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Page 00 of 00

Exploration of Local Potential in the Development of BUMDes in the Food Security Sector: A Preliminary Study in Paniis Village, Kuningan Regency, West Java

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Abstract
Evidence on early stage village food programs remains scarce. The purpose of this study is to analyze strategies in the management of Village-Owned Enterprises (BUMDes) and the early contribution of the food security program (*Ketapang*) to community welfare, food availability, and the village economy in Paniis Village, Kuningan Regency, West Java. A qualitative descriptive design with a single case study approach was applied. Data were collected over about six days through in-depth interviews with two purposively selected informants (the BUMDes manager and a village officer), observation, and documentation, and analyzed with the interactive model and triangulation. From the results of the study, it was found that the *Ketapang* program, which had operated for only about five months, comprises laying hen farming (500 hens, with a potential gross income of about IDR 21 million per month) and rice farming on one hectare (a potential gross income of about IDR 124 million per year). These figures are projections, not realized income. The program has created initial jobs, but only a few residents benefit directly, and the BUMDes faces limited human resources, capital, market access, and participation. Training and mentoring by the village government, together with participatory management, may increase the contribution of the BUMDes to food security and local employment, but the findings indicate early stage potential rather than proven impact. The small sample and short fieldwork limit generalization.

Keywords: Community Economy, Community Empowerment, BUMDes, Qualitative Research, Food Security.

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INTRODUCTION

Food security has become one of the most pressing development concerns worldwide. The latest global assessment estimates that 8.2 percent of the world population, or about 673 million people, faced hunger in 2024, and it concludes that the world remains far off track from

achieving Sustainable Development Goal 2 (Zero Hunger) by 2030 (FAO et al. 2025). Contemporary scholarship also argues that food security should be understood through six dimensions, namely availability, access, utilization, stability, agency, and sustainability, rather than through food supply alone (Clapp et al. 2022). These dimensions matter for rural communities, which both produce food and depend on local markets, local institutions, and stable incomes to obtain it.

Indonesia faces the same challenge. National survey data covering 2020 and 2021 show that the prevalence of food insecurity among households rose from 20.61 percent to 21.67 percent during the COVID-19 pandemic (Amrullah et al. 2023), and panel data on rural households show that dietary diversity declined as local production diversity declined (Mehraban and Ickowitz 2021). Since the enactment of Law Number 6 of 2014 on Villages, villages have received greater authority and funding to manage their own development (Antlöv, Wetterberg, and Dharmawan 2016), and the Village Fund has been associated with higher household consumption, especially among agricultural households (Rammohan and Tohari 2023). Village-Owned Enterprises (BUMDes) are the institutional vehicle through which a village can convert local resources into collective business units, including food production. The village itself is an area that has its own rules or system, led by a village head who has a vision and mission as a foundation for building the needs of the community in the village. Regarding villages, the government itself makes a rule regarding regulating villages, set out in Law Number 6 of 2014 on Villages (Sulaksana and Nuryanti 2019).

Village development is one of the important factors in creating independence in the national economy, especially in strengthening the food security sector. One of the strategies in shaping village development is Village-Owned Enterprises (BUMDes), which function as a driving force for the local economy based on the potential and needs of the community. BUMDes is one of the institutions that stands in the village as a social forum for the community and contributes to providing social services (Purnamasari and Ma'ruf 2020). Paniis Village, which is located in Kuningan Regency, West Java, is one of the villages that is developing the BUMDes program as an effort to improve food security and community welfare. With a population of ± 4,100 people, the majority of whom work as freelance day laborers, Paniis Village faces challenges in creating sustainable jobs and improving the living standards of its citizens. Village level data on household income, food availability, food access, or poverty are not yet available for Paniis Village, so there is no baseline against which the contribution of the BUMDes can be judged, which is itself part of the problem addressed by this exploratory study.

Local production units, such as small scale laying hen farming and paddy cultivation, are typical examples of the local potential that a village can mobilize. Family poultry contributes eggs as an affordable source of animal protein and household income in low and middle income settings, although disease, limited skills, and weak market access constrain its sustainability (Alders et al. 2018). Placing such units inside a BUMDes is attractive because it combines a collective business structure with food production, but it also demands managerial, financial, and marketing capacity that many village enterprises still lack (Kania, Anggadwita, and Alamanda 2021; Fitriani, Md Shahbudin, and Shauki 2024).

BUMDes Paniis Village has been running a food security program (*Ketapang*) through the laying hen farming and rice farming business units. At the time of data collection in August 2025, the program had been running for only about five months, so it can be described as showing early potential, not demonstrated results, in helping community income and contributing to local food security. Previously, BUMDes Paniis Village had been established

since 2020 in clean water management and waste management. The addition of business to BUMDes in the food sector shows that the enterprise is expanding its scope to respond to the growing needs of the community. However, various challenges remain in its implementation, especially in managerial aspects, business management skills, and marketing access. Once the food needs of the village are met, marketing could be expanded beyond Paniis Village.

Previous studies provide a mixed picture of what BUMDes can achieve. A community based study in Gunung Kidul found that BUMDes had not produced notable economic or social change nor directly improved residents' welfare (Anggraeni 2016). At national level, an analysis of 361 districts found only weak evidence that BUMDes contribute to rural development even though village funds had a positive effect (Hilmawan et al. 2023), whereas an analysis of Indonesian villages for 2018 to 2020 found that the presence of a BUMDes was positively associated with the village development index, while acknowledging that data on BUMDes capital and income were unavailable (Ultari and Khoirunurrofik 2024). Studies of agribusiness and food related initiatives are more encouraging but narrow. A BUMDes agribusiness unit in Sleman improved farmer welfare by offering capital, marketing support, and market guarantees, and its success was attributed to collaboration and trust, yet the case covered a single village and a single commodity (Habib and Kiswanto 2024). A food independent village program in Kuningan and neighbouring regencies showed that food availability, distribution, and consumption depend on the performance of farmer groups, but it was run by a military command and farmer groups rather than by a BUMDes (Dulkadir, Martono, and Subejo 2024). Finally, studies of BUMDes constraints report limited human resource capacity, weak coordination, and limited accountability for performance (Kania, Anggadwita, and Alamanda 2021; Fitriani, Md Shahbudin, and Shauki 2024), while success factors include skills, teamwork, transparent communication, and leadership (Sofyani, Atmaja, and Rezki 2019).

Three limitations stand out in the studies reviewed here. First, evidence on BUMDes impact is either macro level, relying on presence indicators and development indices, or based on case studies of enterprises that are already established. Second, studies of food related village programs rarely examine a BUMDes that has only just launched its own food production units, so little is known about how such units are organized, what output and revenue they can realistically expect, and which constraints appear in the first months. Third, existing studies seldom read BUMDes performance through the dimensions of food security, such as availability and access (Clapp et al. 2022). The research gap addressed here is therefore the absence of an early stage, empirically grounded account of a BUMDes food security program in a West Java village. The novelty of this study lies in documenting the integration of laying hen farming, rice farming, and university collaboration in a single case, in presenting transparent estimates of potential production and gross revenue together with their assumptions, and in interpreting the findings through the availability and access dimensions rather than business performance alone. The urgency is practical: the Ketapang program is new, decisions on capital, human resources, and marketing are being made now, and an early description can inform those decisions before routines become fixed.

The purpose of this study is to explore strategies in the management of BUMDes in the food security sector and analyze their contribution to improving the economic welfare of the community and the food needs of Paniis Village. Specifically, the study has two objectives: (1) to describe the management strategies, challenges, and supporting factors of the Paniis Village BUMDes in implementing the *Ketapang* program, and (2) to assess the early contribution of the program to local employment, food availability, and the village economy.

This research is expected to provide four kinds of benefits. Theoretically, it extends the BUMDes literature by linking management practice with the availability and access dimensions of food security. Practically, it gives BUMDes administrators concrete information on production, revenue assumptions, and constraints. Institutionally, it offers village governments and higher education institutions a basis for designing mentoring and community service programs. In terms of policy, it provides early field evidence for local and national policies that direct village resources toward food security.

This research focuses on the integration of local potential and a collaborative approach in the development of BUMDes in the food security sector in Paniis Village. Because the program was launched only in 2025, an early and detailed study is needed to understand how it works before its practices become fixed. By taking a participatory and data-based approach in the field, this study seeks to provide a real picture of the challenges and opportunities in the management of BUMDes that relate to food security and the village economy.

RESEARCH METHOD

This study used a qualitative descriptive method with a case study approach that focused on the management of Village-Owned Enterprises (BUMDes) in the food security sector in Paniis Village, Kuningan Regency, West Java (Nursetiawan 2018). The qualitative descriptive design provides a direct description of events in the participants' own terms, whereas the case study approach bounds the inquiry to a single instance, the Paniis Village BUMDes and its Ketapang program, as the unit of analysis. In this study the two are used as complementary orientations: the descriptive design guides how findings are reported, and the case study defines the scope and context of the inquiry (Doyle et al. 2020; Yin 2018). This approach enabled an in-depth exploration of the strategies, challenges, and contributions of BUMDes to food security and the economic welfare of the village community. In general, efforts to address problems at the village level can contribute to improving the welfare and livelihoods of village residents (Endah 2020).

The study aimed to understand the activities undertaken in a contextual and in-depth manner, particularly those related to the management strategies of BUMDes in the food security sector and their contribution to the economic welfare of the village community.

During the research process, two key informants were involved: Mr. Aleh, whom local residents referred to as Mang Aleh, who was responsible for managing the Paniis Village BUMDes, and Mr. Memed, a village employee responsible for empowerment and community services at the Paniis Village Hall. The informants were selected purposively, taking into consideration their direct involvement in the planning and implementation of BUMDes programs in the food security sector. The inclusion criteria were (1) a formal role in the management of the BUMDes or in village administration related to the BUMDes, (2) direct involvement in the planning or implementation of the Ketapang program, and (3) willingness to be interviewed and documented. Because the aim was exploratory and the two informants hold the main operational and administrative roles in the program, the sample was considered adequate for generating an initial description under the information power principle (Malterud, Siersma, and Guassora 2016; Campbell et al. 2020). However, saturation is typically

reached with larger samples than two informants (Hennink and Kaiser 2022), so data saturation could not be assessed formally, and this is acknowledged as a limitation of the study.

The main research instrument was a semi-structured interview guide developed based on indicators of BUMDes management, food security, and community empowerment. The dimensions, indicators, and data sources of the guide and of the analysis are summarized in Table 1. In addition, documentation tools were used to record field activities, including a camera for taking photographs and a note-taking application on a mobile device for recording information relevant to the data collection process.

Table 1. Analytical framework linking research objectives, dimensions, indicators, and data sources

Research objective	Analytical dimension	Indicators examined	Data sources
Objective 1: management strategies, challenges, and supporting factors	BUMDes management	Planning and organization of business units; managerial and entrepreneurial capacity; capital and financial reporting; marketing and market access; external collaboration	Interviews with the manager and the village officer; observation; documentation (photographs and field notes)
Objective 2: early contribution to the economy and food security	Food availability and access	Scale of production (hens, land area, output); estimated price and gross revenue; local marketing channels; reach of beneficiaries	Interviews; observation of the farm and the rice field; documentation
Objective 2	Local economy and employment	Job opportunities for residents; involvement of villagers in planting and harvesting; community awareness of food independence	Interviews; observation
Objectives 1 and 2	Community empowerment and participation	Community involvement in planning and evaluation; socialization of the program; institutional support from the village government and SCI Polytechnic	Interviews; documentation of community service activities

Note: authors' analysis, adapted from the six dimensions of food security (Clapp et al. 2022) and the livelihood assets in the sustainable livelihoods framework (Natarajan et al. 2022).

Data were collected through in-depth interviews and direct field observations. This process was intended to facilitate an in-depth understanding of the subject matter under investigation (Titioka et al. 2020). Data collection was conducted over approximately six days during community service activities (PKM), which took place at the village hall and at the

BUMDes activity site in Paniis Village (Adinia and Choiriyah 2024). Each interview session lasted approximately 30–45 minutes and was documented using a camera to support the transcription and validation processes. Photographs and field notes were treated as documentary evidence and were compared with the interview statements during data condensation, for example to check statements on the scale of the hen farm and the rice field. Observations were conducted on BUMDes activities, particularly those involving the laying hen farming and rice farming business units, to obtain a contextual understanding of the management process and community involvement. The short fieldwork period of about six days limits the depth of observation, particularly of seasonal processes such as harvest cycles, and is treated as a limitation of this study.

The data were analyzed using the interactive model of qualitative data analysis. The analysis process consisted of three stages: data condensation, data display, and conclusion drawing and verification (Miles, Huberman, and Saldaña 2020). The interview data were collected and organized to identify key themes related to management strategies, implementation challenges, and the contribution of BUMDes to food security and the village economy. During data condensation, the transcripts and field notes were coded inductively, similar codes were grouped into categories, and the categories were arranged into themes that correspond to the dimensions in Table 1 (Saldaña 2021). The matrices and narrative displays produced in the second stage were used to compare the accounts of the informants, and conclusions were verified by returning to the original data. Data validity was maintained through source and technique triangulation by comparing the results of interviews, observations, and field documentation (Nurdiyanti and Hailuddin 2021). Source triangulation compared the accounts of the BUMDes manager and the village officer, while technique triangulation compared interview statements with observations and documentation. Statements that were consistent across sources, such as the program scale and the business units, were treated as confirmed, whereas statements that could not be cross checked, such as expected harvest frequency and revenue, are reported as informant estimates. With only two sources, triangulation is necessarily partial (Fusch, Fusch, and Ness 2018).

Research ethics. The study was conducted as part of the community service (PKM) activities of the PRISMA 3.0 program under a Memorandum of Understanding between SCI Polytechnic and the Paniis Village Government, which provided permission for the field activities. Informants were informed about the purpose of the study, took part voluntarily, and agreed to be interviewed, photographed, and identified by name in line with their public roles. No sensitive personal data were collected, and the interview records are kept by the research team.

RESULT AND DISCUSSION

This section first presents the empirical findings, namely the profile of the BUMDes, its business units, and the estimated production and income of the *Ketapang* program. It then discusses the main constraints and strategies, compares the findings with previous studies, and relates them to the two research objectives.

Profile and Implementation of BUMDes Performance in the *Ketapang* Program

Village-Owned Enterprises (BUMDes) is a village program formed by the village government and village communities, aiming to increase the potential of the village and can increase the economic needs of the community (Agunggunanto et al. 2016). BUMDes itself is expected to be able to utilize existing natural resources and be able to empower the community so that they can develop competencies and expertise or abilities.

This research was carried out in an exploratory manner in forming a management strategy for Village-Owned Enterprises (BUMDes) in the food security sector in Paniis Village, Kuningan Regency, West Java. Based on the results of in-depth interviews and field observations in the village, it was found that BUMDes of Paniis Village has run four business units, namely: laying hen farming and rice farming as a food security program (*Ketapang*) established since 2025 and clean water and waste management established since the beginning of BUMDes was formed (2020).

The laying hen farming sector is part of the food security program (*Ketapang*) which started only in 2025. Currently, the unit manages 500 laying hens which are able to produce around 25 kg of eggs per day. With an average selling price of IDR 28,000 per kilogram, the potential daily income from this unit can reach approximately IDR 700,000 (25 kg × IDR 28,000 per kilogram). If this output is sold every day for a month of 30 days, the gross monthly income is about IDR 21 million (IDR 700,000 × 30 days).

This figure is gross revenue and does not include operational costs such as feed, labor, and cage maintenance. The monthly figure assumes stable production of 25 kg per day over 30 days and a constant price of IDR 28,000 per kilogram. Actual revenue will vary with the laying rate, egg grading, and price fluctuations, and realized sales were not examined in this study.

Meanwhile, the rice farming unit has a land area of about 1 hectare with an estimated yield of 6.2 tons per harvest season. With an estimated harvest three times a year and a selling price of around IDR 6,700 per kilogram, the potential annual gross revenue from this sector is about IDR 124.6 million (6,200 kg × 3 harvests × IDR 6,700), before production costs. The yield and price are interpreted here as referring to unhusked paddy (*gabah*) rather than milled rice, because a price of IDR 6,700 per kilogram is well below the retail price of milled rice; this interpretation should be confirmed with the manager. The assumption of three harvests per year on one hectare presupposes year round irrigation, which is plausible given the abundant spring water in Paniis Village but has not been verified over a full cropping cycle. Under a more conservative scenario of two harvests per year, the potential annual gross revenue would be about IDR 83.1 million. These amounts are projections (potential income), not realized income, and actual revenue depends on yield, harvest frequency, farm gate prices, and production costs. This agricultural activity involves several villagers, especially in the planting and harvesting process, so that it can create jobs for the residents of Paniis Village, especially since the majority of the residents work as freelance laborers or odd jobs.

Table 2. Estimated production and potential gross revenue of the Ketapang business units

Business unit	Scale	Output and price	Potential gross revenue	Status of the figures
Laying hen farming	500 hens	25 kg of eggs per day at IDR 28,000 per kg	IDR 700,000 per day; about IDR 21,000,000 per month (30 days)	Informant estimate; excludes feed, labor, and cage maintenance
Rice farming (three harvests per year)	1 hectare	6.2 tons per harvest at IDR 6,700 per kg	IDR 41,540,000 per harvest; IDR 124,620,000 per year	Informant estimate; excludes production costs
Rice farming (two harvests per year)	1 hectare	6.2 tons per harvest at IDR 6,700 per kg	IDR 83,080,000 per year	Conservative scenario added for comparison
Clean water and waste management	Running since 2020	Not quantified	Not quantified	Not covered by the interview data

Note: interviews with the BUMDes manager and the village officer; calculations by the authors. All figures are potential (estimated) gross revenue, not realized income. The initial funds of the Ketapang program were IDR 240 million.

The clean water and waste management unit has been running since 2020 and is the initial foundation of the existence of BUMDes in Paniis Village. This service has had a good impact on the quality of life of the village community, especially in terms of access to clean water and healthier and more organized environmental management. Paniis Village itself is a village that has abundant spring water sources and there are locations of water tourism attractions that can be used by the general public.

However, for the Ketapang program, which has only been running for five months since 2025, its impact on the community is still limited. Only a small percentage of residents have felt the direct benefits of this program by purchasing one of its products. According to the informants, this program has opened up new job opportunities and increased public awareness of the importance of food independence and local economic potential. It should also be remembered that food security can be affected in terms of price accessibility and food availability in the community (Salasa 2021). At this stage, no systematic data were collected on changes in household income, employment, food access, or food availability among residents. The contribution to welfare and food security is therefore reported as early and indicative evidence of potential, not as a demonstrated impact.

Strategies for Strengthening and Optimizing BUMDes in the Future

The research findings show that the BUMDes of Paniis Village has initial potential in supporting food security and community empowerment. Community empowerment is an instrument that can be used to reduce poverty effectively. Self-empowerment is a method used by an individual or group so that it can manage existing resources and can achieve goals

or common welfare (Sany 2019). The livestock and agricultural businesses carried out so far show promising estimated productivity, although they are still at an early stage of development. If managed optimally, these two business units may become a significant source of income for the village and its community.

However, there are also several main challenges that need to be faced. For example, the limitation of human resources (HR) which is an obstacle in the development process. BUMDes management, as previously stated by Mr. Aleh as the person in charge, still does not have adequate managerial capacity and entrepreneurial knowledge. This can have an impact on the effectiveness of business management, starting from planning, implementation, to program evaluation. The lack of mature training and coaching in managing village businesses can be an obstacle in strategic decision-making and business development. BUMDes themselves need knowledge about planning and development so that the business can develop and continue to run (Anggraeni 2016). This finding is consistent with studies that report a shortage of qualified human resources and the importance of managerial skills and leadership for BUMDes performance (Kania, Anggadwita, and Alamanda 2021; Sofyani, Atmaja, and Rezki 2019).

Limitations in capital can also be an obstacle to the growth of BUMDes' businesses. The Ketapang program is supported by initial funds of IDR 240 million, which is mostly used for initial production costs such as the purchase of chicken seeds, feed, and agricultural equipment. These limitations can hinder business growth and the procurement of more modern production facilities. In addition, the absence of an integrated financial system can also be an obstacle in managing cash flow and financial reporting. In the regulation of Law No. 4 of 2015 Chapter III article 12 paragraph 3 which states that "operational implementers are authorized to make financial statements of all BUMDes business units made in a simple accounting system" (Rambu Ana and Ga 2021). Similar weaknesses in financial management have been reported elsewhere, where simple bookkeeping could not capture the overall condition of the enterprise (Kalsum et al. 2022), and training has been shown to improve the financial management skills of BUMDes managers (Titioka et al. 2020).

Another challenge in running a BUMDes business is that market access is still limited. BUMDes livestock and agricultural products are currently still marketed locally, so profit margins cannot be called optimal. If there is a lack of digital marketing planning and a wide distribution network, BUMDes products can lose competition or find it difficult to enter a larger market (Rumawas, Nayoan, and Kumayas 2021). A BUMDes agribusiness unit elsewhere improved farmer welfare through capital, marketing support, and market guarantees (Habib and Kiswanto 2024), which suggests that Ketapang could benefit from similar marketing partnerships.

Collaborating with external parties is one of the factors that can help growth in the village. In the Community Service (PKM) activity included in the PRISMA 3.0 program, a collaboration has been formed between the Cerdika International Cyber Polytechnic (SCI Polytechnic) and the Paniis Village Government through the signing of a Memorandum of

Understanding (MoU). This collaboration is expected to provide technical support, training, or assistance in developing human resource capacity and more strategic business planning.

Students from SCI Polytechnic are directly involved in the process of mapping village potential, digital literacy training, and technical assistance in managing business units. This activity not only provides benefits for students in shaping field experience, but can also make a real contribution to the village, although the effects of this assistance have not yet been evaluated.

The success of the BUMDes program does not only depend on external administrators and partners, but on the active participation of the community itself. The results of observations and interviews show that the people of Paniis Village still tend to be passive in supporting and being involved in BUMDes activities. This can be due to a lack of socialization, a lack of understanding of the benefits and potential of BUMDes, or the uneven impact of the BUMDes program. By easing the benefits of the BUMDes program, it can increase community participation in the management of local potential (Nopi, Sulaiman, and Sujadmi 2021). Therefore, it is necessary to take a more intensive approach in order to increase public awareness and participation. Indicators of the success of BUMDes can be seen from consistently increasing profits, increasing the scope of consumers, employees who are able to carry out their duties, and can have a good impact on the community (Aprillia, Cahyono, and Nastiti 2021).

A strategy that can be applied by the village government is to involve the community in the planning and evaluation process of the program (Chintary and Lestari 2016). By directly involving residents, it will create a sense of ownership of the program so that it will increase community participation and support can be more optimal. In addition, transparency in management finance and business results are also important aspects for building public trust (Firman 2021).

The statement from Mr. Aleh as the administrator of BUMDes, strengthens the importance of sustainable development. He expressed his hope that the *Ketapang* program can develop and provide real benefits for all residents of Paniis Village. He also emphasized the importance of increasing production in the livestock and agriculture sectors as a strategic step to achieve this goal.

For the sustainability of BUMDes in Paniis Village, it is necessary to develop a medium- and long-term plan that includes business diversification, human resource capacity building, and broader marketing strategies (Rumawas, Nayoan, and Kumayas 2021). In addition, strengthening financial governance and transparency is key to building public trust and attracting support from various parties.

Overall, the results of this study show that even in the early stages, the Paniis Village BUMDes Ketapang program shows an initial foundation to develop. With the support of training, mentoring, and participation of the surrounding community, BUMDes may become an effective instrument in realizing food security and village economic welfare. This research

also suggests the importance of a collaborative and local potential-based approach in village business development. In an effort to prosper village communities through Village-Owned Enterprises (BUMDes), it is very important to always maintain transparency, communication, accountability, and fairness in running these businesses (Simanjuntak and Erwinsyah 2020).

Comparison with Previous Studies and Linkage to the Research Objectives

The findings agree with earlier studies on several points. The limited managerial and entrepreneurial capacity reported by the BUMDes manager is consistent with the shortage of qualified human resources found among BUMDes in Garut Regency (Kania, Anggadwita, and Alamanda 2021) and with the importance of skills, teamwork, and leadership for BUMDes performance (Sofyani, Atmaja, and Rezki 2019). The absence of an integrated financial system matches findings that other BUMDes have not yet met financial reporting standards (Rambu Ana and Ga 2021) and rely on simple bookkeeping (Kalsum et al. 2022). The reliance on local marketing can be read alongside evidence that capital, marketing support, and market guarantees were central to the success of a BUMDes agribusiness unit (Habib and Kiswanto 2024). The tendency of residents to remain passive can be read in light of evidence that the social capital supporting a BUMDes often remains at the bonding stage, with weak linking and bridging networks (Rahayu, Mukaromah, and Mulyanto 2024).

The findings diverge from earlier studies in one respect and are not yet comparable in another. Whereas a community based study in Gunung Kidul found no notable improvement in residents' welfare (Anggraeni 2016) and a national analysis found only weak evidence for a BUMDes effect on rural development (Hilmawan et al. 2023), the Ketapang program shows estimated production and revenue potential and has opened job opportunities, although these are projections and early observations, not measured welfare outcomes. The university collaboration in Paniis is formalized through a Memorandum of Understanding, whereas a study in South Lampung reported university activities that were not continuous and did not evaluate BUMDes development (Rosalia and Kagungan 2023), and it resembles a tripartite model in Semarang Regency in which academics assessed local potential and provided training and mentoring (Fafurida, Karsinah, and Bowo 2022). Whether the Paniis collaboration will be sustained and will improve BUMDes performance remains to be evaluated. Table 3 summarizes these comparisons.

Table 3. Comparison of the present findings with previous studies

Theme	Previous studies	Present findings	Relation
Managerial capacity	Shortage of qualified human resources (Kania, Anggadwita, and Alamanda 2021); skills, teamwork, and leadership drive performance (Sofyani, Atmaja, and Rezki 2019)	The manager reports inadequate managerial and entrepreneurial capacity	Agreement

Theme	Previous studies	Present findings	Relation
Financial management	Reports do not meet standards (Rambu Ana and Ga 2021); simple bookkeeping (Kalsum et al. 2022)	No integrated financial system; initial funds of IDR 240 million	Agreement
Market access	Capital, marketing support, and market guarantees raised farmer welfare (Habib and Kiswanto 2024)	Products are marketed locally and margins are not yet optimal	Partial agreement
Welfare and economic impact	No notable welfare change (Anggraeni 2016); weak national evidence (Hilmawan et al. 2023)	Potential revenue and early jobs; no measured welfare change	Divergence in potential, not in measured impact
Community participation	Social capital remains at the bonding stage (Rahayu, Mukaromah, and Mulyanto 2024)	Residents tend to be passive; benefits are uneven	Agreement
University collaboration	Activities not continuous (Rosalia and Kagungan 2023); tripartite model (Fafurida, Karsinah, and Bowo 2022)	Collaboration formalized through a Memorandum of Understanding; effects not yet evaluated	Not yet comparable

With respect to the first objective, the BUMDes runs the Ketapang program through two production units that complement its older water and waste units, and it is beginning to draw on external assistance through the collaboration with SCI Polytechnic; its main constraints are human resources, capital and financial reporting, market access, and community participation. With respect to the second objective, the contribution to the economy and food security is so far indicative. In terms of the dimensions of food security (Clapp et al. 2022), the production of eggs and paddy relates to availability and local employment relates to economic access, whereas utilization and stability were not examined, community agency is still limited because residents are largely passive, and sustainability depends on the financial and human resource issues above. In terms of livelihood assets (Natarajan et al. 2022), the program draws mainly on natural and financial assets (land, spring water, and the initial funds), while human and social assets are the weakest link. These interpretations are preliminary because they rest on two informants, a short fieldwork period, and estimates that have not been checked against sales records.

CONCLUSION

The food security program (*Ketapang*) carried out by the BUMDes of Paniis Village shows initial potential in supporting economic independence and local food security. Although

it is still in its early stages, the laying hen farming and rice farming business units have made initial contributions in the form of job opportunities and increased food production in the village (an estimated gross potential of IDR 700,000 per day and IDR 21 million per month from egg production, and about IDR 124.6 million per year from one hectare of rice, all of which are projections rather than realized income). In addition, the clean water and waste management unit that has been running since 2020 is an important foundation in building public trust and welfare for the existence of BUMDes. To realize sustainable food security, development efforts and direction are needed in carrying out the program.

In answer to the first objective, the management of the *Ketapang* program rests on two new production units, laying hen farming and rice farming, added to the older water and waste units, and it is constrained by limited human resources, capital and financial reporting, market access, and community participation. In answer to the second objective, the program shows early and indicative contributions: it has created initial job opportunities and has an estimated gross potential of about IDR 21 million per month from eggs and about IDR 124.6 million per year from one hectare of rice. However, these are projections, only a small share of residents has benefited directly, and effects on household income and food access have not yet been measured.

The success of this program still faces significant challenges, especially in terms of human resources and limited capital. The lack of managerial and entrepreneurial capacity of BUMDes administrators and the lack of community participation are the main obstacles to sustainable business development. Limited market access and the absence of an integrated financial system are additional constraints.

Collaboration with educational institutions such as the SCI polytechnic through the PRISMA 3.0 program is a strategic step that needs to be strengthened. Technical assistance, training, and institutional strengthening are key to increasing program effectiveness. In addition, increasing community participation through a participatory approach and management transparency is important to create a sense of belonging and sustainability of the program.

With careful planning, cross-sector support, and internal capacity strengthening, Paniis Village BUMDes may develop into an instrument of community empowerment based on local and sustainable potential. This study suggests that a collaborative approach based on the real needs of the community can be an important foundation for building an independent, resilient, and prosperous village.

This study has several limitations. It is a preliminary single case study based on two informants and about six days of fieldwork, so data saturation could not be assessed and the findings cannot be generalized. Beneficiaries, workers, and customers were not interviewed, documentary evidence was limited to photographs and field notes, and the income figures are informant estimates that exclude production costs and were not checked against sales records. Future research should add more informants, including residents and beneficiaries, follow the program over at least one full production cycle, record actual costs and revenues, and compare Paniis Village with other villages that run BUMDes food programs.

Based on these findings, the following recommendations are proposed in order of priority. First, the BUMDes should strengthen its financial record keeping by adopting a simple accounting system that separates the costs and revenues of each business unit. Second, the village government and SCI Polytechnic should continue structured training and mentoring for administrators in management, financial reporting, and digital marketing, and should evaluate the results of this assistance. Third, the BUMDes should involve residents in planning and evaluation and publish periodic reports to increase participation and trust. Fourth, policy makers at village and district levels should monitor early stage BUMDes food programs with indicators of household income, food availability, and food access so that their contribution can be assessed in later stages.

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