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Stakeholders' roles and policy effectiveness in organic rice farming development in Central Java and Yogyakarta, Indonesia

ZUHUD ROZAKI♥, REZA VIONANDA, NUR RAHMAWATI, TRIYONO
Department of Agribusiness, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta. Jl. Brawijaya, Bantul 55183, Yogyakarta, Indonesia.
Tel.: +62-274-387656 Ext. 202, Fax: +62-274-387646. ♥email: zaki@umy.ac.id

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Abstract. *Rozaki Z, Vionanda R, Rahmawati N, Triyono. 2025. Stakeholders' roles and policy effectiveness in organic rice farming development in Central Java and Yogyakarta, Indonesia. Asian J Agric 9: 513-521.* In Central Java and Yogyakarta, organic rice farming has grown rapidly in response to increasing consumer demand and farmer awareness of environmental and health concerns. Between 2019 and 2022, the volume of organic rice trade rose significantly from 491.4 tons to 7,795.9 tons, highlighting the urgent need for supportive policies and governance structures. This study aims to analyze the roles of key stakeholders and assess the effectiveness of agricultural policies in promoting organic rice farming across five districts. A qualitative descriptive approach was applied, using purposive sampling to select 18 key informants, including officials from agricultural offices, extension advisors, and farmer group leaders. The findings show that stakeholders play a central and invaluable role in policy creation and information dissemination, yet marketing-related policies remain underdeveloped. Existing programs mainly provide production-side support, including subsidies for inputs, certification assistance, training, and extension services, all confirmed by farmers as received. While these interventions effectively enhance productivity, they have a limited impact on marketing efficiency. Further analysis highlights the need for stronger communication between policymakers and farmer groups, as well as better support for market access and post-harvest handling. The study recommends establishing district-level organic marketing boards, embedding farmer feedback into policy cycles, and encouraging local governments to adopt region-specific regulations that foster sustainable organic farming systems.

Keywords: Agricultural policies, extension service, organic farming, organic rice policies, stakeholder

INTRODUCTION

Agriculture plays a vital role in food security and rural livelihoods in Indonesia, where rice, corn, wheat, potatoes, chili, shallots, sugarcane, and tobacco are key commodities. Among these, rice is the primary staple food, leading to consistently high consumption levels and creating challenges as well as opportunities to promote sustainable production systems (Maman et al. 2022). In response, organic farming has gained increasing attention as an environmentally friendly alternative that avoids chemical inputs and emphasizes long-term ecological balance (Aceleanu 2016; Karyani et al. 2019). The principles of organic agriculture not only ensure environmental sustainability but also address broader economic and social goals (Smoluk-Sikorska and Malinowski 2021). Growing consumer awareness of healthy lifestyles has further accelerated demand, with trade in Indonesia's organic products rising from 491.4 tons to 7,795.9 tons between 2019 and 2022 (Johannes et al. 2019; Mazhar et al. 2022).

Organic rice is one of the most dynamic subsectors. In Central Java and Yogyakarta, adoption has expanded rapidly; for instance, more than 2,000 hectares in Magelang District have been converted to organic farming (Heryadi et al. 2022). These developments enhance food quality and contribute to sustainability goals. Nevertheless, adoption remains inconsistent due to weak stakeholder coordination, limited policy support, and underdeveloped market linkages. Farmers often depend on sporadic assistance programs, while mechanisms for mentoring, training, and technology transfer are insufficient to maintain larger-scale adoption (Zieliński et al. 2024). There is a tendency for high productivity alongside market growth, creating increasingly promising economic opportunities for farmers.

Policy frameworks are essential in determining the direction of organic agriculture development. Effective governance requires the integration of production, post-harvest, and marketing dimensions into regulatory design (Delmotte et al. 2017). Without a coherent framework, growth risks becoming inconsistent and vulnerable to external pressures (Panyasing et al. 2022). Stakeholders, including government agencies, extension officers, and farmer organizations, must align their efforts to ensure that farmers, as the primary beneficiaries, derive tangible benefits from policy interventions (Winarno et al. 2024). This is in line with broader calls to strengthen national agricultural competitiveness while ensuring environmental and social outcomes (Arimbawa et al. 2024).

Rice, in particular, offers strong prospects within organic markets. Premium pricing compared to conventional varieties underscores the potential economic benefits for farmers (Rattanawong et al. 2024). Yet, the realization of this potential depends heavily on policies that enable equitable access to resources and markets (Istiyanti et al. 2023). Well-designed programs can enhance market positioning and strengthen farmers' bargaining power (Hoang 2021). Thus, organic rice provides a relevant case to assess how

governance arrangements shape agricultural transformation (Maksimovich et al. 2024).

Although organic agriculture is widely recognized as having environmental and economic advantages, research has largely focused on consumer preferences, certification, and production practices. Much less is known about the institutional mechanisms and stakeholder interactions that support the expansion of organic systems (Romadhona et al. 2024). Fragmented roles, inconsistent support, and weak communication between farmers and government actors remain major obstacles. In practice, policy instruments often emphasize upstream inputs but neglect downstream infrastructure such as marketing, distribution, and participatory planning (Hoang 2021). The effectiveness of stakeholder engagement in the multi-level governance structure from provincial institutions to local farmer groups is rarely explored in detail in the Indonesian context.

In order to situate these findings within a broader framework, this study employs stakeholder theory and policy implementation models. Stakeholder theory emphasizes how different actors with varying levels of influence and interest shape policy outcomes (Reed 2009), which is highly relevant to the dynamics of organic rice governance in Indonesia. The study situates its analysis within a broader theoretical context, enabling a more systematic understanding of how multi-level governance and stakeholder interactions affect the effectiveness of organic rice farming policies.

Central Java and Yogyakarta present an instructive comparison to address these gaps. Both regions are hubs for organic rice development, but they differ in the extent of policy support, stakeholder engagement, and market integration. Studying these districts provides insights into how diverse institutional settings shape adoption outcomes. Accordingly, this study investigates the roles of stakeholders in shaping organic rice policies and evaluates the effectiveness of programs and regulations in fostering adoption by analyzing how multi-stakeholder coordination and policy implementation influence farmer participation and sustainability. This research contributes empirical evidence to strengthen governance strategies for organic agriculture in Indonesia.

MATERIALS AND METHODS

Study area

This study was conducted in three districts in Central Java and two districts in Yogyakarta, namely Magelang, Sragen, Karanganyar, Sleman, and Bantul. The selection of these locations was based on several factors, such as the number of organic farming groups and the extent of organic rice farmland. The geographical distribution of the study areas across Central Java and Yogyakarta, Indonesia is illustrated in Figure 1.

Data collection

Table 1 presents the area along with the distribution of key respondents as primary informants, including representatives from the Agricultural Office, Agricultural Extension Advisors, and Farmers Group Leaders. The selection ensured diversity in regional policy implementation contexts and stakeholder perspectives. The number of informants was considered sufficient as thematic saturation was achieved during the data collection process, where no new significant information emerged in the later interviews. This indicates that the sample size adequately captured the key themes and dynamics relevant to the study.

This study was conducted from July to September 2024, and primary data were collected for analysis. The purposive sampling method was used to select 18 key informants based on the characteristics and traits of respondents. Data triangulated through multiple stakeholders to ensure validity, which included an extension worker and a representative from the local Agricultural Office, leading a total of 18 as primary stakeholders. The details of stakeholders included, the type of data collected, and the methods used during data collection are presented in Table 2.

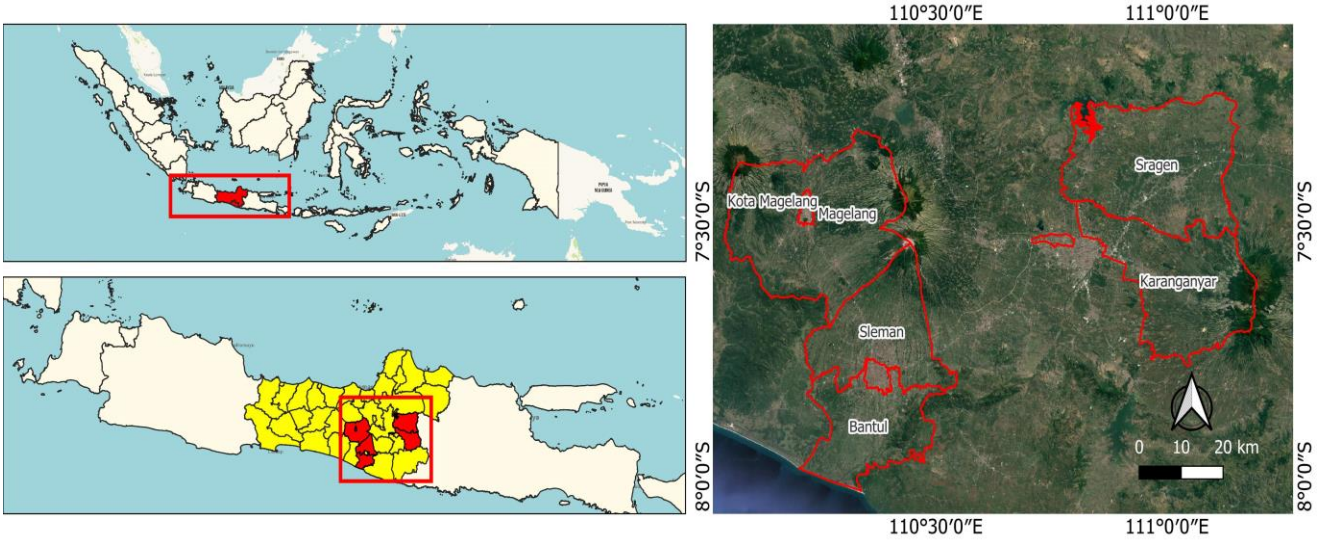

Figure 1. Study sites in Magelang, Karanganyar, and Sragen Districts of Central Java, Indonesia, as well as Bantul and Sleman Districts of Yogyakarta, Indonesia

Table 1. Study area and key respondents from agricultural office, agricultural extension advisor, and farmers group leaders

Location	Number of key respondents			Total
	Agricultural office	Agricultural extension advisor	Farmer group leaders	
Bantul, Yogyakarta	1 (P1)	1(P6)	2 (P11, P12)	4
Sleman, Yogyakarta	1 (P2)	1 (P7)	1 (P13)	3
Sragen, Central Java	1 (P3)	1 (P8)	1 (P14)	3
Karanganyar, Central Java	1 (P4)	1 (P9)	2 (P15, P16)	4
Magelang, Central Java	1 (P5)	1 (P10)	2 (P17, P18)	4
Total	5	5	8	18

Table 2. Sampling procedure and data collection

Stakeholders	Type of data	Data collection technique
Agricultural Office	Policies and delivery of information	In-Depth Interviews and FGD
Agricultural Extension Advisor	Implemented programs and provided information to farmers	In-Depth Interviews
Farmers Group Leaders	Policies received and their effectiveness	In-Depth Interviews

Table 3. Descriptive analysis method of the actor

Stakeholders	Analysis technique
Agricultural Office	Descriptive analysis (describing the role of the agricultural office and the types of policies in organic rice farming)
Agricultural Extension Advisor	Descriptive analysis (describing the role of extension workers and the types of policies in organic rice farming)
Farmers Group Leaders	Descriptive analysis (describing farmers' perspectives on the types and effectiveness of policies in organic rice farming)

Data analysis

This study used a qualitative approach with a descriptive analysis method to provide an overview or explanation of the data from the respondents (Handal et al. 2024). Data was collected through interviews and analyzed using QDA Miner Lite, which was chosen for its capacity to manage and organize large volumes of qualitative data. An inductive coding process was applied, allowing themes to emerge directly from the transcripts rather than being limited to predefined categories. This approach was considered appropriate to reflect the complexity of the stakeholders' experiences and to ensure that the findings were based on the data. Table 3 illustrates the descriptive analysis method used for the Agricultural Office, Agricultural Extension Advisors, and Farmers Group Leaders.

RESULTS AND DISCUSSION

Role of stakeholders

In organic farming, including rice farming, there is significant potential to reduce negative environmental impacts and improve public health by avoiding chemical use and synthetic materials (Akrofi-Atitianti et al. 2018). This process needs support through policies and regulations from stakeholders, thereby promoting the development of organic agriculture by training and educating farmers to adopt organic practices. Policies and regulations differ in various areas based on the characteristics and needs (Adli et al. 2023), although there is a tendency for similarity in terms of scope and objectives. The study has included an extended analysis below to assist the understanding and interpreting the findings.

Stakeholder engagement

Stakeholders in organic rice farming policy not only hold official titles but also actively shape how programs are designed and executed (Gupta 2024). The Agricultural Offices, for instance, function as the principal drivers of regulation, as seen in Magelang District's Regulation No. 18 of 2017, focusing on competitive and sustainable agriculture. One official described:

> *"Before the implementation of programs, a coordination meeting was held to discuss the structure and technical implementation"* (P4)

While this suggests procedural thoroughness, practical gaps remain. For example, farmer representatives expressed concern over their lack of involvement in earlier planning stages.

> *"Sometimes, policies are made without hearing from us directly."* (P11)

This indicates that coordination across levels is inconsistent, and the participatory ideals of organic policy may not be fully realized on the ground. In several districts, the Agricultural Extension Agency plays a crucial role in connecting formal policies and farmer practices. They conduct training and distribute technical guidelines, though often constrained by budget and staffing. A field officer from Karanganyar stated:

"If we're involved early, the program can better match field conditions." (P18)

This reflects how timely consultation with field actors can enhance program relevance and implementation success. Farmers, particularly those organized in groups, play a central role in translating policy into action. These groups act as nodes of communication, training hubs, and intermediaries for support access. Yet in remote regions, many farmers remain outside these group structures, leading to information gaps (Borter and Malik 2023).

Function and interaction

The contribution of stakeholders in organic rice policy can be grouped into three functions.

Policy formulators: The Agricultural Office and local government act as decision-makers responsible for designing region-specific programs based on local needs and budgets (Adli et al. 2023). While most policies are aligned in scope and objective, implementation depends on available financial resources and technical capacity.

Capacity builders: The Agricultural Extension Agency is key in providing training, mentoring, and technical support. These stakeholders are responsible for building farmer competencies and encouraging the transition to organic practices.

Information disseminators: Extension officers play a crucial role in spreading awareness of organic farming policies (Fayet et al. 2022). The dissemination of information can also be carried out through media and other intermediaries, as not all farmers have direct contact with the government. Therefore, other media and intermediaries are necessary to ensure optimal reach and impact. Their outreach includes group meetings, one-on-one mentoring, and coordination with farmers' associations.

"Information dissemination is carried out through agricultural extension officers. Each sub-district has an officer who can coordinate with the farmers' group and individuals to spread information. Additionally, there are regular meetings at the local Agricultural Extension Agency office with the heads of farmers' groups for coordination and to disseminate new information." (P1)

The synergy between these actors creates a multi-level interaction model involving top-down policy dissemination and bottom-up feedback from farmers.

Challenge and strategic

Despite the existence of formal procedures and stakeholder role definitions, several core challenges continue to hinder the effective implementation of organic rice farming policies. These challenges are interconnected, cutting across institutional coordination, access to information, funding, and role clarity. Below is a summarized explanation of each issue along with suggested strategic solutions:

Weak stakeholder coordination: Although coordination meetings are held at the district level, communication among policy formulators, extension services, and farmer groups remains fragmented. This results in a weak feedback loop, making policies less responsive to field conditions. Strengthening this coordination through an integrated multi-stakeholder forum at the district or regional level can help align objectives, clarify communication channels, and avoid siloed implementation (Dimitri et al. 2025).

Limited farmer reach: Not all farmers have direct access to extension officers or government services. This information gap often causes uneven adoption of organic farming practices. In remote or underserved areas, farmers depend heavily on informal networks or group leaders for policy updates and technical support. As a result, differences in awareness and skills continue to exist between regions and groups (Akbar et al. 2024)

Budget constraints: The implementation of organic farming initiatives largely depends on the budgetary capacity of local governments, which varies significantly between districts. This affects the availability of training, subsidies, and certification services. Districts with better funding run more stable programs, while others experience interruptions. One solution is to promote equitable budget allocation mechanisms, or to introduce co-funding schemes and partnerships with NGOs or private actors to ensure program sustainability (Belmin et al. 2023).

Overlapping roles: In some districts, overlapping responsibilities between government departments and extension agencies have led to confusion and inefficiency. This quote reflects stakeholders' frustration at the implementation level, especially when policies are introduced without consultation or clarity of roles. In some districts, several agencies claim overlapping responsibilities in organic farming development. This creates confusion among farmers about where they should seek support, while reducing the overall efficiency of the program. Early involvement of local actors can increase program relevance and reduce redundancy (Dimitri et al. 2025).

To ensure sustainability, organic farming policies must be adaptive and responsive to evolving field realities. Integrating feedback from farmers, ensuring inclusivity in program design, and tailoring dissemination strategies to local contexts, such as using digital platforms or village-level networks, can improve both reach and relevance (Abegunde et al. 2020).

To better understand the roles and relative importance of each actor in the development of organic rice farming, a stakeholder typology was developed (Alaba et al. 2024). This typology classifies stakeholders based on two main dimensions: (i) the level of interest they have in organic farming initiatives, and (ii) the degree of influence they exert on relevant policy decisions and implementation. Stakeholders are further categorized as primary, who those directly involved in policy formulation, implementation, or field-level execution, or secondary, who those indirectly affected or play a supporting role (Li et al. 2022a). This classification helps to clarify the dynamics among actors, identify key players, and reveal potential areas for improved coordination and engagement. The stakeholder typology is summarized in Table 4.

The level of importance refers to the level of involvement, commitment, and alignment of stakeholders with the goals of organic farming. It is assessed based on the frequency of their participation in the program, the priorities they expressed during interviews, and their presence in the field. The level of influence reflects stakeholders'

ability to shape decisions, allocate resources, or enforce implementation. It is evaluated by analyzing their institutional role, decision-making authority, and impact on farmer behavior or policy direction. The categorization was cross-checked with qualitative data from interviews and observations.

For example, the Department of Agriculture was classified as having high importance and influence due to its policy-making authority and direct involvement in funding and managing the organic program. Farmer Group Chairpersons were also rated high in both dimensions due to their strong grassroots role and active participation in program implementation. In contrast, Local NGOs were rated as having moderate interest but low influence, as they often support community activities without access to formal decision-making channels.

Beyond their individual functions, the interaction among stakeholders strongly shapes the effectiveness of organic rice farming policies. While the Agricultural Office provides formal regulations, their success depends on how well extension officers and farmer groups coordinate in practice. In many cases, weak collaboration has led to fragmented implementation, whereas stronger partnerships have accelerated adoption. This highlights that the value of stakeholders lies not only in their formal roles but also in their capacity to build partnerships and avoid role overlap. Moreover, it's crucial to recognize that inclusivity remains limited, as smallholder farmers in remote areas and marginalized groups, such as women farmers, often lack equal access to information and resources. This recognition is the first step towards strengthening policy design by ensuring that stakeholder engagement is both collaborative and equitable.

Analysis of policies

Magelang, Sragen, Karanganyar, Sleman, and Bantul generally have many similarities in their policies. Among the five districts, Magelang is the only one that has a Regional Regulation (*Perda*), which serves as a reference for policy determination. In the other districts, policies implemented are more directly related to the farmers, suggesting the need for initiative in order to be realized. This shows the diversity of mechanisms across regions, which can influence the consistency and sustainability of organic rice farming development.

Based on Figure 2, policies regarding organic rice farming flow from regional regulations, budgets, and farmer aspirations through the Agricultural Office. While production-oriented programs) are relatively well implemented, marketing-focused initiatives remain weak and fragmented. Coordination often breaks down at the intermediary level, extension workers have limited authority to influence decisions, and farmer feedback is not always incorporated into policy cycles. As a result, while production support reaches farmers consistently, market integration policies lack follow-through. This illustrates how the policy flow, though structured, faces bottlenecks in communication and coordination across stakeholder levels, particularly between farmers and higher-level authorities.

Some forms of assistance, such as large equipment, certification, and training, are requested by farmers from the Agricultural Office. Through these proposals, the office can consider fulfilling the requests. The final decision will depend on the availability of funds and resources within the office because forms of assistance are conditional and may not often be granted; statements from the interview support this.

> *"Considerations for policies or programs are usually derived from aspirations of farmers, as the agricultural office often seeks input from farmers."* (P9)

Based on farming activities, farmers are often unaware of policies that are being implemented. This shows that the dissemination of information is not widespread, which can pose a problem for farmers (Tsai et al. 2021). Without adequate knowledge, farmers experience difficulty in developing their production activities due to a lack of understanding and the necessary support to enhance productivity. Therefore, the distribution of information about policies must be prioritized to ensure optimal implementation.

Production aspect

Subsidy for production inputs: Production inputs are essential in organic rice farming, which includes fertilizers, pesticides, seeds, and equipment as the main factors driving the farming process (Alam and Mahal 2014). Generally, the most commonly subsidized production inputs by the government are fertilizer, which is considerably higher compared to others. Fertilizer subsidy is still deemed necessary, playing a crucial role in increasing agricultural production. In the context of agricultural development, fertilizer is a key and strategic component for boosting production and productivity, which inseparable part of the farming system (Adiraputra and Supyandi 2021). Subsidy also accounts for the largest budget allocation sourced from the State Budget or the Regional Budget. Areas with organic commodities receive assistance in the form of organic fertilizer subsidy, which is provided annually based on the available budget. Furthermore, the Agricultural Office at the district level acts as an intermediary, with the authority to distribute and convey subsidies to farmers.

Table 1. Stakeholder typology based on interest and influence levels in the development of organic rice farming

Stakeholder	Type	Interest	Influence	Justification
Agricultural Office	Primary	High	High	Policy authority, budget control, and program oversight
Agricultural Extension Advisor	Primary	High	Medium	Strong field involvement, limited policy control
Farmers Group Leaders	Primary	High	High	Mobilize farmers, influence adoption, and local decisions
Traders	Secondary	Medium	Medium	Affect prices and access, not involved in planning
Consumers	Secondary	Medium	Medium	Influence demand trends, limited organizational influence
Local NGO's	Secondary	Medium	Low	Assist implementation, low access to formal decision-making

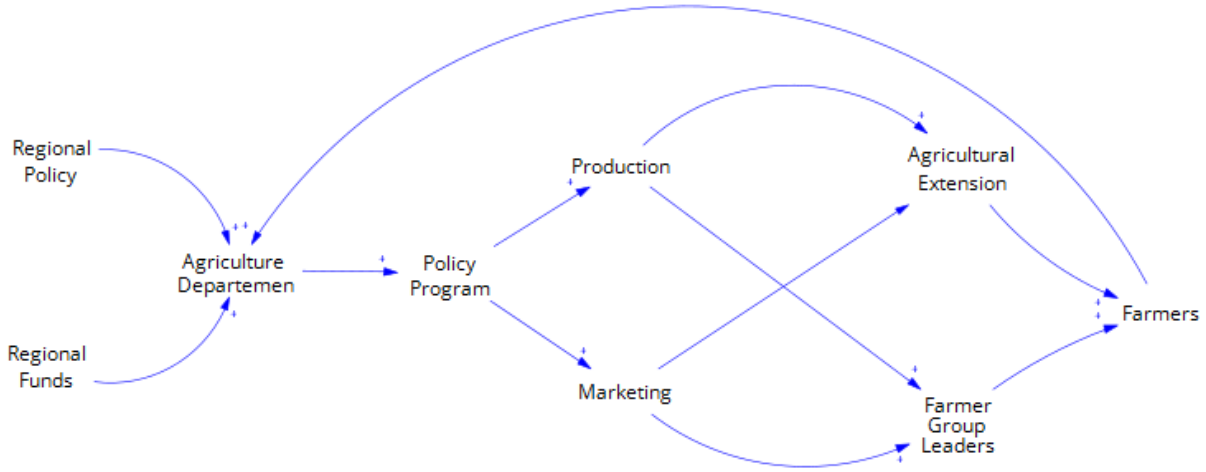

Figure 1. Policy structure and flow in organic rice farming

Based on interviews, more than 90% of respondents in Sleman, Karanganyar, and Magelang confirmed receiving some form of input assistance, primarily in the form of organic fertilizer. However, the timing and quantity of subsidies vary by region, depending on local government budget priorities and program readiness.

Extension and training: Agricultural extension is the learning process for farmers and agricultural entrepreneurs to develop knowledge in various aspects of agriculture, such as capital, technology, and resources, to improve productivity, income, and well-being (Konečný et al. 2024). Extension workers are generally categorized into two types, namely official institutions and informal sources (Nwankwo et al. 2024). Official extension workers from the Agricultural Extension Agency play a leading role in promoting more advanced farming practices. In comparison, informal extension workers may include students, entrepreneurs, and others.

> *"There is also training conducted, for example, on how to make organic fertilizer for application. Therefore, there will be several training packages to be implemented according to the specific field being taught."* (P8)

This study shows that farmers' groups will receive training provided by the government agency or independently. Training is a form of empowerment aimed at addressing specific agricultural issues. During training, farmers are taught to become self-sufficient in creating and developing solutions. These activities are carried out through hands-on practice, such as learning to make pesticides and applying more productive rice planting techniques.

Organic rice certification: The practice of organic rice farming is different from the conventional type (Adhawati et al. 2024). Various standards must be met in order to qualify as organic farming (Hardiana et al. 2024). Organic rice certification is very important, serving as a reference that farming practices meet the required standards and are recognized by an official institution (Akber et al. 2022). To obtain certification, farmers are required to pass through a series of inspections and incur significant costs. Therefore, local governments, particularly the Agricultural Office, have policies in place to assist with the certification process. The costs, which are often unaffordable for farmers, can also be supported by the Agricultural Office.

Interview data shows that only around 80% of organic rice farmers in Karanganyar and Bantul have received certification assistance, either in the form of financial assistance or technical facilitation. In contrast, some areas, such as Sragen, still rely on farmers' self-funding for certification.

Based on the interviews, in terms of production, all farmers stated that they had received some form of assistance. However, the scope, timing, and consistency of assistance vary significantly between districts, indicating the need for a more uniform and equitable approach to support.

Marketing aspect

Policies related to marketing are still limited in implementation. Activities such as assistance, extension, and training in the field of marketing are also rarely carried out. This is because the government prioritizes production activities to enhance productivity. As one extension officer explained:

> *"After producing organic rice, we lack structured market access. The training is more about farming techniques, not marketing"* (P16).

While some initiatives have been introduced, such as partnerships between the Agricultural Office and farmer groups to supply rice for civil servants, organic product certification schemes, and marketing-related training are often conducted sporadically and lack follow-up. According to a local cooperative leader,

> *"There was one training on branding two years ago, but we haven't heard anything since. It felt more ceremonial than practical"* (P11).

The persistence of weak marketing policies is not only due to low policy priority but also to deeper structural barriers. Coordination between agricultural and trade institutions remains limited, certification processes are costly

and complex, and farmers' bargaining position against traders is weak due to a lack of access to reliable market information. These conditions contribute to price instability, post-harvest losses, and income volatility (Belmin et al. 2023).

To overcome these challenges, marketing support must go beyond ceremonial training. Actionable measures include institutionalizing collaboration between agricultural and trade agencies to align production with demand, simplifying and subsidizing certification schemes, providing digital platforms for real-time market access, and strengthening farmer cooperatives for collective bargaining and distribution. Such strategies would ensure that productivity gains are translated into stable farmer incomes and sustainable agricultural development (Gupta 2024).

Perception of policy implementation

Policymakers design policies to align with objectives (Li et al. 2022b). Furthermore, policies are essential tools designed to provide solutions to problems occurring in society (Qian et al. 2018). These policies can take the form of activities or programs relevant to the characteristics of the target community (Castillo et al. 2020). Government support in agriculture in the form of fertilizer subsidy, including the provision of pesticides, seeds, and equipment, is one of the policies most farmers are familiar with a significant impact on farming in various aspects.

As the direct recipients of existing support, farmers experience the impact when the assistance is utilized. In production activities, subsidy provision for production inputs helps increase productivity and reduce the cost of production. Therefore, policies should have high effectiveness to deliver optimal results for farmers.

The head of a farmers' group, as an intermediary between the government and farmers in disseminating information about policies, has an understanding of the implementation process. The following interview results show this.

> *"The current programs have been effective in addressing farmers' issues. For example, subsidy for fertilizers, pesticides, and seeds contributes significantly to increasing production and reducing production costs. There are currently no specific policies regarding marketing, although it is expected to be developed in the future."* (P17)

According to the statement from the head of the farmers' group, policies focused on production, such as subsidies for inputs, have been quite effective in resolving farmers' issues. Production has grown because farmers can buy fertilizers, seeds, and pesticides at lower prices. The costs farmers face has also been reduced, enabling them to allocate funds to other needs. However, policies related to marketing have not been widely implemented or experienced by farmers, resulting in less-than-optimal effectiveness. Since marketing is a vital part of any business, it should receive more attention from the government to ensure a positive impact on farmers.

> *"In terms of production, it is indeed easier now. But after harvest, we are still confused about where to sell, and the prices are unstable."* (P14)

These statements reinforce the idea that although production input subsidies have supported agricultural activities, challenges remain in terms of policy accessibility and marketing. Some farmers believe that effectiveness is not only related to the availability of inputs but also to the clarity of the system and market support. This way, farmers can achieve optimal outcomes in both the production and marketing of organic rice.

The impact on farmers influences the effectiveness of policies. Although subsidy policies for production inputs have shown benefits, there are still challenges related to information access for some farmers, particularly in remote areas. Some farmers do not fully understand or are unaware of the procedures required to access available assistance. Therefore, in addition to developing more comprehensive policies, improving the information system for farmers should be a priority. By enhancing access to information and understanding, policies can be more effective and the benefits more evenly distributed among farmers (Balode and Blumberga 2023).

According to Muflikh et al. (2024), there is a need for monitoring and evaluation by policymakers to ensure that policies are suitable and appropriate for the target area. This activity can help analyze the effectiveness, providing insights on how to improve future policies for better outcomes. Regular monitoring also allows for early detection of challenges and unintended impacts that may arise during implementation. By including local stakeholders in the evaluation process, policymakers can also enhance transparency, accountability, and community trust in government programs.

Discussion

This study shows that agricultural policies in Central Java and Yogyakarta generally contribute positively to the productivity of organic rice farming. Key programs such as input subsidies, organic certification, and farmer training proved effective in increasing yields and encouraging the adoption of organic practices. These findings are in line with previous studies (Panyasing et al. 2022; Sibuea et al. 2023) that underline the important role of government assistance in improving the technical and economic viability of organic farming.

However, a deeper analysis reveals considerable variation in outcomes across districts. Magelang District, for example, has introduced a Regional Regulation (*Perda*) specifically supporting organic farming, which facilitates more consistent implementation and institutional commitment. In contrast, other districts rely solely on central programs without support from the local government, resulting in a lack of sustainability and weak policy implementation. This comparison illustrates how local governance structures directly affect the success of agricultural interventions. A systematic comparison across districts indicates that the presence of local regulations and institutional commitment is a key factor driving policy effectiveness. Lessons from Magelang suggest that integrating central initiatives with locally tailored regulations can provide a more sustainable framework for organic farming development in other districts.

Stakeholder dynamics also influence policy effectiveness. Agricultural offices and farmer group leaders hold dominant influence, while extension workers act as intermediaries with limited authority. Other stakeholders, such as traders, NGOs, and consumers, are often marginalized despite their potential to strengthen supply chains, advocacy, and market demand. This imbalance results in fragmented coordination and a top-down policy design. A more inclusive approach, such as a co-design framework or multi-stakeholder forums, can facilitate broader participation. By involving traders, NGOs, and consumers alongside farmers, policies can become more representative and effective in addressing production and marketing challenges.

The most critical gap lies in the area of marketing support. While production has been strengthened through inputs and training, marketing remains underdeveloped. In most districts, there is no dedicated marketplace or system to connect organic producers with buyers. Farmers across districts expressed similar concerns regarding unstable pricing, limited branding capacity, and inadequate access to larger markets. This imbalance between production and market integration reflects patterns observed across Southeast Asia (Hoang 2021; Oksalia et al. 2023), where policy design tends to favor upstream activities and neglects downstream needs. With rising consumer demand for organic products, this policy lag is increasingly problematic. The disconnect between increased supply and weak market access not only reduces profitability but also discourages long-term adoption of organic practices.

To address these issues, a more integrated policy framework is needed-one that balances production support with strong marketing infrastructure and stakeholder inclusion. For example, district-level organic marketing boards can be established to coordinate promotion, logistics, and buyer engagement. Local governments should allocate budgets to develop certified organic markets and incentivize cooperatives to form partnerships with institutional buyers such as schools, hospitals, and retailers. In addition, the policy cycle should mandate formal feedback-such as village-level consultation forums or participatory monitoring teams-to ensure that farmers' perspectives inform program design and revision. These structural changes are needed to bridge the gap between policy objectives and realities on the ground.

In addition to infrastructure gaps, another overlooked aspect is the alignment between organic policies and consumer demand. While production-focused agricultural policies in Central Java and Yogyakarta have increased organic rice yields, they lack support for market integration and alignment with consumer preferences. Farmers often struggle to access structured markets, reliable buyers, or value-added opportunities such as branding and certification. This disconnect weakens the economic benefits of organic farming, especially when surplus production is not matched by market demand. At the same time, policies rarely consider consumer behavior or preferences such as demand for traceability, eco-labeling, or health-related attributes-which can guide farmers in adjusting their production.

The study revealed that agricultural policies in Central Java and Yogyakarta have increased organic rice output through training, extension, and regulatory frameworks, highlighting their role in strengthening farmers' skills. However, issues remain, especially in marketing integration, uneven stakeholder involvement, and disparities at the district level caused by governance differences and budget gaps. These issues limit the sustainability and growth of programs. To fix these problems, future policies should take a more comprehensive and inclusive approach. For instance, creating district-level organic marketing boards that could be integrated within existing farmer cooperatives and funded by a mix of local government budgets and public-private partnerships could ensure transparent management. Digital tools like e-marketplaces, mobile apps, and real-time price systems should also be used to link farmers with buyers and enhance market efficiency. Additionally, establishing formal feedback systems is necessary so that farmers' views influence policy-making, and local governments should develop regulations that meet community needs. Future studies should look into consumer behavior, digital marketing practices, and the long-term social and economic effects of organic farming policies.

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