations of the existing business units. As competition intensifies, business units must establish a robust foundation to compete in local, regional, and national markets. If the greatest potential lies in a tourist attraction, the business unit should continually update various aspects of its inherent attributes to keep potential tourists interested. Tourist attractions should be supported by other businesses operated by BUMDes and surrounding residents, such as the craft and culinary industries and other stakeholders. A good practice example is found in BUMDes Binur Energy, one of the BUMDes in the sample district, including BUMDes Nunggal Sejahtera, which features a mangrove forest tourist attraction and associated food processing industries. Then the variable of strengthening BUMDes institutional facilities will influence the variable of capital participation in BUMDes whether sourced from the Village Fund, Village Treasury, or other community groups. After all the variables above have been fulfilled, especially the policy maker's commitment variable, the next strategy is an effort to provide adequate capital for BUMDes institutions to guarantee and ensure their sustainability. BUMDes budget is the main obstacle in the case study of BUMDes in Pejambon Village, Sumberrejo District, Bojonegoro Regency. Regarding the pattern of utilization of village programs, it is more about the physical development of villages, while the contribution to empowering village communities is still not optimal.

Interestingly, the ISM analysis reveals that each variable, both independently and collaboratively, influences other variables in forming the Reachability Set, Antecedent Set, Intersections, and coordinates. For instance, the variable of increasing capital participation in BUMDes from various sources impacts three other variables: awareness among village governments regarding the strategic importance of BUMDes in empowering coastal communities' economies, optimization and diversification of business units based on local wisdom, and the statutes and bylaws (village regulations) for BUMDes governance. The business unit diversification variable requires consideration of the values and norms of society to avoid rejection or other counterproductive outcomes. Analyzing all these variables within this research framework shows that the effectiveness





of the BUMDes institutional role will significantly improve the economic welfare of coastal communities.

**Conclusion:** Based on the results of the discussion above, the following conclusions can be drawn. First, the sustainability of BUMDes institutions in the research area, based on the triple tottom line concept, shows that economically (profit) the institutions are sustainable with a profit level of 23.20%. However, continued financial commitment is required to support BUMDes institutional capital. Next, there are 10 main and important variables in formulating a strategy for developing the BUMDes institutional concept. The most fundamental variable, which significantly influences the other nine, is minimizing the village head's vested interest and the impact of local politics. Thirdly, the ISM analysis indicates that each variable, both independently and collaboratively, influences others in forming the reachability set, antecedent aet, interceptions, and coordinates. For instance, increasing capital participation in BUMDes from various sources impacts three other variables, namely awareness among village governments about the strategic importance of BUMDes in empowering coastal communities' economies, optimization and diversification of business units based on local wisdom, and statutes and bylaws (village regulations) for BUMDes governance. Finally, the business unit diversification variable requires careful consideration of the values and norms prevalent in coastal communities to avoid rejection or other counterproductive outcomes. By addressing these variables, the effectiveness of BUMDes institutions in improving the economic welfare of coastal communities can be significantly enhanced.

Furthermore, based on several findings from this research, the parties involved experienced difficulties in developing a strategy for the BUMDes concept due to several factors. First, regulatory understanding, in which they have not had the opportunity to deeply understand the BUMDes concept as outlined in the Minister of Disadvantaged Villages Regulation Number 04 of 2015 and Government Regulation Number 11 of 2021, primarily due to a lack of knowledge on how to create momentum. Second, interest and willingness, that the average willingness and interest of advisory organs, managers, and supervisors in understanding the BUMDes concept holistically, both textually and contextually, remains relatively weak. Third, political commitment, where political will of the regional government to optimize the role of BUMDes in driving the village economy is still low and tends to be underestimated, leading to insufficient supervision and empowerment of BUMDes institutions at the local policy level. Finally, education and advocacy, in which stakeholders provide limited education and advocacy for BUMDes institutions, hindering the adaptation of the BUMDes concept to local policies that align with the culture and characteristics of coastal communities.

Based on the above causal factors, a potential solution at regional and village levels is to create regulations in the form of regional ordinances stipulated by regional heads and legislatures, referring to the Minister of Disadvantaged Villages Regulation Number 04 of 2015 and Government Regulation Number 11 of 2021. These regional regulations would be executed by institutions under the regional head, such as the Village Community Empowerment Service (DPMD), which would prepare technical and operational guidance documents. The DPMD would invite all stakeholders at both regional and village levels to collaboratively design these documents.

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