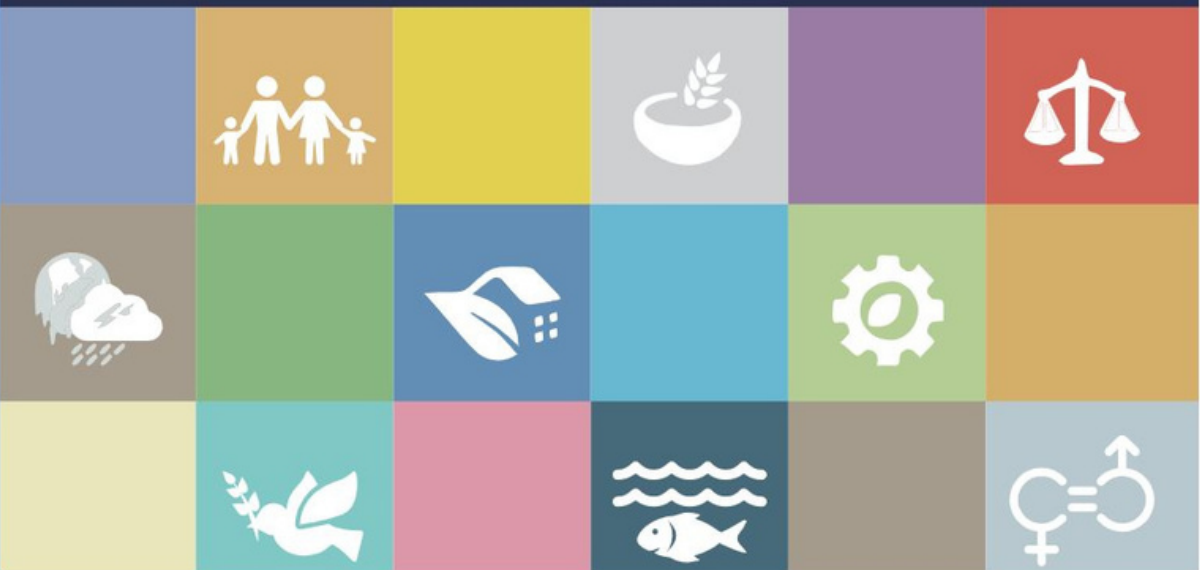


ASIA-PACIFIC JOURNAL OF RURAL DEVELOPMENT

VOLUME 36 • ISSUE 1 • JUNE 2026

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ISSN 1018-5291

Centre on Integrated
Rural Development for
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Volume 36 Issue 1 June 2026

Asia-Pacific Journal of Rural Development

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Asia-Pacific Journal of Rural Development is a peer-reviewed journal that provides a platform for publication of articles in all areas of rural development. The aim of this journal is to provide a platform for policy makers and academicians to promote, share and discuss various new issues and developments in different areas of rural development. The journal publishes conceptual, empirical and review papers in the form of research articles, reports of ongoing research, analyses of current and topical practice, policy issues relating to rural development field notes and book reviews. The journal is peer-reviewed and adheres to a rigorous double-blind reviewing policy in which the identity of both the reviewer and author are always concealed from both parties.

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Youth Perspectives on Environmental Conservation and Ecotourism in the Sierra Madre Alta Ancestral Domain, Aurora, Philippines

Asia-Pacific Journal of Rural Development
36(1) 7–21, 2026

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DOI: 10.1177/10185291261437203
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Eden H. Terol¹ 

Abstract

Indigenous peoples in the Philippines face persistent poverty and social discrimination, with their cultural identity deeply rooted in ancestral lands. The Alta, an Indigenous group in the Sierra Madre region, rely on the mountain range for their livelihood, traditions and way of life, yet their environment is increasingly threatened by deforestation, illegal mining and logging. This study explores the perspectives of 34 Alta youth (ages 10–25) on environmental conservation and an ecotourism initiative along the Diteki River in San Luis, Aurora. Using qualitative methods, including *pakikipagkwentuhan* (story-sharing) and focus group discussions, analysed through interpretative phenomenological analysis, the research reveals that the Alta youth perceive their environment as essential for sustenance, protection and cultural continuity, while recognising human activities such as illegal logging and mining as significant threats. They view ecotourism as a potential means of balancing economic opportunities with conservation, as it provides an alternative source of income to them while they preserve their environment. However, they believe there is a need for stronger collaboration between their community and the government to promote environmental preservation. Participants highlight ecotourism's potential to provide alternative livelihoods and reinforce conservation efforts. However, illegal resource extraction and inadequate policy support are the challenges that need to be addressed. This study emphasises the importance of integrating Indigenous youth into conservation and sustainable tourism policies, which position them as key stakeholders in

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safeguarding cultural heritage and ecological integrity. By amplifying their voices, this research contributes to global Indigenous-led conservation discourse, emphasising youth leadership in sustainable development.

Keywords

Filipino Indigenous youth, rural development, sustainability

Introduction

Indigenous peoples (IPs) worldwide face profound socio-economic challenges, including extreme poverty, malnutrition, systemic discrimination and limited social protection. The United Nations Development Programme (2022) reports that IPs are nearly three times more likely to experience these hardships. In the Philippines, Indigenous communities constitute approximately 8.7% of the population, or around 9.4 million individuals (World Bank, 2024). Many reside in remote areas, such as the Sierra Madre mountains, where they serve as vital stewards of cultural heritage and environmental knowledge. Despite their contributions, Indigenous communities remain among the most marginalised, confronting barriers to education, healthcare, clean water and social assistance (World Bank, 2024).

For Indigenous Filipino youth, education offers pathways to overcoming socio-economic and cultural marginalisation. However, obstacles such as high tuition costs, language barriers, discrimination and limited access to culturally sensitive programmes can hinder their personal and professional development (Estacio & Marks, 2010; Rogayan, 2019). Meanwhile, the youth's deep connection with ancestral lands stresses the crucial role of natural environments in sustaining both cultural identity and livelihoods (Terol, 2022, 2024).

Environmental degradation, such as deforestation, climate change and pollution, poses additional challenges to Indigenous communities. Addressing these threats requires active collaboration between local stakeholders, government and communities. The Indigenous youth, as customary stewards of ancestral territories, play a crucial role in conservation and sustainable resource management. However, while the Indigenous Peoples' Rights Act of 1997 (Republic Act No. 8371) recognizes and protects ancestral domain management and community participation, it does not explicitly address the role of Indigenous youth in governance, conservation, or sustainable development of ancestral lands (RA 8371, 1997). Nevertheless, Indigenous youth active engagement in intergenerational land governance is essential for ecological resilience, soil and watershed health, and community well-being (Reed & Diver, 2023). Indigenous-led approaches to land and water management have shown significant promise for ecological sustainability globally (Sogbanmu et al., 2023).

Ecotourism, particularly community-based ecotourism (CBET), has emerged as a strategy to integrate environmental conservation with local development. Defined by the Philippine Department of Environment and Natural Resources (DENR) and the Department of Tourism (DOT) as tourism conducted in natural settings to preserve ecological and cultural significance while fostering environmental education (Department of Environment and Natural Resources &

Department of Tourism, 1998), ecotourism offers Indigenous communities economic alternatives to extractive activities such as logging and mining (Buckley, 2012; Honey, 2008). CBET emphasises local participation, equitable benefit-sharing, and sustainability across environmental, social, and economic dimensions (Scheyvens, 1999; Tosun, 2000; World Wide Fund for Nature, 2001). When effectively implemented, CBET fosters cultural pride, supports intergenerational knowledge transfer and provides alternative livelihood pathways for Indigenous youth. For example, the Kamoro community in West Papua actively use tourism to showcase their arts, revive traditions among younger generations, and enhance economic well-being (Kambuaya et al., 2024).

The Sierra Madre, the Philippines' longest mountain range, spans 540 km from Cagayan to Quezon and covers 1.4 million hectares across 10 provinces. Its diverse ecosystems host over 3,500 plant species—58% of which are endemic—and support Luzon's highest avian diversity (Forest Foundation Philippines, 2022, 2023). The range also functions as a natural storm barrier, reducing typhoon impacts, and regulating rainfall distribution, while sustaining 14 major river systems (Bagtasa & Racoma, 2023). Within the Sierra Madre, the Alta, an Indigenous group concentrated in Aurora Province, relies on the mountains for livelihood, cultural practices, and daily sustenance. Yet, deforestation, land dispossession, and socio-economic pressures threaten their traditional lifestyles, language (Edimala), and territories (Headland, 2010).

Given all these challenges, the Indigenous youth are at the forefront of cultural preservation efforts and environmental stewardship. They experience displacement, urban migration, and socio-economic disparities that expose them to educational barriers, discrimination, and mental health risks, including depression and substance misuse (International Organization for Migration [IOM], n.d.; UNESCO, 2013). Integrating traditional ecological knowledge into sustainability efforts through initiatives, such as UNESCO's Local and Indigenous Knowledge Systems (LINKS) and the Global Youth Biodiversity Network, provides pathways for youth to reclaim their roles as custodians of their ancestral lands while mitigating socio-economic vulnerabilities (UNESCO, 2022; Convention on Biological Diversity, 2011).

This study explores how the Alta youth in Aurora Province in Central Luzon, Philippines perceive environmental conservation and ecotourism initiatives along the Diteki River. Specifically, it aims to:

1. Examine Alta youth's understanding of environmental conservation and ecotourism.
2. Assess ecotourism's role in fostering both economic development and environmental stewardship.
3. Identify the challenges and opportunities youth encounter in promoting sustainable practices within their community.

By documenting the perspectives and initiatives of Alta youth, this research addresses a critical gap in the literature on Indigenous ecological knowledge and youth engagement in conservation. The study emphasises the importance of integrating youth into conservation and ecotourism policies, which position them as

key stakeholders in safeguarding cultural heritage and ecological integrity. Ultimately, it contributes to global discourse on Indigenous-led conservation and sustainable development, highlighting youth leadership as crucial in environmental and cultural sustainability.

Conceptual Framework

Indigenous Youth as Key Agents in Sustainable Development and CBET

This study is anchored in the principles of Positive Youth Development (PYD), a strengths-based framework emphasizing that youth flourish when provided opportunities for skill-building, meaningful engagement, and supportive relationships, fostering competence, confidence, connection, character, caring, and contribution (Benson et al., 2019; Lerner et al., 2015). Within this framework, Indigenous youth are positioned not merely as passive recipients of environmental or cultural programs but as active agents whose traditional ecological knowledge, cultural heritage, and leadership capacities can be intentionally developed to support sustainable development through youth-led community-based ecotourism (CBET).

Focusing on Indigenous youth is important in sustaining both their cultural heritage and the ecological integrity of their ancestral lands. They serve as bridges between traditional ecological knowledge and contemporary sustainability strategies, shaping CBET in three interrelated domains:

Environmental sustainability—As custodians of ancestral territories, Indigenous youth apply traditional ecological practices to conserve forests, watersheds and biodiversity. Their active engagement ensures that ecotourism initiatives reinforce ecological stewardship while integrating modern conservation strategies (Idrobo, 2021; Sithole et al., 2024).

Economic sustainability—Participation in CBET provides alternative livelihoods, reducing dependence on extractive industries such as illegal logging and mining. Through cultural tours, handicrafts and sustainable agriculture, youth generate income while preserving cultural heritage (Kambuaya et al., 2024).

Social sustainability—CBET fosters community cohesion, cultural pride and intergenerational knowledge transfer. By engaging in leadership, advocacy and environmental education, Indigenous youth strengthen their cultural identity, resilience and local environmental stewardship (Kambuaya et al., 2024).

This model illustrates how Indigenous youth drive sustainable development by integrating cultural heritage, ecological knowledge and active participation in CBET. It emphasises the interconnected pillars of environmental, social and economic sustainability, highlighting the balance between conservation, cultural preservation and economic resilience. Youth engagement safeguards forests, biodiversity and watershed; strengthens climate adaptation and ecosystem restoration and ensures that ecotourism remains community-led and inclusive.

Documenting the perspectives and initiatives of Alta youth provides critical insights into Indigenous resource management and informs policies and

programmes that support youth leadership in conservation. Empowering Indigenous youth as environmental stewards and entrepreneurs fosters a holistic approach to sustainable development, preserving both ecological and cultural heritage for future generations.

Anchored in Positive Youth Development (Lerner et al., 2015), this model, as developed by the author, illustrates how Indigenous youth drive sustainable development by integrating cultural heritage, ecological knowledge, and active participation in CBET. It emphasizes the interconnected pillars of environmental, social, and economic sustainability, highlighting the balance between conservation, cultural preservation, and economic resilience (Honey, 2008) (Figure 1).

Research Methods

Project Profile

The study was conducted in Diteki, San Luis, Aurora Province, Central Luzon, Philippines (15.6251°N, 121.3915°E), situated at an elevation of 1,065.1 m. The site lies within Alta ancestral lands, with the Diteki River serving as the focal point for ecotourism initiatives managed by the local Indigenous community.

Socioeconomic Profile

Diteki’s population increased from 1,181 in 1990 to 1,784 in 2020, reflecting an average annual growth rate of 2.68% (Philippine Statistics Authority [PSA], 2021). The median age of the population is 23 years, and the age dependency ratio is 63 dependents per 100 working-age individuals (PSA, 2021). The community

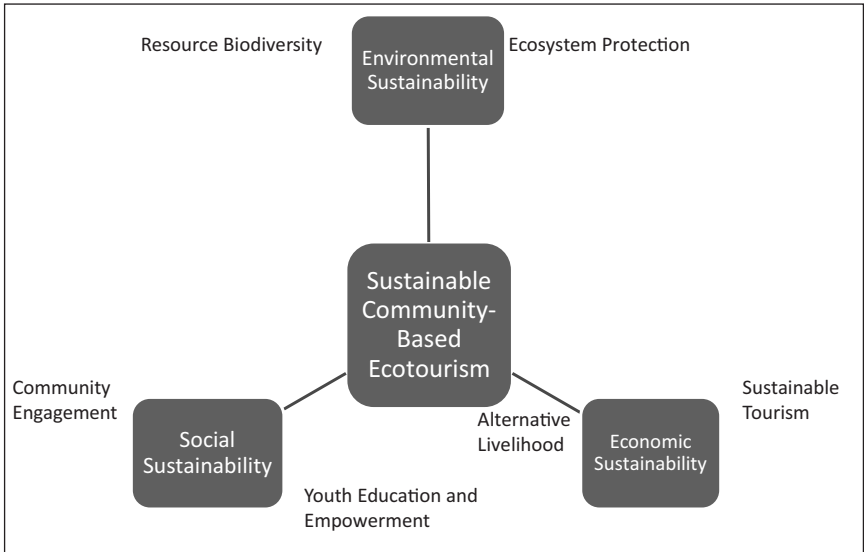


Figure 1. Youth-driven Indigenous Conservation and Ecotourism Stewardship Model.

comprises Alta, Tagalog and other ethnic groups, with Indigenous youth playing a crucial role in conservation and ecotourism initiatives (National Commission on Indigenous Peoples [NCIP], 2021).

Participants and Sampling

The study involved 34 Alta youth (11 boys and 23 girls) aged 10–25 years from San Luis, Aurora, Philippines. Participants' educational backgrounds included 1 college graduate, 4 college-level students, 12 high school students and 17 elementary students. Data-gathering sessions were conducted in the tribal hall and in the cottages by the river, with support from community gatekeepers who facilitated access and ensured cultural sensitivity.

Purposive sampling was employed to recruit participants who were actively engaged in ecotourism initiatives and environmental conservation efforts. This approach ensured that participants could provide rich, context-specific insights into youth perspectives.

Data Collection and Analysis

To promote meaningful engagement, the research team collaborated with community leaders who introduced researchers to elders and local government leaders. Orientation sessions explained the study's objectives, emphasising voluntary participation, confidentiality and the right to withdraw at any time. Written parental consent was obtained for minors, and all participants provided informed consent.

Data were collected through six focus group discussions and *pakikipagkwentuhan* (story-sharing), an Indigenous Filipino method of informal yet purposeful dialogue. Each session consisted of six to seven participants, exploring perceptions of environmental conservation and ecotourism (Smith & Osborn, 2015). Discussions were audio-recorded with participants' consent, transcribed verbatim and analysed using interpretative phenomenological analysis (IPA) (Smith & Osborn, 2015).

The IPA process involved repeated immersion in the transcripts to understand participants' lived experiences, with reflexive notes capturing emerging meanings. Line-by-line analysis focused on descriptive, linguistic, and conceptual elements to identify participants' interpretations. Codes were organised into themes, which were iteratively refined into superordinate themes to reflect shared experiences while remaining grounded in individual narratives. Interpretation employed a double hermeneutic approach, considering both participants' meaning-making and researchers' analytic lens. Themes were reviewed, cross-checked against raw data, and discussed with community representatives to ensure credibility (NCIP, 2021; Smith & Osborn, 2015).

Ethical Clearances and Approvals

The study received ethical clearance from the institutional Ethics Review Board, the National Commission on Indigenous Peoples, and the Local Government Unit (LGU). The research adhered to Free and Prior Informed Consent protocols throughout data collection (NCIP, 2021).

Community Validation and Report Dissemination

Findings were presented to the community for validation. Participants and community members were invited to provide feedback and clarifications. Their insights informed the development of capacity-building workshops tailored to local needs, ensuring that research outcomes were meaningful and actionable for the Indigenous community.

Results

This study explored the perceptions and strategies of Alta youth in the Diteki River area in San Luis, Aurora, regarding environmental conservation and ecotourism management. The LGU of San Luis oversees governance in the municipality, while tribal leaders and elders, including a representative for IP, lead the Alta community specifically. Government initiatives have been actively supported in the area, with recent infrastructure developments, such as the newly constructed Diteki Bridge by the Department of Public Works and Highways (DPWH), which facilitates access and tourism opportunities in the region.

Indigenous Governance and Youth Involvement in Ecotourism

This section presents findings regarding the perceptions of the Sierra Madre Alta youth about environmental conservation and their views on ecotourism initiatives within their ancestral domain in San Luis, Aurora Province, Philippines. The results are organised according to the study's objectives and are illustrated with English-translated verbatim responses from the participants.

Tourism management at the Diteki River is led by the Alta community, particularly the younger members, who play a pivotal role in maintaining their ancestral lands. The Alta youths' inherent connection to their environment highlights the importance of Indigenous stewardship in resource management.

Understanding of Environmental Conservation

The youth express a deep understanding of the environment as a source of basic needs, protection and livelihood. Their narratives highlight the essential role that nature plays in their daily lives.

Connection to Nature: Source of Livelihood, Safe and Healthy Living

Ana, an Alta girl, shares, 'We have a great connection with nature because nature is our source of food, water, everything'. Carlos echoes this sentiment, stating, 'Here live the various creatures where we humans live'.

Maria described nature's richness: 'Nature is beautiful—land resources, water resources, human resources, tree resources, animal resources. There are islands, there are trees, there are rivers, there are rocks'. Juan emphasised nature's

livelihood value: 'This is good. Because it is beautiful and good. This is a livelihood, it allows selling, a source of income from coconut/young coconut'. Ana added, 'Nature is important because of livelihood', emphasising the economic reliance on their environment.

In terms of protection, Liza notes, 'First, in times of calamity, if nature is sustainable, then it is safe when calamity comes. Nature can also help in building a house. The air is also clean. Nature brings fresh air that helps human bodies'.

Caring for Nature

The Alta youth recognise the importance of caring for nature. Pedro emphasised, 'Burning plastic is prohibited, cutting down trees is prohibited. Water the plants, the flowers. Keep the river clean, collect garbage in the river'. Sofia noted proper waste disposal: 'It is necessary to dispose of waste in the proper bins—some are taken to the Barangay for segregation, some are burned'. Carlos remarked on aesthetic and ecological reasons: 'So as not to damage the tourists' perception, so that the world does not become ugly; for everyone to live, so that people will not also die'. Jasmine explained the consequences of environmental degradation: 'To keep it clean. Without trees, when the mountain is damaged, there will be none to absorb water', reflecting the community's lived experience with flash floods, which they clearly remembered.

Livelihood and Economic Support

Juan explains, 'For us who are here by the river, there are also cottages that help us. When we were younger, we had our own cottage. We saved that money for us. It helps us, it adds income'. Marites adds, 'For us natives, we get everything from here. It seems that our main livelihood comes from nature'.

Environmental Challenges

Participants highlighted the detrimental impact of human activities on their environment, emphasising illegal logging, mining and littering. Rico shared, 'Illegal logging is rampant in almost all the land and mountains of Diteki. It's not the natives doing this but others ordered to do it for money. Even mining here on the property of Diteki continues amid studies claiming there is gold'. Maya added, 'Cutting of trees and littering'. Tomas explained, 'They are burning the mountain; slash-and-burn activity when overdone causes great destruction'.

Impact of Environmental Damage: Calamities and Decline in Tourism

Nina recounted, 'Destruction of homes. I remember the 2004 calamity; the whole Diteki was washed away because of flooding. Houses were destroyed. Landslides also occur, and improper soil disposal causes mud damage'. Pedro highlighted tourism concerns: 'It can affect us because tourists may think the place is dirty, and fewer tourists will visit'.

Community and Government Response: River Cleanup, Addressing Illegal Activities

Alex mentioned, ‘We have an organization where together with soldiers, we pick up trash’. Elaine, as the Indigenous People’s Mandatory Representative (IPMR), shared her experience confronting illegal mining, documenting offenders and intervening despite personal danger, ultimately halting the activity.

Hope for Government Action: Stop Illegal Activities

Carmen expressed, ‘I hope the government will provide answers. Contractors cannot be approved without government approval. People will probably listen if educated and explained to’.

Plea for Change

Luis appealed to offenders: ‘We are asking that this should not happen again. We want to fix our land, our lives. We are happy here’. Marco, Lito, Grace, Elaine, Nick, Julia and Emma affirmed the value of conservation and stewardship through guidance on sustainable practices, wildlife protection, and promotion of spiritual connection.

Alex noted that interactions with tourists are significant: ‘Interacting with tourists—taking pictures with tourists, vloggers’, highlighting the symbiotic relationship between community and ecotourism.

Mixed Impacts of Tourism

For the Alta youth, tourism’s impact is a mix of benefits and challenges. Nina shared pride in showcasing nature’s beauty. Rico highlighted the dual nature of interactions: ‘Sometimes cleaning, sometimes littering—we earn money while renting out cottages to tourists’. Dante, Lara, Sam, Rafael, Tina and Amie described irresponsible or destructive tourist behaviour, such as theft of forest flora, local conflicts associated with drunkenness and reflecting ongoing challenges in balancing tourism with community harmony and conservation. Gina asked, ‘Beautiful nature, there is ecotourism, but there are thieves. What to do?’ encapsulating the community’s struggle in welcoming tourists and in setting the necessary boundaries to protect the harmony and the preservation of their ancestral domain.

Protection Against Ill-impacts of Ecotourism

Community members advocated proactive measures for environmental stewardship and communal harmony. Chloe emphasised planting more crops, Leo highlighted returning taken plants, Mia urged new policy enforcement, Drew focused on proper waste disposal, Hana advocated for peaceful coexistence, and Jake reinforced prohibitions on cutting trees and taking plants. Together, these insights form a framework for a sustainable ecotourism model that benefits both the environment and the community.

Discussion

Understanding of Environmental Conservation and Ecotourism

This study examined how Alta youth in San Luis, Aurora, Philippines perceive environmental conservation and ecotourism along the Diteki River. Findings reveal that the youth possess a profound and culturally grounded understanding of environmental conservation, shaped by lived experiences, daily reliance on natural resources and Indigenous cultural values. As Ana stated, ‘Nature is our source of food, water—everything’, highlighting the centrality of the environment in daily life. Maria emphasised the interconnectedness of land, water, humans and animals, reflecting holistic ecological awareness. Liza further noted that sustainable practices can mitigate calamities, demonstrating insight into ecological resilience and long-term stewardship (Berkas, 2017; UNESCO, 2024).

Participants also recognised ecotourism as an instrument for both conservation and economic development. They understood that preserving the environment not only protects biodiversity but also attracts visitors, providing incentives to safeguard their ancestral lands (Honey, 2008; Satrya et al., 2023). This awareness aligns with Indigenous ecotourism principles, which integrate cultural heritage, environmental stewardship, and the community’s socioeconomic well-being (Kambuaya et al., 2024).

Ecotourism as a Mechanism for Sustainable Development

The study’s second objective focused on ecotourism’s role in fostering economic development and environmental stewardship. Youth participants highlighted ecotourism initiatives such as local cottage rentals and guided tours as sources of income that could reduce reliance on extractive industries like logging and mining. Juan noted that cottage rentals provide economic opportunities, while Carlos emphasised that maintaining a pristine environment is critical for attracting tourists. This dual recognition illustrates the youth’s evolving understanding of ecotourism as a pathway to sustainable livelihoods while promoting conservation (Honey, 2008; Satrya et al., 2023).

The integration of positive youth development (PYD) principles into Indigenous conservation initiatives, as exemplified by the YICESM framework, strengthens youth leadership, cultural preservation and economic empowerment. The framework enables Indigenous youth to participate meaningfully in ecotourism, bridging traditional ecological knowledge with modern sustainability strategies.

Challenges and Opportunities in Promoting Sustainable Practices

The third objective investigated the challenges and opportunities faced by Alta youth in promoting sustainable practices. Participants reported threats, including illegal logging, mining, pollution, weak policy support, and limited inclusion in decision-making processes (van der Ploeg et al., 2011). Despite these obstacles, youth actively participate in community initiatives, such as river clean-ups and

biodiversity monitoring, demonstrating agency, resilience and commitment to environmental stewardship. However, there is a call for greater government accountability and the need for policies that align with community-driven conservation efforts (Coria & Calfucura, 2012; World Economic Forum, 2024).

An assets-based approach recognises the strengths of Indigenous youth, particularly their ecological knowledge and cultural wisdom, positioning them as key contributors to sustainable development (Benson et al., 2019). Meaningful youth engagement; mentorship programmes with elders and skill development in leadership, ecotourism and environmental management provide opportunities to address socio-economic and ecological challenges while preserving cultural heritage (Scheyvens & Keyser-Van der Watt, 2021; Sithole & Leonard, 2024; Wexler et al., 2019).

Role of CBET and Indigenous Youth Leadership

The study demonstrates that Indigenous youth perceive conservation and ecotourism as deeply interconnected within a CBET framework. Participation in CBET initiatives fosters environmental stewardship, social cohesion and economic sustainability, aligning with global Indigenous-led conservation models (Musadad et al., 2022; World Commission on Environment and Development, 1987). Youth involvement cultivates ownership, strengthens intergenerational knowledge transfer and develops leadership skills that enhance both individual and community resilience (Andrews et al., 2019).

Integration of PYD principles through frameworks like the YICESM enhances Indigenous youth capacity to lead conservation initiatives while fostering cultural resilience. By combining environmental stewardship, economic engagement and social participation, the Alta youth contribute meaningfully to sustainable development and ecotourism efforts along the Diteki River. Past initiatives that mobilise the youth towards environmental preservation have shown some level of success (Reed et al., 2022; Ruiz-Mallén & Corbera, 2013), which highlight the potential of youth-driven conservation, especially when provided with institutional backing, capacity-building programmes, and financial support.

Conclusions

The Alta youth of San Luis, Aurora Province in the Philippines demonstrate a sophisticated understanding of environmental conservation and ecotourism, grounded in lived experiences, cultural values, and practical reliance on natural resources. They recognise the potential of ecotourism to provide sustainable economic opportunities while reinforcing conservation efforts, positioning themselves as key stakeholders in shaping community and regional sustainability.

However, challenges, such as illegal resource exploitation, weak policy support, and exclusion from decision-making processes persist, limiting their full participation in environment preservation efforts. Supporting youth leadership through culturally relevant education, mentorship, and institutional frameworks

strengthens conservation initiatives, promotes cultural continuity, and fosters socioeconomic empowerment.

Beyond the local context, youth-driven Indigenous ecotourism initiative can serve as a model for broader regional and national sustainability, contributing to biodiversity protection, cultural preservation, and community resilience. The findings stress the importance of recognising Indigenous youth as significant actors in harmonising environmental, economic, and cultural sustainability, consistent with global Indigenous-led conservation strategies as those endorsed by the United Nations Permanent Forum on Indigenous people.

Recommendations

1. *Youth participation in decision-making*: Policymakers, conservation practitioners and ecotourism developers should actively involve Alta youth in planning and decision-making processes, ensuring that their knowledge and leadership inform sustainable strategies. This will further promote their sense of ownership of the environmental protection initiatives that will secure their ancestral domain for future generations.
2. *Community-led ecotourism initiatives*: Develop ecotourism programmes that integrate Indigenous knowledge, cultural heritage, and environmental stewardship, providing economic opportunities for youth while protecting ancestral lands. This will also protect their ancestral domain from harmful practices that degrade the environment in exchange for economic gain.
3. *Capacity-building and education*: Implement culturally relevant training programmes in leadership, ecological stewardship, and sustainable entrepreneurship. Environmental leadership education initiatives should strengthen youth skills in conservation and community advocacy.
4. *Legal protection and policy support*: Strengthen frameworks to prevent illegal resource extraction, safeguard Indigenous territories, and formalise youth participation in conservation policies.
5. *Collaborative governance*: Promote partnerships among local governments, NGOs, and Indigenous communities to support youth-led conservation and ecotourism initiatives. Programmes should emphasise intergenerational mentorship, cultural knowledge transfer, and inclusive governance.
6. *Monitoring and evaluation*: Establish mechanisms to assess the ecological, social, and economic impacts of youth-driven ecotourism programmes to ensure sustainable outcomes.

With the implementation of these recommendations, Indigenous youth can be empowered as leaders in environmental conservation and sustainable tourism, ensuring the long-term resilience of the Sierra Madre's ecological and cultural heritage.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The author disclosed receipt of the following financial support for the research, authorship and/or publication of this article: This study is made possible through support from the Association for Asian Studies Cultivating Humanities and Social Sciences Grants, Forest Foundation Philippines, and Sweden Sverige.

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Internal Migration and Its Socio-economic Impacts: An Empirical Study in Barishal City, Bangladesh

Asia-Pacific Journal of Rural Development
36(1) 22–37, 2026

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DOI: 10.1177/10185291261437204

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Abstract

Migration serves as a critical livelihood strategy for many of the rural poor, offering opportunities to improve their living conditions and advance their social standing. This study investigates the socio-economic effects of internal migration on migrants in Barishal City, Bangladesh, focusing on factors influencing migration, social and economic status and poverty levels before and after relocation. Results indicate modest improvements in both economic and social conditions post-migration. The economic status index value of 40.63% suggests a moderate positive impact on migrants' financial situations, with improvements in household income, savings, expenditure, land ownership and non-productive assets. The social status index of 41.25% reflects enhancements in housing, water and sanitation facilities, healthcare access and working efficiency. The study also finds a reduction in poverty levels among migrants, as measured by the headcount ratio, and contributes to the understanding of internal migration dynamics in Bangladesh, a country highly vulnerable to climate-induced displacement.

Keywords

Internal migration, Barishal City, economic status index, social status index, headcount ratio, poverty

Introduction

Migration is a deliberate movement of labourers towards regions where greater industrial activity and employment opportunities are available (Rahman, 1994), either cross-border or internal (Kousar et al., 2016). People have been migrating for centuries, relocating for self-preservation and protection. It is a crucial aspect

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of human civilisation and is influenced by social structures and development patterns (Lone & Rather, 2012). It is seen as a desirable process that spreads economic benefits to marginalised areas and does not cause overpopulation or unemployment (Speace & Todaro, 1977). According to standard economic models, migration helps narrow wage disparities between rural and urban areas, thereby enhancing overall welfare and mitigating income-related risks (de Brauw et al., 2018). It is mainly of two types: internal and international. Internal migration refers to the movement of individuals from one district or region to another within the same country due to social, cultural and economic issues (Saxena & Mohamed, 2019). In South Asian countries, the rate of internal migration significantly exceeds that of international migration (Jussibaliyeva et al., 2021).

In Bangladesh, the majority of the population resides in rural areas, where limited access to resources and employment opportunities contributes to widespread underemployment and poverty (Salam & Kiron, 2023). Approximately two-thirds of internal migration in Bangladesh is driven by a combination of push and pull factors, such as employment facilities, economic structures, livelihoods and geographical conditions (Salam & Kiron, 2023). International migration has generally yielded positive economic outcomes, with 3.3% of the global population of migrants contributing approximately 9.4% to the world's GDP. Bangladesh ranks among the top countries of origin, with remittances constituting nearly 10% of its GDP. Meanwhile, the rate of internal migration within Bangladesh is three times higher than international migration, accounting for around 3.46% of the population (Alam & Mamun, 2022). Internal migration in this country remains relatively under-researched, largely because it impacts population distribution rather than overall population growth, but there is a positive correlation between internal migration and economic development (Alam & Mamun, 2022; Sarker et al., 2020). Migrants view migration as a way to gain professional advantages, financial progress and access to health, education and recreation that enhance their socio-economic condition, promoting sustainable development and poverty alleviation. According to a study, it reduces poverty severity and poverty probability by 0.18 points (Farjana & Ahmed, 2019). Comparing before and after situations, it is found that most migrants' social and economic status improves, indicating that internal migration is a dominant factor in poverty reduction (Chowdhury et al., 2012). Since independence, rural-to-urban migration has accounted for approximately two-thirds of urban population growth (Afsar, 2003). Households headed by males, with larger family sizes and lower dependency ratios, are more likely to send migrants (Farjana & Ahmed, 2019) and it predominantly occurs from rural to urban areas among individuals aged 0–15 and 15–30, while after the age of 60, there is a notable trend of people relocating from urban to rural areas (Gulshan et al., 2015). Rural-to-urban migration also benefits rural areas by providing remittances for food, clothing, education, healthcare and sanitation (Alam & Islam, 2015).

Climate change is a significant global issue, particularly impacting human migration and displacement (Eisenstadt et al., 2018). Bangladesh is one of the most susceptible to the effects of climate change because of its unique geography. This country is vulnerable to extreme weather events and faces hazards, such as floods, tropical cyclones and droughts, which have increased in frequency and

intensity due to climate change. As the world's seventh most vulnerable country, Bangladesh experiences hundreds of thousands of climate migrants annually due to natural disasters (Gören, 2022; Rana & Ilina, 2021) and has already displaced 6 million people due to climate hazards (Displacement Solutions, 2012), with around 15 million people expected to be on the move by 2050 (Eisenstadt et al., 2018). A study conducted across nine southwestern districts of Bangladesh identified significant migration patterns linked to extreme climatic events, such as riverbank erosion, cyclones and storm surges, floods and salinity intrusion. The findings revealed that disaster-induced migration and displacement are particularly pronounced in the Barishal division (Sarker et al., 2021). Another study revealed that coastal erosion was the primary driver of migration, affecting approximately 74.73% of individuals, whereas floods accounted for only 3.51% of migration cases. Between 2014 and 2020, Barishal district recorded the highest number of disaster-induced migrants (Sarker et al., 2023).

Recent studies on migration's impact on migrants' well-being have primarily focused on international migration to developed destinations, with limited research on internal migration (Adamtey et al., 2015). In the 21st century, internal migration has emerged as a prominent area of research, particularly in developing countries such as Bangladesh, due to its significant implications for socio-economic development and urbanisation (Salam & Kiron, 2023). Migrants from different districts and sub-districts migrate to Barishal City to fulfil their desires and engage in income-generating activities, and it is essential to examine the impact of migration on the poverty status. This study is significant as it explores the impacts of migration on the poverty status of migrants and provides evidence-based insights for policy-making to address poverty reduction and sustainable urban development in Barishal City.

The overarching objective of this study is to examine the impact of internal migration on the socio-economic status of migrants. To achieve this, the broad objective is divided into the following specific objectives:

1. To analyse the key factors influencing internal migration to Barishal City;
2. To assess the social status of migrant populations;
3. To evaluate the economic status of migrants; and
4. To measure changes in the poverty status of migrants before and after migration.

Research Design and Methods

Research Area and Location

This research has been conducted in the Barishal City Corporation area of Bangladesh. A large number of rickshaw pullers and construction workers usually migrate to this area for their livelihood. For this reason, these areas were selected for primary data collection. The Barishal City Corporation covers an area of approximately 24.91 km². It is situated in the southern region of Bangladesh, on the western bank of the Kirtonkhola River, between latitudes 22°37'N and 22°45'N

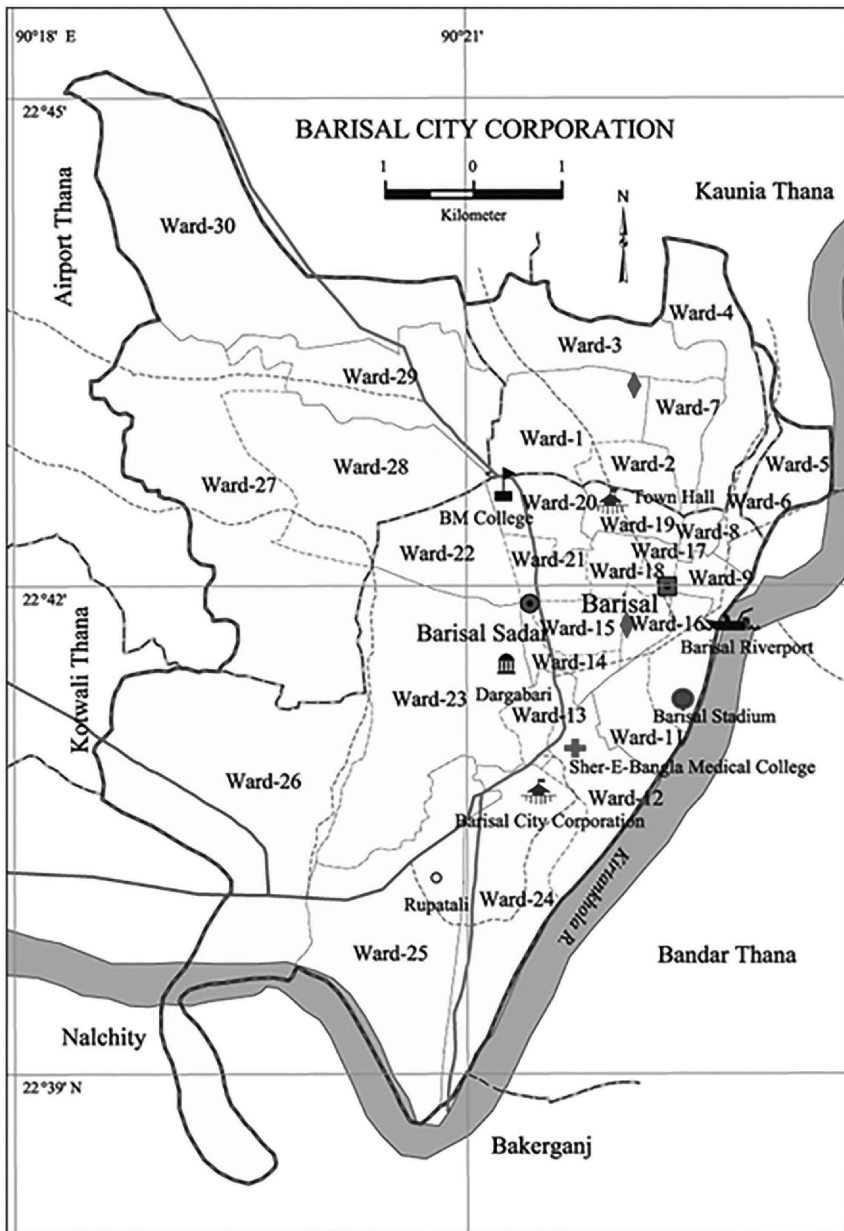


Figure 1. Study Area.

Source: https://en.banglapedia.org/index.php/Barisal_City_Corporation

and longitudes 90°16'E and 90°32'E (Figure 1). People migrate to Barishal City from various regions of Bangladesh in pursuit of improved economic opportunities and to strengthen their financial foundation (Islam et al., 2021).

Sampling of the Study

Samples from the study area were selected using purposive sampling, as it is challenging to define a fixed population of rickshaw pullers and construction workers due to their highly mobile and transient nature. Our total sample size is 240 and was collected from different wards of the Barishal City Corporation.

Research Design and Data Collection Technique

To accomplish the research objectives, a descriptive research design was employed, incorporating methodological triangulation through both social surveys and Focused Group Discussions (FGDs) to collect relevant data. For the social survey, a semi-structured questionnaire was utilised, while guided questionnaires were used during FGDs. Data collection was conducted through face-to-face interviews to ensure comprehensive and reliable responses.

Research Instrument and Analysis Techniques

Semi-structured and guided questionnaires for FGDs and social surveys, respectively, have been developed to gather quantitative data. In this case, questionnaires served as the research instruments for the study. To efficiently gather and enter data, questionnaires were deployed into KoboToolbox. The data were analysed using SPSS and a number of statistical techniques. The following formula was used to determine which statistical techniques—such as the headcount ratio, poverty gap, economic status index (ESI) and social status index (SSI)—were best suited for testing the study's variables.

$$SSI = \sum \frac{w_i f_i}{m} \times 100 \text{ (Chowdhury et al., 2012; Islam et al., 2010)}$$

$$ESI = \sum \frac{w_i f_i}{m} \times 100 \text{ (Chowdhury et al., 2012; Islam et al., 2010)}$$

Here,

W_i = Weight of the particular type of economic status, i

f_i = Number of respondents within the particular type of economic status i

m = Maximum possible score

$$\text{Headcount ratio } (H) = \frac{q}{n} \times 100 \text{ (Chowdhury et al., 2012; Islam et al., 2010)}$$

Here,

q = Number of people with income below the poverty line

n = Sample size

Results and Discussion

Socio-demographic Characteristics of the Respondents

The study measures socio-demographic conditions by asking respondents about their age, marital status, family kinds, family members, level of education and male–female ratio. Gender differences also play a role in determining migration patterns (Gokhan, 2008).

In our study, the total sample size was 240, with 209 males and 31 females. Age is an important factor in migration decision-making since young individuals aged between 20 and 40 usually move more than those of other ages (Gulshan et al., 2015; Kainth, 2009). Our research revealed that more than half (50.83%) of respondents were between the ages of 21 and 40. 35% were between the ages of 41 and 60. Only 8.75% and 5.42% of the population are between the ages of 15 and 20, and 61 and above, respectively. Marital status is a major consideration in migration (Kabir & Haider, 2010). The marital status of migrant workers aged 15 and above revealed that more than 81.67% were married, and the remaining were single. Among singles, 13.75% were unmarried, and 4.58% were divorced. Migrants typically have greater family sizes than others (Kainth, 2009). According to the report, more than half of respondents' (71.25%) family members are between 4 and 9. Above 27.08% of families had 1–3 people, while just 1.67% had more than 9. Education is another major factor influencing migration decision-making (Chowdhury et al., 2012; Kainth, 2009; Rahman, 1994). According to our survey, more than half (54.17%) of migrants have primary education, while 18.33%, 7.5% and 1.25% of respondents had secondary education, higher secondary education and graduation, respectively, and the illiteracy rate was 18.75% among respondents, as Table 1 shows.

Factors Associated with Internal Migration

Reasons of Migration

People's migration was impacted by two main factors: push factors and pull factors (Chowdhury et al., 2012; Salam & Kiron, 2023; Saxena & Mohamed, 2019). It was determined that around 64% of respondents migrated as a result of various push factors, including 33% poverty, 21% unemployment and 10% natural calamity. On the other hand, 36% relocated due to various pull factors, with around 19%, 8% and 9% of respondents migrating for better opportunities, higher wages and the presence of relatives or friends for an extended period, respectively (Figure 2).

Reasons for Choosing Barishal City

According to the study, poor migrants select their destinations before migration by taking into account several factors. In choosing Barishal City, 43.33% of individuals considered the availability of job prospects, while 45.84% preferred this

Table 1. Educational Level of Respondents.

Educational Level	Frequency	Percentage
Primary education	130	54.17
Secondary education	44	18.33
Higher secondary education	18	7.5
Graduation	3	1.25
Illiterate	45	18.75
Total	240	100

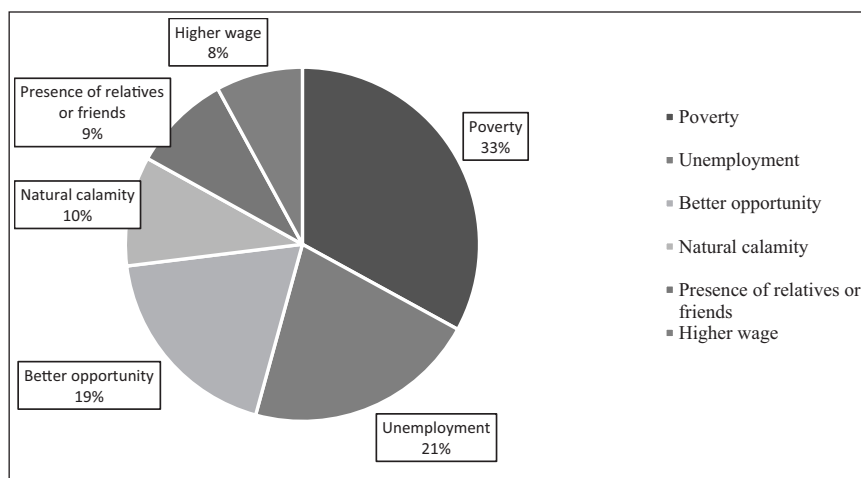


Figure 2. The Reasons for Migration.

city region because it is closer to their native areas. They may readily move from their places of origin to the city with relative ease, where both the cost of living and transportation remain comparatively affordable. In this study, 10.83% of migrants chose Barishal because of the presence of relatives in Barishal City.

ESI of the Respondents

The ESI of respondents serves as a contemporary method for translating qualitative changes in living conditions into quantifiable terms, enabling more precise assessment of socio-economic outcomes (Chowdhury et al., 2012). This index is constructed based on the overall changes observed in five key economic indicators such as household income, expenditure, savings, land ownership and migrants' non-productive assets. According to the survey, approximately 51%, 22%, 16% and 11% of respondents earned more than Tk 5,000, 3,001–5,000, 1,000–3,000 and less than 1,000 before migration. In contrast, respondents earning more than Tk 5,000, 3,001–5,000, 1,000–3,000 and less than 1,000 earned approximately 84%, 11%, 5% and 0%, respectively, after migration. Family expenditure is a significant indicator of identifying poverty conditions (Chowdhury et al., 2012; Islam, 2007). Before migration, more than one-fourth of respondents' (40.41%) monthly expenditures were Tk 4,001–7,001; 37.92% of respondents' monthly expenditures were Tk above 7,000; and just 21.67% spent Tk 1,001–4,000. Alternatively, after migration, the majority of respondents (80.83%) spend more than Tk 7,000 per month, with 16.25% of respondents spending between 4,001 and 7,000, and only 2.92% of migrants spending between Tk 1,001 and 4,000 per month. Savings provide strength to households and boost their ability to deal with crises (Chowdhury et al., 2012; Islam, 2007). The study shows that the average yearly savings before and after migration are Tk 705.42 and Tk 1,328.75, respectively.

Table 2. Amount of Possession of Prestigious Goods.

Possession of Prestigious Goods	Before Migration		After Migration	
	Number of Households	Percentage	Number of Households	Percentage
Mobile phone	161	67.08	225	93.75
Showcase	80	33.33	128	53.33
Almira	74	30.83	127	52.92
TV	57	23.75	122	50.83
Watch	54	22.5	69	28.75
Radio	15	6.25	7	2.92

Table 2 depicts the change in the ownership of selected high-value commodities before and after migration. These items were identified as indicators of economic mobility and contribute to the income flows of migrant households. After migration, the majority of migrants (93.75%) owned prestigious items such as mobile phones. The second-highest percentage of respondents possessed show-cases (53.33%) as prestigious items. After migration, the percentage of people who own prestigious items such as almiras, televisions, watches and radios is 52.92%, 50.83%, 28.75% and 2.92%, respectively. Before migration, the percentage of people who own prestigious items such as mobile phones, showcases, almiras, televisions, watches and radios were 67.08%, 33.33%, 30.83%, 23.75%, 22.5% and 6.25%, respectively.

Land is a vital indicator of livelihood (Chowdhury et al., 2012). In this study, 72.08% of respondents stated that there is no change in land possession after migration and 17.5% reported that their land has reduced. One of the primary causes of their land loss is river erosion. Only 10.42% of respondents reported that their land increased after migration.

A classification system was developed to measure the extent of economic change among respondents based on five indicators. A change in one or none of the indicators is categorized as 'no change'; a change in two indicators is classified as 'little change'; three indicator changes represent a 'moderate change'; four changes indicate a 'high change'; and a shift in all five indicators is considered a 'very high change'. The extent of changes is weighted as follows: no change score is 0, little change score is 1, medium change score is 2, high change score is 3 and very high change score is 4 (Chowdhury et al., 2012; Mohanty & Samanta, 2022). Table 3 shows the percentage change in each of these indicators with weight.

$$\begin{aligned}
 \text{ESI} &= \sum \frac{w_i f_i}{m} \times 100 \\
 &= \frac{(0 \times 48) + (1 \times 65) + (2 \times 68) + (3 \times 47) + (4 \times 12)}{(240 \times 4)} \times 100 \\
 &= 40.63\%
 \end{aligned}$$

Table 3. Economic Status of the Migrants.

Types of Economic Status	Weight (w_i)	Number of Respondents (f_i)	Percentage of Respondents
No change	0	48	20
Little change	1	65	27.08
Medium change	2	68	28.34
High change	3	47	19.58
Very high change	4	12	5
Total		240	100

Table 4. Changes in the Housing Status of the Respondents.

Types of Houses	Before Migration		After Migration	
	Number of Respondents	Percentage	Number of Respondents	Percentage
Semi-pacca	28	11.67	109	45.42
Tin-shed	162	67.5	125	52.08
One-sided tin-shed	22	9.16	6	2.5
Straw house	28	11.67	0	0
Total	240	100	240	100

According to Table 3; 5% and 19.58% of respondents' economic condition have improved 'very highly' and 'highly', respectively. A large percentage, approximately 28.34%, have experienced a 'medium change' in their economic status. Again, approximately 27.08% of respondents indicate 'little change', and only 20% indicate 'no change' in their economic condition. The ESI was calculated at 40.63%, indicating that migration has had a limited impact on improving the economic conditions of the respondents, as the index value falls below the 50% threshold (Mohanty & Samanta, 2022).

SSI of Migrants

The SSI of migrants was assessed using five key variables: housing status, access to water facilities, sanitation standards, treatment aptitudes and occupational efficiency. Among these, housing type is often regarded as a primary indicator of a family's overall social standing (Islam, 2007). Table 4 depicts the types of housing occupied by respondents before and after migration, highlighting changes in their residential conditions as a reflection of social mobility.

Table 4 shows that the houses were of four types: semi-pacca, tin-shed, one-sided tin-shed and straw house. The housing status of semi-pacca increased significantly from 11.67% to 45.42% after migration. However, due to internal migration, the housing status of tin sheds, one-sided tin sheds, and straw houses

Table 5. Sources of Water of the Respondents.

Sources of Water	Before Migration		After Migration	
	Number of Respondents	Percentage	Number of Respondents	Percentage
Pond, river or others	119	49.58	36	15
Tube-well	121	50.42	204	85
Total	240	100	240	100

declined from 67.5% to 52.08 %, 9.16% to 2.5% and 11.67% to 0%, respectively.

Water is an essential element for existence. This is especially important in terms of the respondents' sound health condition and respective residential areas as well (Chowdhury et al., 2012). According to the survey, 85% of respondents used tube-well water for cooking and other purposes after migration, and just 15% of people use water from ponds, rivers, or other sources. Before migration, the percentage of tube-well water users and those who used other sources of water, such as ponds, rivers and so on, was approximately 50-50. About 49.58% of respondents used ponds, rivers or other sources of water for their daily needs, while 50.42% used tube-well water (Table 5).

The level of sanitation facilities determines a family's socio-economic class (Chowdhury et al., 2012). It shows that after migration, approximately 68.34% use sanitary and 26.25% use pit latrines, compared to only 26.25% and 50%, respectively, before migration. Prior to the migration, around 20.83% and 2.92% used kacha (locally built, non-sanitary latrines) and open latrines, respectively. However, it has been updated after migration. Only 4.58% utilise kacha latrines, while 0.83% use open toilets following migration (Table 6).

Health facilities in respondents' families are important issues in determining socio-economic class (Chowdhury et al., 2012). This study considered four types of treatment facilities: government hospitals, LMF doctors, MBBS doctors and Kabiraj (a local healer who treats with traditional medicine).

Table 7 shows that about 55.84%, 29.58%, 5% and 9.58% of respondents took facilities from a government hospital, an LMF doctor, an MBBS doctor and Kabiraj before migration. On the other hand, about 80.42%, 10.83%, 8.75% and 0% of respondents use the facilities of government hospital, LMF doctor, MBBS doctor and Kabiraj services after migration.

Working efficiency serves as a significant indicator of an individual' socio-economic status, reflecting both productivity and the quality of employment (Chowdhury et al., 2012). Table 8 expresses the increase in working efficiency of migrants. Approximately 85.42% of respondents acknowledge that their working efficiency has enhanced after migration. On the other hand, only 14.58% are pessimistic about productivity improvement.

The changes in social status are identified by five indicators. Only one or no change in indicators is regarded as no change, whereas a change in two indicators is considered a slight change. If three of the indicators change, it is called a

Table 6. Sanitation Facilities of Respondents.

Types of Toilets	Before Migration		After Migration	
	Number of Respondents	Percentage	Number of Respondents	Percentage
Sanitary	63	26.25	164	68.34
Pit	120	50	63	26.25
Kacha	50	20.83	11	4.58
Open	7	2.92	2	0.83
Total	240	100	240	100

Table 7. Health Facilities of the Respondents.

Types of Treatment	Before Migration		After Migration	
	Number of Respondents	Percentage	Number of Respondents	Percentage
Government hospital	134	55.84	193	80.42
LMF doctor	71	29.58	26	10.83
MBBS doctor	12	5	21	8.75
Kabiraj (traditional healer)	23	9.58	0	0
Total	240	100	240	100

Table 8. Working Efficiency after Migration.

Is the Working Efficiency Increased after Migration?	No. of Respondents	Percentage
Yes	205	85.42
No	35	14.58
Total	240	100

medium change; changes in four indicators count as high change; and changes in all five indicators are considered very high change. The extent of changes is weighted as follows: no change score is 0, little change score is 1, medium change score is 2, high change score is 3 and very high change score is 4 (Chowdhury et al., 2012; Mohanty & Samanta, 2022). Table 9 reveals the social status of the respondents.

$$\begin{aligned} SSI &= \sum \frac{w_i f_i}{m} \times 100 \\ &= \frac{(0 \times 67) + (1 \times 45) + (2 \times 51) + (3 \times 59) + (4 \times 18)}{(240 \times 4)} \times 100 \\ &= 41.25\% \end{aligned}$$

Table 9. Social Status Index of Respondent's.

Types of Social Status	Weight (w_i)	Number of Respondents (f_i)	Percentage of Respondents
No change	0	67	27.92
Little change	1	45	18.75
Medium change	2	51	21.25
High change	3	59	24.58
Very high change	4	18	7.5
Total		240	100

Table 9 illustrates the SSI of migrants who moved to Barishal City. The SSI is used to assess the social effectiveness of their migration. According to our data, migrants' social standing improves 'very high' by around 7.5%. 24.58% of respondents have 'high change', 21.25% have 'medium change' and 18.75% have 'little change', with a higher percentage of migrants, 27.92%, having no change in their social status as a result of migration.

The computed social index is 41.25% based on all valid observations from 240 respondents. As a result of internal migration, the social status of migrants has not changed much, since their SSI is less than 50% (Mohanty & Samanta, 2022).

Poverty Status of Migrants

The headcount ratio, also known as the poverty headcount ratio, is a critical metric that provides invaluable insights into the scope and prevalence of poverty within a specific population or geographic area (Albert et al., 2020). The calculation of the headcount ratio involves a simple formula: divide the number of people living below the poverty line by the total population and the result is expressed as a percentage (Tirtayasa et al., 2021). Like many other nations, Bangladesh has set \$1.9 per day as the poverty line (Tariqujjaman et al., 2023). According to our survey, 117 of the 240 respondents lived below the poverty line before their migration, while only 37 did so after the internal migration to Barishal City. As a result, the headcount ratio before migration = $\frac{q}{n} \times 100$

$$= \frac{117}{240} \times 100$$

$$= 48.75\%$$

As a result, the headcount ratio after migration = $\frac{q}{n} \times 100$

$$= \frac{37}{240} \times 100$$

$$= 15.42\%$$

The significant decrease in the headcount ratio from 48.75% to 15.42% after internal migration to Barishal City indicates a notable reduction in poverty levels. The poverty rate has decreased by approximately 68.37% $[(48.75 - 15.42)/48.75 \times 100]$. This positive change suggests improvements in economic conditions and living standards for the population.

Conclusion

Migration serves as a crucial strategy for development, offering professional advantages, financial progress and enhanced access to health, education and recreation, all of which contribute to improved socio-economic conditions, sustainable development and poverty alleviation. The socio-demographic profile of migrants to Barishal City reveals that most migrants have resided in this city for seven or more years, with the ESI value of 40.63%, indicating that migration has had a modest impact on improving their economic conditions. However, indicators such as household income, savings, expenditure, land ownership and non-productive assets have seen improvements after migration. The social impact is slightly more pronounced, with the SSI of 41.25%, reflecting improvements in housing, water and sanitation facilities, access to healthcare and working efficiency. The headcount ratio indicates that the poverty situation has improved in the post-migration period. This study is valuable for policymakers, sociologists, environmentalists, economists, administrators, academicians and social scientists, providing insights into the patterns, reasons and impacts of internal migration for sustainable planning in Barishal City.

Consent to Participate

Verbal informed consent was obtained from all participants prior to data collection.

Consent for Publication

Not applicable.

Data Availability Statement

The data that support the findings of this study can be found at: https://drive.google.com/drive/folders/1b6mcfCquNQ_cB4TljEMkBdeV5p58cDBk?usp=drive_link

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Ethical Considerations

Ethical approval was not required for this study, as it did not involve clinical interventions, biological samples, or sensitive personal identifiers. The research focused on internal migration and its socio-economic impact.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

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Developing a Digital Marketing Communication Model to Support Sustainable Community Enterprise Development: Evidence from the Khok Nong Na Pa Phai Model

Asia-Pacific Journal of Rural Development
36(1) 38–48, 2026

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Abstract

This study addresses the digital skills gap that constrains the online marketing potential of rural community enterprises in northern Thailand, where only 18% of producers possess video editing capabilities. Using Khok Nong Na Pa Phai Herbal Balm Enterprise in Pa Phai Subdistrict, Chiang Mai Province, as a case study, we develop a digital marketing communication model to support sustainable enterprise growth. A mixed-methods design was employed, integrating 20 in-depth interviews, three focus groups ($n = 30$) and a stratified random survey of 400 community members, leaders and customers.

Thematic analysis of qualitative data identified key communication gaps, digital skills constraints and preferred strategies. Quantitative findings, analysed through descriptive statistics, t -tests, ANOVA, Pearson correlations and multiple regression ($R^2 = 0.52$), reveal high enterprise awareness and positive perceptions of its socio-economic and environmental value. Digital engagement showed strong associations with online support intentions ($r = .71, p < .001$), while satisfaction with current digital marketing remained moderate, despite high smartphone penetration (92%). Facebook and TikTok were the most frequently used platforms, with digital engagement and attitudes emerging as significant predictors of purchase intentions. Additionally, the proposed model integrates participatory communication, short-form video content strategies and tailored capacity-building. It offers actionable recommendations to strengthen rural enterprise marketing and supports scalable ICT-for-development strategies aligned with Sustainable Development Goals 8 and 9.

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Keywords

Rural development, community enterprise, digital marketing communication, sustainable livelihoods, ICT for rural development, Northern Thailand

Introduction

Rural community enterprises serve as pivotal instruments for sustainable development in Asia-Pacific, promoting economic resilience, social inclusion and environmental stewardship amid persistent poverty and market constraints (CIRDAP, 2023; Hossain, 2025). In Thailand, these enterprises operationalise the Sufficiency Economy Philosophy by integrating traditional farming with value-added processing, as exemplified by the Khok Nong Na Pa Phai Model in Pa Phai Subdistrict, San Sai District, Chiang Mai Province. This model employs ‘ridge-pond-field-bamboo grove’ land management to produce herbal balm from local herbs, generating supplementary income while empowering older farmers via the Pa Phai Virtuous Elderly School, thus advancing active ageing and community cohesion. This approach enhances rural residents’ capabilities, boosting their freedom to produce and trade, which aligns with the capability approach. By expanding these capabilities, the model promotes a deeper theoretical grounding in sustainable development, further aligning with philosophical principles of economic and social empowerment.

Although the enterprise demonstrates strengths in product quality and local identity, it encounters significant digital marketing barriers that limit market expansion beyond traditional channels such as local fairs and government networks (Mettathamrong et al., 2023). One elderly producer shared their frustration, stating, ‘We make beautiful products, but without the skills to market them online, they remain unseen outside our village’. Producers exhibit limited digital literacy, content creation skills and e-commerce proficiency, which intensifies the rural digital divide despite widespread smartphone use in northern Thailand (International Trade Administration, 2024). While existing research highlights the potential of digital tools for rural market access, few studies combine participatory communication perspectives with empirical data on stakeholder attitudes and behaviours in Southeast Asian contexts (Sen et al., 2017; Yadav et al., 2022).

This research develops a digital marketing communication model to strengthen sustainable community enterprise growth, using the Khok Nong Na Pa Phai herbal balm enterprise as a *case study*. Drawing on *participatory development communication* (FAO, n.d.) and interactive communication theory (Schramm, 1954), the study explores the following design questions: How might we assess current communication practices, strengths and digital gaps? How might we understand the impact of demographics and digital engagement on attitudes and support intentions? How might we develop tailored strategies for expanding market channels while preserving community values? The mixed-methods approach, which includes 20 in-depth interviews, three focus groups and a survey of 400 respondents, provides empirical evidence for ICT-driven rural entrepreneurship in alignment with SDGs 8 and 9.

Literature Review and Conceptual Framework

Rural Development and Community-based Enterprises

Rural development in Asia-Pacific emphasises community-driven enterprises as pathways to sustainable livelihoods, integrating economic viability with social and environmental goals (CIRDAP, 2023; Hossain, 2025). In Thailand, community enterprises embody the Sufficiency Economy Philosophy, promoting self-reliance through value-added agricultural processing, such as herbal products from integrated farming models, including the ‘ridge-pond-field-bamboo grove’ (Mettathamrong et al., 2023). These enterprises empower marginalised groups, including older farmers, fostering social inclusion and resilience against economic vulnerabilities.

Digital Inclusion and ICT for Rural Markets

Digital inclusion bridges rural-urban divides by enabling market access via social media and e-commerce, yet adoption lags due to skill gaps and infrastructure barriers (Doloi, 2025). Studies in Southeast Asia show social media platforms like Facebook and TikTok drive rural product sales, enhancing visibility and consumer trust when content reflects local authenticity (Sen et al., 2017). However, rural producers often underutilise these tools, limiting livelihood diversification despite high internet penetration (Yadav et al., 2022).

Relevant Studies in Asia-Pacific

Empirical work in the region links ICT to the growth of community enterprises. In India, digital marketing boosted rural handicraft sales by 35% through targeted social media campaigns (Yadav et al., 2022). Thai cases demonstrate participatory digital strategies increasing revenues for organic farms, aligning with SDG 8 (Suwanmaneepong et al., 2024). Gaps persist in integrating qualitative stakeholder insights with quantitative behaviour models specific to northern Thailand’s ageing rural contexts.

Conceptual Framework

The framework synthesises interactive communication theory (Schramm, 1954), focusing on the essential feedback loops between sender, message, channel and receiver, and participatory development communication (FAO, n.d.), adapted to Sufficiency Economy principles. It introduces the PATH model: Progression through Awareness, Technology and Habit—a pathway where awareness and attitudes towards the enterprise, influenced by product quality and community values, drive digital media usage behaviours, such as platform engagement and content interaction. These behaviours culminate in intentions to support, seen in purchases, shares and advocacy. The model’s moderators include demographics and digital literacy and are tested via correlations and mean comparisons. This

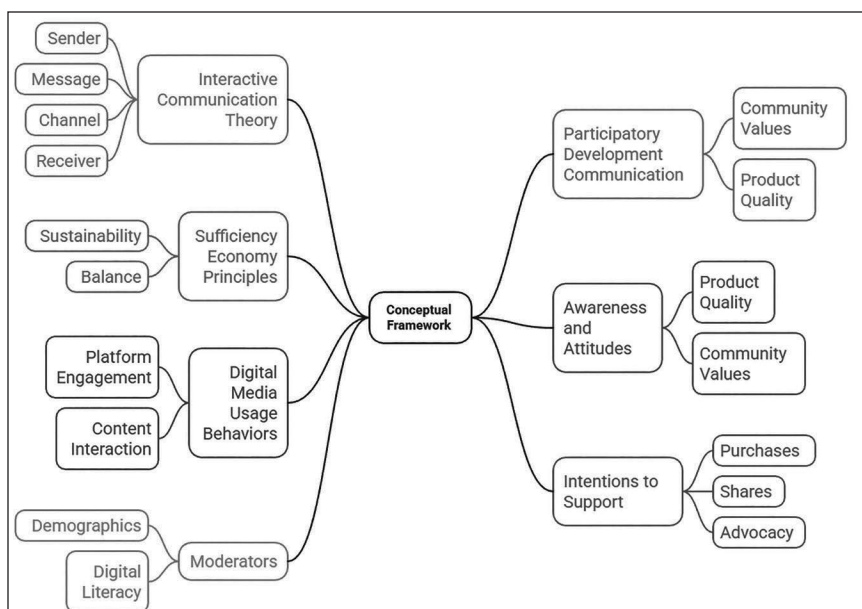


Figure 1. Conceptual Framework for Digital Media Usage.

model guides empirical analysis and strategy development for the Khok Nong Na Pa Phai case (Figure 1).

Methodology

Study Area and Context

The study focuses on the Khok Nong Na Pa Phai Model, a community enterprise in Pa Phai Subdistrict, San Sai District, Chiang Mai Province, northern Thailand. This model integrates ‘ridge-pond-field-bamboo grove’ land management with organic farming and herbal balm production, embodying Sufficiency Economy Philosophy for sustainable rural livelihoods and active ageing through the Pa Phai Virtuous Elderly School.

Research Design

A mixed-methods design combines qualitative and quantitative approaches to develop a digital marketing communication model that aligns with participatory development communication principles (Creswell & Plano Clark, 2018). Qualitative methods capture contextual insights, while quantitative methods test relationships in the conceptual framework.

Measurement Instruments

Qualitative guides comprised 10–12 semi-structured questions exploring enterprise history, digital gaps and strategy preferences. The survey included four parts: demographics; awareness/attitudes (on a 5-point Likert scale: economic, social and environmental values); digital behaviours (platform usage frequency, content preferences); and support intentions (purchase/sharing willingness). Instruments demonstrated strong reliability: Attitudes ($\alpha = .87$), digital use ($\alpha = .82$), support intentions ($\alpha = .89$), all exceeding Nunnally’s 0.70 threshold. Content validity was verified by three experts (CVI = 0.92), with pilot testing ($n = 30$) Cronbach’s $\alpha \geq .82$ across scales (Table 1).

Purposive sampling selected 20 key informants for in-depth interviews (community leaders, enterprise members, local officials) and 30 participants across three focus groups (8–10 per group: enterprise members, youth, stakeholders). A stratified random sample of 400 survey respondents represented community members ($n = 100$), leaders ($n = 50$) and the general public/customers ($n = 250$), ensuring diversity in gender, age and roles. Stratification proportions mirrored community demographics ($\chi^2 = 2.14, p = .83$), minimising selection bias.

As part of our ethical commitment and participatory communication framework, we emphasised community ownership of data. The findings from our study will be returned to the participants through feedback workshops, ensuring transparency and reciprocity. This approach allows participants to engage with the results actively, fostering a shared understanding and empowering the community to utilise the data for informed decision-making. Such feedback sessions highlight our commitment to ethically grounded research and reinforce the participatory nature of our communication model.

Data Analysis

Qualitative data underwent thematic analysis via NVivo 14 using Braun and Clarke’s (2006) six-step process: familiarisation, coding, theme generation, review, definition and reporting. Quantitative analysis employed SPSS 28.0 for descriptive statistics (means, SD, frequencies), inferential tests (independent t -tests, one-way ANOVA), Pearson correlations (two-tailed) and hierarchical multiple regression.

Table 1. Scale Reliabilities and Descriptive Statistics.

Scale	Items	Cronbach’s α	M	SD	Range
Awareness/ Attitudes	12	.87	4.35	0.65	1–5
Digital media use	8	.82	4.12	0.78	1–5
Support intentions	10	.89	4.08	0.81	1–5

Source: Nunnally (1978).

Note: $N = 400$; all $\alpha > .70$.

Sample size ($n = 400$) provided 99% power to detect medium effects ($r = .30$) at $\alpha = .05$ (G*Power 3.1; Faul et al., 2009). Mixed-methods integration used joint displays comparing qualitative themes with quantitative patterns.

Results

Among 400 survey respondents, 58% were female and 42% male, with age distribution: 45% aged 41–60 years, 30% aged 18–40 and 25% aged 60+—reflecting northern Thailand's ageing rural demographics. Education levels comprised 52% secondary school, 28% primary and 20% vocational/tertiary, while primary occupations included farming (62%), trade/services (18%) and retired/homemakers (20%). Monthly income averaged ฿12,500 ($SD = \text{฿}4,200$), with 35% directly involved in the enterprise as members/leaders and 65% as customers/community affiliates.

Awareness of the Khok Nong Na Pa Phai herbal balm proved high ($M = 4.12$, $SD = 0.78$ on a 5-point Likert scale), accompanied by strong positive attitudes towards its economic value ($M = 4.35$, $SD = 0.65$), social contributions ($M = 4.28$, $SD = 0.72$) and environmental sustainability ($M = 4.41$, $SD = 0.59$). ANOVA indicated significant age differences ($F(2,397) = 8.45$, $p < .001$), with older respondents (over 60) rating social value highest ($M = 4.48$); t -tests confirmed enterprise members held more favourable views than non-members ($t(398) = 4.12$, $p < .001$). This high social value is vividly illustrated in the daily life of the village, where community events often feature the balm as a symbol of local heritage and collective pride. A recent village gathering showcased elderly artisans teaching younger generations the time-honoured techniques of balm production, thereby reinforcing strong community bonds and affirming the value of intergenerational knowledge transfer.

Respondents averaged 4.2 h of daily internet use ($SD = 1.8$), mainly via smartphones (92%), with Facebook (85%), LINE (72%) and TikTok (45%) as the most used platforms. Online purchasing behaviours showed 68% buying local products digitally—primarily through Facebook Marketplace/Shopee—with preferences for video content (62%) and authentic stories (71%); farmers exhibited lower platform diversity than youth ($F(3,396) = 12.3$, $p < .001$).

Satisfaction with current digital efforts remained moderate ($M = 3.45$, $SD = 0.89$), constrained by inconsistent posting, yet support intentions were robust: follow online ($M = 4.22$, $SD = 0.74$), purchase digitally ($M = 4.08$, $SD = 0.81$) and share content ($M = 4.15$, $SD = 0.76$). Females demonstrated higher purchase intentions ($t(398) = 3.21$, $p = .001$) (Table 2).

Pearson correlations revealed positive framework linkages: attitudes $\times$ digital use ($r = .62$, $p < .001$), digital use $\times$ support intention ($r = .71$, $p < .001$), attitudes $\times$ support intention ($r = .68$, $p < .001$) and age $\times$ digital use ($r = -.45$, $p < .001$). Regression ($R^2 = 0.52$) identified digital engagement ($\beta = 0.41$, $p < .001$) and attitudes ($\beta = 0.33$, $p < .001$) as primary predictors of support intentions, after controlling for demographics (Table 3).

Table 2. Correlations Between Key Variables.

Variable Pair	Pearson <i>r</i>	<i>p</i> Value
Attitudes × digital use	.62	<.001
Digital use × support intention	.71	<.001
Attitudes × support intention	.68	<.001
Age × digital use	−.45	<.001

Note: *N* = 400, 2-tailed tests (*r*² = .20–.50).

Table 3. Hierarchical Multiple Regression Predicting Support Intentions.

Predictor	Model 1 (<i>β</i>)	Model 2 (<i>β</i>)	SE	<i>t</i>	<i>p</i>
Block 1: Demographics					
Age	−0.22	−0.12	0.04	−2.89	.004
Gender (Female)	0.15	0.09	0.06	1.45	.148
Block 2: Core Predictors					
Attitudes		0.33	0.07	4.71	<.001
Digital engagement		0.41	0.08	5.13	<.001
Model fit	<i>R</i> ² = 0.12	<i>R</i> ² = 0.52		<i>F</i> = 22.4	<.001

Note: Δ*R*² = 0.40 (Block 2), *N* = 400.

Thematic analysis of 20 in-depth interviews and three focus groups (*n* = 30) identified four primary themes that define the enterprise’s communication landscape. First, the herbal balm is regarded as a ‘community symbol’ that embodies elderly wisdom and eco-friendliness, supported by strong local trust, with one participant noting, ‘I trust our balm like family’. Second, challenges include persistent digital skill gaps, as reflected in statements such as ‘the elderly can’t make videos’, inconsistent content posting and the absence of an e-commerce infrastructure. Third, opportunities arise from TikTok videos highlighting farming processes, the use of LINE OA for direct sales, and youth-elderly mentorship initiatives, summed up by a youth participant who said, ‘Mentoring the elderly is a path forward’. Fourth, preferred strategies focus on authentic storytelling through short 15–30 s videos that uphold Sufficiency Economy Philosophy values and encourage community co-creation. A local leader emphasised, ‘Our stories are best told through the lens of who we are’. These qualitative findings align with quantitative results, which show moderate digital satisfaction (*M* = 3.45) alongside strong support intentions (*M* = 4.08) and form the basis for the context-specific digital marketing communication model.

Discussion

Findings align closely with Asia-Pacific research on ICT-enabled rural enterprises, which show that digital platforms enhance market access but face persistent adoption barriers (Doloi, 2025; Hermansyah et al., 2025; Hossain, 2025). High

awareness ($M = 4.12$) and attitudes ($M = 4.35$) towards the herbal balm mirror the SDG 8.3 indicators for MSME productivity enhancement through ICT, as evidenced by West Bengal study, which found that social media increased rural product sales by 42%. Moderate digital satisfaction ($M = 3.45$), however, echoes Suwanmaneepong et al.'s (2024) Thai findings and SDG 9.5 research capacity gaps, where 68% of rural producers lack content creation skills despite 92% smartphone penetration.

The conceptual framework gains empirical validation through strong pathway correlations (digital use $\rightarrow$ support intention: $r = .71$), operationalising Schramm's (1954) interactive model via demonstrated feedback loops between elderly producers ('can't make videos') and youth mentorship opportunities. This bridges participatory communication with the Sufficiency Economy Philosophy, where capacity building ($\alpha = .89$ reliability) transforms digital divides into inclusive livelihoods, directly supporting SDG 8.5: full employment for ageing rural populations (25% of respondents >60 years).

Age disparities ($r = -.45$; $F = 8.45$, $p < .001$) underscore generational digital divides documented across APJORD studies (Guo & Gao, 2017; Weerasinghe et al., 2023), yet the model addresses SDG 9.c: ICT infrastructure access through scalable LINE OA/TikTok strategies. Strengths, like eco-branding ($M = 4.41$), offer regional replicability for Thailand's 1,200+ community enterprises, while skill deficits demand policy interventions aligned with CIRDAP's rural ICT agenda (CIRDAP, 2023).

Policy and Practice Implications

Government agencies at national and local levels should prioritise digital capacity-building subsidies for rural enterprises, targeting ageing communities like Khok Nong Na Pa Phai. Policies integrating ICT training into Fundamental Fund allocations, emphasising short-video production (TikTok) and LINE OA management, can bridge digital divides, as evidenced by moderate satisfaction ($M = 3.45$) despite high intentions ($M = 4.08$). Imagine an elderly producer confidently livestreaming the creation of their herbal balm, engaging customers directly and sharing the stories behind each product, thanks to the proposed training. This image of innovation showcases the transformative potential of these policies and facilitates a tangible connection for policymakers. Local administrations, such as tambon councils, must facilitate youth-elderly mentorship programmes to sustain feedback loops, aligning with Thailand's Community Enterprise Promotion Act and SDG 9 infrastructure goals (CIRDAP, 2023).

Training programmes should adopt participatory designs, delivering 5–10 workshops on content strategy (storytelling, 15–30 s videos), analytics (reach/engagement KPIs) and self-managed e-commerce (Shopee/Facebook Marketplace integration). Community-led systems—co-created via focus groups—enable scalability, addressing skill gaps ('elderly can't make videos') while preserving Sufficiency Economy values. Open-source templates for posting schedules and performance dashboards enable ongoing operations without external dependencies.

The model offers replicability for northern Thailand's 1,200+ community enterprises, where 92% smartphone penetration meets persistent market barriers. Strong correlations ($r = .71$) between digital use and support intentions suggest a nationwide rollout via agricultural extension services, fostering inclusive livelihoods and reducing urban migration. A key scalability trigger is achieving a threshold of 50% video-creation proficiency among producers. Reaching this metric signals readiness for a broader implementation strategy. Comparative pilots in Isan and southern regions can be adapted to diverse crops, advancing CIRDAP's rural ICT agenda across Asia-Pacific.

Conclusion and Recommendations

This study confirms digital marketing communication as a viable pathway for sustainable rural community enterprises, with the Khok Nong Na Pa Phai herbal balm model demonstrating high awareness ($M = 4.12$), positive attitudes ($M = 4.35$) and strong support intentions ($M = 4.08$) mediated by digital engagement ($r = .71$, $R^2 = 0.52$). Thematic insights reveal authentic storytelling and capacity building as keys to overcoming skill gaps, aligning participatory communication with Sufficiency Economy Philosophy for inclusive livelihoods.

Limitations include a cross-sectional design that precludes causal inference and a geographic focus on northern Thailand, which may limit generalisability. This cross-sectional approach underscores the need for longitudinal studies to track sales growth and digital engagement over time, enabling causal relationships to be established. The geographic limitation highlights an opportunity to explore similar models in other regions of Thailand and Southeast Asia, allowing for comparative analysis and broader generalisation. Self-reported data may introduce social desirability bias; thus, future research should incorporate objective measures, such as sales data and digital analytics, to mitigate this issue. The focus on short-term metrics opens avenues for long-term economic impact assessments, thus providing a comprehensive understanding of digital strategy success.

Future research should employ longitudinal designs to track sales growth and engagement pre- and post-intervention, comparative studies across Thailand's regions (e.g., Isan vs North) and economic impact analyses (ROI, cost-benefit of digital adoption). Experimental A/B testing of content formats and digital affiliate models for youth involvement would strengthen causal evidence.

Acknowledgements

The authors would like to thank the Khok Nong Na Pa Phai community enterprise, local leaders and participants for their cooperation, as well as Chiang Mai Rajabhat University for institutional support.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Ethical Approval

This study was approved by the Institutional Review Board of Chiang Mai Rajabhat University (IRB CMRU 2025/663.23.12).

Funding

The authors disclosed receipt of the following financial support for the research, authorship and/or publication of this article: This research was funded by the Thailand Research Fund (Fundamental Fund 2025, Project No. FF69-001).

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VOE Management Strategies: Uncovering Best Practices for Village Economic Empowerment

Asia-Pacific Journal of Rural Development
36(1) 49–63, 2026

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DOI: 10.1177/10185291261437206
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Abstract

This study examines the key success factors of Village-Owned Enterprises (VOEs) in Indonesia using a phenomenological qualitative approach across three rural contexts: Sidomulyo, Sugih Waras and Brubuh. VOEs function as community-based institutions that integrate economic gain with social welfare. The findings suggest that adaptive capacity, stakeholder collaboration and local innovation are essential for maintaining VOE performance. In Sidomulyo, managerial resilience was evident in the utilisation of personal capital to overcome financial constraints. In Sugih Waras, participatory training strengthened organisational capacity. Meanwhile, Brubuh exhibited adaptive strategies through digital promotion and facility improvement to revitalise rural tourism during the pandemic. Collaborative governance among village leaders, managers and community members fosters ownership, legitimacy and sustainable outcomes. Innovative ventures, including tourism development, equipment rental and local flower processing, demonstrate VOEs' ability to convert community resources into economic and social value. The study positions VOEs as catalysts for inclusive rural transformation and as transferable models for community-driven enterprises across developing regions. Nonetheless, its limited scope and qualitative nature suggest the need for broader mixed-methods research. Strengthened policy support through continuous training, innovation incentives and digital literacy is recommended to enhance VOE resilience and long-term sustainability.

Keywords

Village-Owned Enterprises, adaptation, synergy, innovation, village development

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Introduction

Law No. 6/2014 on villages provides a strong legal foundation for community empowerment in Indonesia through the establishment of Village-Owned Enterprises (VOE). The primary objectives of VOE are to increase local revenue, empower community potential and achieve village independence. This aligns with Permendesa No. 4/2015, which emphasises the crucial role of VOE in fostering inclusive and sustainable economic ecosystems (Idriyanti & Agustina, 2024; Prihartini & Choiriyah, 2024; Wulandari et al., 2023). Primarily supported by the village fund, VOE is designed to catalyse the integration of micro, small and medium enterprises (MSMEs) at the village level, strengthen grassroots economies and foster resilient rural development.

Despite this potential, VOE management in Indonesia remains uneven. Many VOEs face persistent challenges, including weak coordination among stakeholders (Machmudah & Rodiyah, 2024), limited human resources (Laksana et al., 2023), insufficient capital (Inapty et al., 2022) and a lack of adaptive business strategies. As a result, several VOEs serve merely as extensions of distribution chains, offering little added value for communities. These issues underscore the pressing need for innovation-oriented and collaborative governance to enable VOEs to evolve into sustainable enterprises that support rural empowerment (Fafurida et al., 2022; Fanani & Nawangsari, 2024; Yudartha & Agung, 2024).

Effective VOE management depends mainly on two interrelated elements: social capital and transformative leadership. Trust and reciprocity are crucial for fostering strong cooperation among village heads, VOE managers and communities (Akbar et al., 2023; Kusuma et al., 2021). Transformative leadership demonstrated by village heads can foster motivation, accountability and a collective sense of ownership (Pradana & Sitorus, 2020; Rachmawati et al., 2021). In addition, local cultural values such as *gotong royong* (cooperation) and trustworthiness play an essential role in sustaining VOEs as community-based enterprises (Purnamasari, 2024; Rivera et al., 2017; Siemens, 2019).

This research adopts a qualitative phenomenological approach to explore effective VOE management strategies, focusing on how managers harness local potential and implement place-based development for business sustainability (Haida et al., 2022; Kusumastuti et al., 2022). It also examines the role of digital literacy and technological adaptation, particularly in marketing and business administration, which are increasingly vital for navigating modern challenges (Gretzel et al., 2020; Kristiyanti et al., 2024; Tiswiyanti et al., 2023). Such an approach provides in-depth insights into the dynamics of successful management, including collaboration, innovation and adaptability to external shocks.

A distinctive feature of VOEs in Indonesia, compared to similar rural enterprises in other countries, lies in their dual focus on both economic profitability and social welfare. VOEs are established and managed collectively by village governments and communities, with capital derived mainly from local resources. Their operations are tailored to the unique potential of each village, ranging from tourism and agriculture to savings units and retail services. Beyond profit, VOEs aim to optimise village assets, generate employment and strengthen social

cohesion. Their governance model reflects cooperative, participatory and transparent principles rooted in Indonesia's sociocultural values, particularly the Pancasila economic philosophy. Additionally, VOEes enjoy strong legal protection, ensuring clarity in investment mechanisms and partnerships, including opportunities for citizen participation in financing. This hybrid model, balancing profit, empowerment and inclusivity, illustrates a locally grounded approach that could be adapted to other developing contexts seeking to promote bottom-up economic resilience.

Effective governance is widely recognised as a critical determinant of VOE success, particularly when grounded in collaboration, transparency and accountability (Fanani & Nawangsari, 2024; Haryani et al., 2025). Inclusive governance models that involve local governments, communities and even private actors foster stronger legitimacy and shared responsibility, aligning with international frameworks of collaborative governance (Astuti & Suaedi, 2018). Parallel to this, community empowerment remains central to VOE development, as active participation from villagers not only strengthens ownership but also aligns enterprise activities with local needs. Approaches such as the welfare approach (Harini et al., 2023; Purnomo et al., 2023), development approach (Nazeri et al., 2024; Sulaiman et al., 2022) and empowerment approach (Purnomo et al., 2023; Suyanto et al., 2024) provide conceptual foundations for sustainable and socially embedded VOE models. These frameworks parallel international discourses on community-driven development, underscoring the role of empowerment in enhancing resilience amidst rapid socio-economic transformation.

Beyond governance and empowerment, leadership and innovation emerge as equally decisive factors for VOE sustainability. Visionary and transformative leadership enables managers to mobilise resources effectively, cultivate trust and design adaptive strategies in responding to internal and external challenges (Ateş et al., 2020; Rachmawati et al., 2021). Simultaneously, innovation, whether through business diversification, digital technology adoption or integration with other sectors, has become a key driver in enhancing competitiveness (Kamariah et al., 2021). These insights align with global experiences of community-based enterprises. For instance, Village Development Enterprises (VDEs) in China, Self-Help Groups (SHGs) in India and Community-Based Organisations (CBOs) in Sub-Saharan Africa have also demonstrated how local resource mobilisation, digital adaptation and grassroots leadership can sustain rural economic initiatives. By situating VOEes within this comparative landscape, the Indonesian model not only strengthens rural economies domestically but also contributes valuable lessons for global discourses on community enterprise management and rural economic development.

Research Method

This research uses a qualitative approach with a phenomenological perspective to explore the subjective experiences of VOE managers in facing challenges and creating success strategies. The phenomenological approach was chosen because

it can explore complex subjective dimensions, including local values, social interactions and decision-making, involving various stakeholders. The focus of this research is to understand how managers utilise local resources with their social dynamics as the primary strategy to create business sustainability.

The research was conducted in the Greater Madiun region, which is characterised by Mataraman Javanese culture and unique socio-economic dynamics. The research subjects are managers or directors of VOE who have demonstrated success in advancing their business units. Subjects were purposively selected through an initial survey to ensure their suitability in relation to the research criteria, such as business sustainability and contribution to the village community. Data were collected through in-depth interviews to explore the personal experiences of managers, direct observation to understand the operational and social context and documentation studies related to VOE's financial reports, policies and organisational structure. In addition, focus group discussions (FGDs) were conducted to validate the data and enrich perspectives from various stakeholders.

Results and Discussion

Manager's Subjective Experience

The experiences of VOE managers in Sidomulyo, Brubuh and Sugih Waras reflect the principle of adaptive learning rooted in local challenges. In Sidomulyo Village, managers initially feared using village funds for risky ventures. However, direct appointment by the head of the village provided moral legitimacy and motivation to carry out the mandate.

At first, we were afraid because we were using village money. However, after being appointed by the village head, we consider it a mandate. If we succeed, thank God; if we fail, we will be held accountable. Manager of VOE Sidomulyo

This phenomenon underscores the importance of trust in promoting manager commitment as social capital, a vital factor for business sustainability in the village (Sabet & Khaksar, 2024; Veritia & Arifianto, 2020). Moral and strategic support from the village head also plays an important role in encouraging managers' courage to take initial risks (Abidjulu et al., 2024; Rares et al., 2023). In the context of Sidomulyo, the trust given by the village head creates a conducive working environment and strengthens the enterprise's legitimacy.

In Brubuh Village, the experience of adaptation during the pandemic showed flexibility and innovation. When tourism businesses stopped due to social restrictions, managers used the time to improve facilities and utilise social media as a promotional channel.

During the pandemic, tourism was forced to close. But, we did not give up. We used the time to improve the facilities and increase promotion through social media. Brubuh VOE Manager

This approach reflects a learning organisation strategy (Gretzel et al., 2020). They found that digital literacy and technological adaptation during the pandemic are crucial to the sustainability of small businesses (Maulana et al., 2024; Sutrisno et al., 2024). They also highlighted that the ability to utilise digital platforms, such

as social media strategically, allows microenterprise managers to remain competitive amidst the changing business environment. By using social media as the leading platform for promotion, VOE Brubuh demonstrates the ability to respond to modern challenges through strategic digital innovation.

In Sugih Waras Village, VOE managers created a sense of ownership among the community through a collaborative approach to establishing the village market.

We established this market together with the community. There is investment from the community, and they feel they own the market. VOE Sugih Waras Manager

This practice supports the concept of inclusive business models, which emphasise the involvement of local communities in investment and business management to enhance economic sustainability (Dibaba et al., 2023). Inclusive business models that actively involve communities in investments can also create a sense of belonging that strengthens the trust and legitimacy of the business. By integrating social capital and active community participation, VOE Sugih Waras creates new sources of income and strengthens the sense of community and inclusiveness in local economic development.

The quotes from the three villages reveal that VOE managers face external challenges, including the pandemic, limited funds and internal pressures stemming from fear and uncertainty. However, they managed to turn these obstacles into opportunities through collaboration, innovation and the application of learning organisation principles. The resilience of managers in managing risks and flexibility in dealing with changes are important factors in ensuring the sustainability of micro-enterprises. This phenomenon shows that the success of VOE depends on the manager's ability to learn from experience, manage risks wisely and involve the community actively.

Trust-based Leadership and Management

Trust-based leadership in the three villages is an important foundation for successfully managing VOE. In Desa Sugih Waras, selecting managers through village meetings provides legitimacy and builds a sense of responsibility among managers.

We were elected through village deliberation, and the village head has full trust in us. That makes us more responsible. Manager of VOE Sugih Waras

Head village always says, do not be afraid to fail. The important thing is to work with trust. Manager of VOE Brubuh

This practice illustrates the importance of transformational leadership, in which leaders motivate and encourage their subordinates to exceed their expectations (Nazari et al., 2024). As transformative leaders, the head of the village plays a crucial role in fostering collective motivation for the success of village enterprises (Ambarizki et al., 2024). The transformative leadership of the head of the village plays a crucial role in building managers' morale by leveraging local values and offering consistent moral support (Rachmawati et al., 2021). The village head acts as a catalyst for change by instilling a trust-based work spirit, which aligns with local cultural values of moral responsibility.

In Sidomulyo Village, although there are no financial incentives, the managers consider this task a moral responsibility.

Not getting paid is also not a problem; the important thing is that we can prove that these VOEs can succeed. Manager of VOE Sidomulyo

This phenomenon reflects the concept of altruistic leadership, where leadership is based on devotion and responsibility to the community. Altruistic leadership strengthens the dedication of managers to facing challenges without prioritising personal gain (Kock et al., 2022). In rural communities, values such as *gotong royong* and trust are social foundations that strengthen the dedication of managers. Local values are a crucial element in strengthening community-based business governance (Hadjielias et al., 2024), which fosters a sense of community and promotes synergy among stakeholders (Duka & Mediatati, 2024).

The trust given by the village head to the manager provides important social legitimacy to build a collaborative relationship between the VOE and the community. Community trust and active participation are the foundation for successful community-based development (Sasmita et al., 2024). Community involvement is also a form of transparency and accountability in managing village businesses that can ultimately strengthen community trust in the head of the village and VOE managers (Ritonga et al., 2024). However, this success also depends on a balance between the head of the village's authority and the managers' autonomy. If the head of the village is too dominant, potential conflicts of interest may arise, which can reduce the managers' independence and innovation. Therefore, the head of the village needs to be a facilitator, not a controller, in the VOE management process.

Trust-based leadership in the three villages demonstrates that local values, such as trust, moral responsibility and *gotong royong*, remain relevant in supporting modern governance. These findings suggest the need for value-based leadership training and strengthen supervisory mechanisms that balance the head of the village's authority and the managers' independence.

Innovation-based on Local Potential

Local potential-based innovation is a key success strategy in all three villages involved in this study. This shows that business adjustment to the needs and advantages of each region is the basis of successful VOE management. In Brubuh Village, VOE managers demonstrated the ability to recognise and utilise local assets in the form of natural beauty.

We saw a lot of untapped tourism potential in this village, so we developed Kayangan Tourism. It was difficult at first, but now the results are good. Manager of VOE Brubuh

This approach reflects the concept of place-based development, in which development is oriented towards utilising the unique characteristics of a region to create added value (Vasta et al., 2019). Integrating local resources and community dynamics is critical to implementing circular innovation, which can enhance economic resilience. Emphasis on local ecosystems and engagement supports the sustainability of VOE, as each location has different environmental and social characteristics.

The success of the molen rental business in Sidomulyo Village reflects innovations rooted in local needs.

We used to need molen to build the village office; now we have eight molen, and the business continues to grow. VOE Sidomulyo Manager

This success demonstrates the application of the principle of demand-driven innovation, where business solutions are designed based on the specific needs of local communities. Innovations that fit local needs, even simple ones, can create significant economic impacts for village communities (Kusumastuti et al., 2022). The molen rental business in Sidomulyo also reflects the views of Szetey et al. (2021) on the importance of understanding the dynamics of local needs as a basis for creating relevant and sustainable solutions.

Meanwhile, in Sugih Waras Village, collaborating with farmers to process telang flowers into superior products demonstrates an approach that integrates the agricultural sector with creative entrepreneurship.

The telang flower product is the result of cooperation with village farmers. We process them into drinks and sell them; the results are enough to help the village's income. Manager of VOE Sugih Waras

This approach aligns with agropreneurship, which integrates agribusiness practices with community-based innovations to create new economic value (Syahza et al., 2021). However, the success of innovation in the context of community-based agribusiness is highly dependent on effective collaboration between business managers and local farmers (Martens et al., 2023). By processing local products into value-added goods, VOE Sugih Waras increases village income and encourages local farmers to participate more actively in the value chain.

The local potential-based innovations carried out by the three villages show that understanding the needs and characteristics of the local community is the key to success. In Brubuh, tourism development transformed previously unproductive land into a tourist destination that supports the village economy. In Sidomulyo, the molen rental business shows how local infrastructure needs can be turned into profitable business opportunities. In Sugih Waras, collaboration with local farmers shows how a participatory approach can create synergies that benefit all parties.

These findings support context-sensitive innovation, emphasising that the best innovations are adapted to local conditions and involve communities (Cohen & Levinthal, 1990). The place-based approach is a local circular innovation that focuses on adapting strategies to local dynamics, utilising local resources and fostering community engagement. In addition, the success of these three villages also emphasises the importance of social capital as the foundation of community-based enterprise management, where trust and collaboration are key elements in creating economic sustainability (Purnamasari, 2024). Transparency in local enterprise management strengthens community trust and encourages active participation, an important factor in area-based innovation (Rares et al., 2023).

Synergy with Stakeholders

The synergy between VOE managers, village heads, village officials and the community is the primary foundation for success in managing village businesses. In

Sugih Waras Village, the manager emphasised the importance of collaboration with all stakeholders to ensure that every strategic step receives full support.

We consult every step with the village head and the community so that no one feels left out. VOE Sugih Waras Manager

This approach reflects the concept of collaborative governance, in which decision-making involves various parties to create a sense of shared ownership and legitimacy in policy implementation. Collaboration between communities and local leaders strengthens the accountability and sustainability of village programmes (Abidjulu et al., 2024). Collaboration between business managers and communities also increases the effectiveness of community-based management (Wardana et al., 2022).

In Brubuh Village, synergy with the community can be seen in the management of the tourism land with a profit-sharing system, which creates a sense of collective responsibility.

We invite the community to manage the tourism land with a profit-sharing system. This makes them care more about the VOE business. VOE Brubuh Manager

This profit-sharing model reflects participatory economic practices that position communities as owners and direct enterprise beneficiaries. Participation-based approaches enhance social sustainability and create a community sense of belonging (Aji et al., 2022). In the context of tourism, this approach supports the view of Prihartini and Choiriyah (2024) that community involvement in local asset management strengthens social relationships and supports economic sustainability.

In Sidomulyo Village, moral support from the head of the village was an important catalyst for the managers' confidence.

The head village often gives moral support. It makes us feel more confident. VOE Sidomulyo Manager

This highlights the role of the head of the village's transformational leadership in creating motivation and enthusiasm among managers. Nazari et al. (2024) asserted that transformative leaders play a crucial role in fostering trust and motivation at the local level. Munro (2020) further noted that local leaders who provide moral and emotional support create a more conducive working environment for collaboration and innovation. In the context of VOEs, the head of the village acts not only as a supervisor but also as a strategic partner, providing legitimacy and support to ensure the venture's sustainability.

This finding confirms that good synergy between VOE managers and stakeholders strengthens programme implementation and creates a sense of shared ownership, an important social capital. In Sugih Waras, community involvement in decision-making creates a harmonious relationship between managers and residents, minimising the potential for conflict. In Brubuh, the profit-sharing system encourages community participation while providing direct benefits to them. Meanwhile, in Sidomulyo, the support of the village head demonstrates the important role of local leaders in creating emotional stability and motivation among managers.

The synergy in these three villages aligns with the social capital theory proposed by Putnam (1994), where strong reciprocal relationships among leaders,

managers and communities create an environment that supports collaboration. Frequent interactions and trust between leaders and community members are crucial for developing a shared understanding and a standard narrative, which is essential for effective co-management and collaboration (Koch et al., 2023). Transparency in the management of local enterprises strengthens community trust, which is the foundation for the success of these synergies (Kriyantono et al., 2020; Sari & Prameswari, 2022). However, the success of these synergies also depends on equity in resource management, which encourages active community participation and supports long-term sustainability.

Adaptation to Challenges

The three villages' adaptability is the key to success in facing local challenges. In Sidomulyo Village, limited initial capital was one of the biggest challenges faced by the manager. However, the manager showed the courage to take risks using personal funds.

The initial capital was limited, so we used our own money first. If it fails, we bear it ourselves. VOE Sidomulyo Manager

This practice reflects the principle of entrepreneurial resilience, where entrepreneurs demonstrate resilience in the face of financial difficulties and continue to strive to find solutions. Resilience enables them to overcome challenges by developing dynamic processes aligned with organisational strategy (Malathi & Karpagam, 2024). In the context of community-based enterprises, such as VOE, it has been demonstrated that this willingness to take risks fosters a sense of reliability within the community and encourages local support and participation in the enterprise (Kim et al., 2021).

In Sugih Waras, the challenge of limited human resource capacity was addressed through hands-on field-based training.

We do not always wait for training from the district. We invite them to learn together in the field. Manager of VOE Sugih Waras

This approach aligns with the concept of learning by doing, which emphasises the importance of practical experience in building competence. Matsuo and Aihara (2022) found that hands-on practice-based training enhances horizontal knowledge transfer among community members. Burnett (2006) also documented that communities of practice allow group members to share experiences and create collective knowledge, strengthening village communities' social capital.

Meanwhile, in Brubuh Village, the challenges posed by the pandemic, which caused a decline in the number of tourists, were addressed with a technology-based adaptation strategy. The manager uses social media for promotion while improving facilities to make them more attractive to visitors.

We realize that promotion is important, so we utilize social media to attract visitors. Manager of VOE Brubuh

This strategy shows the manager's understanding of the importance of digital literacy in modern business. According to Gretzel et al. (2020), the ability to utilise social media effectively is the key to success in business adaptation in the digital era. Digital literacy allows micro and small business managers to expand

market access and improve consumer communication (Utomo et al., 2024). In the context of the pandemic, using social media as a promotional tool reflects high adaptability to changes in the business environment.

All three villages show that adapting to local challenges requires courage, creativity and innovation. In Sidomulyo, managers relied on the courage to start a business at personal risk, which laid the foundation for business growth. In Sugih Waras, hands-on training demonstrated the importance of a community-based approach to overcome limited human resource capacity. Meanwhile, in Brubuh, the use of technology for promotion reflects a deep understanding of the importance of digital innovation in overcoming external challenges.

This phenomenon suggests that organisations adapting to environmental changes will have a greater chance of surviving and thriving (Haveman, 1992). The success of these three villages also confirms the importance of agility in village business management, which allows managers to respond to challenges quickly and appropriately (Doz & Kosonen, 2010).

Conclusion

This research highlights that the successful management of VOE in Sidomulyo, Sugih Waras and Brubuh villages relies on adapting to challenges, fostering synergy with stakeholders and innovating based on local potential. Managers' ability to adapt through personal capital, practice-based training and digital promotion reflects the importance of flexibility and resilience in the face of limited capital, human resources and changes in the external environment. A strong synergy among the manager, village head, village officials and the community fosters a sense of shared ownership, thereby strengthening the legitimacy and sustainability of the business. Innovations based on local potentials, such as the development of Kayangan Tourism, molen rental business and telang flower processing, show how local assets can be utilised to create new economic value while improving community welfare.

However, this study has some limitations. Focusing on three specific villages, the research results provide an in-depth understanding of the local context but are not fully generalisable to areas with different characteristics. The phenomenological qualitative approach used provides subjective insights from managers but lacks quantitative data to objectively measure the economic impact of VOE. Additionally, the community's involvement as the programme's ultimate beneficiaries was not thoroughly explored, leaving room for further examination of the community's perception of VOE management.

Based on these findings, future research can expand the geographical coverage to understand the variation of success factors and challenges in different regions. A quantitative or mixed-methods approach is also needed to objectively measure the socio-economic impact of VOE. Supportive local government policies, such as continuous training, incentives for innovation and technical assistance for digital technology development, would be a strategic step to strengthen VOE's sustainability. With these efforts, VOE can be a motor of local economic development and an agent of sustainable social transformation.

Acknowledgements

The authors would also like to thank LPPM Universitas PGRI Madiun for providing good system support so that this research can be carried out correctly.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship and/or publication of this article: The authors received financial support from DRTPM Kemendikbud Ristek for this research with contract number 09/064/PT/N/LPPM/UNIPMA/2024.

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Importance of Rural Non-farm Employment in Sustainable and Inclusive Rural Livelihood

Asia-Pacific Journal of Rural Development
36(1) 64–79, 2026

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DOI: 10.1177/10185291261437207

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Abstract

Diversification in rural employment is key to achieving sustainable and inclusive development. Expanding rural non-farm employment (RNFE) allows the rural workforce to get involved outside the agriculture sector. It helps households to come out of multidimensional poverty. In this article, unit-level data from the Employment and Unemployment Survey and Periodic Labour Force Survey are used to understand structural characteristics and trends of RNFE across socio-economic groups. As far as methodology is concerned, we applied only simple percentage analysis. The key findings unveil that nearly half of the working population actively engages in RNFE. The increasing number of young people participating in RNFE unequivocally shows progress in rural economic activity. Workers aged 30–45 are the most economically productive and mobile group. Furthermore, the growing presence of educated individuals in RNFE underscores its crucial role in the rural economy. Socially, many individuals from lower groups than 'Others' in RNFE demonstrate the inclusive nature of this sector. However, it is a big concern that real wages have declined across genders in 2023–2024 compared to 2017–2018, based on the 2016 base year as per the Reserve Bank of India. Wage disparities between males and females are also evident. The need of the hour is stronger labour market interventions, including better enforcement of minimum wages, expansion of employment schemes like Mahatma Gandhi National Rural Employment Guarantee Act and targeted efforts to formalise casual work, particularly in the non-farm sector.

Keywords

Structural shift, rural employment, tertiarisation, real wages, compound annual growth rate

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Introduction

Rural India is undergoing a silent transformation. While agriculture continues to be the backbone of rural livelihoods, its capacity to absorb the growing labour force and provide sustainable income has increasingly come under stress. Rural development in India has traditionally been associated with the growth of agriculture, yet the increasing limitations of the agricultural sector—such as declining farm sizes, low productivity and vulnerability to climate change—have exposed the need for diversification of rural livelihoods (Chadha, 2005; Himanshu et al., 2016). In this context, rural non-farm employment (RNFE) has emerged as a vital pathway for promoting sustainable and inclusive development. RNFE includes all economic activities in rural areas except crop cultivation, livestock, fishing and hunting, and spans manufacturing, construction, trade, transport and a variety of services (Lanjouw & Lanjouw, 2001).

The importance of RNFE in promoting sustainable and inclusive rural development lies in its potential to diversify rural income, reduce poverty, mitigate rural–urban migration and enhance resilience to agricultural shocks. The growing significance of RNFE is evident from its expanding share in rural income and employment. According to National Sample Survey Office (NSSO) data, the proportion of the rural workforce engaged in non-farm activities has steadily increased over the past few decades, driven by push factors like agrarian distress and pull factors like better wages, skill-based opportunities and proximity to urban centres (Bhalla, 1997; Himanshu, 2011). This shift is crucial not only for income diversification and poverty reduction, but also for reducing regional and social disparities, particularly among women and marginalised groups (Berdegúe et al., 2015). According to the Periodic Labour Force Survey (PLFS) 2022–2023, nearly 40% of the rural workforce in India is now engaged in non-farm employment, up from less than 25% in the early 1990s (Ministry of Statistics and Programme Implementation [MoSPI], 2023). The case for RNFE is especially strong when viewed through the lens of inclusive development. Marginalised social groups, including Scheduled Castes (SC), Scheduled Tribes (ST) and women, often face significant barriers to accessing productive agricultural resources such as land, credit and irrigation. The non-farm sector, particularly in services and small-scale manufacturing, provides relatively lower entry barriers, thereby enabling participation by the socially and economically disadvantaged (Lanjouw & Shariff, 2004). Empirical evidence suggests that RNFE contributes significantly to reducing rural income inequality by offering opportunities for upward mobility, especially in regions with better infrastructure and market linkages (Berdegúe et al., 2015).

Additionally, from a gender-inclusive development lens, women, who often face constraints in agricultural labour due to gender norms and time poverty, find better opportunities in non-farm sectors such as handicrafts, agro-processing, rural retail, education and healthcare. A study by Mukhopadhyay and Tendulkar (2007) observed that the participation of rural women in non-farm employment is associated with greater financial autonomy, better household welfare outcomes, and improved investments in children's education and health. Another key

contribution of RNFE is its potential to promote environmental sustainability. Overdependence on agriculture has led to the unsustainable exploitation of natural resources, including water, soil and forests. Renewable resources and low-carbon technologies based on non-farm activities (e.g., solar-based services, rural tourism and eco-friendly crafts) offer a path to decouple rural economic growth from ecological degradation (Rigg et al., 2018). Further, RNFE can support climate resilience by offering alternative income streams when agriculture fails due to erratic rainfall, pest outbreaks or other climate-related shocks. RNFE has a spatially redistributive effect. Household-based and small-scale enterprises encourage local value addition and help stem distress migration to urban centres. The geographical remoteness of rural manufacturers is decreasing with the rise of connectivity, e-commerce and digitisation, collectively creating scope for rural entrepreneurship and integration into broader supply chains (Binswanger-Mkhize, 2012). States like Kerala, Himachal Pradesh and Punjab have demonstrated how well-targeted rural industrial policies and investments in human development can spur rural non-farm growth with inclusive outcomes (Chadha, 2005). However, despite its growing significance, the non-farm sector in rural India is marked by informality, low productivity and vulnerability to shocks. A substantial proportion of RNFE is concentrated in low-end services and casual labour, often without job security, social protection or avenues for skill upgrading (Mehrotra et al., 2014).

Given these dynamics, the present study seeks to critically examine the role and importance of RNFE in promoting sustainable and inclusive rural development in India. The analysis focuses on two key dimensions: first, the structural characteristics and trends of RNFE across socio-economic groups and finally, the challenges and policy priorities needed to unlock the transformative potential of the rural non-farm sector.

In this study, we used national representative Employment and Unemployment Survey (EUS) and PLFS unit-level data collected by NSSO, Ministry of Statistics and Programme Implementation, Government of India. As far as methodology is concerned, the present study used simple percentage analysis.

Rural Employment and Non-farm Sector

In this section of the study, we will explain the status of the non-farm sector in rural employment during 2004–2005 to 2023–2024 across the socio-economic and demographic groups.

Figure 1 presents the percentage distribution of non-farm employment in India among males, females and the overall rural workforce over three distinct time periods: 2004–2005, 2017–2018 and 2023–2024. The data demonstrate a significant and consistent shift of the rural labour force away from agriculture towards non-farm sectors, indicating structural transformation in rural India. From 2004–2005 to 2023–2024, the proportion of the rural workforce engaged in non-farm activities increased markedly—from 30.19% to 51.44%, reflecting a 21.25-point rise over two decades. This upward mobility signifies a gradual but sustained diversification of rural livelihoods, driven by structural changes in the

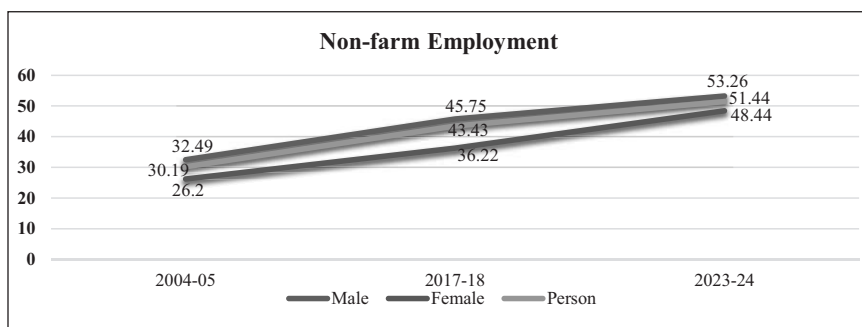


Figure 1. Share of Non-farm in Rural Employment (2004/2024).

Source: Authors' calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

rural economy, such as mechanisation of agriculture, rural infrastructure development, urbanisation spillovers and increased educational attainment. The share of rural males in non-farm employment rose from 32.49% in 2004–2005 to 53.26% in 2023–2024, an increase of 20.77% points. The sharp increase between 2004–2005 and 2017–2018 (13.26% points) and continued momentum thereafter suggest that males have been the early beneficiaries of emerging opportunities in sectors such as construction, rural transport, trade and manufacturing. Female participation in non-farm employment has increased from 26.20% in 2004–2005 to 48.44% in 2023–2024, indicating a substantial rise of 22.24% points. Notably, the growth in non-farm employment for females between 2017–2018 and 2023–2024 (an increase of 12.22% points) has outpaced that of males (7.51% points) during the same period. This trend highlights the increasing integration of rural women into diversified economic activities, possibly facilitated by the expansion of rural services, microenterprises, self-help groups (SHGs) and digital platforms. While a gender gap in non-farm employment persists, it has narrowed over time. In 2004–2005, the gap between male and female participation stood at 6.29% points. By 2023–2024, this gap reduced to 4.82% points, suggesting a gradual shift towards greater gender inclusivity in rural labour markets. This convergence may also reflect policy interventions such as rural skilling programmes, gender-targeted livelihood missions (e.g., NRLM), and improved access to rural credit and markets. The data underscore the growing importance of the rural non-farm sector as a driver of inclusive and sustainable development. The steady rise in non-farm employment reflects both ‘push’ factors—such as stagnation in agriculture and land scarcity—and ‘pull’ factors—such as better earnings, improved rural infrastructure and rising demand for services. The evidence presented in Figure 1 clearly reflects that RNFE is not only expanding but also becoming more inclusive. As rural India continues its demographic and economic transition, the non-farm sector will likely play an even more prominent role in shaping the future of rural livelihoods and in achieving the twin goals of sustainable and inclusive rural development.

Figure 2 illustrates the changes in the share of the rural workforce engaged in farm employment (agriculture and allied activities) across three time points—2004–2005, 2017–2018 and 2023–2024—disaggregated by gender. The data reveal a pronounced and steady decline in the proportion of both male and female workers engaged in agriculture, signalling a structural shift in the rural economy. The share of the rural population employed in the farm sector declined from 69.81% in 2004–2005 to 48.56% in 2023–2024, a substantial reduction of over 21 percentage points. This downward trend indicates a fundamental transformation in the structure of rural employment. While agriculture remains a critical sector for rural livelihoods, it no longer absorbs the majority of the rural workforce. The decline is consistent with historical patterns of economic development where labour shifts from the primary (agriculture) to the secondary (industry) and tertiary (services) sectors. In India's case, however, this transition has occurred within the rural space itself, reflecting a rise in RNFE and growing diversification of rural livelihoods. Farm employment among rural males decreased from 67.51% in 2004–2005 to 46.74% in 2023–2024, marking a decline of 20.77 percentage points over two decades. This is indicative of a significant outflow of male labour from agriculture, primarily towards construction, trade, transport and other informal non-farm activities, particularly in peri-urban and growth corridor regions (Bhalla, 2005). The trend reflects the declining relative returns from agriculture compared to rural non-farm alternatives. Female participation in farm employment also witnessed a notable decline, from 73.80% in 2004–2005 to 51.56% in 2023–2024, a drop of 22.24 percentage points. This pattern reveals two important dynamics: first, agriculture is no longer the overwhelmingly dominant source of female rural employment. Second, rural women are increasingly entering non-farm sectors such as home-based enterprises, handicrafts, rural services (e.g., health, education) and SHG-led microenterprises.

Although women have traditionally been overrepresented in agricultural labour, their growing participation in non-farm activities (as supported by the corresponding rise in female non-farm employment) suggests an ongoing transformation in the gender division of rural labour, aided by rural livelihood

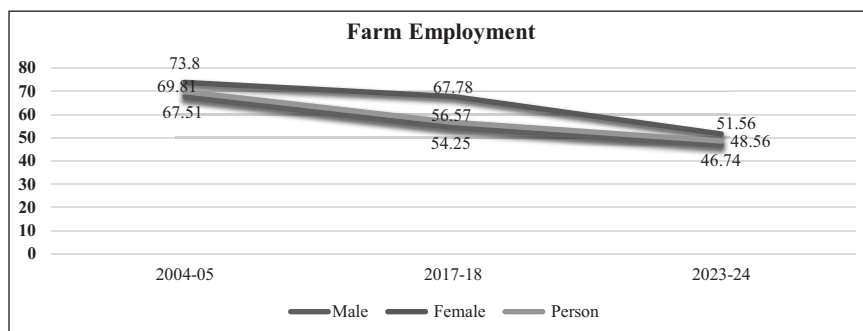


Figure 2. Share of Farm (Agricultural) in Rural Employment (2004/2024).

Source: Authors' calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

missions and targeted skilling programmes (Desai et al., 2015). In 2004–2005, the gender gap in farm employment was 6.29% points (female participation higher than male). By 2023–2024, this gap narrowed to 4.82% points, indicating a gradual convergence. However, women still remain more concentrated in agriculture than men, which could be reflective of limited mobility, persistent gender norms and barriers to skill acquisition. This makes the feminisation of agriculture a continuing but complex phenomenon (Agarwal, 2012). The data from Figure 2 confirms the ongoing rural employment transition in India, with a steady shift away from agriculture for both men and women. While this trend is consistent with patterns of structural transformation globally, its success depends on the ability of the rural economy to generate adequate, productive and inclusive non-farm employment opportunities. The rural policy agenda must therefore prioritise integrated rural development strategies that balance agricultural revitalisation with non-farm sector growth, especially in the context of sustainability, demographic pressures and gender equity.

Age Composition of Non-farm Workers in Rural India

Table 1 presents the distribution of non-farm workers in India across five age categories for the years 2004–2005, 2017–2018 and 2023–2024. The composition of age groups among rural non-farm workers offers key insights into the demographic dynamics of India’s rural labour market and the changing profile of employment over time. The proportion of non-farm workers below the age of 15 has significantly declined from 1.68% in 2004–2005 to 0.49% in 2023–2024. This is a positive development and aligns with the broader national and international commitments to eliminate child labour, including India’s ratification of ILO conventions on the minimum age of work and the worst forms of child labour. The reduction reflects the effectiveness of policies such as the Right to Education Act (2009), expansion of schooling infrastructure, mid-day meal schemes and stricter enforcement of child labour laws.

Youth (15–29 years) constitute a significant share of the non-farm workforce, although their proportion has declined slightly from 33.89% in 2004–2005 to 30.97% in 2023–2024. This relative decline does not imply an absolute fall in youth participation but indicates that middle-aged cohorts have grown at a faster

Table 1. Age Composition of Non-farm Workers.

Age Category	2004–2005	2017–2018	2023–2024
Below 15	1.68	0.43	0.49
15–29	33.89	30.82	30.97
30–45	43.37	46.09	44.59
46–60	17.01	19.25	19.51
Above 60	4.05	3.4	4.45

Source: Authors’ calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

rate within the non-farm sector. The consistent presence of youth in non-farm employment highlights the sector's role in absorbing new entrants to the labour force, particularly in sectors such as construction, retail, transport and informal services. However, the moderate decline may also reflect the growing trend of youth pursuing higher education or facing barriers to decent employment due to skill mismatches (Mehrotra et al., 2014). The largest segment of non-farm workers belongs to the 30- to 45-year age group, increasing from 43.37% in 2004–2005 to a peak of 46.09% in 2017–2018, and slightly decreasing to 44.59% in 2023–2024. This age group is typically the most economically productive and mobile. Their increasing presence in the non-farm sector suggests that mature working-age individuals are diversifying away from agriculture, seeking more stable or better-paying opportunities in rural enterprises and wage employment. This age profile also indicates that non-farm employment is not limited to informal, low-skilled jobs for youth but includes adults potentially engaged in more skilled or entrepreneurial roles, such as shopkeeping, carpentry, local services and rural microenterprises. The share of workers aged 46–60 rose from 17.01% in 2004–2005 to 19.51% in 2023–2024, indicating that older rural workers are increasingly participating in or shifting to non-farm work. While youth continue to be a vital part of the sector, there is a growing share of middle-aged and older workers. This evolving demographic structure points to the resilience and adaptability of rural labour markets and underscores the importance of age-responsive policy design to promote inclusive and sustainable non-farm employment.

Caste Composition of Non-farm Workers in Rural India

In the present study, caste and social group are synonymous. The caste-wise distribution of rural non-farm workers over the three time points—2004–2005, 2017–2018 and 2023–2024—shows a clearly consistent trend: marginalised social groups (SC and ST), along with Other Backward Classes (OBC), have increasingly participated in non-farm employment. This reflects a gradual structural shift in rural employment and points to some degree of occupational mobility among historically disadvantaged communities.

The participation of ST in non-farm employment rose sharply from 19.67% in 2004–2005 to 41.10% in 2023–2024, representing an increase of over 21% points. This trend is significant, may be because of several reasons: first, ST communities have traditionally been over-represented in primary sector activities, particularly forest-based livelihoods and marginal agriculture. Second, their increasing participation in non-farm employment suggests a diversification of income sources, likely due to agricultural distress, land degradation and displacement from traditional territories (Xaxa, 2014). Finally, this also indicates greater integration of tribal populations into the rural and peri-urban informal economy, especially in sectors like construction, transport and public employment schemes (e.g., Mahatma Gandhi National Rural Employment Guarantee Act [MGNREGA]). However, the quality and security of this non-farm employment for ST remain a concern, as many are concentrated in low-wage, low-skill jobs with limited social protection.

SC show the most significant rise in non-farm employment participation, from 32.96% in 2004–2005 to 58.02% in 2023–2024—a growth of over 25% points. Despite this progress, significant challenges remain in terms of caste-based discrimination in labour markets, underrepresentation in skilled or formal-sector non-farm jobs, and vulnerability to exploitation in the informal sector (Jodhka, 2010). OBC's participation in non-farm employment increased from 30.74% in 2004–2005 to 51.85% in 2023–2024, marking a substantial 21.11% point growth. This upward trend is partly reflective of OBC's intermediate social status and their relatively higher access to land and education compared to SC and ST, which facilitates easier movement into non-farm self-employment and petty enterprises. The impact of caste-based reservation in education and public employment, combined with rural-to-urban migration patterns and growing aspirations of rural youth from OBC backgrounds. OBC continue to dominate many informal non-farm occupations, particularly in trading, transport, small manufacturing and semi-skilled service activities. The general category (non-SC/ST/OBC) workers also experienced an increase in non-farm employment, from 32.04% in 2004–2005 to 50.95% in 2023–2024. However, their rate of growth is slightly slower compared to SC and ST. It may be due to two reasons: first, many individuals in the general category are relatively better positioned in formal or white-collar employment, and second, a relatively smaller population of them is based in rural areas. Still, their substantial share in rural non-farm jobs suggests the broad-based nature of this employment shift, transcending caste lines—though significant disparities in job quality, earnings and social mobility likely persist. SC and ST, in particular, have made substantial inroads into the non-farm sector. SC and ST, in particular, have made substantial inroads into the non-farm sector. This change holds promise for reducing caste-based occupational rigidity and promoting inclusive rural development. However, ensuring equitable access to quality employment, training, finance and markets remains crucial for translating this quantitative shift into sustained social mobility and economic empowerment.

Education Composition of Non-farm Workers in Rural India

Table 2 represents the caste-wise distribution of rural non-farm workers over the three time points—2004–2005, 2017–2018 and 2023–2024—shows a clearly consistent trend: marginalised social groups (SC and ST), along with Other Backward Classes (OBC), have increasingly participated in non-farm employment.

Table 2. Caste Composition of Non-farm Worker.

Social Group	2004–2005	2017–2018	2023–2024
Scheduled Tribes (ST)	19.67	29.64	41.10
Scheduled Castes (SC)	32.96	47.40	58.02
Other Backward Classes (OBC)	30.74	45.05	51.85
Others	32.04	44.91	50.95

Source: Authors' calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

Table 3. Education Composition of Non-farm Workers.

General Education	2004–2005	2017–2018	2023–2024
Up to primary	62.59	40.91	39.04
Middle	16.72	23.14	23.38
Secondary	9.07	13.87	13.14
Higher secondary	4.74	9.76	11.42
Graduate and above	6.89	12.31	13.03

Source: Authors’ calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

Table 3 presents the changing educational profile of non-farm workers in India over three key periods: 2004–2005, 2017–2018 and 2023–2024. The data illustrate a significant transformation in the composition of the rural workforce employed outside agriculture, with growing educational attainment, albeit at an uneven pace. In 2004–2005, nearly two-thirds (62.59%) of non-farm workers had educational attainment only up to the primary level. By 2023–2024, this figure declined sharply to 39.04%. This 23.55% point drop reflects broad improvements in educational access due to policy interventions like the Sarva Shiksha Abhiyan (SSA) and the Right to Education (RTE) Act, 2009 (Mehta, 2012). However, the fact that nearly 4 in 10 non-farm workers still have education up to only the primary level in 2023–2024 signals persisting barriers to quality education for marginalised communities (ASER, 2023). The proportion of workers with middle (Classes 6–8) and secondary (Classes 9–10) education increased from 16.72% to 23.38% and from 9.07% to 13.14% between 2004–2005 and 2023–2024, respectively. These shifts indicate a gradual upgrading of human capital, potentially driven by expanding school infrastructure and mid-day meal schemes that reduced dropout rates at the elementary level (Drèze & Kingdon, 2001).

The most notable rise is in the share of non-farm workers with higher secondary and graduate and above qualifications. The share of higher secondary-educated workers more than doubled from 4.74% in 2004–2005 to 11.42% in 2023–2024. The proportion of graduates and above also increased from 6.89% to 13.03%, indicating a slow but steady professionalisation of the non-farm labour force. These trends may be attributed to the rapid expansion of higher education institutions, particularly private colleges, under the Rashtriya Uchchatar Shiksha Abhiyan (RUSA) and growing aspirations among rural youth for white-collar employment (Agarwal, 2009; NSSO, 2017-18).

The gradual shift in educational attainment suggests that non-farm sectors are increasingly absorbing better-educated workers. However, the persistent high share of workers with only primary or middle education may reflect the prevalence of low-skilled and informal employment within the RNFE (Lanjouw & Murgai, 2009). This duality raises concerns about the quality of employment being generated in rural areas—suggesting that educational gains have not yet been matched by commensurate employment opportunities. Policies like Skill India, Pradhan Mantri

Kaushal Vikas Yojana (PMKVY) and Digital India have attempted to bridge this gap, but their effectiveness remains mixed due to mismatches between skills and market demand (International Labour Organization [ILO], 2020).

Sectoral/Industrial Composition of Non-farm Workers in Rural India

Table 4 illustrates the changing pattern of RNFE in India over the past two decades, highlighting gender-based sectoral shifts between 2004–2005 and 2023–2024. The analysis reveals significant structural changes in the rural labour market, with notable movements from primary activities towards the secondary and tertiary sectors, particularly among men.

The share of rural non-farm workers engaged in primary sector activities (such as agriculture-related and allied work) declined from 70.07% in 2004–2005 to 56.27% in 2023–2024. The decline is more pronounced among men (from 67.74% to 48.37%) than women (74.12% to 74.28%, nearly stagnant). This trend reflects the declining dependency on the primary sector through push factors such as low agricultural productivity, land fragmentation and climate-related stress (Chand et al., 2017), alongside pull factors like expanding non-farm opportunities, especially in construction and services (Lanjouw & Murgai, 2009).

The secondary sector's share (including manufacturing, construction, utilities) almost doubled from 14.63% to 22.63% overall, driven by a significant rise in

Table 4. Distribution of Rural Non-farm Employment.

Sector/Industrial Composition	2004–2005			2023–2024		
	Male	Female	Person	Male	Female	Person
Primary	67.74	74.12	70.07	48.37	74.28	56.27
Secondary sector	14.99	14.02	14.63	27.25	12.12	22.63
Mining and quarrying	0.7	0.71	0.7	0.3	0.06	0.23
Manufacturing	7.46	7.23	7.37	8.27	8.62	8.38
Electricity, gas and water	0.32	0.2	0.28	0.51	0.15	0.4
Construction	6.51	5.88	6.28	18.16	3.29	13.62
Tertiary sector	17.28	11.86	15.3	24.38	13.6	21.09
Trade, hotels and restaurants	7.67	4.86	6.64	11.03	4.72	9.1
Transport and communication	3.6	2.32	3.14	6.11	0.2	4.31
Other services	6.01	4.68	5.52	7.24	8.69	7.68
Total non-farm	32.49	26.2	30.19	53.26	48.44	51.44

Source: Authors' calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

Note: These bold values are just to show the share of major economic sectors (i.e., primary, secondary, and tertiary) and to differentiate them by classification of industries (i.e., mining and quarrying, manufacturing, etc.). The values for total non-farm in the table represent the sum of the secondary and tertiary sectors in their respective columns.

construction employment among men—from 6.51% in 2004–2005 to 18.16% in 2023–2024. This growth aligns with increased infrastructure spending, MGNREGA implementation and a construction boom in peri-urban areas (Himanshu et al., 2016). However, women's participation in construction dropped sharply (from 5.88% to 3.29%), indicating persistent gender segmentation in labour markets. The manufacturing share saw only a marginal increase (from 7.37% to 8.38%), with women's participation slightly higher than men's in 2023–2024 (8.62% vs 8.27%). This may reflect their concentration in low-wage, home-based manufacturing activities such as textiles, food processing and handicrafts (Chen, 2001). Tertiary sector employment expanded from 15.30% in 2004–2005 to 21.09% in 2023–2024, indicating the growing importance of services like retail, transport, education, health and informal service work in rural India. Trade, hotels and restaurants: grew from 6.64%–9.10%, driven by rising rural consumption and the expansion of retail. Transport and communication witnessed strong growth for males (from 3.6% to 6.11%) but stagnation for females (from 2.32% to 0.2%), showing limited female mobility and gender norms restricting access. Other services (e.g., education, domestic work, health, public administration) saw a rise, particularly among women (from 4.68% to 8.69%). These shifts underscore the gradual tertiarisation of the rural economy, although gender disparities persist due to differences in social norms, mobility and access to skilling (Desai et al., 2018).

Earnings and Wages of Non-farm Workers

Wages and earnings are critical determinants of the well-being and socio-economic mobility of rural labour in India. For a vast majority of rural households, especially those engaged in casual labour or in the informal sector, labour income constitutes the primary—often the sole—source of livelihood. Adequate and stable earnings are essential not only for meeting basic consumption needs but also for enabling investments in health, education and productive assets, thereby breaking the cycle of intergenerational poverty (ILO, 2018). Rising real wages are often considered an indicator of labour market health and rural prosperity (Chand et al., 2017). Conversely, stagnant or declining wages can exacerbate distress migration, food insecurity and social exclusion, particularly for women and marginalised castes who often face wage discrimination (Desai et al., 2018).

This section of the present study primarily focused on a comparative analysis of wages for regular workers and earnings for self-employment between farm and non-farm workers in rural areas during the study period. To compare wages and earnings over the period of time, the present study changed nominal wages to real wages using the Consumer Price Index for rural on base 2016 provided by the Reserve Bank of India.

Table 5 presents the real monthly wages (in 2016 base year rupees) of regular salaried workers in the farm and non-farm sectors from 2017–2018 to 2023–2024, disaggregated by gender. The data reveal a contraction in real wages across both sectors and genders, highlighting emerging vulnerabilities in the rural

Table 5. Real Wages of Regular Workers for Farm and Non-farm Sector.

Category	Farm			Non-farm		
	2017–2018	2023–2024	CAGR	2017–2018	2023–2024	CAGR
Male	7,109	5,944	–2.94	13,346	10,418	–4.04
Female	4,053	3,751	–1.28	9,053	7,014	–4.16
Person	6,129	5,094	–3.04	12,539	9,662	–4.25

Source: Authors' calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

Note: CAGR: Compound annual growth rate.

labour market. The compound annual growth rate (CAGR) for regular workers' wages during 2017–2018 to 2023–2024 is negative across all categories: In the farm sector, the overall wage declined at a CAGR of –3.04%, with male earnings falling more sharply (–2.94%) compared to females (–1.28%). In the non-farm sector, the decline was steeper, with a CAGR of –4.25% for all workers, and over –4% for both men and women. This decline points to the erosion of purchasing power, partly due to post-pandemic wage stagnation, inflationary pressures and slow recovery in rural employment (ILO, 2023; Mehrotra, 2023). Despite the decline, non-farm regular jobs still offer significantly higher wages than farm sector employment: In 2023–2024, male non-farm regular workers earned ₹10,418, compared to ₹5,944 in farm work. For women, the differential was ₹7,014 (non-farm) versus ₹3,751 (farm). This wage differential underscores the economic incentive for rural labour to transition to non-farm employment, aligning with broader patterns of rural diversification (Lanjouw & Murgai, 2009). However, the rate of decline is sharper in the non-farm sector, suggesting worsening employment quality or rising informalisation even in salaried rural work. The sharper decline in women's non-farm wages (–4.16%) signals a disproportionate impact of economic shocks on female employment, possibly due to concentration in low-wage, vulnerable occupations like domestic work, tailoring or private teaching.

Table 6 presents real earnings (adjusted to the 2016 base year) for self-employed workers in both farm and non-farm sectors, disaggregated by gender, for the years 2017–2018 and 2023–2024, along with the CAGR. The data highlight a concerning trend: a consistent decline in earnings across both sectors and genders, indicating a deterioration in the quality of rural self-employment. This sustained erosion reflects underlying stress in both agriculture and rural enterprise. The decline coincides with post-COVID economic disruptions, input cost inflation and demand stagnation, particularly affecting small and marginal producers (ILO, 2023; Mehrotra, 2023). Contrary to expectations, non-farm self-employment—which traditionally offered higher earnings than farm work—has seen a steeper earnings decline: non-farm earnings fell from ₹8,557 to ₹6,539 (–4.38% CAGR), while farm earnings declined from ₹7,925 to ₹6,465 (–3.34% CAGR). Male earnings in non-farm self-employment, although higher than farm, also fell at a faster rate. This reversal may reflect the rising saturation of rural markets,

Table 6. Earnings of Self-employed for Farm and Non-farm Sector.

Category	Farm			Non-farm		
	2017–2018	2023–2024	CAGR	2017–2018	2023–2024	CAGR
Male	8221	7514	–1.49	9562	8585	–1.78
Female	4628	3248	–5.73	3257	2249	–5.98
Person	7925	6465	–3.34	8557	6539	–4.38

Source: Authors' calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

Note: CAGR: Compound annual growth rate.

Table 7. Real Wages of Casual Workers for Farm and Non-farm Sector.

Category	Farm			Non-farm		
	2017–2018	2023–2024	CAGR	2017–2018	2023–2024	CAGR
Male	226	184	–3.38	287	222	–4.14
Female	161	134	–3.07	186	155	–2.99
Person	204	163	–3.68	278	217	–4.06

Source: Authors' calculation based on Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS), National Sample Survey Office (NSSO).

Note: CAGR: Compound annual growth rate.

particularly in retail and services, as well as increasing competition from urban supply chains and e-commerce, and a lack of scale and productivity-enhancing support for microenterprises.

Table 7 provides critical insight into the real daily wages (in 2016 base year rupees) of casual workers employed in both farm and non-farm sectors over the period 2017–2018 to 2023–2024, disaggregated by gender. The data reveal a consistent decline in real wages across all categories, indicating worsening conditions in the rural labour market for casual labour. In the farm sector, both male and female casual workers experienced a decline in real wages from ₹226 to ₹184 and from ₹161 to ₹134 in 2017–2018 and 2023–2024, recording a CAGR of –3.38% and –3.07%, respectively. However, female wages were already significantly lower. In the non-farm sector, the decline was even more pronounced for men, whose wages fell from ₹287 to ₹222 (CAGR: –4.14%). For women, non-farm wages declined from ₹186 to ₹155 (CAGR: –2.99%). On average, the real daily wage for casual workers in non-farm employment declined from ₹278 to ₹217, registering a CAGR of –4.06%. These declining trends in real wages for casual workers—across both sectors and genders—suggest increasing informality, underemployment and lack of wage growth in the rural economy. The findings raise concerns about the diminishing returns to unskilled rural labour, especially in a period marked by rising inflation and economic volatility following COVID-19, and underscore persistent gender wage disparities.

This pattern of wage stagnation and decline signals the urgent need for stronger labour market interventions, including better enforcement of minimum wages, expansion of rural employment schemes like MGNREGA and targeted efforts to formalise casual work, particularly in the non-farm sector. The declining wage trajectory undermines rural consumption and may also contribute to distress migration and increased vulnerability among the rural poor (ILO, 2023; Mehrotra, 2023).

This article has examined the expanding role of RNFE in shaping sustainable and inclusive rural livelihoods in India, drawing on unit-level data from the EUS and PLFS spanning two decades (2004–2005 to 2023–2024). The findings clearly establish that rural India is undergoing a significant structural transformation, marked by a steady shift of labour away from farm towards non-farm activities within rural areas. By 2023–2024, more than half of the rural workforce was engaged in non-farm employment, underscoring the growing importance of RNFE as a central pillar of rural development.

The analysis highlights essential demographic and social dimensions of this transition. RNFE has increasingly absorbed youth and other prime working-age adults, indicating its role in providing livelihood options beyond agriculture. Equally significant is the rising participation of SC, ST, OBC and women, suggesting a gradual weakening of traditional occupational rigidities and pointing towards the inclusive potential of the non-farm sector. Improvements in educational attainment among non-farm workers further signal an ongoing, though uneven, upgrading of rural human capital. It may be because urban agglomeration and educational tertiarisation are characterised by gender segmentation and informality.

However, the article also discussed critical challenges. Real wages and earnings in both farm and non-farm employment have declined in recent years, with sharper contractions in the non-farm sector and persistent gender wage gaps. It raises concerns about the quality, stability and sustainability of RNFE-oriented growth. Overall, while RNFE has emerged as a vital pathway for diversification, poverty reduction and social inclusion, its transformative potential can only be realised through supportive policies. Ongoing structural shifts towards decent, resilient and inclusive rural livelihoods must be ensured through the strengthening of rural labour market institutions by making statutory laws, enforcement of minimum wages, diversification and expansion of public employment programs, promotion of in situ skill development and training, and formalisation of rural non-farm activities.

Acknowledgement

The authors would like to thank a fellow researcher for her valuable comments and careful review of the manuscript, which helped improve its clarity and accuracy.

Data Availability

The data used in the present study have been obtained from the public repository of the National Sample Survey, Ministry of Statistics and Programme Implementation. Anyone

requiring the data can access them from the website <https://microdata.gov.in/NADA/index.php/home> by creating an account and providing a brief description of its intended use.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

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Financial Performance of Microfinance Institutions in Afghanistan Amid COVID-19 and Political Instability

Asia-Pacific Journal of Rural Development
36(1) 80–96, 2026

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DOI: 10.1177/10185291261438603
journals.sagepub.com/home/jrd



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Abstract

This study aims to analyse the financial performance of microfinance institutions (MFIs) in Afghanistan for an extremely unstable period, for the financial years of 2014–2015 to 2023–2024, to address significant political instability and the COVID-19 pandemic. Using panel data from the top larger MFIs in Afghanistan, the study looks at the effects of internal institutional characteristics on the return on assets (ROA), which is an indicator of financial sustainability. Panel regression techniques are employed to analyse the relationships between these factors and institutional performance. The findings indicate that branch expansion enhances ROA; therefore, increasing branches led to greater profitability, even amid political instability and uncertain conditions. While the gross loan portfolio had a negatively significant effect on financial performance, this finding indicates that quality and assessing the associated risk of the loan portfolio may be challenging. Total income and the number of active borrowers were less significant or impactful variables. Overall, the findings indicate that MFIs encountered financial problem and even some of them led to stop their services, moreover, highlighting the need for risk-adapted progress and efficient portfolio control to maintain the financial viability of MFIs working especially in fragile or crisis-affected economies.

Keywords

Microfinance, financial performance, Afghanistan, microfinance institutions, Microfinance Investment Support Facility for Afghanistan, Afghanistan Microfinance Association

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Introduction

Microfinance Institutions in Afghanistan

The visibility and power of Afghanistan's microfinance institutions (MFIs) have increased over the past 20 years. In Afghanistan, MFIs have been critical to facilitating poverty reduction and enhancing rural life. With multiple institutions that provide financial services to millions of households, the microfinance sector has greatly expanded over the last 20 years. Microfinance has positive impacts on employment and income, although the impact on women's empowerment and poverty reduction is less straightforward (Hemat & Rahman, 2024). The microfinance sector was able to move forward a significant step with the establishment of the Microfinance Investment Support Facility for Afghanistan (MISFA) in 2003. The MISFA aims to help provide poverty relief, develop financial autonomy and provide humanitarian assistance to people in Afghanistan by managing and supporting the provinces of Afghanistan's MFIs. The MISFA is a project that takes a mixture of different types of donor money and brings it into organised funds and flexible assistance; the primary beneficiaries of such funds are Afghanistan's MFIs (Sultani & Rahman, 2023). The Afghanistan Microfinance Association (2023, June 1) is the country's national network of Development Finance Institutions (DFIs). It was founded in 2005 by the MISFA, microfinance specialists and other participants, and in 2007, AMA was given approval by Afghanistan's Ministry of Justice (AMA, 2023). The banking and non-banking financial sectors make up Afghanistan's financial system. Afghanistan's financial organisations, such as the Da Afghanistan Bank (DAB), face four major obstacles: a lack of an up-to-date legal and regulatory framework for banking operations; inexperienced executives and technical employees; the absence of any banking operating systems; and weak payments made through communication networks. These limitations severely limit the formal financial sector's capacity to offer the general public, non-governmental organisations, businesses, cross-border and multilateral organisations, and governmental institutions efficient and dependable financial services, particularly both local and global systems of payment (Şahin & Humta, 2023).

As of December 2019, there are nine MFIs in existence in Afghanistan, which hold a total loan portfolio of 9,607,678,446 AFN. These institutions in total have approximately 423,357 clients, 150,509 of which are active borrowers, which includes around 37% women and 2,670 staff members working from their offices in different provinces (Sultani, 2021). These MFIs provide very useful financial services to marginalised groups with an emphasis on women's economic self-sustainability and financial access. The COVID-19 pandemic has affected the private education sector and MFIs in Afghanistan, leading to financial losses and discontinuity of educational activities. While these continue to be issues, factors that determine the financial success of MFIs, such as institutional characteristics, interest rate charges, the length of operations in the market, profitability and sustainability, are incorporated as a part of the environment (Ibrahim et al., 2018).

The aim of this study is to investigate the financial performance of MFIs in Afghanistan during the unstable time of political instability and the COVID-19 pandemic.

Selected Microfinance Institutions

This study is limited to five MFIs in Afghanistan. They accounted for a large part of the microfinance sector in Afghanistan, which has financial services mostly in rural and semi-urban areas.

1. The First Microfinance Bank (FMFB).
2. Foundation for International Community Assistance (FINCA).
3. Mutahid Development Finance Institution.
4. OXUS-Afghanistan.
5. Aga Khan Development Network.

For the purposes of this study, given the need to evaluate the MFI operations that operate in Afghanistan in each of the dimensions of the microfinance practices, the MFIs were selected based on being a part of the microfinance sector while also offering relevant insights into the performance indicators selected. Some variety in relation to the MFIs with respect to characteristics, distribution area and recent performance is needed to study microfinance in this way.

Literature Review

Challenges Impacting Microfinance Institutions

There are several challenges that affect the way in which MFIs operate and their effectiveness. In Tanzania, some of the problems that hinder group lending models include lack of trust, group dynamics and operational complexities, leading to conflicts and imbalanced participation (Magambo, 2024). Similarly, governance challenges are also encountered in Bangladesh as they attempt to reconcile poverty reduction and ensure that MFIs in the country are on a financially sustainable footing through strategic improvements that would increase MFI performance (Uddin, 2024). MFI sustainability in China is influenced by factors such as operating technology, the external environment and financial conditions that are critical for economic performance but less critical for operational sustainability (Li et al., 2023). Furthermore, macro- and micro-challenges, including legal barriers and high transaction costs, restrict access to microfinance for the rural population in India (Das, 2023). Sultani and Rahman (2023), in their study, aimed to clarify the difficulties faced by MFIs in Afghanistan. Although this issue set was described via a descriptive and principal component analysis approach, research on this topic yielded nine distinct components. Many problems plague microfinance organisations; in addition to the difficulty with technology, inadequate government support, a lack of administrative and skilled staff and the rise of harmful rivalry across various MFIs are the main challenges.

Influence of Exterior Shocks on Microfinance Institutions

External variables such as regulatory concerns had a major effect on loan defaults inside MFIs, outweighing other factors such as financial infection and recessions, which were shown to be statistically minimal in a Cameroonian situation (Fotabong, 2016). MFIs in Uganda demonstrate resistance in the face of major shocks such as conflicts and natural catastrophes, suggesting their importance in economic wellness; however, their financial structure remains crucial for stability (Sekabira, 2013). Furthermore, in Pakistan, tactical failures by borrowers were worsened by insufficient enforcement measures, especially amid correlate shocks such as the 2005 earthquake, underscoring MFIs' sensitivity to outside influences (Kurosaki & Khan, 2012). In Bolivia, MFIs' capacity to handle liquidity risk under instability in politics was linked to institutional and subjective benefits, implying that outside factors do not affect all MFIs similarly (Soto, 2007). Research by Assefa et al. (2013) sought to understand how market competition affects the efficiency of microfinance organisations' operations. This study tested the hypothesis that MFIs' outreach and loan repayment rates were impacted by the amount of competition among them using a Lerner index. Using data from 362 MFIs in 73 nations, the study ran from 1995 to 2008. Microfinance competition has been on the rise for the past decade, says one report. Results from econometric analysis showed that competition among MFIs has a detrimental effect on outreach and repayment rates.

Performance Indicators for Microfinance

MFIs performance measures include both financial and social components, indicating their twin aims of revenue and social operation. Portfolio value, funding sources, operating expenditures and institution size are important financial variables for analysing fiscal viability and outreach success (Green et al., 2023). The impact of microfinance on income and employment in Afghanistan's Bamyan province was studied by Sultani (2021). The First Microfinance Bank of Afghanistan (FMFB-A) is an institution that collaborates with the AMA and the MISFA. The study focuses on this particular set of 220 borrowers. Microfinance significantly contributes to income development and job creation, according to a study that meticulously analyses data obtained before and after FMFB-A loans were granted (Şahin & Humta, 2023). They looked into microfinance in the banking sector as part of their study, bringing attention to the importance of this form of financing in filling a big funding gap for businesses in developing nations. The International Finance Corporation (IFC) had previously brought this requirement to visibility. In their analysis of the current microfinance literature, Gupta (2018) claims that they shed light on certain important issues. They highlighted the methods employed by Indian banks and MFIs to deal with the scarcity of capital by means of mechanisms like joint liability groups (JLGs) and self-help groups (SHGs). Among all microfinance programmes, Gupta regarded SHG-BLP as the most crucial one globally. The analysis conducted by Gupta thoroughly examined the growth and effects of MFIs, with a special emphasis on lending portfolios and

existing loans, by making extensive use of secondary data from academic journals, NABARD reports and MFIN reports. The main purpose of the research by Ashraf et al. (2014) was to identify the variables that caused MFIs across countries with diverse religious and cultural standards to have significantly varied performance metrics. The research included 754 MFIs from 83 different countries in its cross-sectional data set. It dives into the performance of MFIs by looking at indicators including outreach, loan recovery, profitability and cumulative financial success. Research has shown that MFIs can be financially sustainable over the long run, casting doubt on their reputation as change agents (Chary et al., 2014). In terms of portfolio yields, their study found that SML, BSFL, CMC, GVMFL and GFSPL were among the MFIs that fared better than average. This shows that these institutions were successful financially and socially. The most disadvantaged communities cannot get loans from conventional banks due to their profit-driven policies and stringent lending rules. Poverty, hunger, illiteracy and health issues can all be effectively addressed with microfinance (Manoharan et al., 2011). How is microfinance being utilised in India to assist the economically and socially marginalised? Nasir (2013) sought to answer this question. Focusing on the SHGs-Banks Linkage Programme, issues with loan distribution methods, insufficient product diversification, client overlap and high interest rates were detected. These issues demonstrated the lack of cohesion in the microfinance industry.

Research Gap

The literature that we reviewed reveals that MFIs are indeed useful tools for decreasing poverty and increasing financial inclusion, but they have faced continuing issues such as governance problems, technological issues, lack of government support and negative competition. The optional studies focused on Afghanistan highlight only descriptive issues, such as staff shortages, inadequate operational structures and competition among institutions, and do not analyse empirically and demonstrate how financial outcomes are affected by institutional characteristics. The gap is even more pronounced in Afghanistan, an already fragile context, where COVID-19 and political instability have aggravated existing vulnerabilities within the system. Therefore, we propose the following hypothesis to address this gap.

H₁: Internal institutional characteristics do not significantly affect the financial performance of MFIs in Afghanistan.

Data and Methodology

This study provides an empirical analysis of the financial performance of MFIs in Afghanistan amid ongoing sociopolitical and economic instability. The analysis is based on panel data on five of the leading MFIs in Afghanistan, which have maintained continuity of reporting and operational sustainability. The five MFIs were pre-selected for analysis to provide a representative sample, which includes

diversity in institutional attributes without compromising the analytical capacity of a reduced sample size. A select number of MFIs provide a limited, yet manageable, list of ‘cases’, as we reduce transactional complexity and measurement bias while still providing variability in institutional characteristics in several dimensions, such as a combination of institutional size, outreach and financial depth.

The data collected from published and audited annual reports and financial declarations available in the sector, besides other publicly available reports from MISFA and AMA. The study period is FY 2014–2015 through 2023–2024—effectively capturing indicators of financial performance during relative stability and periods of heightened unease and uncertainty (specifically as a cumulative effect of COVID-19 and political instability), thus providing a significant temporal lens of financial institutional performance.

Econometric Model

To empirically test the effects of institutional attributes on the financial performance of MFIs in Afghanistan, the present study has adopted a panel data regression framework. The choice of the panel data model follows the structure of the data, which consists of a series of multiple individual observations for each of the institutions over time. The value of the panel data estimators to help control for variation across sections and time series means that our estimates and conclusions are likely to be consistently informative relative to the consequences of a pure cross-section or time series analysis. For this study, we attempt to evaluate the relationship between operational and structural variables—borrower outreach, institution size, loan portfolio size, income and expenses—on financial performance (in this study, financial performance is measured by ROA. The model set up was done to be able to analyse these relationships while facilitating heterogeneity across institutions and time.

The general function of the econometric model is specified below:

$$ROA = \alpha + \beta_1 \text{ActiveBorrowers}_{it} + \beta_2 \text{NoBranches}_{it} + \beta_3 \text{GrossLoanPortfolio}_{it} + \beta_4 \text{TotalIncome}_{it} + \beta_5 \text{TotalExpenses}_{it} + \mu_i + \varepsilon_{it}$$

where ROA_{it} is the return on assets MFI i in year t .

Active borrowers, no of branches, gross loan portfolio, total income and total expenses, are independent variables for each MFI that changed through time. μ_i symbolise unobserved individual-specific effects. ε_{it} is the idiosyncratic error term.

To validate the robustness and selection of model(s), three different regression models were employed:

1. Pooled OLS regression—serves as a baseline estimate, given that heterogeneity across institutions is not considered.
2. Fixed effects (FE) model—controls for unobserved characteristics specific to an MFI that do not change over time.
3. Random effects (RE) model—assumes that unobserved effects are random and not correlated with the explanatory variables.

A Hausman test was conducted to determine which specification was appropriate between FE and RE. The Hausman test statistic (p value = .3392) showed the RE format was the more appropriate specification for this data set. Therefore, the final analysis is based on the RE model with robust standard errors to correct for possible heteroscedasticity and serial correlation to further enhance the credibility of statistical inferences. This model formulation represents an effort to provide empirical evidence of how operational and financial circumstances affect profitability in the Afghan MFIs given the prevailing circumstances of economic instability and institutional constraints, and the COVID-19 period.

Results and Interpretation

Descriptive Statistics

Table 1 provides summary statistics for the variables within the empirical analysis and is based on a balanced panel that consists of 49 firm-year observations of selected MFIs. Among the five selected MFIs, FINCA MFI has stopped their service since 2021. The summary statistics provide the number of observations, mean, standard deviation, and minimum and maximum values for each of the variables.

According to Table 1, Afghan MFIs have an average ROA of 4.76% and a standard deviation of 7.03. This implies significant variation in profitability, varying from 0.42% to 49.97%, this indicates that while some MFIs have modest returns, others have exceptionally high numbers in some years, likely due to isolated events or good fortune. The mean number of active borrowers is approximately 24,230, with quite a bit of variation by institution (3,473–66,260) and differences in outreach capacity. The average network size is 20 branches (4–38), which demonstrates differences in institutional strategies, ranging from a relatively limited presence to coverage expansion attempts for greater service of larger populations, often distant and remote.

Regression Results and Model Selection

The panel data regression technique was used as the means for empirical testing of institutional characteristics and financial performance of MFIs in Afghanistan.

Table 1. Descriptive Statistics.

Variable	Obs.	Mean	Std. Dev.	Min	Max	Unit
ROA	49	4.76	7.03	0.42	49.97	%
Active borrowers	49	24,229.78	17,323.94	3,473	66,260	Number
No. of branches	49	20.14	10.27	4	38	Number
Gross loan portfolio	49	1,490.00	1,800.00	2.59	6,210.00	Million AFN
Total income	49	283.00	255.00	0.39	777.00	Million AFN
Total expenses	49	230.00	232.00	0.0006	636.00	Million AFN

Source: Compiled by authors based on secondary data from annual reports of selected MFIs and MISFA.

Note: ROA: Return on assets.

Three models were employed: the pooled ordinary least squares (OLS) as a pre-estimation baseline model, and FE and RE models to account for unobserved heterogeneity across institutions. The Hausman specification test determined the appropriate estimation technique. This decision made a statistical justification for the adoption of the RE model as an appropriate model. Each model's outputs are presented in the subsections below, which include a discussion on their tweaks.

A pooled OLS model was estimated as a starting point for the panel regression analysis, to analyse the direct relationship between selected institutional characteristics and the financial performance (measured by ROA) of Afghan MFIs. The pooled OLS treats each of the cross-sectional units in the sample as homogeneous, which does not account for unobserved effects which might be specific to each entity. While a pooled OLS provides a useful interpretation within the overall context of the variables, it is insufficient because it allows for ambiguity in terms of determining potential endogeneity due to omitted institutional heterogeneity.

The pooled OLS findings in Table 2 indicate that the overall model is statistically significant at 5% (F -statistic = 2.83; $p = .0269$), which indicates that the predictors combinedly explained the variations in ROA, the R^2 (0.2477) suggests that 24.77% of the variation in overall financial performance was explained by independent variables, and the adjusted R^2 (0.1602) suggests that improvement declined among independent variables combined. The gross loan portfolio had a significantly negative effect on ROA, suggesting that increasing the volume of loans without enough efficiency would decrease profitability. The number of branches had a positive and significant effect on ROA, which was expected if the distribution channel exploited additional market coverage. The active borrowers had a positive relationship with ROA, but weakly supported. All other financial variables were insignificant to ROA and could be attributed to multicollinearity or model specification issues. Findings support looking at fixed and RE models.

To control for unobserved heterogeneity that may bias the pooled regression estimates, an FE model was estimated. In this specification, each MFI has its own intercept, allowing us to control for time-invariant, firm-specific characteristics. The FE method accounts for omitted variables at the firm level that are constant over time, which prevents bias arising from omitted variables. The FE method reduces efficiency by ignoring the between-groups variation, but when we believe that we suspect heterogeneity, this should improve internal validity. Table 3 presents the estimation results under an FE framework.

The overall FE R^2 equals 0.0835, suggesting limited explanatory power overall. However, roughly 13.88% of the variation in ROA is accounted for by variation across institutions. The F -statistic is 1.26; the p value, .3016, suggests that the model, as a whole, does not statistically explain institutional differences in profitability. However, observations about individual-level variables may provide some insight. Only active borrowers are statistically significant, as a regressor at the 5% level (coefficient = torch = 0.0002733, $p = .041$), indicating that scale is an important contributor to profitability. Increases in borrowers contribute to positive profitability, particularly when controlling for FE at the firm level. Based on this model, there were no statistically significant changes in ROA for the other terms—branches, gross loan portfolio, total income, total expenses—implying the

Table 2. Pooled Ordinary Least Squares (OLS) Regression

Model Statistics					Value	
Number of observations					49	
<i>F</i> -statistic					2.83	
Prob. > <i>F</i>					0.0269	
<i>R</i> ²					0.2477	
Adjusted <i>R</i> ²					0.1602	
Root MSE					6.443	
Variable	Coefficient	Std. Error	<i>t</i> -value	<i>p</i> Value	95% CI (Lower)	95% CI (Upper)
Active borrowers	.0002153	0.0001184	1.82	.076	−0.0000235	0.0004541
No. of branches	.5709	0.2257	2.53	.015	0.1149	1.0252
Gross loan portfolio	−4.11E-09	1.39E-09	−2.96	.005	−6.92E-09	−1.31E-09
Total income	−7.97E-09	8.66E-09	−0.92	.363	−2.54E-08	9.37E-09
Total expenses	−7.08E-09	8.97E-09	−0.79	.435	−2.52E-08	1.10E-08
Constant	−1.9465	3.0174	−0.65	.522	−8.0316	4.1386
Source		SS		df		MS
Model		587.7356		5		117.5471
Residual		1,785.0025		43		41.5111
Total		2,372.7381		48		49.4320

Source: The authors’ computation, based on secondary data from selected microfinance institutions (MFIs), was created using STATA 19.

Note: CI: Confidence interval; MSE: Mean squared error; SS: Sum of squares.

within-institution variation for these terms does not have a systematic change in performance. The rho statistic suggests that 35.5% of the variation in ROA is attributable to unobserved, firm-specific characteristics ($\rho = 0.3554$), suggesting even further that you need to account for these types of stochastic heterogeneity. It should be noted that the joint significance of the *F*-test indicates the regressors collectively are not statistically significant at $p = .4074$ overall, minimising the significance of the explanatory power of the FE model. Given this, the eliminated need to test the RE model and to conduct the Hausman specification test to determine the most efficient and consistent estimates.

The regression results using the RE specification are shown in Table 4. The RE estimates provide a Wald chi-square estimator of 14.16 ($p = .0146$), indicative of overall significance at the 5% level. The proportionate R^2 of 0.2477, consistent with pooled OLS, shows that 24.77% of the variation in ROA is

Table 3. Fixed Effects Model.

Statistic			Value	Statistic			Value
Number of observations			49	Number of groups			5
Group variable			company_id	R^2 (within)			0.1388
R^2 (between)			0.0228	R^2 (overall)			0.0352
Obs. per group (min)			9	Obs. per Group (avg)			9.8
Obs. per group (max)			10	$F(5, 39)$			1.26
corr(u_i , Xb)			-0.4772	Prob. > F			0.3016
Variable	Coefficient	Std. Error	t-value	$P > t $	[95% Confidence Interval]		
Active borrowers	.0002733	0.000129	2.12	.041	0.0000124	0.0005342	
No. of branches	.1618818	0.4834081	0.34	.739	-0.8151752	1.138939	
Gross loan portfolio	-4.17E-09	3.87E-09	-1.08	.288	-1.20E-08	3.66E-09	
Total income	-4.01E-09	1.82E-08	-0.22	.828	-3.24E-08	2.43E-08	
Total expenses	2.18E-09	1.05E-08	0.21	.836	-1.91E-08	2.33E-08	
Constant	-8.194442	8.640258	-0.21	.834	-19.29965	15.66077	
Statistic				Value			
sigma_u				4.7787053			
sigma_e				6.436036			
rho				0.35537703			
F test (all $u_i = 0$)				$F(4, 39) = 1.02$			
Prob. > F				0.4074			

Source: The authors' computation, based on secondary data from selected microfinance institutions (MFIs), was created using STATA 19.

explained by these predictors. The decomposition of variation shows a very high between-entity R^2 (0.9648) and a relatively low within-entity R^2 (0.0827), thus suggesting that differences across institutions (as opposed to changes within an institution over time) drive the variation in ROA. At the variable level, the gross loan portfolio has a significant negative influence on ROA (coefficient = -4.11e-09, $p = .003$) and reinforces the conclusion that if a loan portfolio expands rapidly without financial efficiency in operations, profitability declines. In contrast, the number of branches has a significant positive association with ROA (coefficient = .5706, $p = .012$) and supports the argument that broader outreach correlates with improved ROA. Active borrowers remain marginally significant ($p = .069$) and suggest scale benefits, but not at conventional significance level criteria. Alternatively, total income and total expenses are deemed to be insignificant;

Table 4. Random Effects (RE) Model.

Statistic		Value	Statistic		Value
Number of observations		49	Number of groups		5
R ² (within)		0.0827	R ² (between)		0.9648
R ² (overall)		0.2477	Minimum obs. per group		9
Average obs. per group		9.8	Maximum obs. per group		10
Wald χ^2 (5)		14.16	Prob. > F ²		0.0146
corr(u_i , X)		0			

Variable	Coefficient	Std. Error	z-value	**P > z	[95% Confidence Interval]	
Active borrowers	.0002153	0.0001184	1.82	.069	0.0000168	0.0004474
No. of branches	.5708629	0.2256741	2.53	.012	0.1277497	1.012976
Gross loan portfolio	-4.11E-09	1.39E-09	-2.96	.003	-6.84E-09	-1.39E-09
Total income	-7.97E-09	8.66E-09	-0.92	.357	-2.69E-08	1.09E-08
Total expenses	-7.08E-09	8.97E-09	-0.79	.430	-2.47E-08	1.05E-08
Constant	-1.946502	3.017372	-0.65	.519	-7.860443	3.967439

Source: Compiled by authors based on (secondary data from annual reports of selected microfinance institutions (MFIs) and Microfinance Investment Support Facility for Afghanistan (MISFA).

Note: **P < 0.05.

perhaps due to structural overlap, or ‘noise’ in reporting. Overall, the RE model yields more efficient and consistent estimates than the FE specification during the first phase of the analyses, and the Hausman test will aid in confirming the appropriate specification.

A Hausman test was applied to determine whether FE or RE were suitable for this study. This test analysed if the unique errors (unobserved heterogeneity) are connected with regression factors. The null hypothesis is that we prefer the RE model, while rejection of the null indicates that the preferred model is the FE model, since the coefficient estimates are systematically different. The results of the tests are available in Table 5.

The Hausman specification test shows a chi-square statistic of 0.91 and a *p* value of .3392 which exceeds traditional significance levels (.01, .05 or .10). Thus, the null hypothesis cannot be rejected, and we can conclude that the RE estimator is consistent and efficient for this purpose. Given the lack of systematic differences in coefficient estimates between the FE and RE models, the assumption that unobserved individual effects are orthogonal to the explanatory variables is upheld. The note, ‘(V_b–V_B is not positive definite)’ also sometimes occurs in small sample sizes and is not a concern when the chi-square is low, and the

Table 5. Hausman Test.

Variable	FE (b)	RE (B)	Difference (b-B)	Std. Error
Active borrowers	0.0002733	0.0002153	0.0000580	0.0000512
No. of branches	0.1618818	0.5700629	-0.4081811	0.4270899
Gross loan portfolio	-4.17E-09	-4.11E-09	-5.36E-11	3.61E-09
Total income	8.41E-09	-7.97E-09	1.64E-08	1.60E-08
Total expenses	2.18E-09	-7.08E-09	9.26E-09	5.38E-09
			Statistic	Value
			Chi-square (χ^2)	0.91
			Degrees of freedom	1
			Prob. > χ^2	0.3392

Note: FE: Fixed effects; RE: Random effects.

Table 6. Random Effects Regression (with Robust Standard Errors).

Statistic	Value	Statistic	Value
Number of observations	49	Number of groups	5
R^2 (within)	0.0827	R^2 (between)	0.9648
R^2 (overall)	0.2477	Minimum obs. per group	9
Average obs. per group	9.8	Maximum obs. per group	10
Wald χ^2 (4)		Prob. > χ^2	
corr(u_p , X)	0		

Variable	Coefficient	Robust Std. Error	z-value	p Value	95% CI (Lower)	95% CI (Upper)
Active borrowers	.0002153	0.0002036	1.06	.290	-0.0001837	0.0006143
No. of branches	.5700629	0.1487024	3.83	.000	0.2786116	0.8615142
Gross loan portfolio	-4.11E-09	1.84E-09	-2.24	.025	-7.72E-09	-5.03E-10
Total income	-7.97E-09	5.00E-09	-1.59	.111	-1.78E-08	1.83E-09
Total expenses	-7.08E-09	2.74E-09	-2.59	.010	-1.25E-08	-1.70E-09
Constant	-1.946502	2.806343	-0.69	.488	-7.446833	3.553828

Note: CI: Confidence interval.

p value is considerably above significance levels. For this reason, we use the RE model as our preferred specification. Robust standard errors clustered at the firm

level were used to control for heteroskedasticity and intra-group correlation. They are reported in Table 6.

The robust RE model preserves the forms of the original RE specification but employs corrected standard errors, thereby increasing the validity of statistical inferences. The total R^2 value of 0.2477 indicates that institutional characteristics account for roughly 24.77% of the variation in ROA. An exceptionally high between-group R^2 value (0.9648) suggests that institutional differences explain the majority of the variation in profitability, while the within-group R^2 value is low (0.0827). At the variable level, the number of branches has a strong and statistically significant positive relationship with ROA (coefficient = .5706, $p = .000$), emphasising the importance of outreach infrastructure to support higher institutional performance. Meanwhile, the gross loan portfolio has a significant negative effect (coefficient = $-4.11\text{e-}09$, $p = .025$), again demonstrating concerns that increasing loans at the same pace, without any changes in the operating efficiency, poses a risk to profitability. The number of active borrowers maintains a positive sign despite no longer being statistically significant ($p = .290$), indicating borrower scale effects will depend on other drivers of performance. Total income and total expense, while fundamental to the operation of institutions, are not statistically significant, suggesting little explanatory power in these specifications of these variables.

Across all of the estimated models (pooled OLS, FE, RE), a few consistent patterns emerge. The strongest predictor is the institution's outreach, measured by the number of branches, which has a consistent, positive impact on financial sustainability through increased market coverage and improved service provision. In contrast, the consistently negative relationship of gross loan portfolio with ROA likely reflects diminished return, increased risk exposure and greater inefficiencies with portfolios of increasing size. Active borrowers, while normally positive, appear to require institutional complements of repayment capacity assessments and regular monitoring to convert sheer scale to financial return. The non-relationship of income and expense variables may reflect collinearity or omitted variables such as governance, dependency on donors, or loan write-offs. Overall, these results demonstrate the structural and operational aspects of MFIs with regard to the outreach-expansion of microfinance in a vulnerable context like Afghanistan and the importance of responsible lending in sustaining baseline financial performance.

Interpretation of Results

This study's results are both consistent with and in dispute with earlier studies on the financial success of microfinance groups, especially in emerging conflict-affected areas. The positive and substantial relationship between the number of branches and the desired level of ROA agrees with Mersland and Øystein Strøm (2009) assertion about the importance of reviewing the institutional outreach mechanisms, particularly physical infrastructure, since the authors suggest the following will be able to strengthen performance by way of both market penetration and supervision of clients. Hartarska (2005) came to similar conclusions by pointing out that the

structures of governance and delivery contribute considerably to the profitability of MFIs in developing countries. Here in Afghanistan, where digital financial offerings are in their infancy, the remaining branch-level, loan-level interactions could still be prioritised as a form of client engagement and monitoring of loans. On the other hand, the negative link between gross loan portfolio and ROA is different from much of the mainstream literature that notes that larger loan portfolios suggest more efficient institutions through economies of scale (Cull et al., 2006). The ambiguous statistical relationship between active borrowers and ROA stands in contrast to the typical findings in South Asian microfinance studies that have found volume of borrowers to have a significant effect on profitability due to the costs of group lending and efficiencies of large loan portfolios (Armendáriz & Morduch, 2005). However, in Afghanistan, the economic instability of borrower income sources, as well as the lack of institutional tracking and demand from customers to comply with enforcement, may attenuate the benefits of a rapidly expanding client base. Moreover, the small impact of overall income and expense calls into question the traditional microfinance performance framework, which argues that financial self-sufficiency can be used as a proxy for sustainability (Nabizada & Dhanda, 2024). The lack of congruence may be due to donor inflows, unreliable reporting standards, and the hybrid nature of many Afghan MFIs with commercial and development objectives. More broadly, the comparisons presented here demonstrate that context matters in influencing microfinance outcomes. Some of the empirical patterns replicate templates observed globally, while others are reflective of the specific limitations and complexities of the financial landscape, particular to working in a conflict-affected and weakly institutionalised setting. Overall, these contrasts point to the need to amend performance models to local context(s) rather than to standardised benchmarks.

Implications for MFIs, Policy and Theory

The findings have several significant implications. First, for MFI managers and practitioners, the evidence suggests that a strategic expansion of branch infrastructure needs to be prioritised over rapid loan growth. Moreover, decentralised service delivery seems to be more effective than pure scale effects for improving financial returns—especially in a country where physical access to the product, community trust and local knowledge-based performance are still critical drivers. Second, the negative relationship observed between gross loan portfolios and ROA reinforces the need to strengthen credit risk management practices in situations where fast-paced expansion has the potential to disrupt the repayment discipline of borrowers. MFIs should, for example, invest in financial and social sustainability screening tools for borrowers, diversify the geographical aspects of loan portfolios, and develop early-warning systems for financial performance to monitor loan performance. Third, the findings imply that instead of pushing MFIs to accelerate their growth and become mature organisations, policymakers and agencies such as MISFA and DAB should support MFIs through capacity-building programmes as needed in credit analytics, digitalisation and compliance. Regulatory concessioning during periods of crisis should be supplemented by a

performance monitoring framework that measures and captures both financial sustainability and client welfare.

Limitations of the Study

Despite this research's contributions, several limitations remain. The sample size ($n = 5$ MFIs) is small due to a lack of available data, which limits our generalisability beyond this data set, combined with the fact that all indicators of financial performance (e.g., ROA) are limited and do not include social performance or outreach equality, which are key to the mission of microfinance. Additionally, the data are at the institution level ($n = 5$) and do not include borrower-level behavioural data or loan default profiles. Subsequent research could include qualitative data, more clearly differentiate performance before and after 2021, expand to a larger community-based or informal MFI category, or develop multilevel panel models to better capture time lags and crisis response models. A final point of potential interest includes comparisons across countries and with other microfinance markets that are conflict-affected as a way to provide useful benchmarks for policy adaptation.

Conclusion

This research presents an empirically rigorous analysis of Afghan MFI financial performance for the FY 2014–2015 to 2023–2024, a framework that has endured systemic institutional fragility and unusual crises, specifically the COVID-19 pandemic and the transition to political cessation. This analysis used a panel data set comprising five prominent MFIs in Afghanistan and employed panel regression analysis, utilising RE with robust standard errors, to learn whether institutional characteristics influence financial sustainability, captured as ROA. The study determined that institutional outreach, as indicated by the number of branches, statistically significantly and positively impacted financial performance ($\beta = 0.5706$, $p < .01$). As a result, physical presence in Afghanistan is a documented determinant and remains a significant predictor of operating efficacy in a trust-dependent and geographically fragmented context. The gross loan portfolio impacted ROA in a statistically significant negative manner ($\beta = -4.11e$ to 09 , $p < .05$) and potentially highlighted that increased lending could devour profitability, potentially related to increased exposure to credit risk and inefficiencies related to lending. Interestingly, active borrowers were positively correlated with ROA but were statistically insignificant at conventional statistical levels in the robust model, calling for greater participant selection and monitoring strategies for clients. These conclusions have serious implications following recent sociopolitical events. MFIs in Afghanistan managed to adapt despite elevated operational risk, donor flight, uncertainty regarding regulations, interrupted repayment flows during lockdown, and regime instability. The strong panel regression results demonstrate that institutional stability, the systematic management of growth, the diversification of branches and financing sources, and sound operations are important attributes of resilience shown to contribute to the likelihood of financial

viability under conditions of fragility. Theoretically, this study emphasises the growing literature on microfinance in unstable contexts by demonstrating that standard proxies of scale and outreach do not equally result in financial return. In relation to the implications for practice and policy, the study reinforces the need for balance in the range of considerations faced by MFIs: easy access to finance while continually monitoring performance and contingency planning. The study has limitations due to its small sample, and although we relied mostly on secondary data, we strive to provide the foundation for future studies that could include social performance data or comparative studies of financial service providers in other fragile economies. The findings were impactful and contextually relevant in providing a better picture of how MFIs can rethink their sustainability strategies or change the narrative for the MFIs that work under uncertainty.

Acknowledgement

The information available in the article is research-based and original.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest regarding the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

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Institutionalising Gender Responsive Budgeting at the Local Level: Key Imperatives for Inclusive Governance

Asia-Pacific Journal of Rural Development
36(1) 97–101, 2026

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Background

Across the Asia-Pacific region, women continue to face entrenched structural inequalities shaped by gender, socio-economic status, disability, ethnicity and prevailing social norms. In many countries, their access to quality education, healthcare, productive employment and leadership opportunities remains limited. Cultural and institutional barriers further constrain women's participation in decision-making processes at the household, community and governance levels.

Despite strong national commitments to gender equality, public financial management systems often fall short in translating these commitments into effective budget allocations. Planning and budgeting processes frequently lack gender-disaggregated data and systematic gender impact assessments. As a result, gender priorities remain underfunded, and women's economic and social contributions continue to be undervalued.

To address these gaps, CIRDAP, in collaboration with Nepal's Local Development Training Academy (LDTA), launched a pilot action research project in 2025 titled *Capacity Development of Elected Representatives and Officials to Implement Gender Responsive Budgeting at Local Governments in Nepal*. The initiative sought to strengthen both the institutional and technical capacities of local governments to effectively operationalise Nepal's gender responsive budgeting (GRB) guidelines at the local level. A total of 117 participants—including elected representatives such as Municipality Mayors, Deputy Mayors, and Rural Municipalities' Chairpersons and Vice Chairs, Ward Chairs, and Executive Members, along with Chief Administrative Officers and technical officials from selected local governments—actively engaged in this initiative.

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The pilot initiative generated several notable outcomes:

- *Enhanced knowledge and skills*: Participants demonstrated significant improvement in their understanding of GRB concepts and tools. Average test scores rose from 4.09 in the pre-test to 8.29 in the post-test.
- *Strengthened institutional coordination*: The pilot fostered improved collaboration between thematic committees and finance sections within local governments.
- *Increased technical readiness*: Participants gained practical knowledge of gender budget classification and coding systems outlined in Nepal's GRB guidelines.

Despite these advances, important challenges persist. Many local officials continue to find GRB classification systems complex, confidence levels among elected representatives remain uneven, and enforcement mechanisms for GRB implementation are still weak. Nevertheless, the pilot offered critical insights into how GRB processes and practices can be effectively institutionalised within local governments.

Policy Insights

1. *Simplify the guidelines*: The National GRB Frameworks should be streamlined to ensure accessibility and relevance for local governments. Developing concise manuals, practical templates and simplified coding tools can enable local officials to apply GRB principles more effectively during budget preparation. Clear step-by-step guidance can reduce complexity and foster consistency across diverse local contexts. Avoiding overly complex coding systems is critical to ensure usability at the local level.
2. *Institutionalise GRB in local budget cycles*: GRB must be embedded into mandatory budget procedures rather than treated as a voluntary exercise. Gender classification should be required before budget proposals are submitted to Local Assemblies, with compliance checkpoints integrated at key stages of planning, approval and execution. This ensures that GRB is not reduced to a procedural formality but linked to measurable outcomes.
3. *Link GRB compliance to fiscal incentives*: Incorporating GRB indicators into Local Government Performance Assessment Systems can create strong incentives for compliance. Performance-based grants or conditional fiscal transfers can reward gender-responsive planning and budgeting. Linking financial resources to demonstrated GRB outcomes motivates accountability and ensures that gender priorities are adequately funded.
4. *Establish permanent GRB institutional structures*: Local governments should establish dedicated mechanisms for GRB implementation and monitoring. These structures should oversee gender budget classification, reporting, and compliance, ensuring continuity beyond individual training programmes. Permanent institutional arrangements, such as GRB units or

focal points, can safeguard sustainability and embed gender accountability into governance systems.

5. *Build sustained capacity systems*: Continuous capacity development is essential for effective GRB. Governments should institutionalise periodic training programmes for newly elected representatives and government officials to maintain institutional memory and skills. Establishing technical support platforms, such as GRB knowledge portals, helpdesks or peer-learning networks, can provide ongoing assistance and foster a culture of gender-responsive governance.
6. *Expand GRB beyond government budgets*: Gender accountability should extend beyond public finance. Encouraging NGOs, development partners and corporate social responsibility (CSR) initiatives to align with GRB reporting frameworks can broaden the impact of gender-responsive practices. This multi-sectoral approach strengthens collective responsibility for gender equality and ensures that resources across society contribute to inclusive development.
7. *Strengthen multi-stakeholder coordination*: Effective GRB requires collaboration beyond government institutions. Policymakers should encourage coordination with development partners, civil society organisations and non-government actors to reinforce gender accountability. Partnerships can provide technical expertise, financial support and monitoring capacity, ensuring that GRB implementation is both comprehensive and sustainable.

Future Direction

1. *Phased implementation strategy*: Governments should adopt a gradual approach, beginning with simplified gender budget classification systems that are easy for local officials to apply. As institutional capacity strengthens, more advanced GRB tools and methodologies can be introduced to ensure sustainability and scalability.
2. *Performance-based incentive mechanisms*: A portion of fiscal transfers or conditional grants can be linked to GRB compliance. Embedding GRB indicators into performance assessment systems will encourage local governments to adopt gender-responsive practices and deliver measurable outcomes, rather than treating GRB as a procedural formality.
3. *Institutional anchoring*: Each local government should establish a dedicated GRB implementation committee or focal unit. These structures should review and certify gender-coded budgets before approval, ensuring accountability and embedding GRB into the local budget cycle.
4. *Digital and technical support systems*: Developing online GRB platforms with manuals, templates, coding libraries and FAQs can provide continuous technical support. Such platforms should be designed to simplify processes, avoiding overly complex coding systems that hinder implementation.

5. *Monitoring and evaluation mechanisms*: Governments should establish measurable indicators, such as the proportion of gender-coded budget lines or allocations to gender-priority sectors. Annual GRB scorecards and public reporting can strengthen transparency, accountability and citizen trust in the budgeting process.
6. *Sustained capacity development*: Periodic training programmes for elected representatives and officials should be institutionalised to maintain knowledge and skills. Beyond one-time interventions, governments should create technical support platforms, peer-learning networks and helpdesks to provide ongoing guidance and ensure institutional memory.
7. *Multi-stakeholder coordination*: Effective GRB requires collaboration beyond government institutions. Policymakers should encourage coordination with development partners, civil society organisations and non-government actors to reinforce gender accountability. Partnerships can provide technical expertise, financial support and monitoring capacity.
8. *Extending GRB beyond government budgets*: Gender accountability should extend to NGOs, development partners and CSR initiatives. Aligning these actors with GRB reporting frameworks will broaden the impact of gender-responsive practices and foster inclusive development across sectors.

Conclusion

The Nepal pilot demonstrates that targeted training, simplified tools and institutional support can substantially enhance local governments' capacity to implement GRB. By engaging elected representatives and officials, the initiative improved knowledge, strengthened institutional coordination and increased technical readiness, offering a practical model for institutionalising GRB at the local level.

Scaling this success into sustained practice, however, requires more than pilot interventions. Simplified guidelines, integration of GRB into mandatory budget procedures, performance-linked fiscal incentives and permanent institutional mechanisms are essential to embed gender accountability into public financial management. Equally important are continuous capacity development systems, digital support platforms and multi-stakeholder coordination to ensure that GRB is not reduced to a procedural exercise but delivers measurable outcomes.

The Nepal experience provides a scalable framework for CIRDAP member countries across Asia and the Pacific. With phased implementation strategies, performance-based incentives, institutional anchoring and robust monitoring mechanisms, countries can adapt the model to their national contexts. Expanding GRB beyond government budgets—by engaging NGOs, development partners and CSR initiatives—will further strengthen gender accountability across sectors.

With appropriate policy reforms, technical support and regional collaboration, the Nepal pilot offers a practical pathway for advancing gender-responsive public

financial management and ensuring that national commitments to gender equality translate into tangible outcomes for communities across the Asia-Pacific region.

Declaration of Conflicting Interests

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Ganga Dutta Acharya is the Executive Editor of the *Asia-Pacific Journal of Rural Development*. The author did not take part in the peer review or decision-making process for this submission and has no further conflicts to declare.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This policy brief is based on the CIRDAP-funded action research project, implemented in collaboration with the Local Development Training Academy of Nepal.

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