

From Local to Global: A Comprehensive Strategy to Boost Cassava Export from Indonesia's Rural Regions

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Abstract. Employing a participatory action research method, this study provides an in-depth analysis of community development programs in Kemiri Village, Gunungkidul, in the Special Region of Yogyakarta. The research focuses on interventions aimed at enhancing the marketing and packaging skills of farmers engaged in cassava production. Through multi-stakeholder collaboration involving local government, NGOs, and academic institutions, the initiatives have successfully equipped farmers with the skills needed for export-standard packaging. The evaluation phase utilized skill assessment tests and focus group discussions, revealing substantial improvements in farmers' skill sets. Specifically, the farmers demonstrated a marked ability to understand and implement advanced packaging techniques, thereby meeting international export standards. These skill improvements have enhanced their competitiveness, facilitating their capacity to compete in international markets and contributing to community capacity building. In conclusion, this research underscores the transformative potential of participatory community development programs, particularly in empowering rural farmers with the skills necessary for global market engagement.

1 Introduction

Located in the eastern part of Yogyakarta, Gunungkidul Regency is renowned for its vast agricultural output, primarily in the form of cassava plants. With approximately 45,816 hectares of land dedicated to cassava cultivation, Gunungkidul Regency stands as the second largest cassava-producing region in Indonesia, following Lampung. The region boasts an average yield of 170-200 quintals per hectare, spread across various areas in Gunungkidul [1]. Given the substantial amount of land used for cassava farming, most of the local population in Gunungkidul Regency relies on cassava cultivation for their livelihoods [2]. To further support and encourage cassava farmers in their business endeavors, there are established farming communities and associations, such as the Women Farmers Group (KWT) Ngudi Sari. Situated in Kemiri Village, Tanjungsari Sub-district, this farmer group, established in 2012, currently comprises approximately 20 members.

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In addition to cultivating cassava, KWT Ngudi Sari engages in the processing of cassava into a wide array of value-added products, including semi-finished goods like Modified Cassava Flour (*Mocaf*), as well as finished products such as brownies, *manggleng*², and various baked goods derived from cassava. Among these products, *Mocaf* flour stands out as the flagship and most promising one. *Mocaf* flour is a versatile gluten-free flour made from modified cassava, distinguishing it from wheat flour, which contains gluten. Due to the health risks associated with gluten consumption, individuals with specific health conditions are advised to avoid it [3]. Consequently, *Mocaf* flour serves as an all-purpose flour alternative to wheat flour, catering to the preferences of health-conscious individuals. As a result, the international market for *Mocaf* flour is significantly larger than the domestic market, particularly in Western countries where the demand for healthier products is prominent [4].

From an economic standpoint, cassava farmers in Gunungkidul can achieve higher profitability by selling semi-finished or finished products instead of raw cassava. While raw cassava is typically priced between 3,000 and 5,000 Indonesian Rupiah per kilogram, *Mocaf* flour can command prices of up to 14,000 Indonesian Rupiah per kilogram. This substantial price difference has sparked enthusiasm among cassava farmers, especially within KWT Ngudi Sari, to intensify their production of *Mocaf* flour [5]. With significant market opportunities for *Mocaf* flour abroad, coupled with government initiatives to boost the export of products from small and medium-sized enterprises (SMEs), cassava farmers are motivated to enhance the quality of *Mocaf* flour production, aiming to tap into the international market [6].

While there exists a tremendous opportunity for local products to penetrate the global market, the quality and quantity of production have yet to match this potential [7]. Therefore, follow-up efforts are necessary to assist in the realization of marketing *Mocaf* flour abroad. In this context, the involvement of researchers and community engagement groups from Universitas Muhammadiyah Yogyakarta (UMY) becomes crucial in supporting the development of the community, particularly cassava farmers affiliated with KWT Ngudi Sari. These stakeholders can provide valuable assistance in terms of marketing support and product packaging, enabling access to the international market.

This community development activity applies Participatory Rural Appraisal (PRA) framework in assisting local villages to export their local products abroad, with a specific focus on the case study of cassava farmers in Gunungkidul Regency, Indonesia. Although research on PRA in the context of exportation is limited, existing studies demonstrate its effectiveness in engaging communities, identifying market opportunities, and addressing challenges [8,9]. PRA, rooted in adult education and community empowerment theories, emphasizes active participation and ownership in decision-making, aligning with the objective of assisting villages in exporting their products. The framework acknowledges the value of local knowledge and expertise in identifying market opportunities and developing export strategies. It incorporates various data collection methods, such as observation, surveys, interviews, and participant-generated data, enabling a comprehensive understanding of local conditions and factors that affect exportation [10]. This research identifies PRA as a suitable framework for engaging with communities, improving their chances of successfully entering the international market, and promoting community empowerment and capacity building.

2 Method

To conduct research and community development on Participatory Rural Appraisal in the context of assisting local villages to export their local products abroad, a multi-method

² *Manggleng* is a traditional Indonesian snack made primarily from cassava

approach can be employed. Qualitative methods are particularly useful in this research, where the researcher becomes an instrumental figure, collecting data through document examination, behavior observation, and participant interviews. This approach entails conducting research directly in the field, as [11] refers to it as a natural setting. Qualitative inquiry contributes to understanding how various phenomena work, encompassing the experiences and outcomes of programs participants and the ways in which those experiences shape program results. By employing qualitative methods, researchers can shed light on the mechanisms underlying human phenomena, such as the workings and impacts of churches, social groups, political campaigns, community events, and social media participation [12].

The research incorporates several qualitative methods, including semi-structured interviews involving 8 respondents (comprising both males and females) and focus group discussions with 15 participants (also including both genders), to gather in-depth insights into the experiences, perceptions, and knowledge of community members regarding local product export. These methods enable the exploration of community needs, aspirations, and challenges in the export process. Additionally, direct observation is employed to collect data on local conditions and available resources for product production and export. Moreover, the research integrates the Participatory Rural Appraisal method, which actively involves and empowers the community in the research process. This methodology facilitates the active participation of community members in data collection, analysis, and evaluation, fostering a collaborative and inclusive research approach [13].

3 Results and Discussion

The community development program follows a clear structure composed of three distinct stages. The initial stage is known as the Planning phase, in which cassava farmers in Gunungkidul are presented with the responsibility of overcoming the challenge of improving community income by harnessing the agricultural potential, with a specific focus on cassava. The subsequent stage is the Implementation phase, which involves the practical implementation of meticulously designed programs that target the identified challenges. Lastly, the program progresses to the Evaluation phase, where the effectiveness and achievements of the program are carefully examined to assess its overall success. Further elaboration on these stages can be provided as follows:

3.1 Planning phase

During the planning phase, a collaborative effort between the UMY Community Engagement Team, the Gunungkidul Regency government, and the Muhammadiyah Regional Empowerment Council in the Special Region of Yogyakarta (MPM PWM DIY) set the groundwork for a comprehensive assessment of Kemiri Village's potential and challenges. Figure 1 illustrates the UMY Community Engagement Team and other stakeholders visiting the cassava processing house, highlighting their active involvement. This collaboration included the implementation of a Participatory Rural Appraisal process, which empowered community members to identify and analyze the opportunities and barriers specific to their village. Through a series of visits and meetings, a multitude of ideas and insights emerged, shedding light on Kemiri Village's unique potential and challenges.

With cassava farming being a crucial source of income for the majority of residents in Kemiri Village, their primary objective is to increase their earnings not only by selling raw cassava but also by adding value through the production of semi-finished and finished cassava products. Figure 2 showcases the location where cassava is processed into these value-added forms. However, the limited marketing activities within the regency have impeded the realization of their full potential, resulting in relatively low production levels of

these processed products. Consequently, the farmers are driven to expand their market beyond local boundaries and capitalize on the abundant opportunities presented by international consumers.



Fig. 1. The visit of the UMY Community Engagement Team and stakeholders to the processed cassava products in Kemiri Village



Fig. 2. Place for processing cassava into Mocaf Flour

Through a series of visits and meetings, a multitude of ideas and insights emerged. It was found that the key challenge faced by farmers in accessing the international market lies in the realm of packaging. Currently, the packaging for cassava products remains relatively simplistic, lacking the sophistication and standards required for export [14]. Although some progress has been made with the support of the local government in facilitating packaging improvements, farmers still lack the necessary knowledge and understanding of export-standard packaging practices (see Table 1). Recognizing this gap, the Community Engagement Team, in collaboration with other stakeholders, has devised a comprehensive marketing and packaging training program (as suggested in Table 1). This program aims to equip farmers with the skills and expertise needed to develop packaging that meets international standards, thereby enabling them to effectively reach global consumers.

Table 1. Key Findings from the PRA Investigation

Community Needs	Aspirations	Challenges	Proposed Solutions
Improved packaging	Access to international markets	Limited marketing activities	Marketing training
Marketing training	Increasing earnings through value-added products	Lack of knowledge in export-standard packaging	Packaging improvements

Building upon the insights gained during the planning phase, the UMY Community Engagement Team and KWT Ngudi Sari initiated the implementation of a community

development program. KWT Ngudi Sari, comprising around 20 members, is a group of dedicated women farmers who actively cultivate cassava and produce a diverse range of cassava-based processed products within Kemiri Village. The program serves as a catalyst for enhancing their motivation and enthusiasm in elevating the quality of marketing and packaging practices. By equipping them with the necessary knowledge and skills, the program aims to empower these farmers to effectively penetrate the international market and successfully promote their products to a broader audience.

3.2 Implementation phase

The implementation of marketing and packaging training assistance is carried out through the collaboration of several stakeholders. These include the UMY Community Engagement Team, local government, businesspeople, YouTubers, MPM PWM DIY, and KWT Ngudi Sari. The UMY Community Engagement Team consists of academics from the Muhammadiyah University of Yogyakarta who are responsible for implementing community engagement programs. In this program, the UMY Community Engagement Team takes the lead in community development in Kemiri Village. The UMY Community Engagement Team is directly assisted by the UMY Regular Community Service Team 085 and UMY Regular Community Service Team 240. Both groups are students who are conducting a community service program in Kemiri Village for one month. Another stakeholder is the local government. The local government participating in this program includes the Village Head of Kemiri, with the support of several local institutions such as the Gunungkidul Regency Agriculture Office, which has been assisting cassava farmers in Kemiri Village. The next stakeholder is the MPM PWM DIY, which has been helping to empower the community, especially cassava farmers in Kelurahan Kemiri. The next stakeholders are businesspeople and YouTubers who provide materials for marketing and packaging training in this program. The next stakeholder is KWT Ngudi Sari, who plays a key role in this program. KWT Ngudi Sari is a group of women farmers and micro, small, and medium-sized enterprises (MSMEs) engaged in processed cassava products.



Fig. 3. Presentation of marketing and packaging training materials by Ms. Yuki Rahmayanti, S.Pt.

The program implementation is divided into two sessions, each comprising a series of activities such as presentations, demonstrations, and practice sessions. The first session took place on January 25, 2023, at the Kemiri Village Hall, located in Tanjungsari Sub-district, Gunungkidul Regency. During this session, a successful businessperson named Ms. Yuki Rahmayanti, S.Pt, the Co-Founder CEO of CV Yumeda Pangan Sejahtera, shared her expertise. Her company specializes in the production of ice cream, gelato, and mozzarella under the brand Sweet Sundae, and has achieved international recognition. Figure 3 illustrates Ms. Yuki's presentation titled "Marketing and Packaging Training for Processed Cassava

Products to Reach the International Market." Following the presentation, Ms. Yuki provided a demonstration of effective marketing strategies and export-standard packaging. She prompted participants to consider packaging-related aspects, such as determining the ideal size for each product's packaging and strategizing the arrangement of products in a container truck to ensure efficiency and effectiveness during overseas distribution. During the practice session, participants collaborated to tackle the challenges presented by Ms. Yuki, engaging in hands-on problem-solving activities.

The second session took place on February 11, 2023, at the same location, Kemiri Village in Tanjungsari Sub-district, Gunungkidul Regency. This session featured a presentation by a YouTuber named Gharda Kusuma, S.Pt, who owns and manages the YouTube channel Evan Media. His presentation, titled "Strategies to Enter the International Market Through Social Media," focused on providing valuable tips for aspiring content creators. Mr. Garda also conducted a demonstration promoting Kemiri Village as a hub for processed cassava products. Notably, this session welcomed participants from different demographics, including not only members of KWT Ngudi Sari, who were older individuals, but also young men and women from Kemiri Village. During the practice session, the young participants took part in creating videos showcasing the village and its flagship processed cassava products. Figure 4 captures a moment when Mr. Gardha, the speaker, documented the event with the UMY Regular Community Service Team and the young participants. Throughout both the first and second sessions, the UMY Regular Community Service Team provided assistance and support.



Fig. 4. Speaker Gharda Kusuma took a photo with the UMY Regular Community Service Team and the young people of the Kemiri Village

3.3 Evaluation Phase

The evaluation phase plays a crucial role in assessing the effectiveness and impact of the implemented programs. Through interviews conducted with the training participants, who are members of KWT Ngudi Sari, it became evident that they exhibited remarkable enthusiasm and passion for this program. The opportunity to explore the prospects of the international market, with the support of initiatives like this, has ignited a renewed sense of purpose and determination within these cassava farmers.

The participants expressed their appreciation for the training sessions, gaining invaluable insights into the intricacies of proper marketing and packaging practices. These newfound skills enable them to create products that are not only safe and of high quality but also visually appealing and captivating to potential consumers. The training programs have equipped them with comprehensive knowledge, extending beyond the realm of domestic marketing and encompassing essential strategies needed to access the international market through effective

promotion and packaging [15]. One participant noted, "The training has enhanced our understanding of safer product packaging for exports, ensuring that the items are not damaged during distribution and reach consumers in good condition" (Participant A). Another participant expressed, "This training in marketing products for international markets has been executed well. It's hoped that our community continues to develop its potential and expand its knowledge of marketing products internationally. Further training, seminars, and other activities are also desired to help the community grow its businesses to international markets" (Participant B).

To assess the extent of community involvement in the ongoing program implementation, Arnstein's Ladder of Citizen Participation can be employed as a framework. According to Arnstein's Ladder, community involvement can range from non-participation to citizen power. Given the proactive participation of community members in the training sessions and their direct benefit from the imparted skills, the program likely falls within the 'Partnership' to 'Delegated Power' range on Arnstein's Ladder [15]. This suggests a high level of community involvement and empowerment, further validating the effectiveness of the training program.

4 Conclusion

The participatory rural appraisal framework adopted in this study, as exhibited through the implementation of a robust community development program, has shown a profound impact on the KWT Ngudi Sari farmer group in Kemiri Village. The government, the UMY Community Engagement Team, and other stakeholders have played pivotal roles in this venture, providing an enabling environment for the cassava farmers to learn and otherwise improve their packaging techniques for an international audience. The resulting outputs, so far, have marked a significant step toward the farmer's aspirations to export higher volume and quality cassava products.

However, while the current progress is encouraging, it signals the beginning of a longer journey for these farmers into uncharted territories of international business that requires nuanced understanding and advanced skills. There is a need for continuous training and popular education integrated into the group's work routines to solidify their understanding and application of learned packaging skills and marketing techniques.

Furthermore, the Kemiri Village experience provides a valuable lesson for other areas of Indonesia and, in a larger sense, similar rural settings where local producers are keen to tap into the global market potential. This study's insights offer a robust model, underscoring the incredible value of community engagement teams, collaborative stakeholder partnerships, and skill-enhancement programs. The success achieved here could indeed set a precedent for sustainable community development initiatives, ultimately contributing to the broader socio-economic landscape.

Future research and projects can expand on this model, considering other variables such as e-commerce, climate change effects on agriculture, and farmers' financial literacy, crucial for operating in international markets.

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