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RESEARCH ARTICLE

Infrastructure Development Planning Based on Local Potential to Increase Farmers Income: (Case Study Porang of Kindang Village, Kindang District, Bulukumba Regency)

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Abstract
This study aims to examine the infrastructure planning process based on local conditions and potential, the role of the village government in supporting the development of local porang potential, and the efforts of porang farmers to develop a value chain to increase their income in Kindang Village, Kindang Subdistrict, Bulukumba Regency. This study employs a descriptive qualitative method using a case study approach. Data were collected through interviews, observations, and documentation from 20 informants (village government officials, porang farmers, porang traders, and community leaders), as well as through document analysis of the village medium-term development plan (RPJMDes), the village development work plan (RKPDes), and the village fund budget (DDS). Thematic data analysis was conducted through data reduction, data presentation, and drawing conclusions. The results show that although planning has been carried out in a participatory manner through village meetings, its effectiveness remains limited. The main finding highlights that road quality, especially farm roads, is a key factor in optimizing the value chain and selling price of porang. Limited access increases distribution costs and weakens farmers' bargaining position, so the economic potential has not been fully utilized. Therefore, strong synergy between participatory planning, strengthening the role of the village government, and infrastructure development oriented toward agricultural production needs is essential to sustainably improve farmers' income.

Keywords
Development Planning; Local Potential; Village Infrastructure; and Porang Plant.

1 | INTRODUCTION

Rural development is a central issue in the context of developing countries, particularly in regions where the economic structure remains dominated by the agricultural sector as the primary source of livelihood for the population. In this context, sustainable economic development in rural areas is an urgent necessity to improve community well-being and strengthen the foundations of the national economy (Asnuryati, 2023). However, development disparities between regions still frequently occur, indicating structural imbalances and an uneven distribution of development outcomes (Bado, 2024). Rural development planning is a key priority for Indonesia, given that 80% of its territory is rural. This underscores the urgency of focusing on rural infrastructure development for comprehensive well-being. Effective rural infrastructure development heavily depends on thorough planning specifically, how it will be implemented, when it will be carried out, and who is responsible (Jaya *et al.*, 2021). Therefore, development planning must be targeted, systematic, and oriented toward equitable welfare.

Infrastructure development plays a strategic role in supporting the rural economy, as it serves as the fundamental framework that enables social and economic activities to function effectively. Infrastructure is understood as a collection of facilities, buildings, and basic systems necessary for a community's social and economic systems to function optimally. In line with this, improving rural infrastructure is a crucial step in strengthening food security and promoting the agricultural sector as a key pillar of economic development (Rumawas *et al.*, 2021). Empirically, the availability of infrastructure, particularly roads, has been shown to have a positive and significant impact on increasing farmers' household income through improved efficiency and market accessibility (Mazibuko *et al.*, 2020). A World Bank working paper (2023) shows that improving farm-to-market roads is crucial for increasing agricultural productivity and economic growth in developing countries. Infrastructure such as reliable rural roads, storage facilities, and organized markets helps reduce distribution costs, improve farmers' access to buyers, and minimize post-harvest losses. Other studies confirm that infrastructure is the most important factor in value chain performance, but sustainable improvement also requires strong farmer institutions, such as cooperatives, and accountable local governance (Agbana & Ebissine, 2026). In addition, socio-economic factors like land size, access to market information, and farmer characteristics influence market participation (Adebayo & Ogundele, 2024). In Nigeria, better infrastructure has been shown to increase productivity and farmer income, but its effectiveness is often limited by poor maintenance, lack of funding, and governance challenges (Ijirshar *et al.*, 2025). Therefore, a more participatory approach through community partnerships and strengthening local capacityis needed to support sustainable agricultural development (Okuma *et al.*, 2022).

Nevertheless, empirical conditions on the ground indicate that infrastructure limitations remain a major obstacle to rural development. In Kindang Village, for example, the poor condition of public roads and farm roads hinders community mobility particularly farmers' ability to transport agricultural produce to market thereby leading to lower selling prices and reduced income (interview; AAS, 2025). This demonstrates that infrastructure serves not only as a physical means but also as a key determinant in shaping the economic outcomes of communities. From a planning perspective, development is understood as a systematic process encompassing the identification of resources, the setting of objectives, and the formulation of strategies to achieve development goals effectively. Furthermore, development planning must be viewed as a multidimensional process that encompasses social, economic, institutional, and local potential aspects to enhance the overall well-being of the community (Todaro & Smith, 2020). In the context of village governance in Indonesia, this planning process is embodied in formal documents such as the RPJMDes and RKPDes, which serve as references for determining development priorities and budget allocations (Ministry of Villages, 2020). In addition to planning aspects, the utilization of local potential is also a key factor in driving rural economic development. Local potential is defined as the capabilities and resources possessed by a region that can be developed to improve community well-being (Soleh, 2017). If managed sustainably, local potential can become a key sector that provides long-term economic benefits (Endah, 2020).

Fresh porang tubers at the farmer level are priced at approximately Rp7, 600 to Rp8.000 per kilogram. However, its economic value will increase dramatically if it is further processed. As a semi-finished product, such as sliced porang chips (thinly sliced) that are sun dried, the price can reach Rp58, 000–Rp63, 000 per kilogram. And if processed into porang flour, the price ranges from Rp160, 000 to Rp190.000 per kilogram. At its peak, glucomannan flour can reach Rp600.000 to Rp1.000.000 per kilogram (Ningsih, 2022). Increased productivity, marketing efficiency, and the use of appropriate technology will directly boost porang farmers' income, thereby positively impacting the quality of life and well-being of the community (Masniawati *et al.*, 2023). The findings of this study not only demonstrate participation in village development planning but also reveal significant implementation gaps. Inadequate infrastructure is the primary factor hindering distribution efficiency and lowering the selling price of porang at the farmer level. Thus, the relationship between planning, infrastructure, and farmer income is indirect but mediated by accessibility and the structure of the value chain.

In this studi, the porang plant (Amorphophallus muelleri) is one of the flagship commodities with high economic value and significant potential to increase farmers' income (Aldillah *et al.*, 2023). Furthermore, the agroclimatic conditions in Bulukumba Regency are considered highly conducive to developing porang cultivation as a regional flagship

commodity (Masniawati *et al.*, 2023). However, previous studies have primarily focused on the technical aspects of cultivation, economic value, and market development for porang. These studies tend to emphasize production efficiency, product downstreaming, and community empowerment (Hasnidar *et al.*, 2025; Riptanti *et al.*, 2024; Masniawati *et al.*, 2023), while the relationship between infrastructure development planning and the utilization of local potential has not been extensively examined. This indicates the existence of a research gap, particularly in understanding how village infrastructure planning can support accessibility and optimize local economic potential.

Analysis results for the January-May 2025 period from the book "Current Statistics on the Agricultural Economy, July 2025" by Rinawati (2025). The analysis results shown in Figure a indicate that the total export volume was 473 tons during the first five months of 2025. Furthermore, the export value shown in Figure B totaled USD 334,000 during the same period. On the other hand, the peak in exports occurred in March, with a total volume of 149 tons and an export value of USD 192,000. The months of January, February, April, and May contributed less in terms of both volume (tons) and value (USD). Meanwhile, the period from June-December is the porang planting season, and there were no purchases during those months due to the annual planting cycle. When the government implements appropriate policies for market diversification and downstream processing, it will reduce dependence on seasonal export patterns in the coming year. March serves as the peak, indicating the dominance of a single month over the total value. Furthermore, the export value per ton tends to increase in March with processed porang products. Kecause the market value of Porang products can be increased through processing and marketing (Riptanti *et al.*, 2024). Thus, it can be said that the importance of participatory approaches, synergy, or government support regarding the implementation of sustainable agricultural downstream processing programs at the local level is crucial.

This gap is particularly evident in the context of Kindang Village. Although porang has become a flagship commodity with high economic potential, infrastructure limitations remain a major obstacle to its development. Farmers have sought to increase value-added through processing and product quality improvement, yet these efforts remain constrained by inadequate road access and limited market access (interview; AAS, 2025). This situation highlights a lack of synergy between the local potential available and the existing infrastructure support. Based on these issues, this study is structured around several key questions, namely: (1) how is the planning process for village infrastructure development based on local conditions and potential; (2) what is the role of the village government in supporting the development of local agricultural potential; and (3) what efforts are farmers making to develop value chains to increase their income. The objective of this study is to address the main research questions and analyze the integration between infrastructure planning, the role of village institutions, and local economic practices in improving the welfare of farming communities. This study employs a descriptive qualitative approach with a case study design. Data were collected through in-depth interviews, observations, and document analysis involving village governments, porang farmers, porang traders, and community leaders. Data analysis was conducted using thematic analysis techniques to identify patterns, relationships, and dynamics occurring in the planning and implementation processes of development. Preliminary research findings indicate that participatory mechanisms in planning, such as hamlet deliberations and village development planning meetings, have been implemented; however, their implementation remains limited due to budget constraints and prioritization issues. Additionally, the role of the village government tends to remain facilitative and has not yet been fully optimized in promoting agricultural downstream development. On the other hand, farmers have made various efforts to improve the value chain, but are still constrained by infrastructure limitations (farm roads and village roads).

However, research that examines and integrates village infrastructure development planning with the utilization of local agricultural potential particularly the porang plant remains very limited, especially within the specific context of villages. Infrastructure improvements, including the construction of farm roads and irrigation systems (basic necessities for agricultural activities), can boost community activities, increase household income, and enhance overall well-being (Mayora *et al.*, 2025). Additionally, a high level of community participation and synergy between the community and the village government is required to support local government programs that impact the general well-being of the village community (Ridwan *et al.*, 2022; Syairuji & Rijali, 2023; Tarigan *et al.*, 2024). However, this requires human resources such as NGOs and village governments capable of determining the direction of development and community empowerment within the Village Development Work Plan (RKPDes) for a six-year period and the Village Medium-Term Development Plan (RPJMDes) as an annual program. Synergy between local governments and villages in Indonesia is currently essential to ensure the general welfare of the community (Kurniawan, 2020; Ridwan *et al.*, 2022; Putra & Mursyidah, 2023; Irsyad, 2024; Tarigan *et al.*, 2024). Based on the above discussion, a gap analysis reveals that there has been little systematic research examining the relationship between village infrastructure development planning, the role of village governments, and the value chain of porang cultivation by farmers in increasing their income. Furthermore, empirically, there has been no specific study that highlights Kindang Village as a research location in the context of integrating infrastructure development based on local agricultural potential. Therefore, this study offers novelty by integrating three main aspects infrastructure development planning, the institutional role of the village government, and the development of the porang value chain within a comprehensive analytical framework.

Theoretically, this study contributes to the development of a concept for rural development planning based on local potential by emphasizing the importance of integration between infrastructure, institutions, and the local economy.

Practically, the results of this study are expected to serve as policy recommendations for improving the quality of village development planning, strengthening the role of village governments, and enhancing market access for farming communities. The structure of this article is as follows: the next section discusses the literature review and conceptual framework; the following section explains the research methodology; this is followed by the results and discussion; and the final section presents the conclusions and research recommendations. This study aims not only to describe the process of village infrastructure development planning but also to contribute to the advancement of theory and practice in rural development planning. Theoretically, this study integrates the concepts of development planning, local potential development, and agricultural value chains into a single analytical framework that highlights the role of infrastructure as a mediator in increasing community income. Practically, the results of this study are expected to serve as a reference for village governments in formulating more targeted development policies based on local potential, as well as to improve community welfare through enhanced accessibility, distribution, and agricultural economic efficiency.

2 | BACKGROUND THEORY

The conceptual framework or theoretical background of this study is based on three theoretical foundations: the development planning process, agricultural infrastructure development, the government's role in accommodating community needs, and participatory development planning (Tjokroamidjojo, 1995; Todaro & Smith, 2020; Suwandi, 2012; Kartikawanto, 2013; Saragih *et al.*, 2024; Goffar *et al.*, 2025). Strengthening rural agricultural infrastructure development (Grigg, 1988; Mankiw, 2003; Adisasmita & Adji, 2011; Nugraha *et al.*, 2024; Yar & Yasouri, 2024;). Then, how can local potential be developed or utilized by farming communities (Porter, 1985; Saleh, 2017; Endah, 2020; Rodiaminollah & Qomariyah, 2023; Zhang, 2024; Yang *et al.*, 2025; Ye, 2025; Li, 2026).

2.1 Development Planning

Economic development, in its evolution, is known as development planning a process consciously designed by the central government to influence, direct, and, under certain conditions, control the dynamics of key economic variables in a country or region. Thus, it can be concluded that development planning, according to Todaro, is a complex process involving the influence, direction, and control of socioeconomic changes in a country, aimed at realizing a better and sustainable life for society. Furthermore, development planning can be understood as an effort to direct the use of various development resources including limited economic resources so that they are utilized efficiently and effectively to achieve better socioeconomic conditions. From a broader perspective, development is not merely economic in nature but also encompasses social and institutional dimensions, as well as local potential, as part of an integrated system (Todaro & Smith, 2020). Various studies show that physical infrastructure, especially bridges and roads, plays a key role in supporting agricultural distribution and rural economic growth. Well-maintained infrastructure improves value chain efficiency and provides a strong foundation for effective development planning (Saragih *et al.*, 2024). However, strengthening the agricultural sector requires more than infrastructure alone. Financial support, such as Agricultural Value Chain Financing (AVCF), has been proven to increase small farmers' access to credit, while warehouse receipt systems allow farmers to use their harvest as collateral (Goffar *et al.*, 2025).

Development planning is a process of controlling and regulating economic dynamics that is deliberately designed by the central government, with the aim of achieving specific, predetermined objectives. These efforts are carried out within a planned timeframe, so that every policy decision is measurable and directed toward achieving the desired development outcomes (Jhingan, 2018). Planning is a sequence of objectives, activities, and timelines that serve as a response to the future. Objectives determine the direction to be achieved, activities outline concrete steps to achieve them, while timelines establish the framework for their implementation (Ariadi, 2019). Based on Brundtland's (1987) principle, the development planning process aims to achieve sustainable and inclusive development that is, development capable of meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.

In this view, tjokroamidjojo emphasizes that there are five key elements that must be considered, namely: (a) Identification of economic resources and other resources that can be used to address development issues. (b) Establishment of development goals and objectives (c) Formulation of policies and methods for selecting and utilizing available resource alternatives to achieve the goals and objectives. (d) Implementation of programs through concrete activities, and (e) Determination of the timeframe for realizing the established goals. This is also explained by Suwandi (2012), who states that the development planning process is crucially dependent on the participation or involvement of various stakeholders in determining the direction of development policy. According to him, the implementation of participatory development planning encompasses the following aspects: (a) A focus on community interests, meaning that program designs are based on community issues and needs, while taking their aspirations into account through an atmosphere of mutual trust and openness. (b) Active community involvement, where everyone has an equal opportunity to express ideas or opinions through meeting forums without being limited by speaking ability, time, or location. (c)

Synergy or cooperation, which means involving all relevant parties, emphasizing cooperation between administrative and geographical regions, and ensuring that every plan created complements existing or developing plans, while considering the relationships among stakeholders. This is reinforced by Kartikawanto (2013), who states that participatory development planning has the following characteristics: (a) conducting research or gathering information as part of the planning process, (b) the planning process is carried out through deliberations involving all stakeholders in the region, (c) the availability of strong support to carry out the planning process, (d) development plans are formulated based on the actual conditions in the region, and (e) preparing a budget plan to determine the required costs and their allocation. According to Hazizah, *et al.* (2025), development planning is a crucial strategic step in achieving effective and efficient development goals. With thorough planning, the entire development process can be designed by carefully considering the needs, potential, and challenges present in a given area. Thus, this planning can be utilized optimally, and the intended goals can be achieved on time and within a controlled budget.

Based on the theoretical statements outlined above, the researcher concludes that sound development planning serves as a strategic step toward designing development initiatives based on local needs, potential, and challenges, while taking into account cultural factors, natural resources, and demographics. The theoretical framework described above facilitates a structured, sustainable, and relevant development process, ensuring that objectives are achieved on time with controlled budget utilization. The researchers identified two main theories based on the background phenomena, namely those of Suwandi (2012) and Kartikawanto (2013), which emphasize that development planning involving the active participation of the community and stakeholders is crucial for implementing programs that align with actual needs and challenges on the ground. By prioritizing community aspirations and ensuring the involvement of all stakeholders in the deliberation process, the planning process can produce infrastructure designs that truly support local conditions and potential, particularly in agricultural activities. This participatory approach also ensures that the plans developed complement existing plans and receive strong support from various relevant parties, thereby making the implementation of village infrastructure development more effective and sustainable.

2.2 Village Infrastructure Development

At the same time, rural development challenges in many developing countries follow similar patterns, including weak infrastructure, governance limitations, and socio-economic constraints. These conditions highlight the need for community-based approaches and sustainable local development strategies (Yar & Yasouri, 2024). Food and economic resilience are also shaped by regional inequality, where low-income areas with limited infrastructure tend to have lower resilience (Nugraha *et al.*, 2024). An infrastructure system can be understood as the collection of facilities, buildings, equipment, and basic installations that are constructed and required to ensure that the social and economic systems of urban and rural comunities function effectively in accordance with their needs. Based on Law No. 23 of 2014 on Regional Government, a village is a legal community unit with defined territorial boundaries that has the right to regulate and manage the interests of its residents based on origins and customs recognized and respected within the governance system. Theory, which states that infrastructure is a form of public capital derived from government investment. Given the highly complex nature of infrastructure development, this study defines village infrastructure as encompassing only village public roads, farm roads, clean water, bridges, and similar facilities. According to Karateng *et al.* (2023), the concept of infrastructure development has a very broad meaning because it encompasses various important aspects such as political, economic, and social dimensions. Therefore, the researchers specifically focused on how village infrastructure planning is based on current local agricultural conditions and potential, which constitutes the main issue of this study. According to Hajia *et al.* (2022), the construction of neighborhood roads is one component of community-based village infrastructure development. The objective of community-based village/subdistrict infrastructure development is to improve the well-being of rural communities by increasing their participation in development; for example, the construction of Farm Access Roads (JUT) is one of the government's efforts to support the economy of rural communities.

Therefore, in a recent study by Hajia *et al.* (2024), farm roads play a crucial role because they facilitate access to agricultural land and the transportation of crops, thereby enhancing agricultural productivity as well as the well-being of farmers and the surrounding community. The existence of farm road infrastructure is also a key factor in the development of the agricultural sector, supporting food security, promoting agricultural agribusiness, and improving farmers' living standards. In this study, the discussion focuses more on road infrastructure development, particularly village public roads and farm roads. Roads serve as connectors between one place and another; consequently, nearly all human activities are inherently linked to roads. Therefore, this study requires a theoretical framework regarding road infrastructure. According to Adisasmita & Adji (2011), road infrastructure is a basic means of transportation that includes roadways along with their supporting structures and facilities used for traffic on the ground, above ground, underwater, or on the water's surface: (a) Rural transportation infrastructure such as roads, bridges, drainage systems, and so on to improve accessibility for rural communities. (b) Infrastructure supporting agricultural production, such as rural irrigation systems that can support water supply for crops. (c) Infrastructure to meet the basic needs of the community, such as clean water supply, street lighting, telecommunications networks, and rural sanitation. From the theoretical definition of infrastructure development above, researchers can understand that the process of implementing infrastructure

development or physical facilities and infrastructure is a crucial component in supporting access to services for rural communities. This public infrastructure is essential as it supports governmental, economic, industrial, and social activities within the community.

This is reinforced by Rumawas *et al.* (2021), who note that another key aspect of rural development is infrastructure improvement as a step toward food security, aimed at creating prosperous and high-quality villages. Food security itself is a strategic issue in a nation's development; the agricultural sector plays a vital role as the primary food provider, particularly in developing countries where this core sector serves as both the primary target of development and the main instrument of economic growth. This aligns with Mazibuko *et al.* (2020), who note that the availability of road infrastructure has a positive and significant impact on increasing farmers' household income; for instance, road infrastructure can help farmers operate their agricultural businesses efficiently, thereby boosting income in the agricultural sector. This principle is in line with Law No. 32 of 2009 and the views of experts who emphasize that sustainable development must integrate institutional, economic, social, agricultural, and ecological aspects with village economic strategies. Thus, the application of the concept of sustainable development in the management of local agricultural potential will increase the income of the Kindang community equitably, preserve the environment, and create a fair and competitive agricultural system if managed and maximized properly and sustainably. Rural infrastructure development based on the village's key agricultural commodities is not merely a short-term solution but also a strategic investment for the well-being of future generations.

Researchers can conclude that the small scale of operations, which may hinder farmers' efforts to increase economic value, makes it difficult to escape low income (the poverty cycle). In addition to the limited size of their farms, this is also caused by low farmer productivity, limited infrastructure development, and low institutional support for capital, technology, information, and markets. Consequently, this will not lead to a more advanced and sustainable rural community in future generations. This point is reinforced by Yunani (2022) in his book on development planning issues (theory and practice), who notes that current realities indicate that development programs are finding it increasingly difficult to reach the vast number of individual smallholder farmers. The prevailing economic situation, infrastructure, and government policies often push small-scale farmers and farm laborers toward economic and social marginalization.

2.3 Local Potential

According to Soleh (2017), a village's local potential refers to the resources, strengths, capabilities, and capacities possessed by a village that can be developed to improve the well-being of its community. Furthermore, according to Endah (2020), local potential refers to the capabilities a village possesses that can be developed consistently and sustainably; these become potential when harnessed or utilized to create tangible benefits for the community. On the other hand, development at the local level is only effective if supported by institutions capable of organizing collective action, rather than merely top-down policies. Without functional institutions, local resources including agricultural potential will not generate sustainable economic impacts if supported solely by social capital (Uphoff, 1986). According to him, the success of development is largely determined by: the social conditions of the community, local power relations, knowledge, and the experience of local actors. In other words, local potential does not automatically become an economic strength without institutions capable of managing it. Therefore, Uphoff's theory also strengthens the analytical framework of this study in understanding the relationship between village development planning, the role of the village government, and the economic efforts of porang farmers to increase economic value. In addition, demographic and technological factors play an important role. An aging agricultural workforce can reduce productivity (Yang *et al.*, 2025), while digitalization has been shown to improve efficiency, innovation, and economic resilience through better industry structure and market access (Ye, 2025; Li, 2026). Therefore, effective rural development requires an integrated approach that combines infrastructure, financing, technology, and local capacity building to achieve sustainable economic growth (Zhang, 2024).

Many communities in Indonesia argue that natural resources are not only of economic value but also hold deep social, cultural, and political significance. The abundant local resources in a region can spark creativity and create opportunities for home-based businesses, or what is now often referred to as "home industries" (Rumalean *et al.*, 2023). Indonesia possesses immense agricultural potential; yet, ironically, the majority of farmers remain poor. Moving forward, numerous factors must be addressed and actions taken to develop the agricultural sector. Well-managed resources will directly enhance economic value for the community. The primary priority the well-being of farmers and their families must be the core objective of every program aimed at advancing the agricultural sector (Rodiaminollah & Qomariyah, 2023). Currently, young people's interest in the agricultural sector is declining due to various factors, including its perceived lack of prestige, high risks, unstable and unsustainable income, and limited farmland (Aldillah *et al.*, 2023). Meanwhile, the local potential of the porang plant now holds significant economic value. To this end, the government is striving to optimize the management of land, natural resources, and human resources in every village. The hope is that this Porang farmer program can increase the income of villages and districts throughout Indonesia (Yasin *et al.*, 2021). This vast local potential of the Porang plant must be sustainably optimized to meet domestic food needs. This is crucial because currently, the domestic supply of staple rice is insufficient to meet Indonesia's needs (Haerunnisa *et al.*, 2023).

This serves as a pillar of sustainable development in the research report "Adoption of the Porang Agroforestry Model

for Land Utilization in Teak Stands" by Hermudananto *et al.* (2019), published in the "Journal of Community Service" at Gadjah Mada University (UGM), providing empirical evidence that integrating Porang into agroforestry systems can serve as a practical strategy for achieving sustainable development. This report documents pilot activities (experimental planting, technical assistance, farmer training, and local value chain development) that demonstrate how interventions based on local potential increase land productivity while improving ecosystem functions. Currently, Porang stands out among students, campuses, and agricultural practitioners because its cultivation is neither too easy nor too difficult; most importantly, Porang tubers have a very profitable market value for farmers (Araji *et al.*, 2024). Local commodity-based development, when designed as an agroforestry system, can generate dual benefits such as increased household income and the maintenance of local ecosystems (Kamaruddin *et al.*, 2021). The goal is to utilize and allocate village resources to achieve development objectives. Although the focus of industrialization is shifting, the agricultural sector still holds significant potential for increasing income (Dia & Hamid, 2023). This positions the participation of rural communities as a strategic component, as high levels of engagement have been shown to yield programs that are more sustainable and better aligned with local needs (Zunaidi, 2024). This in-depth understanding is crucial for formulating more targeted agricultural policies. Therefore, the farmer-managed Porang agricultural sector is key to their well-being (Monica *et al.*, 2025).

3 | METHOD

The researchers intentionally selected the study location using the purposive area method, in which the site was specifically determined based on certain considerations and objectives (Sugiyono, 2021; Isnaini & Yuliati, 2023). For example, a previous study conducted by Yapuutra *et al.* (2023) in Cenrana Subdistrict was carried out using a purposive area sampling method due to its strategic position as a center for porang cultivation in Maros Regency and its proximity to porang processing facilities. Therefore, the researchers selected the research location in Kindang Village, Kindang Subdistrict, Bulukumba Regency. The researchers selected the location in Kindang Village using the purposive area technique. Based on theoretical references and scientific journals, the researcher identified similarities in the research objects and indicators regarding the issues to be studied, making it easier to obtain information on infrastructure development planning based on the village's local potential. The researcher selected this research location because porang has long been cultivated in Kindang Village. However, given the originality of the issues observed in the field, the researcher deemed it important to conduct the study in this location. In the informant selection process, the researcher begins with a number of initial informants who meet specific criteria (purposive sampling). Next, the researcher asked the informants to recommend other individuals who also met the study's criteria (snowball sampling). This technique is highly effective in research involving groups or communities that are difficult to identify (Creswell, 2018; Sugiono, 2021). Thus, this aligns with Wijaya (2020) research, which states that informant selection to obtain data typically employs purposive sampling, and data analysis follows an inductive qualitative approach (qualitative research triangle), whereas qualitative research results prioritize meaning, interpretation, and paradigms over generalizing numerical data. Therefore, the researcher involved porang business actors (porang farmers and porang traders), community leaders, and village government institutions, totaling 20 informants. Consequently, the researcher categorized them into two indicators: key informants are individuals who possess essential knowledge and information (as key actors in the village government), including: (a) Village Head, (b) Secretary of Kindang Village, (c) Chairperson of the Kindang Village Council, (d) General Affairs Officer of Kindang Village, (e) BPS Partner for Kindang Village, (f) Hamlet Head in Kindang Village, and (g) Village Profile Operator. Meanwhile, the main informants are people directly involved in the social interactions of the village community (beneficiaries) who are for the research, including: (a) Community Leaders of Kindang Village, (b) Porang Farmers of Kindang Village, and (c) Porang Traders of Kindang Village.

The qualitative approach in this study has been chosen rationally because it is able to capture the complexity of the relationship between Infrastructure Development Planning and the development of local agricultural potential that cannot be explained through a quantitative approach. Qualitative approach is chosen because it is able to explore in depth: (a) the process of participatory Village Development Planning, (b) the dynamics of interaction between actors (village governments, farmers, traders and community leaders), (c) and the subjective meaning given by the actors to the condition of infrastructure and agricultural economic activities. Thus, researchers not only focused on what happened, but also why and how the process took place, resulting in a comprehensive understanding of the empirical reality in Kindang Village. The validity of the findings is guaranteed through triangulation of sources, time, and methods. A systematic process of thematic analysis is carried out from data reduction to interpretation. To ensure the validity of the findings, researchers categorize and analyze through several stages: (a) data reduction, namely raw data (interview transcripts, field notes and documentation) are selected to identify relevant information and eliminate data that is not related to the purpose of the study. (b) coding, i.e. data classified into initial categories, such as: participatory planning, infrastructure conditions, market access,

farmer strategies, and distribution constraints. (c) thematic Categorization, by categorizing the initial data and then grouped into large themes. For example, the initial category is musrenbang, or community participation is participatory development planning, then damaged farmer roads or difficult access are infrastructure conditions. In addition, conditions when prices are low, or distribution is the value chain as the main theme. (d) interpretation, each theme is analyzed to find patterns of relationships, causal relationships, and data contradictions. (e) drawing conclusions, which are prepared based on the consistency of the findings, the relationship between themes, and empirical data support. Thus, the results of the study are not only descriptive, but also have analytical power in explaining the causal relationships that occur in the field.

The data analysis techniques used in this study, as outlined in (Miles & Huberman, 1994; Sugiyono, 2021; Creswell, 2011), include data reduction, data presentation, and verification or drawing conclusions. This approach is iterative, continuing until the collected data is sufficiently saturated (conclusions can be drawn). This analytical method was also used in the same study by (Muhammad, 2022; Elvira, 2024), who employed descriptive qualitative data analysis by following three main stages: summarizing, filtering key points, and identifying patterns from the data collected during observations, interviews, and documentation (data reduction, data presentation, and drawing conclusions).

4 | RESULTS AND DISCUSSION

4.1 Results

To examine the infrastructure planning process based on local conditions and potential implemented by the Kindang Village government, the role of the village government in developing local agricultural potential, and the efforts of the Porang farming community to improve their income value chain in Kindang Village, Kindang Subdistrict, Bulukumba Regency, this study focuses on three main aspects derived from the research questions. These aspects are analyzed through several theoretical indicators. First, development planning should be directed and controlled, ensure the equitable distribution of benefits, promote the efficient use of resources, and be carried out through a participatory process involving the community (Todaro, 1986; Tjokroamidjojo, 1995; Suwandi, 2012; Kartikawanto, 2013). Second, the implementation of development planning must be multidimensional, covering economic, social, agricultural, and institutional aspects, including the development of rural agricultural infrastructure and the effective role of government in responding to community needs (Grigg, 1988; Todaro & Smith, 2020; Adisasmita & Adji, 2011). Third, the study emphasizes the efficient and sustainable use of local potential, resources, and village strengths. When local potential is managed sustainably, it can increase the economic value of rural communities, support sustainable rural development, and strengthen sustainable livelihoods. In this context, the existence of a value chain can improve the welfare of farming communities, particularly when supported by government involvement throughout the structural process from upstream to downstream (Soleh, 2017; Endah, 2020; Chambers & Conway, 1992; Porter, 1985; Uphoff, 1986).

The three theoretical indicators above can be used to identify development planning issues in Kindang Village, followed by the stage of setting development goals and targets that prioritize the community in supporting overall well-being. Subsequently, during the evaluation stage of development initiatives or the re-evaluation of village programs agreed upon collectively (priority scale), these should align with community needs. After the researcher conducted empirical data collection (interviews and document analysis), the researcher then reanalyzed the data to verify its validity (sources, methods, and timing) and analyzed the data through data reduction (tables, matrices, thematically, or narratively). The final stage involved presenting the data and drawing conclusions. The collected data is then presented comprehensively and clearly in the research results and discussion sections. To this end, the researcher presents the research results in the following table.

Table 1. Consistency between primary data (interviews) and secondary data (document analysis) in Kindang Village

No.	Aspect or indicator	Primary data (interviews)	Secondary data (documents)	Analysis results
1.	Identification of issues based on community needs at various levels (village meetings, village development planning meetings, and the drafting of the Village Medium-Term Development	The community frequently proposed urgent needs such as the construction of public roads and farm roads, irrigation improvements, and the procurement of agricultural equipment.	In the Village Medium-Term Development Plan, the government included priority programs for agricultural infrastructure and the improvement of agricultural production facilities as the main	There is alignment between community proposals and policy directions in village documents. These aspirations are incorporated into medium-term programs and will be proposed

	Plan/Village Annual Work Plan)		agenda for the six-year development plan.	again.
2.	Verification and prioritization process	The BPD Chair noted that the community was very active in both hamlet and village-level deliberations	The RPJMDes document outlines the process for verifying proposals based on priority, benefits, and budgetary capacity.	Interviews and documents demonstrate a participatory process and transparency. However, the prioritization process is still influenced by budgetary constraints and urgent needs.
3.	Preparation of village development planning documents (RPJMDes & RKPDes)	The village head and village officials explained that all the results of the deliberations are incorporated into the RPJMDes and the annual RKPDes.	In the annual RPJMDes and RKPDes documents, the village government outlines detailed village development programs such as farm roads, irrigation, or village development and community empowerment.	The interviews and documents are consistent; this demonstrates the connection between the deliberation forums and the village's official documents.
4.	Coordination, collaboration, cross-sectoral synergy, and local government support	The Head of Cibollo Hamlet stated that there is currently support from the local government for a 1.7-kilometer stretch of irrigation, clean water, and road paving in Bungaya Hamlet (750 meters)	In the RKPDes document, the village government mentions collaboration and cooperation with the district government in the village's annual programs.	Interview data confirms the actual implementation of the programs outlined in the document. Coordination is proceeding smoothly between the village and the district government.
5.	Implementation and supervision in collaboration with the village community	The general affairs officer and all hamlet heads stated that the community participates in collective efforts to carry out and supervise village development	In the RKPDes document, the village government outlines intensive activities and also notes community self-reliance in the independent implementation of village infrastructure development	There is consistency between on-the-ground practices and development planning in the RPJMDes document. Community participation strengthens a sense of ownership in the village development planning process
6.	Evaluation and continuity of implemented programs	All village governments, porang farmers participating in the Village Development Planning Meeting (Musrembangdes), and community leaders noted that certain proposals are resubmitted every year because not all of them can be implemented due to budget constraints (DDS).	In the RPJMDes document, the village government notes that activities that have not been realized will be proposed again in the next annual plan.	Both sources indicate a continuous proces, whereby delayed programs are retained on the priority list for the subsequent annual development plan.

Source: Data compiled by the researcher, (2025)

Table 2. Comparison of Infrastructure Across Villages

No.	Village Name	Condition of Public Roads	Condition of Farm Roads	Market Access	Impact on Farmers
1.	Bungaya	Damaged (under repair)	Inadequate	Fairly difficult	Low selling price
2.	Mattirodeceng	Damaged (minor)	Available	Quite difficult	Slow distribution
3.	Cibollo	Moderate	Available	Relatively easy	More stable prices
4.	Sapayya	Good	Fair	Easy	High income

Source: Data compiled by the researcher, (2025)

Based on the table above, it is evident that hamlets with better infrastructure, such as Cibollo, have smoother market access and relatively stable selling prices compared to the hamlet of Bungaya, which has damaged roads. This indicates that infrastructure quality directly influences distribution efficiency and farmers' income, as explained in the infrastructure development theory by Todaro and Smith (2020). These findings align with recent studies showing that transportation infrastructure and market access are key determinants in agricultural value chain integration and increased farmers' income (Agbana & Ebisine, 2026). This study provides insight into how the digital economy can serve as a catalyst for agricultural modernization, while highlighting the importance of contextual and multidimensional policy approaches (Ye, 2025). Current studies indicate that digital infrastructure also plays a crucial role in enhancing the economic resilience of agriculture through innovation and market integration (Peng *et al.*, 2025). The digital economy accelerates technological innovation in the agricultural sector, such as the adoption of IoT devices, artificial intelligence, and digital services, which boost productivity and sustainability. Digital transformation enhances farmers' skills and knowledge through online training, access to information, and knowledge networks, thereby accelerating agricultural modernization (Ye, 2025). Village revitalization strategies must integrate digital investments with the development of industrial clusters and local innovation. Digital investments in areas with low innovation levels must be accompanied by human resource development and expanded market access. Careful financial regulation is needed to ensure that financial expansion in the rural sector does not increase systemic risk (Li, 2026).

Table 3. List of Village Infrastructure Projects Supporting Agricultural Activities

No.	Infrastructure Development	Location	Quantity	Unit
1.	Tractor	General Kindang Village	1	Agricultural Machinery
2.	Hand Tractor	General Kindang Village	1	Agricultural Machinery
3.	Cultivator	General Kindang Village	1	Agricultural Machinery
4.	Farm Road	Hamlet Mattirodeceng	1	200 meters
5.	Farm Road	Hamlet Cibollo	1	100 meters
6.	Farm Road	Hamlet Bungaya	1	100 meters
7.	Farm Road Duicker	Hamlet Bungaya	1	200 meters
8.	Farm Road Duicker	Hamlet Cibollo	1	200 meters
9.	Farm Road (Concrete Pavers)	Hamlet Sapayya	1	200 meters
10.	Farm Road (Pevin Blocks)	Hamlet Mattirodeceng	1	100 meters
11.	Fertilizer Procurement	General Kindang Village	8	Tons

Source: Data compiled by the researcher, (2025)

Based on empirical data obtained from the informants, the researcher found that support and infrastructure development programs for agricultural activities in Kindang Village are generally quite good and have addressed several community needs across the four hamlets. The village head and general affairs officer explained that these programs will continue to be evaluated, particularly in relation to urgent needs such as clean water, electricity, and road improvement. In this context, effective development planning is essential because it strengthens institutional capacity and improves economic, social, and agricultural governance, as emphasized by Rondinelli (2019). Development planning is also understood as a systematic and continuous process for determining development directions, objectives, strategies, and programs within a certain period (Jacob, 2024). Furthermore, agricultural development should consider the use of digital technology to support modernization and food security. Digital transformation can improve farmers' skills and knowledge through online training, information access, and knowledge networks (Ye, 2025). Therefore, village revitalization strategies need to integrate digital investment, human resource development, local innovation, industrial clusters, and market access. With proper financial regulation, digital economic development can support agricultural technological innovation, human capital, and rural economic improvement (Li, 2026).

Table 4. Planning and Implementation

No.	Activities/Programs	Planned	Implemented	Alignment	Impact
1.	Farm roads	Present	Minimal	Low	Distribution hindered

2.	General village roads	Present	Dominant	High	Indirect
3.	Agricultural assistance	Limited	Limited	Moderate	Insignificant

Source: Data compiled by the researcher, (2025)

There is a gap between development planning and implementation that affects agricultural distribution in Kindang Village, particularly porang commodities. Limited farm roads, poor transportation access, high distribution costs, dependence on middlemen, and low selling prices make the marketing process inefficient. Empirical data from two porang trader informants show that damaged public roads, inadequate farm roads, and long travel distances across the four hamlets cause price differences of around Rp100–800 per kilogram, while the general purchase price ranges from Rp10,000 to Rp12,000 per kilogram. Farmers often cannot access markets directly and must sell through intermediaries, creating information asymmetry and reducing their bargaining position. Some farmers also sell porang before it reaches dormancy or maturity, requiring traders to sort the harvest. In addition, theft of porang has become a serious concern, so village regulations and deterrent measures are needed. Although Bulukumba has strong potential for porang development, supported by fertile land and government programs, farmers still face limited innovation, knowledge, and institutional support (Nurifani, 2020; Ramsi, 2023; Hasnidar *et al.*, 2025). Based on interviews conducted by informants from the Bulukumba Regency BPS in Kindang Village, the number of households (HH) and income classifications ranging from low to very high income were identified. Accordingly, the researchers compiled and categorized this data in the following table.

Table 5. Income Classification by Household in Kindang Village

No.	Income Range	Income Category	Number of Households	Percentage (%)
1.	3.510.000-5.500.000	High	214 KK	± 20,36%
2.	1.510.000-3.500.000	Medium	349 KK	± 33,21%
3.	200.000-1.500.000	Low	488 KK	± 46,43%
Total			1.051 KK	100%

Source: Data compiled by the researcher, (2025)

Based on income classification, low-income households dominate the community's economic structure, representing 46.43 percent of respondents, followed by middle-income households at 33.21 percent and high-income households at only 20.36 percent. This condition indicates that most household heads remain in the low-income category, so policies aimed at improving community welfare are urgently needed. Income classification is useful as an initial instrument for assessing capability and welfare, although income is not the only indicator of well-being (Sen, 1999). The division of income into low, middle, and high categories is also commonly used to analyze economic structure, inequality, and poverty (Todaro & Smith, 2020). Such categorization also helps simplify interpretation and supports evidence-based public policy formulation (Sugiono, 2020; BPS, 2023). In this study, the findings show that although village development planning has involved community participation, its implementation has not fully addressed local economic needs. Limited farm road infrastructure has caused inefficient agricultural distribution, increased dependence on middlemen, and lowered farmers' selling prices. Therefore, improving infrastructure, marketing efficiency, productivity, and appropriate technology is essential to increase porang farmers' income and welfare. These findings also emphasize that effective planning depends not only on participation, but also on alignment between development priorities and local agricultural potential.

4.2 Discussion

The scope of this study focuses on several key aspects in defining the research problem, as outlined below: (a) Scope of the Subject Matter: The subject of this study is village infrastructure development planning, such as farm roads, irrigation systems, and various forms of assistance for agricultural needs and the basic needs of the village community, as a form of community-centered development planning. (b) Methodological Limitations: This study employs a descriptive qualitative research design using a case study approach. Consequently, the researcher emphasizes the informants' broader perspectives without constraints and explores deeper meanings through descriptive narratives, rather than analyzing data as in quantitative research, which typically involves statistical, econometric, or SPSS analyses to generalize numerical findings within a phenomenon. (c) Scope of the Study: First, interviews regarding the village infrastructure development planning process. Second, the role of the village government in supporting agricultural development. Third, the efforts of Porang farmers to improve their income value chain. Beyond these three areas such as national infrastructure development planning, the formulation of village planning concepts, maximizing the integration of local potential into the RPJMDes or RKPDes, and analyzing Porang farmers' income through the quantitative impact of infrastructure these topics are not the primary focus of the current research.

The role of the Kindang village government in village development and agricultural infrastructure development focuses on improving accessibility and production efficiency, as well as providing infrastructure to meet the community's basic needs. Thus, based on interviews with village officials, the informants have constructed farm roads, irrigation

systems, and bridges to facilitate the transport of agricultural harvests. The Village Head explained that farm roads are an annual priority funded through the Village Fund (DDS) as outlined in the RPJMDes and RKPDes. This reflects the principle outlined by Adisasmita & Araji (2011) regarding development based on actual needs and regional potential in accordance with community requirements. Furthermore, this is supported by the research of Rumawas *et al.* (2021), which states that another key aspect of rural development is infrastructure improvement as a step toward food security to create high-quality villages. This effort aligns with Suwandi's (2012) assertion that clean water infrastructure development is a key factor in the sustainability of rural agriculture. Consequently, in the study by Hajia *et al.* (2024), it is noted that farm access roads play a crucial role as they facilitate access to agricultural land and the transportation of harvested crops, thereby enhancing agricultural productivity as well as the well-being of farmers and surrounding communities. This is further reinforced by Mazibuko *et al.* (2020), who state that the availability of road infrastructure has a positive and significant impact on increasing farmers' household income; for instance, farm road infrastructure can help farmers operate their agricultural businesses efficiently, thereby increasing income in the agricultural sector. Although, according to Dewi *et al.* (2024), this road construction has successfully improved the economic and social well-being of the village community, challenges remain regarding sustainable maintenance and the development of supporting infrastructure such as irrigation and drainage. With proper irrigation, the productivity of porang, cloves, and coffee can be better ensured in Kindang Village. Other forms of support from the village government, such as agricultural tools and materials including tractors, hand tractors, cultivators, fertilizers, and high-quality seeds will be budgeted for annually.

The development planning process in Kindang Village consistently prioritizes the interests and aspirations of the local community to achieve infrastructure development goals based on the village's actual conditions and agricultural needs. Its implementation focuses on the needs and challenges faced by village residents, ensuring that much of the development carried out truly aligns with the community's expectations, despite facing several obstacles stemming from village government policy mechanisms and limited budgeting (DDS). The infrastructure development planning process in Kindang Village is quite effective, beginning with the collection of community aspirations through multi-level deliberations starting with the village assembly (musdus), the village development planning meeting (musrembangdes), and the formulation of the village medium-term development plan (RPJMDes) which are then prioritized into programs within the village government work plan (RKPDes). The Village Head explained in detail that the initial steps involve gathering community input, followed by verification (review) and prioritization based on available budget capacity (DDS), after which the proposals are discussed again at the village development planning meeting (Musrembangdes) before being incorporated into the drafting of the Village Medium-Term Development Plan (RPJMDes) and the Village Annual Work Plan (RKPDes). Data on informant profiles and the Musrembangdes attendance list demonstrate the involvement of a wide range of stakeholders, ranging from hamlet heads, BPD chairs, village officials, community leaders, sub-district heads, to regional representatives (DPR), ensuring that the development agenda is determined through multi-stakeholder consensus (participatory and synergistic). The Musrembang attendance list confirms the presence of relevant cross-stakeholders in determining infrastructure priorities, such as allocations for provincial roads, farm roads, irrigation, and the procurement of agricultural facilities and infrastructure. Furthermore, the evidence of proposals from all hamlets demonstrates that the planning process originated from the actual complaints and issues faced by the community in Kindang Village.

The needs assessment conducted by the village government (an evaluation of priority feasibility based on budget and beneficiary coverage) demonstrates a rational approach to selecting current development projects. The general affairs officer and all hamlet heads stated that, due to budget constraints, only a few of the many proposals can be accommodated each year. This decision-making process takes into account the number of farmers using the road or the affected area, thereby directing infrastructure development priorities toward efficient allocation of funds (DDS). The village government's statement confirms the existence of a priority selection process oriented toward impact and the allocation of available funds. Nevertheless, the infrastructure development planning process in Kindang Village clearly originates from community issues and needs that are identified through a participatory, multi-level deliberation mechanism (village-level meetings, village development planning meetings, the Village Medium-Term Development Plan/Annual Work Plan, sub-district development planning meetings, and evaluation or monitoring stages). Theoretically, this prioritization reflects the principle of needs-based planning, which aligns with the research by Adisasmita & Adji (2011) and the book by Susanto *et al.* (2010), which states that the key drivers of economic development planning are: human capital, natural resource capital, productive capital, and social capital. Furthermore, Jhingan (2018) notes that regional development planning efforts must be carried out within a planned timeframe, ensuring that every policy decision is measurable and directed toward achieving the desired development outcomes. This is further reinforced by Ariadi (2019), who defines development planning as a sequence of objectives, activities, and timelines that serve as a response to future challenges. Objectives determine the direction to be achieved, activities outline concrete steps to achieve them, while timelines establish the implementation framework. This is necessary to ensure that smart agriculture can play a fair role in sustainable agriculture and rural livelihoods worldwide. These findings highlight the importance of situational variables, structural factors, and facilitation processes during investment planning (Sarder, 2025). Furthermore, the development of technology-based infrastructure has proven capable of driving innovation and sustainable agricultural productivity

(Zhang *et al.*, 2025). The development of rural infrastructure, both physical and digital, plays a crucial role in enhancing the productivity and efficiency of the agricultural sector. Infrastructure not only improves accessibility but also strengthens value chain integration and the resilience of agricultural distribution systems (Peng *et al.*, 2026; Wang *et al.*, 2025).

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The Village Head of Kindang stated that the village government has allocated funds for agricultural tools, organic fertilizer, and high-quality seeds to support community farming in Kindang Village. Although there are some challenges such as a limited budget, disparities in participation among hamlets, and insufficient synergy between regions the village government has demonstrated a strong commitment to improving agricultural accessibility as the foundation of the agricultural economy and to implementing various initiatives to meet the basic needs of the community in Kindang Village. The village government's role demonstrates a full commitment to enhancing agricultural economic efficiency and ensuring the sustainable well-being of farming communities. The village government also focuses on meeting basic needs such as clean water, education, and health, which form the foundation of human resource capacity in Kindang Village. The Hamlet Head noted that the primary concern among residents is access to clean water, and the village government has allocated funds for the construction of wells and clean water piping systems. The RPJMDes document includes activities for the rehabilitation of the village's early childhood education (PAUD) and kindergarten (TK) facilities, as well as efforts to improve the quality of education for the community. The operation of PAUD programs and assistance for high-achieving students serve as concrete measures to enhance human resource capacity in Kindang Village. These programs aim to achieve comprehensive human development, as emphasized by Soleh (2017) regarding village welfare through the strengthening of human capital and the potential within a region. The health sector receives attention through the provision of Posyandu facilities and the capacity building of health cadres. The RPJMDes document indicates that budget allocations are designated for the maintenance and rehabilitation of Posyandu, mosques, and village fields, as well as training for village health cadres. This demonstrates that Kindang Village is not solely focused on agriculture but also prioritizes health and the quality of life for its residents as integral components of sustainable village infrastructure development. Evidence on the ground (documentation of farm roads) shows that the majority of the community in Kindang Village has carried out maintenance of farm roads and rehabilitation of village roads using village funds, community self-help, and regional budgets, although this is limited to only a few areas (Mattirodeceng hamlet and Sapayya hamlet).

Through these various activities, the Kindang Village government consistently implements a development model that addresses economic, agricultural, social, and institutional aspects simultaneously. As stated by Todaro & Smith (2020), development planning must take into account the availability and expand the distribution of goods and basic necessities such as food, clothing, shelter, healthcare, and others. Basic needs programs that runin tandem with agricultural access demonstrate that the village government and local community have a solid understanding of the context of village development. Previous studies have similarly noted that infrastructure improvements including the construction of farm

roads, irrigation systems (essential for agricultural activities), and the provision of clean water, electricity, and internet access (essential for the community) can boost community activities, including household income, expand business opportunities, and enhance overall well-being (Mayora *et al.*, 2025). This is particularly true in addressing constraints such as a lack of human resources and facilities. Village governments still need to improve coordination, participation, and facilitation in supporting farmer groups and rural agricultural development (Tarigan *et al.*, 2024).

This could encourage the village government to prioritize the paving of farm roads in the next RPJMDes for the four hamlets, as well as specific regulations for porang thieves in Kindang Village. Regarding this, community leaders also noted that while there is an annual budget allocation for farm roads, many projects remain uncompleted and are repeatedly proposed during the Musrembangdes meetings. The Kindang village government has not fully supported porang farmers' efforts, as porang has not yet been designated as the village's flagship commodity in the RKPDes, due to budget constraints and the fact that it is not a top priority. According to research by Yasin *et al.* (2021), porang plantations now hold significant economic value. Therefore, the government must strive to optimize farm road infrastructure, agricultural product management, as well as natural and human resources in every village. Meanwhile, the local potential of the porang plant now holds significant economic value. To that end, the government is striving to optimize the management of land, natural resources, and human resources in every village. The hope is that this porang farmer program can increase the income of villages and districts throughout Indonesia (Yasin *et al.*, 2021). This vast local potential of the Porang plant must be sustainably optimized to meet domestic food needs. This is crucial, especially given the current situation (Haerunnisa *et al.*, 2023). Moving forward, there are many aspects that must be addressed and implemented to develop agriculture. Well managed resources will directly increase economic value for the community. The primary priority is the welfare of farmers and their families, which is the core objective of every program aimed at advancing the agricultural sector (Rodiaminollah & Qomariyah, 2023). Currently, porang is gaining popularity among students, universities, and farmers because its cultivation is neither too easy nor too difficult; most importantly, porang tubers offer a highly profitable market value for farmers (Araji *et al.*, 2024). The objective is to utilize and allocate village resources to achieve development goals. Although the focus of industrialization has shifted, the agricultural sector still holds significant potential to increase income (Dia & Hamid, 2023). The government has also designated porang as a super-priority commodity to drive an increase in agricultural export value (Malluluang, 2024). Therefore, the farmer-managed porang agricultural sector is key to their well-being (Monica *et al.*, 2025).

5 | CONCLUSIONS AND FUTURE WORK

This study reveals that improving the livelihoods of porang farmers in Kindang Village requires a shift in how development priorities are set. Infrastructure such as farm roads and processing facilities must be addressed first, as poor access limits market reach and depresses prices. Strengthening farmers' organizations through cooperatives or business groups can give them greater influence over the value chain and reduce reliance on intermediaries. Partnerships with the private sector and the use of digital tools for price and market information can further stabilize income and open new opportunities. While village planning processes have included meetings and drafting of medium-term and annual plans, implementation has often missed the practical needs of the agricultural sector. Support from the village government through equipment, fertilizers, and basic services—has focused on administration rather than actionable measures that enhance productivity and market positioning. Farmers remain largely at the upstream stage of the value chain, exposed to price fluctuations and constrained by poor infrastructure. Addressing these issues requires synchronizing infrastructure planning with actual economic needs, expanding the village government's role in guiding local potential, and equipping farmers with the skills and networks to access more profitable segments. Active participation in planning meetings and farmer groups is essential to maintain consistent production, even in unpredictable conditions.

Beyond physical improvements, this research emphasizes the role of trust, engagement, and self-reliance within the community. Development that considers local capacity can raise income while strengthening social ties and collective problem-solving. Policies should be based on real data rather than routine budget patterns, communities should monitor and hold local authorities accountable, and farmers must participate actively in planning and skill development. Further studies should measure how infrastructure changes directly affect porang prices and incomes, providing practical guidance for future interventions. Ultimately, when planning aligns with local realities and people are empowered, infrastructure can serve as a tool for both economic stability and stronger community dynamics.

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