

From Local Resources to Community Capabilities: An Islamic Ethics-Informed Empowerment Model for *Ganyong* Entrepreneurship in Indonesia

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Abstract

This study examines how local agricultural resources, community participation, and international institutional learning can inform the development of an Islamic ethics-informed empowerment model for *ganyong*-based entrepreneurship in Colo Village, Indonesia. This research employed a research and development approach covering the Analysis, Design, and Development stages of the ADDIE framework. Empirical evidence was obtained through field observations, interviews, and focus group discussions with local farmers and community leaders, complemented by academic engagement with researchers from the University of Canberra and Monash University. The findings were synthesized and subsequently interpreted through Islamic social ethics. The study identified local agricultural potential alongside limitations in processing capabilities, resource utilization, and institutional support. Community consultations generated eight recommendations concerning cultivation, technical training, shared production facilities, product diversification, marketing, youth engagement, and stakeholder partnerships. International institutional learning provided complementary perspectives on participatory development, collaborative innovation, and institutional governance. These findings informed a proposed empowerment model integrating five Islamic ethical principles: *shūrā* (consultation), *ta'āwun* (cooperation), *amānah* (accountability), *'adl* (justice), and *maṣlahah* (collective welfare). The model offers a framework for planning and evaluating rural Muslim community empowerment through meaningful participation, collaborative resource management, institutional accountability, equitable entrepreneurial opportunities, and collective welfare. Its practical effectiveness requires further empirical evaluation. This study integrates locally grounded empirical evidence, international institutional learning, and Islamic social ethics into an empowerment framework that conceptualizes sustainable local food entrepreneurship as an institutionally mediated expansion of community capabilities rather than agricultural commercialization alone.

Keywords: community empowerment; Islamic social ethics; local food entrepreneurship; participatory development; science entrepreneurship.

INTRODUCTION

Indonesia's food system faces a structural challenge arising from its growing dependence on wheat-based products despite the country's abundant local carbohydrate resources. According to Badan Pusat Statistik (2026), Indonesia imported between 9.35 and 11.72 million tonnes of wheat and meslin annually during 2021–2025, reflecting its persistent reliance on international markets to meet domestic demand. This dependence is reinforced by national consumption patterns. In 2024, wheat flour consumption reached 16.1 kg per capita, exceeding the combined consumption of tubers (15.0 kg), including cassava, sweet potatoes, and other locally available carbohydrate

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sources (Badan Pangan Nasional, 2026). Such dependence exposes the domestic food system to international price fluctuations, supply disruptions, exchange-rate movements, and geopolitical uncertainties (Hutahaeen et al., 2026). Previous research has demonstrated the technical feasibility of partially substituting wheat flour with locally sourced alternatives, including modified cassava flour (MOCAF) (Ruriani et al., 2012). Recognizing the strategic importance of local food resources, the Indonesian government issued Presidential Regulation No. 81 of 2024 to accelerate food diversification leveraging domestic agricultural potential (Pemerintah Republik Indonesia, 2024). Consequently, strengthening local food systems requires not only technological innovation in alternative food processing but also the development of entrepreneurial capabilities and community-based institutional arrangements that enable rural populations to generate sustainable economic value from indigenous agricultural resources.

Within this broader national context, the Mount Muria region in Kudus, Central Java, illustrates the opportunities and challenges of developing local food entrepreneurship. Colo Village, situated on the slopes of Mount Muria, possesses diverse agricultural resources, including *ganyong* (*Canna edulis* Kerr.), a locally available tuber with potential applications in flour production and other processed food products (Maintang & Huseng, 2021; R. Mayasari et al., 2018). The presence of *ganyong* farming households in nearby Japan Village further indicates the continued agricultural relevance of this commodity within the Dawe District (Ni'mah et al., 2020). Nevertheless, the development of traditional tuber crops faces challenges stemming from shifting agricultural priorities and limited value-added processing. Official agricultural statistics indicate limited recorded production of selected tuber crops in Colo Village, although these figures do not directly establish the scale or decline of *ganyong* cultivation (BPS Kudus, 2025). The original field research also documented an agricultural shift toward coffee cultivation, accompanied by a decline in attention to traditional tuber crops. While coffee-related economic activities have expanded, *ganyong* remains comparatively underdeveloped in terms of processing innovation and market integration. In a separate study involving 50 participants engaged in local food processing in the Mount Muria religious tourism area, Mayasari (2018) identified limitations in nutritional knowledge, product processing, and food management practices before training interventions. These conditions suggest that transforming indigenous food resources into sustainable rural enterprises requires more than agricultural availability; it also depends on scientific knowledge, entrepreneurial skills, institutional support, and market opportunities.

Beyond its agricultural resources, Colo Village is characterized by a predominantly Muslim population and established communal practices, including *Yasinan* (communal recitation of Surah Yasin), *Tahlilan* (collective Islamic prayers and remembrance of God), *arisan* (rotating savings and social gatherings), and *slametan* (communal gatherings involving prayers and shared meals), alongside religious tourism activities associated with the Sunan Muria pilgrimage site. These socio-religious settings constitute an important dimension of local community life and may provide opportunities for collective learning, cooperation, and community-based entrepreneurship. However, their existence does not necessarily demonstrate that religious practices directly shape economic decision-making, resource management, or entrepreneurial organization. The challenge, therefore, extends beyond the technical development of *ganyong* flour to the question of how local resources, community participation, institutional cooperation, and ethical responsibilities can be brought together within a sustainable empowerment framework. Addressing this challenge also requires considering development approaches that recognize local

knowledge and community agency while drawing critically on relevant institutional experiences beyond the local setting. In this context, the engagement with researchers from the University of Canberra and Monash University in Australia provides an additional basis for examining participatory learning, collaborative knowledge production, and institutional approaches to community empowerment. These considerations create a foundation for investigating how local empirical needs and international institutional learning can inform an Islamic ethics-informed model of sustainable community empowerment.

Previous studies relevant to Islamic ethics-informed community empowerment and local economic development can be classified into three major research traditions. The first research tradition examines Islamic social ethics as a foundation for equitable, responsible, and sustainable economic development. Naqvi (1994) established a normative framework in which economic activities are inseparable from moral responsibility, distributive justice, and collective welfare, challenging approaches that prioritize economic efficiency without adequate consideration of social obligations. Extending this perspective, Raimi (2026), through a systematic literature review, highlighted the contribution of Islamic epistemology and ethics to sustainable development, particularly through social responsibility, environmental stewardship, and holistic well-being. In the context of entrepreneurship, Indiharwati et al. (2026) examined the relationship between Islamic business ethics and the sustainability of small and medium-sized enterprises, emphasizing the importance of ethical leadership, organizational fairness, and social responsibility. In their study of Muslim community empowerment in Indonesia, Arodha et al. (2025) demonstrated the significance of social capital, local traditions, and culturally grounded approaches in strengthening community development. Collectively, these studies demonstrate the relevance of Islamic ethical principles to economic empowerment and sustainable development. Nevertheless, further research is needed to explain how normative principles such as *shūrā* (consultative decision-making), *ta'āwun* (mutual cooperation), *amānah* (trustworthiness and accountability), *'adl* (justice), and *maṣlaḥah* (collective welfare) can be systematically translated into operational criteria for designing participatory, locally grounded empowerment models, particularly in the context of rural Muslim communities seeking to develop sustainable entrepreneurship based on indigenous food resources.

The second research tradition focuses on community empowerment and participatory rural development, emphasizing community agency, local capacity building, institutional collaboration, and sustainable livelihoods. Nikkhah and Redzuan (2009) conceptualized participation as a fundamental mechanism of empowerment, arguing that meaningful community involvement requires more than participation in development activities; it must also enable local people to exercise control over decisions that affect their lives. Similarly, Ahmad and Talib (2015), examining community-driven development in Pakistan, demonstrated that decentralization alone does not guarantee empowerment when communities lack adequate institutional support, access to resources, and decision-making authority. Extending this argument, Ahmad and Abu Talib (2016) identified a significant relationship between community empowerment and the sustainability of community-driven projects, highlighting the importance of a shared sense of community in sustaining collective initiatives. In the Indonesian context, Sulaiman et al. (2023) developed an economic-institutional empowerment model grounded in local wisdom in Sambak Village, Central Java, demonstrating the importance of participatory rural appraisal, institutional partnerships, and capacity-building programs for strengthening village-based economic institutions. Meanwhile, Park et al. (2024), investigating rural tourism development, revealed that development initiatives

may generate both empowerment and disempowerment, emphasizing the importance of examining power relations and community members' control over development processes. Collectively, these studies establish that sustainable rural development depends not merely on community participation but also on meaningful decision-making authority, institutional capacity, equitable access to resources, and collective ownership of development initiatives. Nevertheless, further research is needed to examine how these participatory and institutional dimensions can be systematically integrated with Islamic ethical principles to establish explicit criteria for evaluating consultation, cooperation, accountability, and distributive justice during the design of local resource-based empowerment programs, particularly within rural Muslim communities.

The third research tradition examines science entrepreneurship and local food development, emphasizing the integration of scientific knowledge, product innovation, entrepreneurial capacity, and local agricultural resources to generate economic and social value. Formica (2023) conceptualized *sciencepreneurship* as the intersection of scientific knowledge, entrepreneurial innovation, and sustainable economic development, highlighting the potential of science-driven entrepreneurship to create socially beneficial economic opportunities. In the Indonesian context, Saludung (2018) explored the development of locally sourced food and cake products through an ecopreneurship approach, demonstrating how product innovation can be connected with entrepreneurial training and small-scale food production. Panghal et al. (2024), investigating local food entrepreneurship in rural India, identified product quality, limited market access, and inconsistent government policies as major constraints on business development, emphasizing the importance of resource mapping and targeted institutional support. Beyond technological and market considerations, Mars (2022) demonstrated the significance of community and cultural entrepreneurship in facilitating value co-creation within local food markets, while Westskog et al. (2024) found that local food systems can strengthen community identity, social relationships, and mutual responsibility through geographically and socially embedded economic interactions. More recently, Fobbe and Hilletoft (2025), in a systematic review of 44 studies, developed a local food business model and innovation framework that highlights the interconnected roles of value creation, delivery, capture, and stakeholder collaboration in sustainable food entrepreneurship. Collectively, these studies demonstrate that local food development depends not only on technological innovation but also on entrepreneurial capabilities, market institutions, and community relationships. However, when considered alongside research on Islamic social ethics and participatory rural development, a more specific gap emerges concerning how scientific innovation, community participation, and Islamic ethical principles can be systematically integrated into the design of locally grounded empowerment initiatives. Addressing this intersection, the present study examines *ganyong*-based entrepreneurship in Colo Village, Indonesia, to develop an Islamic ethics-informed participatory empowerment model that translates principles of *shūrā* (consultative decision-making), *ta'āwun* (mutual cooperation), *amānah* (accountability), *ʿadl* (justice), and *maṣlaḥah* (collective welfare) into proposed criteria for community participation, resource governance, entrepreneurial development, and sustainable local economic opportunities.

Building on these research gaps, this study aims to develop an Islamic ethics-informed participatory community empowerment model by integrating local agricultural resources, science entrepreneurship, community participation, and international institutional learning. Specifically, the study addresses three interrelated objectives. First, it examines the socio-economic, institutional,

and socio-religious conditions shaping the need for *ganyong*-based community empowerment in Colo Village, Indonesia, focusing on local agricultural potential, changing livelihood patterns, entrepreneurial challenges, and existing community structures. Second, it analyzes how community participation and stakeholder feedback, particularly from farmers and community leaders, inform the development of a sustainable local food entrepreneurship model through participatory planning, capacity building, and institutional cooperation. Third, it examines how institutional learning from the University of Canberra and Monash University in Australia can be critically integrated with Islamic social ethics to develop a context-sensitive participatory empowerment model. In pursuing these objectives, the study employs *shūrā* (consultative decision-making), *ta'āwun* (mutual cooperation), *amānah* (trustworthiness and accountability), *'adl* (justice), and *maṣlahah* (collective welfare) as analytical principles for evaluating and synthesizing local empirical findings, stakeholder perspectives, and international institutional experiences. Through this approach, the study seeks to bridge normative Islamic ethical thought and empirical research on participatory rural development, contributing a theoretically informed and empirically grounded framework for sustainable community empowerment.

This study argues that sustainable rural community empowerment cannot be achieved solely through the use of local agricultural resources, technological innovation, or entrepreneurial capacity building; it also requires participatory decision-making, collective cooperation, institutional accountability, and the equitable distribution of economic opportunities and benefits. Drawing on Islamic social ethics, the study proposes that *shūrā* (consultative decision-making), *ta'āwun* (mutual cooperation), *amānah* (trustworthiness and accountability), *'adl* (justice), and *maṣlahah* (collective welfare) provide an integrated ethical framework for evaluating and strengthening these dimensions of community empowerment. In the context of *ganyong*-based entrepreneurship in Colo Village, integrating these principles with local stakeholder participation, science entrepreneurship, and institutional collaboration offers a potential pathway toward an empowerment model that prioritizes both economic development and collective well-being. However, the conceptual alignment between Islamic ethical principles and participatory empowerment practices should not be interpreted as empirical evidence that these values are already consciously or consistently implemented by local communities. Rather, this study positions Islamic social ethics as an analytical and evaluative framework through which empirical findings, community aspirations, and international institutional lessons can be synthesized into a context-sensitive empowerment design. Accordingly, the proposed model represents a theoretically informed and empirically grounded framework whose practical effectiveness and long-term sustainability require further implementation and evaluation.

This study argues that sustainable rural community empowerment should be understood as an institutionally mediated expansion of community capabilities rather than merely an outcome of agricultural commercialization or technological innovation. Sen's (1999) capability approach conceptualizes development as the expansion of substantive freedoms, suggesting that the economic value generated from local resources becomes meaningful when it enhances people's capacities to pursue livelihoods they have reason to value. From a participatory development perspective, Nikkhah and Redzuan (Nikkhah & Redzuan, 2009) distinguish participation as a means from participation as an end, emphasizing that genuine empowerment requires communities to exercise meaningful influence over decisions affecting their lives. Complementing this perspective, Ostrom's (1990) theory of collective action highlights the importance of locally appropriate

institutional arrangements, shared rules, and accountability mechanisms for the sustainable governance of collectively managed resources. These theoretical perspectives converge with Chapra's (2008) *maqāṣid al-sharī'ah* approach, which positions human well-being, justice, and moral responsibility as integral dimensions of development beyond material prosperity. Building on this theoretical synthesis, the study proposes that Islamic ethical principles can be translated into operational criteria for participatory empowerment: *shūrā* (consultative decision-making) guides community involvement in planning, *ta'āwun* (mutual cooperation) informs collective production and knowledge sharing, *amānah* (trustworthiness and accountability) underpins responsible institutional governance, *'adl* (justice) provides criteria for equitable access to opportunities and benefits, and *maṣlaḥah* (collective welfare) offers a framework for assessing the broader social, economic, and environmental implications of development. Applied to *ganyong*-based entrepreneurship in Colo Village, this synthesis suggests that sustainable empowerment depends not only on developing marketable local food products but also on establishing participatory and ethically accountable institutional arrangements through which communities can collectively manage resources and pursue shared prosperity. Nevertheless, these ethical dimensions are advanced as theoretically informed criteria for the proposed empowerment model rather than as evidence of their existing implementation, and their practical effectiveness requires subsequent empirical evaluation.

METHOD

The unit of analysis in this study is the development of a participatory community empowerment model based on *ganyong* flour entrepreneurship in Colo Village, Dawe District, Kudus Regency, Central Java, Indonesia. Located on the slopes of Mount Muria, Colo Village represents a rural community characterized by agricultural livelihoods, locally available food resources, religious tourism, and established socio-religious practices. The study examines the socio-economic, institutional, and socio-cultural conditions that influence the utilization of *ganyong* as a potential driver of local economic development. Particular attention is given to the roles of farmers, farmer associations, community leaders, and other stakeholders in identifying development challenges and formulating empowerment strategies. The analysis also considers the community's predominantly Muslim character, including its communal religious practices, as a relevant sociocultural context for examining the potential relationship between Islamic social ethics and participatory economic development. Rather than treating individual farmers or households as isolated units, the study focuses on the interactions among community resources, institutional arrangements, stakeholder participation, and the proposed empowerment design.

This study employs a Research and Development (R&D) approach adapted from the ADDIE model developed by Branch (2009), which comprises five interconnected stages: Analysis, Design, Development, Implementation, and Evaluation. The original research was limited to the first three stages because its primary objective was to develop a contextually appropriate community empowerment design rather than implement and measure the effectiveness of an intervention. The Analysis stage involved examining community characteristics, identifying socioeconomic problems, and assessing local agricultural potential. The Design stage focused on formulating an initial empowerment framework incorporating community awareness, knowledge development, entrepreneurial skills, resource management, and participatory planning. The Development stage involved obtaining feedback from local stakeholders and examining community empowerment

approaches discussed with researchers from Australian universities. Although the original research envisaged formative evaluation during development, it did not include field implementation of the proposed model or a systematic assessment of its long-term socioeconomic outcomes. For the present article, the original development-oriented research is supplemented by an Islamic ethical interpretive framework to critically examine the participatory and institutional dimensions of the proposed model. This ethical interpretation constitutes a subsequent analytical development rather than a component claimed to have been implemented during the original fieldwork.

The study draws on primary empirical information and secondary documentary sources. Primary data were obtained from field observations, interviews, and focus group discussions (FGDs), as documented in the original research. Field-based information concerns agricultural activities, local food resources, community livelihoods, institutional conditions, and challenges associated with *ganyong* cultivation and processing in Colo Village. Interview evidence includes information provided by the leadership of the local farmer association (*Gabungan Kelompok Tani*, or Gapoktan), particularly regarding changes in agricultural commodities and the declining cultivation of traditional tuber crops. Local stakeholder perspectives were also documented through an FGD involving farmers and community leaders who reviewed the proposed empowerment design and identified requirements for its further development. Additional information was obtained through academic discussions with researchers affiliated with the University of Canberra and Monash University, Australia, concerning participatory learning, community-based development, institutional collaboration, and sustainable livelihoods. Secondary materials include relevant academic literature, institutional descriptions of Australian community development programs, and scholarly works on Islamic social ethics. Qur'anic ethical principles and Islamic economic thought are employed as conceptual and interpretive sources rather than substitutes for empirical field evidence.

Data collection in the original research involved observation, interviews, documentation, and FGDs conducted in relation to the development of the proposed empowerment model. Observations in Colo Village were aimed at understanding local agricultural resources, community livelihoods, institutional arrangements, and the problems associated with the limited use of *ganyong*. Interviews provided contextual information concerning agricultural changes, community needs, and constraints on local food-based entrepreneurship. The local FGD was used to gather stakeholder responses to the initial empowerment design, yielding recommendations on land identification, cultivation opportunities, processing training, production equipment, product diversification, marketing arrangements, youth participation, and institutional partnerships. Academic discussions with researchers from the University of Canberra and Monash University provided additional perspectives on community participation, collaborative knowledge production, experiential learning, and institutional approaches to sustainable development. The research report also includes photographic documentation of field observations and discussion activities. However, the available report does not consistently specify the number and selection criteria for participants, the dates and durations of interviews and FGDs, or the recording and transcription procedures. Accordingly, the present analysis relies on the empirical findings and stakeholder feedback documented in the report without assuming the existence of additional interview transcripts or undocumented methodological procedures.

The analytical framework for the present article comprises two interconnected levels: empirical analysis and Islamic ethical interpretation. At the empirical level, the documented

research findings are organized around community characteristics and local resources, constraints on ganyong-based entrepreneurship, stakeholder participation in model development, and lessons derived from Australian institutional experiences. These dimensions are examined in relation to the Analysis, Design, and Development stages of the original research to identify how empirical problems and stakeholder recommendations inform the proposed empowerment framework. At the second level, the findings are interpreted through five interrelated Islamic ethical principles: *shūrā* (consultative decision-making), *ta'āwun* (mutual cooperation), *amānah* (trustworthiness and accountability), *'adl* (justice), and *maṣlahah* (collective welfare). Drawing on the *maqāṣid al-sharī'ah* perspective of human well-being and moral responsibility (Chapra, 2008), these principles serve as deductive analytical categories for evaluating the ethical implications of community participation, collective resource management, institutional responsibility, equitable opportunities, and sustainability. The analysis distinguishes among empirically documented practices, their conceptual correspondence to Islamic ethical principles, and the normative recommendations incorporated into the proposed model. This distinction is necessary because the presence of socio-religious activities or participatory practices does not, by itself, establish that community members consciously employ particular Islamic ethical concepts in their economic decisions. Consequently, the proposed Islamic ethics-informed empowerment model is presented as an empirically grounded and theoretically developed framework requiring subsequent implementation and evaluation, rather than as an intervention whose effectiveness has already been demonstrated.

RESULTS

1. Local Resources, Socio-Religious Context, and Challenges of Community Empowerment in Indonesia

Field observations conducted in Colo Village, Kudus Regency, Central Java, revealed a diverse agricultural landscape shaped by its geographical location on the slopes of Mount Muria. Agriculture constitutes an important source of livelihood for local residents, with various commodities cultivated across the area, including coffee, avocado, *parijoto*, bananas, pomelos, and traditional tuber crops such as *ganyong* and taro (field observations, 2023). The assessment of local agricultural potential identified *ganyong* as one of the indigenous food resources that could be developed into processed products, particularly flour, to support community-based entrepreneurship. Alongside these agricultural resources, field observations documented a local forest conservation community engaged in reforestation in the Mount Muria area, reflecting existing community involvement in environmental management. Despite this diversity of agricultural resources, the findings revealed a gap between the availability of local commodities and their development into value-added economic products. In particular, *ganyong* had not been developed into an established flour-based entrepreneurial activity within the community. These conditions indicate that Colo Village possesses locally available resources for food-based entrepreneurship, but the transformation of these resources into sustainable economic opportunities remains constrained by the need for further innovation in processing, entrepreneurial capacity development, and institutional support.

Field observations and community analysis in Colo Village revealed a livelihood structure characterized by the coexistence of agricultural activities, small-scale trading, and tourism-related

services. Farming remains an important source of income for local residents, while other community members engage in trading and motorcycle taxi services associated with religious tourism at the Sunan Muria pilgrimage site (field observations, 2023). The presence of pilgrims visiting this religious destination contributes to local economic activities, particularly in commerce and transportation, demonstrating that the village economy extends beyond agricultural production. Alongside these livelihood activities, the findings identified the existence of organized farmer groups operating under the *Gabungan Kelompok Tani* (Gapoktan), an institutional structure that facilitates coordination among local farmers. The coexistence of agricultural livelihoods, tourism-related economic activities, and farmer organizations indicates that community empowerment initiatives would operate within an established but economically diverse local environment. However, the findings did not establish that Gapoktan had organized *ganyong* flour production or that tourism-related traders were already involved in marketing *ganyong*-based products. Rather, these existing economic activities and community institutions represent potential resources for developing collaborative entrepreneurship, strengthening local production capacity, and establishing institutional partnerships to support the proposed empowerment model.

The community assessment conducted in Colo Village in 2023 identified a predominantly Muslim population whose social life is characterized by established religious traditions and communal gatherings. These practices include *Yasinan* (communal gatherings for the recitation of Surah Yasin from the Qur'an), *Tahlilan* (collective Islamic prayers and remembrance of God, often associated with commemorating deceased community members), *arisan* (rotating savings and social gatherings), and *slametan* (traditional communal gatherings involving prayers and shared meals to seek blessings or express gratitude). The presence of these practices reflects the coexistence of religious observance and communal interaction within the village's social environment. These socio-religious characteristics are relevant to understanding the local context in which community empowerment initiatives may be developed, particularly because participatory programs require consideration of existing patterns of social interaction and community engagement. From the perspective of Islamic social ethics, such communal settings provide a potential context for introducing participatory consultation and collective cooperation, consistent with the principles of *shūrā* and *ta'āwun*. However, the available field evidence does not establish that these gatherings have been used to organize *ganyong*-based entrepreneurship, coordinate agricultural production, or make collective economic decisions. Accordingly, their relevance to the proposed empowerment model lies in their potential to inform socially and culturally appropriate participatory mechanisms rather than in any demonstrated contribution to existing entrepreneurial practices.

The interviews conducted during the field research revealed changes in agricultural cultivation patterns in Colo Village, particularly the declining prominence of traditional tuber crops. Gampang, the head of the local Association of Farmer Groups (*Gabungan Kelompok Tani*, or Gapoktan), explained that during the period between the 1980s and 2000, traditional tuber crops, including *ganyong* and taro, were widely cultivated by farmers in the Mount Muria area. However, since the 2010s, land devoted to these crops has reportedly decreased alongside the expansion of coffee cultivation, which has become increasingly prominent in the local agricultural economy (interview with the Gapoktan chairperson, 2023). The growing importance of coffee is also reflected in the development of coffee-processing activities and coffee-related businesses in the surrounding area. This agricultural transformation indicates a shift in local cultivation priorities, creating

challenges for maintaining and developing traditional food resources such as *ganyong*. Although the interview findings suggest that coffee expansion has coincided with the declining cultivation of traditional tubers, the available evidence does not establish the precise extent of land-use changes or demonstrate that differences in crop profitability directly caused farmers to abandon *ganyong*. Nevertheless, these findings highlight an important challenge for community empowerment: the development of *ganyong*-based entrepreneurship requires consideration of existing agricultural priorities, land availability, and farmers' willingness to participate in the revitalization of traditional food crops.

Field observations and interviews conducted in Colo Village in 2023 identified several interconnected constraints affecting the development of *ganyong*-based entrepreneurship. Beyond the declining cultivation of traditional tuber crops amid the expansion of coffee plantations, the findings revealed that *ganyong* processing remained largely limited to conventional practices, particularly boiling the tubers for direct consumption and sale in the Sunan Muria religious tourism area. This limited product diversification indicated that the potential of *ganyong* as a raw material for value-added food products, including flour, had not been extensively developed. The field investigation also identified insufficient targeted attention from the village government toward the development of local agricultural commodities, alongside limited opportunities for farmers to receive training in agricultural product processing (field observations and interviews, 2023). These constraints suggest that the challenges of *ganyong* entrepreneurship extend beyond agricultural production to encompass technical skills, product innovation, and institutional support. Consequently, the empirical findings point to the need for an integrated empowerment strategy that considers the sustainability of *ganyong* cultivation, strengthens farmers' processing and entrepreneurial capabilities, promotes value-added product development, and encourages greater institutional involvement. These priorities represent needs identified through the research rather than interventions whose implementation or effectiveness has already been demonstrated.

Table 1. Local Resources, Socio-Religious Characteristics, and Empowerment Challenges in Colo Village, Indonesia

Empirical dimension	Documented empirical findings	Primary data source	Implications for empowerment design
Agricultural resources and local potential	Diverse agricultural commodities, including coffee, avocado, parijoto, bananas, pomelos, <i>ganyong</i> , and taro, were identified in the Mount Muria area.	Field-based community and local potential assessments (2023)	Identification of locally available resources for food processing and entrepreneurial development.
Livelihood structure and economic activities	Farming constituted an important livelihood, alongside trading and motorcycle taxi services associated with religious tourism at the Sunan Muria pilgrimage site.	Community assessment and field observations (2023)	Consideration of existing livelihood activities and economic actors in developing local entrepreneurship.
Agricultural institutions and	Farmer groups were organized under	Community and local potential	Identification of existing organizational structures

Empirical dimension	Documented empirical findings	Primary data source	Implications for empowerment design
environmental engagement	Gapoktan, while local community involvement in forest protection and reforestation was also documented.	assessments (2023)	and community resources relevant to institutional cooperation.
Socio-religious characteristics	The predominantly Muslim community maintained communal practices, including Yasinan, Tahlilan, arisan, and slametan.	Community assessment (2023)	Consideration of established communal settings when designing cultural

As summarized in Table 1, the empirical findings reveal three interconnected patterns shaping the development of ganyong-based community empowerment in Colo Village. First, the availability of diverse agricultural resources has not been accompanied by a comparable development of value-added food processing, as reflected in the continued reliance on conventional ganyong preparation and the limited diversification of processed products. This pattern indicates a gap between local resource potential and the technical and entrepreneurial capacities required to generate greater economic value. Second, the coexistence of farmer organizations, socio-religious gatherings, and tourism-related economic activities demonstrates the presence of social and institutional resources that could be considered in developing community-based entrepreneurship. However, the available observations and interviews do not establish that these structures have been systematically connected to ganyong processing, collective production, or coordinated marketing activities. Third, the reported decline in traditional tuber cultivation alongside the growing prominence of coffee, combined with limited processing training and institutional support, indicates that agricultural transformation and capacity constraints are closely related challenges for local food development. These patterns suggest that the central issue is not simply the availability of ganyong as an agricultural commodity, but the limited integration of local resources, entrepreneurial capabilities, and institutional arrangements necessary to support its development. Accordingly, the findings provide an empirical basis for formulating a participatory empowerment design that responds to existing agricultural conditions, community capacities, and institutional needs.

From the perspective of Islamic social ethics, the empirical conditions identified in Colo Village provide a basis for evaluating the ethical dimensions of the proposed community empowerment model. The presence of organized farmer groups highlights the relevance of *shūrā* (consultative decision-making) in ensuring that farmers participate meaningfully in identifying development priorities and formulating empowerment strategies. Similarly, existing communal practices and agricultural institutions provide a socio-cultural context for considering *ta'āwun* (mutual cooperation) as a guiding principle for collective learning, agricultural processing, and entrepreneurial collaboration. The identified limitations in institutional support further underscore the importance of *amānah* (trustworthiness and accountability) in establishing responsible mechanisms for resource management and stakeholder coordination. Meanwhile, limited access to agricultural processing training raises questions concerning *ʿadl* (justice), particularly in ensuring equitable opportunities for farmers and other community members to participate in economic

development. The principle of *maṣlaḥah* (collective welfare) provides a broader evaluative perspective for considering whether the proposed empowerment initiatives can balance economic opportunities, social benefits, and environmental sustainability. These ethical interpretations do not constitute empirical evidence that the five principles have already been consciously or systematically implemented in local economic practices. Rather, they establish preliminary normative criteria through which community participation, stakeholder recommendations, and institutional arrangements can be critically examined in the subsequent stages of empowerment model development.

2. Participatory Development and Local Stakeholder Validation of the *Ganyong* Empowerment Design

The initial design of *ganyong*-based community empowerment was developed by translating the socio-economic challenges and local agricultural potential identified during the analysis stage into a structured framework for sustainable food entrepreneurship. The proposed initiative focused on processing locally available *ganyong* tubers into flour as an alternative ingredient for food production, while incorporating science entrepreneurship to connect scientific knowledge, product innovation, and economic opportunities. Rather than concentrating exclusively on processing technology, the design addressed four interrelated dimensions of community capacity: changes in attitudes and awareness, improvement of knowledge, strengthening of practical skills, and responsible management of available resources. Scientific literacy and local cultural characteristics were also considered to ensure that the proposed activities corresponded to community needs and existing resources. As illustrated in Figure 1, the framework began with identifying community problems and needs, followed by assessing local potential and alternative activities as the basis for program planning. The subsequent components comprised proposed program implementation, monitoring of activity progress, and evaluation of program results, with an iterative feedback mechanism intended to inform future adjustments. These components represented the structure of the proposed empowerment program rather than activities whose implementation and outcomes had already been demonstrated. Accordingly, the initial design provided a preliminary framework for integrating local food resources, community capacity development, and participatory planning, which could subsequently be reviewed through consultation with farmers and community leaders.

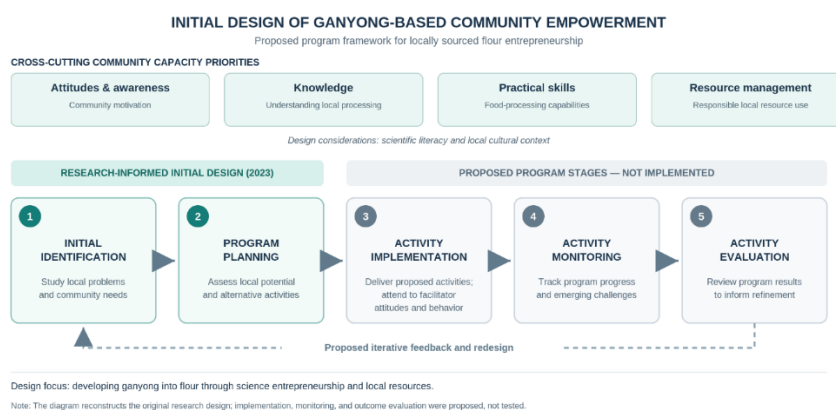


Figure 1. Initial Design of Sustainable Community Empowerment Based on Science Entrepreneurship and Local Potential for *Ganyong* Flour Development.

The focus group discussion (FGD) conducted with local farmers and community leaders in Colo Village in 2023 provided an opportunity for stakeholders to review the initial *ganyong*-based empowerment design and identify priorities for its further development. During the consultation, participants were reported to be generally supportive of the proposed initiative and expressed expectations that the empowerment program could subsequently be implemented within the community. Beyond this general endorsement, the discussion generated eight practical recommendations addressing agricultural land utilization, processing skills, shared production facilities, product diversification, marketing arrangements, youth engagement, and institutional partnerships. These recommendations indicate that local stakeholders considered the proposed initiative not merely a technological intervention to produce *ganyong* flour but a broader process requiring agricultural resources, entrepreneurial capacity, and collaboration among relevant actors. The FGD thus served as a participatory appraisal mechanism through which community perspectives could inform the further development of the researcher's initial design. However, the documented consultation does not establish the degree of influence exercised by individual participants or confirm that every recommendation was subsequently incorporated into a revised model. Nevertheless, the findings demonstrate that local stakeholder feedback provided an empirical basis for identifying community priorities and assessing the contextual relevance of the proposed empowerment initiative.

The focus group discussion with farmers and community leaders in Colo Village identified agricultural land availability and cultivation planning as important considerations for developing *ganyong*-based entrepreneurship. Participants proposed two specific measures: mapping potential areas suitable for *ganyong* cultivation and optimizing the utilization of vacant land for growing the crop (FGD with local farmers and community leaders, 2023). These recommendations were particularly relevant to the agricultural changes identified during the earlier field investigation. As reported by Gampang, the head of the local farmer association (Gapoktan), traditional tuber cultivation, including *ganyong* and taro, had declined since the 2010s alongside the increasing prominence of coffee cultivation in the Mount Muria area. The relationship between these findings indicates that local stakeholders recognized the importance of securing agricultural resources to support the proposed development of *ganyong* flour entrepreneurship. Land mapping was therefore identified as a potential means of determining suitable cultivation areas, while the utilization of vacant land was proposed as an alternative for strengthening local raw material availability. However, these recommendations represent stakeholder-identified priorities rather than evidence that land mapping had been completed, vacant land had been allocated, or *ganyong* cultivation had subsequently increased. The findings suggest that the sustainability of *ganyong*-based entrepreneurship requires attention to agricultural resource planning and the continuity of raw material supply alongside the development of processing technologies and entrepreneurial capabilities.

The focus group discussion with farmers and community leaders in Colo Village further identified technical capacity development, access to production equipment, and product diversification as essential priorities for strengthening *ganyong*-based entrepreneurship. Participants recommended three interconnected initiatives: providing practical training in processing *ganyong* tubers into flour as a potential alternative to wheat flour, establishing shared access to facilities and equipment for flour production, and organizing training in the development of derivative food products made from *ganyong* flour (FGD with local farmers and community

leaders, 2023). These recommendations reflect the community's recognition that transforming locally available agricultural resources into marketable food products requires more than access to raw materials. Processing skills and appropriate production equipment were identified as complementary requirements for developing value-added agricultural products, while training in product diversification was considered important for expanding the potential applications of *ganyong* flour. The recommendation to provide production facilities collectively also indicates stakeholder interest in shared infrastructure as a possible approach to supporting community-based entrepreneurship. Collectively, these findings reveal two interconnected dimensions of empowerment needs: technical capacity development and value-added product innovation, supported by access to production resources. However, the recommendations do not establish that processing training had been implemented, shared production facilities had been established, or derivative products had entered commercial production. Rather, they demonstrate how local stakeholder feedback broadened the proposed empowerment design from an initial focus on flour processing toward an integrated approach encompassing practical skills, collective production infrastructure, and diversified food entrepreneurship.

The focus group discussion with farmers and community leaders in Colo Village also highlighted the importance of marketing arrangements and stakeholder collaboration in developing *ganyong*-based entrepreneurship. Participants proposed two complementary recommendations: establishing a marketing scheme for *ganyong* flour products and developing relationships with relevant stakeholders to support their production and commercialization (FGD with local farmers and community leaders, 2023). These recommendations indicate that local stakeholders recognized the need to extend the proposed empowerment initiative beyond agricultural cultivation and food processing toward market access and institutional cooperation. The presence of organized farmer groups under Gapoktan, alongside trading and other economic activities associated with religious tourism at the Sunan Muria pilgrimage site, provides a relevant local context for considering potential marketing opportunities and institutional partnerships. However, the available empirical evidence does not establish that these existing economic actors had formed a marketing network for *ganyong* flour or that formal partnership agreements had been secured. Rather, the FGD findings reveal stakeholder-identified needs for coordinated marketing arrangements and broader institutional engagement. These findings suggest that the proposed empowerment design should integrate production planning with market development and stakeholder coordination to address the organizational and commercial requirements of sustainable local food entrepreneurship.

The focus group discussion with farmers and community leaders in Colo Village further identified the engagement of younger generations as an important consideration for the long-term sustainability of agricultural entrepreneurship. Participants specifically recommended developing initiatives to approach the millennial generation and introduce the importance of farming as a livelihood and productive economic activity (FGD with local farmers and community leaders, 2023). This recommendation extends the scope of the proposed *ganyong*-based empowerment initiative beyond immediate concerns regarding agricultural production, processing skills, and market development to include the continuity of community participation across generations. The emphasis on youth engagement suggests that local stakeholders recognized the relevance of encouraging younger community members to consider agriculture as part of their future economic opportunities. Within the proposed empowerment design, this recommendation provides a basis

for considering intergenerational knowledge transfer, agricultural entrepreneurship education, and opportunities for youth involvement in local food innovation. However, the available findings do not establish the level of interest among younger residents, their actual participation in the FGD, or the existence of an implemented agricultural regeneration program. Rather, the recommendation identifies youth engagement as a stakeholder-proposed priority that should be considered alongside technical capacity development, product diversification, and institutional collaboration in designing sustainable *ganyong*-based entrepreneurship.

The focus group discussion with farmers and community leaders generated eight recommendations addressing agricultural resource management, technical capacity development, collective production facilities, product diversification, marketing arrangements, youth participation, and institutional collaboration. These recommendations, together with their implications for the proposed empowerment design, are summarized in Table 2.

Table 2. Local Stakeholder Recommendations for the Development of *Ganyong*-Based Community Empowerment in Colo Village

No.	Stakeholder recommendations from the FGD	Empowerment dimension	Implications for the proposed empowerment design
1	Identify and map potential areas suitable for <i>ganyong</i> cultivation.	Agricultural resource mapping	Incorporating land identification and cultivation suitability into the initial planning process.
2	Optimize the utilization of vacant land for <i>ganyong</i> cultivation.	Land utilization and raw material availability	Considering the use of available land to support a sustainable supply of <i>ganyong</i> as a local food resource.
3	Provide training in processing <i>ganyong</i> tubers into flour as a potential substitute for wheat flour.	Technical skills and processing capacity	Developing practical training in flour-processing techniques and strengthening local production capabilities.
4	Provide shared facilities and equipment required for <i>ganyong</i> flour production.	Collective production infrastructure	Considering collective access to processing equipment and shared production facilities.
5	Develop a marketing scheme for <i>ganyong</i> flour products.	Market access and entrepreneurial development	Integrating marketing arrangements and potential distribution channels into the proposed entrepreneurship model.
6	Provide training in producing derivative food products using <i>ganyong</i> flour.	Product diversification and innovation	Expanding entrepreneurial training to include value-added food products made from <i>ganyong</i> flour.

No.	Stakeholder recommendations from the FGD	Empowerment dimension	Implications for the proposed empowerment design
7	Encourage the millennial generation to recognize the importance of farming.	Youth engagement and intergenerational participation	Considering youth engagement and agricultural entrepreneurship education within the empowerment design.
8	Establish and strengthen relationships with relevant stakeholders involved in <i>ganyong</i> flour development.	Stakeholder collaboration and institutional support	Incorporating stakeholder engagement and institutional partnerships into the proposed development framework.

Note. The stakeholder recommendations were documented during the 2023 focus group discussion (FGD) involving farmers and community leaders in Colo Village, Kudus Regency, Indonesia. The recommendations are presented in their original sequence, with English wording adapted for academic clarity. The empowerment dimensions and implications for the proposed design represent the authors' analytical categorization. They should not be interpreted as evidence that the recommended activities were implemented or that their effectiveness was established.

As summarized in Table 2, the eight recommendations generated through the focus group discussion reveal three interconnected patterns of stakeholder-identified needs in the development of *ganyong*-based community empowerment. First, the recommendations concerning agricultural land mapping, vacant land utilization, processing training, and product diversification demonstrate the importance of connecting local resource availability with technical and entrepreneurial capacity development. This pattern suggests that the proposed initiative requires attention to both the continuity of agricultural production and the ability to transform locally available resources into value-added food products. Second, the recommendations regarding shared processing equipment, marketing arrangements, and stakeholder partnerships indicate that participants identified organizational and institutional requirements extending beyond individual production skills. These findings highlight the need to consider collective access to production resources alongside market development and institutional coordination. Third, the proposed involvement of younger generations introduces an intergenerational dimension to community empowerment, suggesting that the long-term development of local food entrepreneurship also requires attention to the continuity of agricultural participation. Collectively, these patterns demonstrate that stakeholder feedback addressed multiple interconnected dimensions of the proposed empowerment design rather than focusing exclusively on *ganyong* flour-processing technology. However, the recommendations represent priorities expressed during the consultation process and do not establish that the proposed activities were implemented or that participants exercised decision-making authority over the final design. The findings therefore provide an empirical basis for considering how local stakeholder perspectives can inform a more integrated and participatory approach to community-based entrepreneurship.

Viewed through the framework of Islamic social ethics, the stakeholder recommendations presented in Table 2 provide an empirical basis for identifying ethical considerations in the proposed *ganyong*-based empowerment design. The involvement of farmers and community leaders in reviewing the initial design represents a documented consultative process that is relevant

to *shūrā* (consultative decision-making), although the available evidence does not establish the extent of participants' influence over final decisions. Similarly, recommendations concerning shared processing facilities and stakeholder partnerships demonstrate an expressed interest in collaborative arrangements that conceptually correspond to *ta'āwun* (mutual cooperation), rather than evidence of established collective production practices. These proposals also raise questions concerning *amānah* (trustworthiness and accountability), particularly the need for transparent responsibilities and accountable management of shared resources and institutional partnerships. Meanwhile, recommendations for technical training, access to production facilities, and youth engagement provide a basis for evaluating *'adl* (justice) in terms of equitable opportunities for participation and entrepreneurial development, without demonstrating that such opportunities have already been distributed fairly. The principle of *maṣlahah* (collective welfare) further offers an evaluative perspective for considering how the proposed integration of agricultural production, processing innovation, market development, and community participation might contribute to broader socioeconomic benefits and long-term sustainability. Nevertheless, these correspondences should not be interpreted as evidence that participants explicitly invoked Islamic ethical principles or that the recommended institutional arrangements were already operational. Rather, the findings demonstrate how empirically documented stakeholder priorities can be interpreted through Islamic social ethics to formulate preliminary criteria for participatory decision-making, cooperation, institutional accountability, equitable access, and collective welfare within the proposed empowerment model.

3. International Institutional Learning and the Development of an Islamic Ethics-Informed Empowerment Model

The development stage of the research incorporated international academic engagement through focus group discussions (FGDs) with researchers from the University of Canberra and Monash University in Australia to explore institutional approaches relevant to sustainable community empowerment. Conducted following the identification of local development needs and the formulation of an initial *ganyong*-based empowerment design in Colo Village, these discussions provided additional perspectives on participatory learning, community capacity development, collaborative knowledge production, and institutional cooperation (FGDs with Australian university researchers, 2023). The engagement with University of Canberra researchers highlighted approaches that recognize local knowledge, community strengths, and participatory processes as important foundations for sustainable livelihoods, while discussions with Monash University researchers emphasized collaborative innovation, leadership development, cross-sector partnerships, and institutional transformation. These perspectives offered complementary considerations for examining how the proposed empowerment design could address the agricultural, entrepreneurial, and organizational priorities identified through local fieldwork and stakeholder consultation. Rather than constituting a comparative investigation of socioeconomic conditions in Indonesia and Australia, the international engagement served as a process of institutional learning intended to inform the further development of a context-sensitive community empowerment framework. The discussions therefore provided additional conceptual and practical insights for refining the proposed design, without constituting empirical validation of its effectiveness or of the Islamic ethical framework subsequently developed in the present analysis.

The academic engagement with researchers at the University of Canberra highlighted the importance of local knowledge, community participation, and collaborative learning in developing sustainable livelihoods. The approaches discussed emphasized respect for community diversity and the relationships between people, land, culture, and language, recognizing these dimensions as integral to understanding local development needs. Sustainable community development was presented as an iterative process requiring continuous learning, institutional cooperation, and recognition of the knowledge and capabilities already embedded within communities. In this context, the researchers' approaches incorporated *asset-based community development*, *appreciative inquiry*, and *participatory action learning* as complementary strategies to identify community strengths, encourage collective reflection, and facilitate collaborative knowledge production. These perspectives also emphasized the integration of scientific knowledge, social science, and indigenous knowledge to develop initiatives responsive to community needs and aspirations (FGD with University of Canberra researchers, 2023). When considered alongside the findings from Colo Village, these institutional perspectives offer relevant insights into the participatory development of *ganyong*-based entrepreneurship. The recommendations from local farmers and community leaders regarding agricultural resource mapping, processing training, shared production facilities, and stakeholder partnerships highlight practical areas where community knowledge and institutional collaboration could inform the proposed empowerment design. However, the institutional approaches discussed at the University of Canberra were examined as sources of learning rather than methods directly implemented or evaluated in Colo Village. The findings therefore highlight the potential contribution of locally grounded knowledge, participatory learning, and community capabilities to the further development of the empowerment model.

The institutional learning documented during the engagement with the University of Canberra was further illustrated through three community-oriented research initiatives: *Family Farm Teams*, *Farmer as Co-Researcher*, and *Learning with the Community through Food Gardening*. The *Family Farm Teams* program, developed through institutional partnerships in Papua New Guinea, emphasized strengthening the agricultural capacities of farming families and promoting equitable and effective collaboration in managing family-based farming activities. The *Farmer as Co-Researcher* approach highlighted a more participatory relationship between researchers and communities by recognizing farmers and other stakeholders as contributors to the identification of research priorities, design, implementation, and knowledge production. Meanwhile, *Learning with the Community through Food Gardening* demonstrated the potential of experiential learning and community partnerships to connect agricultural knowledge, practical skills, and intergenerational participation. Although these initiatives differed in their institutional settings and specific activities, they collectively illustrated the importance of collaborative learning, shared knowledge production, and locally grounded capacity development. When considered alongside the findings from Colo Village, these approaches offer relevant considerations for strengthening farmers' involvement in empowerment planning, developing practical training in *ganyong* cultivation and processing, and encouraging younger generations to participate in local agricultural entrepreneurship. However, the programs were examined as examples of institutional approaches rather than interventions directly implemented or evaluated in Colo Village. Their principal contribution to the present research therefore lies in identifying participatory and educational mechanisms that could inform the further development of the proposed community empowerment design.

The focus group discussion with researchers at Monash University provided further institutional insights into the role of collaborative innovation and systemic change in sustainable community empowerment. The researchers described six interconnected capabilities for supporting sustainable development transformation: building capacity and empowering leadership, promoting experimentation and innovation, facilitating collaboration, understanding and influencing behavior, creating and translating knowledge, and shaping institutions, rules, policies, and practices (FGD with Monash University researchers, 2023). These capabilities highlighted an approach in which socioeconomic transformation involves not only strengthening individual competencies but also developing collaborative relationships, supporting innovation, and addressing the institutional conditions that influence collective action. Capacity building and leadership development were presented alongside experimentation and knowledge exchange, while collaboration, behavioral understanding, and institutional change were recognized as complementary dimensions of sustainable development. When considered alongside the findings from Colo Village, these institutional perspectives offer relevant insights for addressing the priorities identified by local farmers and community leaders. Recommendations concerning *ganyong* processing training and product diversification correspond to the need for capacity development and innovation, while proposals for shared production equipment, marketing arrangements, and stakeholder partnerships raise broader questions about coordination, resource management, and institutional support. However, these connections represent an analytical interpretation of the relevance of Monash University's approaches to local stakeholder priorities rather than evidence that the six capabilities had been implemented or evaluated in Colo Village. The findings therefore suggest that the proposed *ganyong*-based empowerment model should consider institutional collaboration and organizational capacity alongside technical training and entrepreneurial innovation.

The institutional approaches discussed in connection with Monash University were further illustrated by two initiatives that emphasize collaborative problem-solving and community engagement: the *Citarum River Transformation Project* and *Mexico's Multi-City Challenge*. The Citarum initiative was described as a proposed *living laboratory* that would involve partnerships with selected communities to explore locally appropriate solutions to interconnected environmental, social, and economic challenges. Its intended approach emphasized *co-creation*, experimentation, and collaboration among communities and relevant institutions. Meanwhile, *Mexico's Multi-City Challenge* illustrated a participatory process in which public officials identified local problems, residents were invited to propose solutions, and selected ideas were subsequently developed into conceptual prototypes and action plans through collaboration between citizens and government representatives. These examples highlighted the importance of connecting community participation with institutional coordination, knowledge exchange, and the development of actionable responses to locally identified problems. When considered alongside the findings from Colo Village, these approaches offer relevant insights for developing mechanisms through which farmers, community leaders, and other stakeholders could collaboratively address priorities related to *ganyong* processing, shared production facilities, marketing arrangements, and institutional partnerships. However, the initiatives were examined as examples of institutional practice and proposed approaches, rather than as interventions directly implemented in the *ganyong* empowerment research. In particular, the reported Citarum activities included planned collaborative arrangements, and the available evidence does not establish their subsequent

outcomes. The principal contribution of these institutional examples therefore lies in informing the proposed model's emphasis on participatory problem identification, collaborative innovation, and coordinated institutional support.

The institutional approaches examined through academic engagement with the University of Canberra and Monash University provide complementary perspectives on participatory learning, community collaboration, innovation, and institutional governance. When considered alongside the priorities identified by local stakeholders, these perspectives offer a basis for developing operational criteria informed by Islamic social ethics, as synthesized in Table 3.

Table 3. Integration of Local Stakeholder Priorities, International Institutional Learning, and Islamic Ethical Principles in the Proposed Empowerment Model

Empirical or institutional basis	International institutional learning	Islamic ethical principle	Proposed operational criterion
Involvement of local farmers and community leaders in reviewing the initial empowerment design through FGD.	Participatory action learning and farmer involvement in knowledge production, as illustrated by the University of Canberra's participatory research approaches.	<i>Shūrā</i> (consultative decision-making)	Farmers and community representatives should have meaningful opportunities to contribute to program planning, deliberation, and decision-making.
Stakeholder recommendations for shared production facilities and partnerships with relevant institutions.	Collaborative capacity building, community partnerships, and institutional cooperation emphasized in the approaches examined at both universities.	<i>Ta'āwun</i> (mutual cooperation)	Collaborative arrangements should be developed to facilitate knowledge sharing, collective access to production resources, and cooperation among stakeholders.
Stakeholder-identified needs for production facilities, marketing arrangements, and institutional support.	Institutional coordination, organizational responsibilities, and governance mechanisms emphasized in Monash University's approach to sustainable development transformation.	<i>Amānah</i> (trustworthiness and accountability)	Transparent resource management, clearly defined stakeholder responsibilities, and accountable institutional procedures should be incorporated into the proposed model.
Stakeholder recommendations concerning processing training, access to shared production	Inclusive capacity development, equitable participation, and community-based learning reflected in	<i>'Adl</i> (justice)	Fair arrangements should be established to support equitable access to training, production facilities, participation, and

Empirical or institutional basis	International institutional learning	Islamic ethical principle	Proposed operational criterion
equipment, and youth engagement. Stakeholder priorities concerning local agricultural resources, product innovation, market development, and long-term community participation.	the institutional approaches examined. Place-based learning, sustainable livelihoods, collaborative innovation, and community-oriented development reflected in the approaches of both universities.	<i>Maṣlaḥah</i> (collective welfare)	entrepreneurial opportunities. Proposed activities should be assessed in terms of their anticipated economic, social, and environmental benefits, with attention to collective welfare and long-term sustainability.

Note. Local stakeholder priorities were documented during the 2023 focus group discussion (FGD) involving farmers and community leaders in Colo Village, Kudus Regency, Indonesia. International institutional learning was derived from the reported academic discussions and descriptions of community empowerment approaches associated with the University of Canberra and Monash University. The Islamic ethical principles and proposed operational criteria represent the authors' subsequent interpretative synthesis rather than principles explicitly articulated by FGD participants or Australian researchers. The table presents a conceptual framework for developing an empowerment model and does not establish that the proposed mechanisms have been implemented, that their effectiveness has been evaluated, or that the model has been empirically validated.

Figure 2. Proposed Islamic Ethics-Informed Participatory Community Empowerment Model
for local food entrepreneurship development

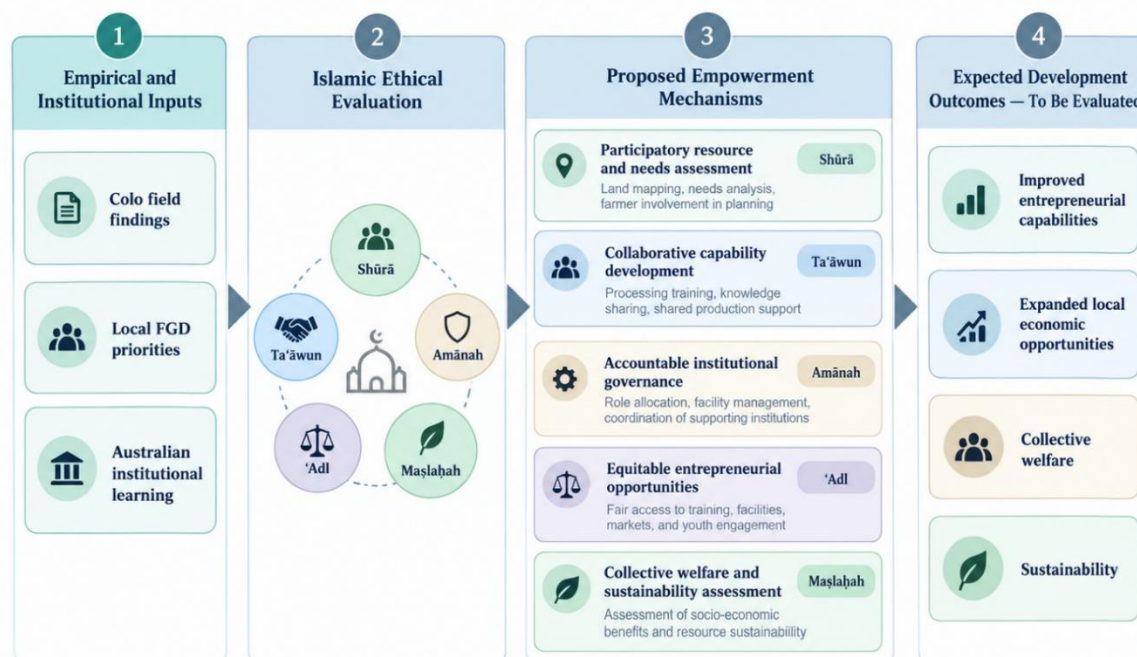


Figure 2. Proposed Islamic Ethics-Informed Participatory Community Empowerment Model

The proposed Islamic ethics-informed participatory empowerment model represents an empirically informed conceptual framework developed through the integration of four complementary sources: field-based analysis of the socioeconomic and agricultural conditions of Colo Village, recommendations obtained from focus group discussions with local farmers and community leaders, institutional learning from academic engagement with the University of Canberra and Monash University, and the subsequent interpretation of these findings through Islamic social ethics. As illustrated in Figure 2, this synthesis provides a structured basis for connecting participatory planning, collaborative capacity development, accountable institutional governance, equitable entrepreneurial opportunities, and collective welfare within the proposed development of *ganyong*-based entrepreneurship. The model is particularly relevant to the local challenges identified in Colo Village, including agricultural resource utilization, limited processing capabilities, marketing needs, and institutional coordination. Nevertheless, its applicability to other communities would require further assessment of their specific socioeconomic, cultural, and institutional conditions. Importantly, the research was limited to the analysis, design, and development stages; the proposed model has not undergone field implementation, systematic effectiveness testing, or impact evaluation. Consequently, its anticipated contributions to entrepreneurial capacity, economic opportunities, social equity, and long-term sustainability should be understood as proposed objectives rather than demonstrated outcomes. Further research is therefore required to implement the model, examine its practical feasibility, evaluate stakeholder participation and institutional accountability, and assess its socioeconomic and sustainability outcomes over time.

As synthesized in Table 3 and illustrated in Figure 2, the integration of local empirical findings, international institutional learning, and Islamic social ethics reveals three interconnected patterns in the development of the proposed community empowerment model. First, the University of Canberra's emphasis on locally grounded knowledge and participatory learning highlights the importance of recognizing community members as active contributors to development processes. While the focus group discussion in Colo Village demonstrated opportunities for farmers and community leaders to provide feedback on a researcher-developed design, the institutional learning suggests the potential value of extending community participation into subsequent planning and decision-making processes. Second, the approaches examined at Monash University emphasize the interdependence of capacity development, collaborative innovation, and institutional coordination. These perspectives correspond to the stakeholder-identified needs for process training, shared production facilities, marketing arrangements, and institutional partnerships, indicating that sustainable entrepreneurship requires organizational support alongside technical capabilities. Third, the integration of Islamic social ethics provides an evaluative framework through which these participatory and institutional mechanisms can be assessed in relation to consultation (*shūrā*), mutual cooperation (*ta'āwun*), accountability (*amānah*), justice (*'adl*), and collective welfare (*maṣlahah*). Collectively, these patterns indicate that the proposed model extends beyond technological innovation in *ganyong* flour production to an integrated framework that connects community knowledge, entrepreneurial capacity, institutional governance, and ethical considerations. However, the three patterns represent the authors' interpretative synthesis of distinct empirical and institutional sources rather than conclusions explicitly established through consensus among the Indonesian and Australian FGD participants.

DISCUSSION

The findings of this study reveal three interconnected dimensions of sustainable community empowerment through *ganyong*-based entrepreneurship. First, the investigation in Colo Village identified agricultural resources, local farming institutions, and community social networks that provide a potential foundation for entrepreneurial development, although their utilization remains constrained by limited processing capabilities, changing agricultural priorities, and insufficient institutional support. Second, the focus group discussion with local farmers and community leaders generated eight recommendations demonstrating that community empowerment requires attention not only to agricultural cultivation and processing skills but also to shared production facilities, product diversification, market access, youth engagement, and stakeholder collaboration. Third, institutional learning from the University of Canberra and Monash University offered complementary perspectives on participatory knowledge production, community capacity development, collaborative innovation, and institutional governance. The integration of these findings with the Islamic ethical principles of *shūrā*, *ta'āwun*, *amānah*, *'adl*, and *maṣlaḥah* informed the development of a conceptual empowerment model that connects locally identified needs with participatory and ethically grounded institutional mechanisms. Taken together, the findings suggest that sustainable local food entrepreneurship should be understood not merely as a process of agricultural product innovation but as an interconnected process of capability development, participatory decision-making, institutional coordination, and ethical governance. This interpretation establishes the conceptual foundation of the proposed model rather than demonstrating its effectiveness or long-term socioeconomic outcomes.

The gap between local agricultural resources and entrepreneurial development in Colo Village can be understood through Sen's (1999) capability approach, which conceptualizes development as the expansion of substantive freedoms rather than merely the availability of economic resources or marketable commodities. Although the village possesses agricultural potential, including *ganyong* tubers, the findings indicate that this resource has not yet been translated into an established, organized, flour-based entrepreneurial activity. Limited processing skills, inadequate production support, and insufficient institutional attention constrain the opportunities for community members to transform locally available resources into viable livelihood options. The reported decline in traditional tuber cultivation, alongside the increasing prominence of coffee, further illustrates shifting agricultural priorities, although the available evidence does not establish a causal relationship between coffee expansion and reduced *ganyong* cultivation. From Sen's perspective, these conditions highlight the distinction between possessing resources and having the substantive capabilities to utilize them in ways that expand economic choices and opportunities. Such capabilities depend not only on individual knowledge and technical skills but also on enabling institutional arrangements, access to productive facilities, and opportunities for market participation. This interpretation is further informed by Chapra's (2008) *maqāṣid al-sharī'ah* perspective, which situates economic development within broader concerns for human well-being, justice, and moral responsibility. Accordingly, the significance of *ganyong*-based entrepreneurship should not be assessed solely in terms of its potential for agricultural commercialization, but also in terms of whether the proposed empowerment arrangements could expand meaningful livelihood opportunities and contribute to collective welfare. The findings therefore support the conceptual argument that transforming local agricultural potential into

substantive entrepreneurial capabilities requires attention to the institutional and ethical conditions through which economic opportunities can be developed and accessed.

The interdependence of stakeholder recommendations presented in Table 2 highlights the importance of institutional arrangements in connecting agricultural resources, productive capabilities, and market opportunities within the proposed *ganyong*-based empowerment initiative. Recommendations concerning land utilization, processing training, shared production equipment, product diversification, marketing arrangements, youth engagement, and stakeholder partnerships suggest that entrepreneurial development involves multiple interconnected requirements that cannot be addressed through technical capacity building alone. This finding can be interpreted through Ostrom's (1990) perspective on collective action and institutional governance, which emphasizes the significance of locally appropriate rules, coordinated responsibilities, and accountability mechanisms in supporting collective resource management. In Colo Village, the recommendation to provide shared flour-processing equipment raises practical questions concerning access to facilities, scheduling, maintenance responsibilities, cost-sharing arrangements, and collective decision-making. Although such equipment is not equivalent to the common-pool resources primarily examined by Ostrom, her institutional perspective offers relevant insights into the governance arrangements that collective production initiatives may require. This interpretation complements Sen's (1999) capability approach by explaining how institutional conditions can influence people's opportunities to convert available resources and acquired skills into meaningful economic activities. Access to processing equipment or technical training alone may remain insufficient if farmers lack coordinated production arrangements, reliable access to raw materials, or opportunities for market participation. Accordingly, institutions should be understood not merely as formal organizations, such as farmer associations or village authorities, but also as the rules, responsibilities, and coordination mechanisms through which collective entrepreneurial activities could be organized. The stakeholder recommendations therefore suggest that the proposed expansion of entrepreneurial capabilities needs to be institutionally mediated through arrangements that connect resource utilization, productive cooperation, and market development. However, these relationships constitute a theoretically informed interpretation of stakeholder-identified priorities rather than empirically established causal mechanisms or evidence that the proposed institutional arrangements have already been implemented.

The institutional dimension of community empowerment also raises questions about the extent to which local stakeholders can influence decisions affecting their resources and livelihoods. This issue can be examined through Nikkhah and Redzuan's (2009) distinction between participation as a means and participation as an end. As a means, participation enables researchers and development practitioners to identify community needs, incorporate local knowledge, and improve the contextual relevance of proposed interventions. The focus group discussion conducted with farmers and community leaders in Colo Village reflects this instrumental function, as participants reviewed a researcher-developed empowerment design and contributed eight recommendations concerning agricultural resources, processing capabilities, production facilities, marketing arrangements, youth engagement, and institutional partnerships. However, participation as an end entails a more substantive dimension of empowerment, in which community members gain meaningful opportunities to shape priorities and influence decisions that affect their lives. The available research documentation does not establish how speaking opportunities were

distributed, how differing perspectives were considered, or whether stakeholder recommendations influenced final design decisions. Consequently, the FGD provides evidence of stakeholder consultation and the identification of community priorities, but it does not demonstrate equitable decision-making authority or comprehensive community co-design. This distinction suggests that the proposed empowerment model should move beyond consultation as an information-gathering mechanism toward institutional arrangements that enable more substantive community involvement in planning and decision-making.

The importance of meaningful participation becomes clearer when Nikkhah and Redzuan's (2009) perspective is considered alongside Sen's (1999) capability approach and Ostrom's (1990) theory of collective action. From Sen's perspective, the ability to influence decisions concerning one's livelihood represents an important dimension of agency and substantive freedom, suggesting that empowerment should involve not only improved access to productive resources but also greater opportunities to shape their utilization. Ostrom's institutional perspective further highlights the relevance of community participation in developing and adapting rules governing collective activities, particularly where shared resources require coordinated responsibilities and accountability. In this context, the *Farmer as Co-Researcher* approach, examined through institutional learning at the University of Canberra, offers a relevant example of deeper involvement in knowledge production, although this approach was not implemented in the Colo Village research. These perspectives converge with the Islamic principle of *shūrā* (consultative decision-making), which can be developed into an ethical criterion for assessing the quality of participation within the proposed empowerment model. Operationalizing *shūrā* would require attention to accessible consultation procedures, documentation of stakeholder contributions, consideration of differing viewpoints, and transparent explanations of how community input informs subsequent decisions. Such criteria do not establish that the documented FGD fulfilled all requirements of *shūrā*; rather, they provide a normative basis for evaluating and strengthening future participatory arrangements. Accordingly, meaningful community empowerment can be conceptualized as an institutionally supported expansion of collective agency, in which participation contributes not only to more contextually responsive program design but also to communities' substantive capacity to influence decisions governing their economic opportunities and shared resources.

The findings extend previous scholarship on Islamic social ethics and sustainable economic development by connecting normative ethical commitments with proposed operational criteria for community empowerment. Consistent with Naqvi's (1994) emphasis on moral responsibility, distributive justice, and collective welfare, and Raimi's (2026) discussion of Islamic ethics in sustainable development, the proposed model recognizes that economic initiatives should be evaluated beyond commercial outcomes. Similarly, Indiharwati et al. (2026) highlight ethical leadership, organizational fairness, and social responsibility in enterprise sustainability, while Arodha et al. (2025) emphasize the significance of social capital and local traditions in Muslim community empowerment. Building on these perspectives, the present study translates five Islamic ethical principles into interconnected criteria for empowerment design: *shūrā* for meaningful participation, *ta'āwun* for cooperation, *amānah* for institutional accountability, *'adl* for equitable opportunities, and *maṣlahah* for collective welfare. Its contribution therefore lies in integrating these ethical criteria with empirically identified community needs and proposed institutional mechanisms, rather than treating Islamic values solely as normative foundations for economic development. These criteria remain conceptual proposals requiring empirical assessment.

The findings also correspond with research on participatory rural development, particularly the importance of community agency, institutional capacity, and collective decision-making. Nikkhah and Redzuan (2009) distinguish participation as both a means and an end of empowerment, while Ahmad and Talib (2015) demonstrate the limitations of decentralization without adequate institutional support and decision-making authority. Similarly, Ahmad and Abu Talib (2016) associate community empowerment with project sustainability, and Sulaiman et al. (2023) emphasize participatory approaches, local wisdom, and institutional partnerships in village economic development. The eight recommendations generated through the Colo Village FGD reinforce the relevance of these perspectives by identifying interconnected needs for productive resources, technical capabilities, marketing arrangements, and stakeholder cooperation. Nevertheless, the documented consultation does not establish equal community influence over final decisions, reflecting the importance of critically examining participation rather than assuming that consultation necessarily produces empowerment. This concern is consistent with Park et al. (2024), who identify the possibility of both empowerment and disempowerment within rural development processes. The proposed model contributes to this literature by integrating participatory capacity development and collective governance with Islamic ethical criteria for consultation, cooperation, accountability, and equitable access, while recognizing that their practical effectiveness remains untested.

The study builds upon research on science entrepreneurship and local food development by situating agricultural product innovation within a broader framework of community capabilities and institutional governance. Formica (2023) emphasizes the relationship between scientific knowledge and entrepreneurial innovation, while Saludung (2018) demonstrates the relevance of local food processing and entrepreneurial training. Panghal et al. (2024) identify production and market-related constraints in rural food entrepreneurship, whereas Mars (2022) and Westskog et al. (2024) highlight the importance of community relationships, cultural embeddedness, and shared social value in local food systems. Furthermore, Fobbe and Hilletoft (2025) emphasize the interconnected dimensions of value creation, delivery, capture, and stakeholder collaboration. Consistent with these studies, the recommendations from Colo Village indicate that developing *ganyong* flour entrepreneurship requires attention to cultivation, processing capabilities, product diversification, market access, and institutional partnerships. However, the present research extends this discussion by positioning these entrepreneurial requirements within an Islamic ethics-informed participatory empowerment model. Its distinctive conceptual contribution lies in integrating local resource-based innovation, community agency, collective institutional arrangements, and ethical criteria into a framework oriented toward expanding substantive entrepreneurial opportunities and collective welfare. Rather than demonstrating successful commercialization or measurable socioeconomic improvements, the study provides an empirically informed model for subsequent implementation and evaluation.

The stakeholder recommendations concerning shared production facilities and institutional partnerships further highlight the relationship between collective resource governance and ethical economic development. Ostrom's (1990) institutional perspective emphasizes the importance of locally appropriate rules, collective decision-making, and accountability mechanisms in governing shared resources. Although the production equipment proposed in Colo Village does not constitute the common-pool resources primarily examined by Ostrom, her theoretical insights remain relevant for considering how collective facilities could be organized and managed. In

particular, the proposed arrangements would require attention to access rights, equipment maintenance, cost-sharing responsibilities, decision-making procedures, and mechanisms for resolving disagreements among participating stakeholders. Such institutional considerations complement Chapra's (2008) Islamic economic perspective, which situates economic development within broader commitments to justice, the fulfillment of human needs, moral responsibility, and social welfare. From this perspective, the development of *ganyong*-based entrepreneurship should not be evaluated solely through its potential commercial value but also through the fairness and accountability of institutional arrangements governing productive resources and economic opportunities. The Islamic principles of *ta'awun* (mutual cooperation), *amānah* (trustworthiness and accountability), and *'adl* (justice) consequently provide complementary ethical criteria for assessing collective production arrangements, institutional responsibilities, and equitable access to entrepreneurial opportunities. Integrating Ostrom's institutional perspective with Chapra's ethical orientation strengthens the proposed model by connecting the organizational requirements of collective resource management with the broader objectives of responsible economic participation and collective welfare. Nevertheless, these institutional and ethical arrangements remain components of the proposed conceptual framework rather than established practices or empirically demonstrated outcomes in Colo Village.

The theoretical contribution of this study lies in developing an empirically informed, Islamic-ethics-informed conceptual framework for participatory local food entrepreneurship by integrating three complementary dimensions. First, the study connects locally identified development needs with international institutional learning by synthesizing empirical findings from Colo Village, stakeholder recommendations, and participatory and institutional approaches examined through academic engagement with the University of Canberra and Monash University. Rather than transferring external development models directly, this synthesis considers their relevance to the agricultural resources, community capabilities, and institutional priorities identified in the local context. Second, the proposed framework extends the analytical focus beyond agricultural commercialization and technological innovation by integrating participatory decision-making, entrepreneurial capability development, collaborative resource management, institutional accountability, equitable access to opportunities, and collective welfare assessment. In doing so, it advances the argument that community empowerment should be understood as an institutionally mediated expansion of substantive capabilities rather than simply an increase in productive or commercial activities. Third, the study incorporates Islamic social ethics into these empowerment mechanisms by translating *shūrā*, *ta'awun*, *amānah*, *'adl*, and *maṣlaḥah* into proposed criteria for consultation, cooperation, responsible governance, distributive justice, and sustainable community well-being. This integration contributes to the intersection of Islamic economic ethics, participatory rural development, and local food entrepreneurship by establishing a context-sensitive framework in which institutional arrangements and ethical considerations jointly inform the design of empowerment. The study's conceptual novelty, therefore, lies not in introducing previously unknown principles or development approaches, but in systematically connecting these perspectives with empirical community priorities to formulate an integrated and potentially evaluable empowerment model. Nevertheless, the framework remains a theoretically informed design whose operational feasibility, effectiveness, and contribution to long-term community welfare require subsequent empirical investigation.

Although the proposed Islamic ethics-informed empowerment model offers potential benefits through participatory planning, entrepreneurial capacity development, shared production facilities, and institutional collaboration, its implementation may also encounter governance challenges that undermine equitable participation and collective welfare. Research on participatory development demonstrates that community involvement does not necessarily prevent elite capture, tokenistic participation, or unequal decision-making influence. Waheduzzaman et al. (2018) identify elite domination as a significant constraint on participatory local governance, while Lund and Saito-Jensen (2013) demonstrate that elite capture is a dynamic process requiring careful examination of power relations and community responses over time. Evidence from Indonesia further suggests that cooperative social norms can influence the extent of elite capture in decentralized governance (Mitra & Pal, 2022). These findings indicate that the proposed participatory arrangements in Colo Village would require safeguards against unequal representation and the concentration of decision-making authority. Similarly, the recommendation to establish shared *ganyong*-processing facilities introduces potential collective-action problems concerning access rights, cost sharing, maintenance responsibilities, and conflicting stakeholder interests. Ostrom (2010) emphasizes the importance of institutional conditions, trust, and cooperation in collective action, while Olivier (2019) demonstrates how institutional rules and the distribution of responsibilities shape responses to collective-action problems. Without appropriate governance arrangements, the proposed initiative could therefore face unequal access to productive resources, coordination difficulties, or disproportionate benefits among participating groups. Such risks also extend to potential dependence on external partners and unequal opportunities for entrepreneurial training and youth involvement. The Islamic principles of *shūrā*, *ta'āwun*, *amānah*, *'adl*, and *maṣlahah* provide normative criteria for identifying and evaluating these concerns, but their inclusion in the model does not guarantee inclusive or accountable implementation. Importantly, these potential dysfunctions have not been empirically established in Colo Village. The original research was limited to the analysis, design, and development stages of the ADDIE framework, while the absence of detailed FGD participant profiles, decision-making records, and implementation outcomes restricts assessment of participation quality and institutional effectiveness. Consequently, the model should be regarded as a conceptual framework requiring field implementation, longitudinal assessment, and systematic evaluation of both intended benefits and unintended consequences.

The findings provide practical and institutional implications for translating the proposed Islamic ethics-informed empowerment model into a context-sensitive development initiative in Colo Village. Initial implementation could involve participatory agricultural resource mapping and community needs assessment, ensuring that farmers and community representatives have meaningful opportunities to influence planning priorities in accordance with *shūrā*. Subsequent activities could integrate practical training in *ganyong* flour processing and product diversification with collaborative knowledge sharing and equitable access to entrepreneurial opportunities, reflecting *ta'āwun* and *'adl*. The proposed establishment of shared production facilities would also require transparent arrangements governing equipment access, maintenance responsibilities, financial contributions, and institutional accountability, consistent with *amānah*. Village authorities, farmer associations, local entrepreneurs, and universities could serve as potential partners in developing production capabilities, marketing arrangements, and youth participation, although the research does not establish existing partnership commitments or funding agreements. To

assess whether these arrangements contribute to *maṣlaḥah*, future research should undertake a carefully monitored pilot implementation supported by baseline data, stakeholder feedback, and longitudinal evaluation. Proposed indicators could include the inclusiveness of decision-making, the extent to which community recommendations influence program decisions, cooperation in managing shared facilities, transparency of institutional responsibilities, equitable access to training and resources, and anticipated socioeconomic and environmental benefits. If production activities are initiated, further assessment could examine processing capabilities, product quality, production costs, continuity of raw material supply, market access, and the distribution of entrepreneurial benefits. As the original research was limited to the analysis, design, and development stages, these recommendations constitute a proposed implementation and evaluation agenda rather than evidence of demonstrated program effectiveness. Systematic field testing is therefore necessary to determine whether integrating participatory institutional arrangements with Islamic ethical criteria can yield feasible, inclusive, and measurable improvements in community capabilities and collective welfare.

CONCLUSION

The findings of this study indicate that Colo Village possesses agricultural resources and community institutions that offer potential foundations for developing *ganyong*-based entrepreneurship, although challenges remain concerning land utilization, processing capabilities, market access, and institutional support. Focus group discussions with local farmers and community leaders identified eight interconnected priorities encompassing agricultural resource management, technical training, shared production facilities, product diversification, marketing arrangements, youth engagement, and stakeholder collaboration. Institutional learning from the University of Canberra and Monash University further provided complementary perspectives on participatory knowledge production, community capacity development, collaborative innovation, and institutional governance. Together, these findings suggest that sustainable local food entrepreneurship requires more than agricultural commercialization or technological innovation; it calls for institutional arrangements that enable communities to develop capabilities, participate in decision-making, and pursue meaningful economic opportunities.

The principal scientific contribution of this study is the development of an empirically informed, Islamic ethics-informed conceptual framework for participatory community empowerment that integrates local stakeholder priorities, international institutional learning, and Islamic social ethics. The framework translates five ethical principles into proposed operational criteria: *shūrā* for meaningful participation in decision-making, *ta'āwun* for cooperation and collective resource utilization, *amānah* for accountable institutional governance, *'adl* for equitable access to opportunities and benefits, and *maṣlaḥah* for collective welfare and sustainability. By connecting these principles to entrepreneurial capacity development and institutional arrangements, the study extends the conceptualization of rural empowerment beyond productive activities to encompass an institutionally mediated expansion of community capabilities. Its contribution lies in establishing a context-sensitive framework through which the ethical and institutional dimensions of local economic development can be systematically considered and subsequently evaluated.

Nevertheless, the research was limited to the analysis, design, and development stages of the ADDIE framework, and the proposed empowerment model has not undergone field

implementation or systematic impact evaluation. Consequently, the study cannot establish its effectiveness in improving entrepreneurial capabilities, household livelihoods, equitable distribution of benefits, or long-term community welfare. Furthermore, the research did not specifically examine how participants understood or applied Islamic ethical principles in their everyday economic activities, and the available FGD documentation provides limited information on the depth of stakeholder influence on design decisions. Future research should therefore examine the model through participatory pilot implementation, systematic monitoring, and longitudinal evaluation of socioeconomic and institutional outcomes. In-depth interviews and community-based qualitative inquiry are also needed to explore how religious practices and ethical understandings shape economic decision-making, collective resource governance, and community participation. Such investigations would help determine the practical applicability of the proposed framework and clarify the relationship between Islamic social ethics, institutional arrangements, and substantive community empowerment.

Artificial Intelligence (AI) Use Statement

The authors used OpenAI's ChatGPT to assist with manuscript organization, English-language drafting, academic language refinement, and the preparation of conceptual visualizations. AI-assisted tools were not used to collect or generate primary research data. The authors are responsible for verifying the accuracy of all research findings, interpretations, references, and visual materials, as well as reviewing and approving the final manuscript. The use of AI-assisted tools does not replace the authors' intellectual responsibility for the research.

Author Contributions

Muhamad Mustaqim: Conceptualization, methodology, investigation, data curation, writing—original draft, and project administration. Faiq Makhdom Noor: Methodology, investigation, data analysis, validation, and writing—review and editing. Wahibur Rokhman: Theoretical analysis, conceptual framework development, and writing—review and editing. Muhammad Arif Al Hakim: Formal analysis, conceptual model development, visualization, and writing—review and editing.

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Conflict of Interest

The authors declare that they have no known financial or non-financial conflicts of interest that could have influenced the research, analysis, or publication of this article.

Data Availability Statement

The findings presented in this article are based on a 2023 research report documenting field observations, interviews, focus group discussions with local farmers and community leaders in Colo Village, and academic engagement with researchers from the University of Canberra and Monash University. The underlying qualitative research materials have not been identified as publicly deposited datasets. Inquiries regarding the availability of additional supporting materials may be directed to the corresponding author, subject to research ethics, participant confidentiality, and the availability of the original records.

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