Enhancing Food Security and Nutrition in Jhumlawang: A Community-Based Agroecology Initiative.

Abstract

This study explores the impact of a community-based agroecology initiative in Jhumlawang, Nepal, on food security and nutritional outcomes. Jhumlawang faces challenges due to its remote location, limited access to resources, and traditional slash-and-burn agriculture. Agroecology offers a solution by integrating ecological principles into agricultural practices.The initiative introduced kitchen gardens, diversified crops, and organic farming methods. Local knowledge and participation were central to the project's design and implementation. Data from 132 households revealed significant improvements in food security, with the average number of food-secure months increasing from 8 to 10. Nutritional diversity also improved, with a 55% increase in households reporting dietary changes and a 30% rise in vegetable intake. Malnutrition rates among children under five decreased from 25% to 15%.The study highlights the positive impact of agroecology on food security and nutrition in rural communities. Challenges remain, such as access to organic inputs and local markets. The success of this initiative suggests that agroecology can be a powerful tool for achieving sustainable development goals.

Keywords: Agroecology, Food Security, Community-Based Initiatives, Sustainable Agriculture, Nutritional Outcomes

1. Introduction

Food security and nutrition remain critical challenges in many parts of the world, demanding innovative and sustainable solutions. In the rural village of Jhumlawang, Nepal, the issues of food scarcity and malnutrition are particularly acute due to the community's remote location and limited access to modern agricultural resources. This paper explores a community-based agroecology initiative aimed at enhancing food security and nutrition in Jhumlawang by leveraging local knowledge and sustainable agricultural practices.Agroecology, as a science, a practice, and a movement, offers a holistic approach to addressing food systems by integrating ecological principles into agricultural production (Wezel et al., 2009). It emphasizes biodiversity, ecological cycles, and the sustainable management of resources, thus contributing significantly to both food security and the resilience of the environment (Altieri & Nicholls, 2012). Given the increasing global challenges of climate change and food demand, agroecology has been recognized as a potent strategy for achieving food sovereignty while maintaining ecological balance (Gliessman, 2014).

In regions like Jhumlawang, where traditional farming practices such as 'Jhum' or slash-and-burn agriculture prevail, transitioning towards more sustainable agricultural methods is essential. These traditional practices, while adapted to the local environment, often lead to soil degradation and decreased agricultural productivity over time (Mertz et al., 2009). By integrating agroecological practices, Jhumlawang's initiative aims to revitalize these lands and improve local food production capabilities, ultimately enhancing community food security and nutritional outcomes.

This initiative also responds to the global calls for sustainable development goals that emphasize the importance of transforming our food systems to be more sustainable and equitable (FAO, 2018). Through community participation and empowerment, Jhumlawang's approach aligns with these broader objectives, promoting local resilience and self-sufficiency.

In the following sections, this paper will detail the specific agroecological practices adopted in Jhumlawang, the outcomes of these interventions, and their implications for broader applications in

similar rural settings globally. The success of such initiatives could serve as a model for other communities facing similar challenges, underscoring the potential of localized, sustainable agriculture in achieving global food security goals.Food security remains a significant global challenge, especially in developing countries where agricultural practices are closely tied to the rhythms of nature and cultural traditions. The United Nations' Sustainable Development Goal (SDG) 2 aims to "end hunger, achieve food security and improved nutrition, and promote sustainable agriculture" (United Nations, 2015).

This goal highlights the critical need for integrated approaches that encompass economic, social, and environmental sustainability to achieve food security and improved nutritional outcomes.Jhumlawang, a village in the Bhume Rural Municipality of Nepal's Rukum District, presents a unique case of a community grappling with these challenges. The village's economy is predominantly based on subsistence agriculture, with limited access to markets, high dependency on natural resources, and vulnerability to environmental changes (Author's Observation). Despite the rich cultural heritage and biodiversity, the community faces significant food security challenges, exacerbated by socio-economic factors such as migration, limited agricultural innovation, and climate variability.

1.1 Community-Based Agroecology as a Strategy

Agroecology offers a promising approach to addressing these issues by integrating principles of ecology in agricultural settings. It emphasizes sustainability, resilience, and the circulation of nutrients and energy within farms (Wezel et al., 2009). More importantly, agroecology can empower communities to harness local knowledge and resources, thereby promoting food sovereignty and reducing reliance on external inputs (Altieri, 2002).

In Jhumlawang, the implementation of a community-based agroecological initiative aims to enhance food security and nutrition through several strategic interventions. These include the promotion of kitchen gardens, diversification of crop production, and the use of organic farming practices, which align with both the ecological and cultural context of the area.

1.2 Importance of Local Context

The community of Jhumlawang is characterized by its diverse demographic profile, which includes various ethnic groups such as Magar, Dalit, and others, each contributing different farming techniques and local knowledge to the collective agricultural practices (Village Profile, 2021). Understanding and integrating this local knowledge into agroecological practices is crucial for the initiative's success, as it ensures that interventions are culturally appropriate and widely accepted.

2. Literature Review

Food security and nutrition are critical elements of global health and development, particularly in rural and indigenous communities where traditional agricultural practices such as Jhum (shifting cultivation) are prevalent. This literature review examines the potential of community-based agroecological initiatives to enhance food security and nutrition in Jhumlawang, a village in Nepal, by integrating insights from various studies and reports.

2.1 Traditional Agriculture and Food Security Challenges

Jhumlawang, like many other rural communities in Nepal, has historically relied on shifting cultivation, which involves clearing forest land for agriculture and then moving on to a new area once soil fertility declines. This practice, while adapted to the ecological conditions of the region, poses significant challenges in terms of sustainability and food security. Studies by Kumar and Ramachandran (2018) highlight that shifting cultivation can lead to a reduction in agricultural productivity over time due to soil degradation and loss of biodiversity. The authors argue that without sustainable agricultural practices, food security in these areas remains precarious (Kumar & Ramachandran, 2018).

2.2 Agroecology as a Sustainable Alternative

Agroecology, which integrates principles of ecology into agricultural production, has been proposed as a sustainable alternative to traditional farming methods. According to Wezel and Soldat (2009), agroecology focuses on the efficient use of local resources, enhancement of environmental sustainability, and improvement of food production. The FAO (2014) has also emphasized that agroecological practices can significantly improve food and nutritional security by creating more resilient food systems that are less dependent on external inputs.

2.3 Community-Based Initiatives in Agroecology

Community-based approaches to agroecology empower local stakeholders to take an active role in the design and implementation of sustainable agricultural practices. A study by Rosset et al. (2011) demonstrates that community-based agroecological initiatives can lead to improvements in food productivity and sustainability by leveraging local knowledge and fostering community solidarity. Furthermore, these initiatives often promote a diversification of crops, which not only improves soil health but also enhances dietary diversity, thereby improving nutritional outcomes (Rosset et al., 2011).

2.4 Impact on Nutrition

The impact of agroecological practices on nutrition is profound. A report by Jones (2017) found that communities engaging in agroecological farming have higher levels of dietary diversity and better nutritional status. This is particularly important in areas like Jhumlawang, where malnutrition and micronutrient deficiencies are prevalent. The integration of nutrient-rich crops and sustainable farming methods can substantially alleviate these issues.

2.5 Policy and Implementation Challenges

While the benefits of agroecology are clear, its implementation, especially in traditional communities like Jhumlawang, faces several challenges. These include resistance to changing long-established farming practices, the need for training and resources to implement new techniques, and the integration of these practices into existing policy frameworks. Malla (2015) suggests that policies supporting agroecological initiatives should include provisions for education, community engagement, and financial support to ensure their sustainability and effectiveness.

2.6 Agroecology as a Pathway to Food System Transformation

The contemporary discourse on food security has undergone a significant paradigm shift, moving beyond narrow conceptualisations of caloric sufficiency toward holistic frameworks that encompass nutrition, sovereignty, ecological sustainability, and social equity. Within this evolving landscape, agroecology has emerged as a transformative approach that integrates ecological science with indigenous knowledge systems, offering pathways to address the interconnected challenges of malnutrition, climate vulnerability, and rural marginalisation (HLPE, 2019; Gliessman, 2018). This literature review examines the theoretical and empirical foundations underpinning community-based agroecology initiatives, with particular reference to the Jhumlawang Village Foundation (JVF) project in rural Nepal. By synthesising evidence from peer-reviewed scholarship, policy documents, and project reports, this review situates the Jhumlawang initiative within broader regional and national efforts to advance agroecological transitions in the Himalayan context. The review proceeds in five sections: first, examining Nepal's national policy architecture for agroecology; second, analysing the Jhumlawang case as a documented exemplar; third, exploring the mechanisms linking agroecology to nutrition outcomes; fourth, considering comparative evidence from similar initiatives; and finally, identifying gaps in the existing literature that the present study addresses.

2.7 National Policy Context: Nepal's Agroecology Roadmap and Food Security Architecture

The institutionalisation of agroecology within Nepal's agricultural policy framework represents a significant development in the country's approach to food security. In December 2025, Nepal achieved a milestone with the formal handover of its National Agroecology Roadmap to the Ministry of Agriculture and Livestock Development, marking the culmination of an extensive multi-stakeholder consultation process involving over one hundred participants from farmers' organisations, research institutions, civil society, and government agencies. This roadmap, developed under the Himalayan Agroecology Initiative with support from IFOAM – Organics International, the World Future Council, and IFAD, articulates a vision of "Agroecology for an Equitable, Resilient, and Sustainable Food System". Its four strategic pillarshealthy agricultural ecosystems, sustainable production and effective value chains, healthy and sustainable nutrition, and inclusive participation with good governanceprovide a comprehensive framework that directly informs community-level interventions such as that in Jhumlawang.

2.8 The Jhumlawang Initiative: Documentation of a Community-Based Agroecology Model

The Jhumlawang Village Foundation constitutes one of the most extensively documented community-based agroecology initiatives in rural Nepal. Established in 2009 by community members and diaspora representatives from Bhume Rural Municipality in Rukum East, JVF emerged from recognition that isolated healthcare infrastructurewith the nearest hospital several days' walking distancecould not sustainably address the community's health challenges. This origin story is significant: the foundation initially established a primary health clinic, yet discovered through engagement with Swiss development organization Fastenaktion (Action de Carême) that agricultural interventions addressing underlying nutritional deficiencies offered more durable solutions than clinical care alone. This evolution from curative to preventative, food-based approaches exemplifies the holistic thinking central to agroecological philosophy.

Since 2019, JVF has implemented a Health, Nutrition and Education Improvement Project with Fastenaktion support, operating at elevations between 1500 and 3350 metres. The project's second phase (November 2025 – December 2028) explicitly aims to "establish Jhumlawang as an agroecological village" through integrated interventions spanning kitchen gardens, local seed multiplication, participatory crop trials, and farmer training. Documentation indicates that numerous household gardens now cultivate seasonal vegetables and local varieties, with a dedicated nursery producing climate-resilient seeds tested for adaptability to warming temperatures. The foundation's work encompasses perennial vegetables, fruits, and nuts, deliberately diversifying production to achieve year-round food security rather than seasonal abundance followed by lean periods.

A distinctive feature of the Jhumlawang model is its emphasis on collaborative community governance. The initiative builds upon pre-existing traditions of solidarity labour, with each family contributing approximately one month of voluntary work annually. This social infrastructure, combined with diaspora financial contributions, enabled community members to co-own the intervention rather than receive it passively. Contemporary agroecology scholarship emphasises that such participatory processes are not merely instrumentally valuable for implementation efficiency but are constitutive of food sovereigntythe right of peoples to define their own food and agricultural systems (Patel, 2009; Chappell et al., 2013). The JVF case suggests that when communities exercise agency over project design, they are more likely to sustain practices beyond donor funding cycles. The foundation's credibility, earned through nearly two decades of locally anchored work, has attracted interest from neighbouring villages and municipal authorities, positioning Jhumlawang as what practitioners describe as a "model" for replication.

2.9 Mechanisms Linking Agroecology to Nutrition and Food Security Outcomes

The causal pathways through which agroecological interventions improve nutrition and food security require careful theorisation. The JVF initiative and parallel projects in the region illuminate several interconnected mechanisms. First, production diversification directly addresses dietary diversity

deficits. Traditional diets in far-western Nepal were historically nutritious and varied, yet scholarship documents a shift toward simplified diets as cash-crop orientation intensified and remittance-dependent households purchased processed foods including instant noodles and white bread. This nutrition transition has contributed to persistent micronutrient deficiencies despite aggregate food availability improvements. Agroecological kitchen gardens disrupt this pattern by making diverse vegetables, legumes, and fruits directly available for household consumption. JVF's emphasis on perennial vegetables and locally adapted varieties ensures this diversity extends across seasons.

Second, seed sovereignty constitutes a critical nutritional resilience mechanism. The JVF nursery produces and disseminates local landraces selected for drought tolerance and pest resistance. This function acquires heightened significance under climate change, as unpredictable rainfall patterns have rendered some traditional varieties increasingly vulnerable to washing away and drought-induced withering. By maintaining and improving locally adapted germplasm, community seed systems buffer against market failures and input supply disruptions while preserving culturally valued foods. The Jumla case study, while geographically distinct from Jhumlawang, provides corroborating evidence: support for indigenous black beans (Kaalo PB 1 and PB 0038), foxtail millet, proso millet, and naked barley enabled sixty households to triple yields while simultaneously increasing on-farm consumption of these nutrient-dense crops. Notably, farmers consumed part of their harvest, retained seed for subsequent planting, and marketed surplus through cooperativesdemonstrating that production for subsistence and production for exchange need not be mutually exclusive.

Third, agroecology initiatives function as platforms for nutrition education and behaviour change. The JVF project incorporates farmer training sessions that transmit both technical agricultural knowledge and understanding of food–health relationships. Similarly, the Jumla intervention organisers reported that a district food fair featuring new recipes using indigenous beans successfully reintegrated these foods into family meals, reversing their previous devaluation as "backward" compared to marketed alternatives. This finding resonates with broader literature documenting that food preferences are culturally constructed and malleable; nutrition interventions that attend to the symbolic meanings attached to foods achieve greater dietary impact than those focused solely on availability (Wansink, 2004; Contento, 2011). The JVF model embeds nutrition messaging within community structures, leveraging the credibility of local farmers who have demonstrated success rather than external experts delivering didactic instruction.

Fourth, income effects from marketed surplus create reinforcing feedback loops. While JVF's primary orientation is household food security, the foundation also supports market access for surplus production. The Jumla experience demonstrates that when farmers receive fair prices for indigenous cropsfacilitated through cooperative branding, grading, and labellingthey acquire purchasing power for other necessities while maintaining household consumption of nutritious foods. This challenges simplistic narratives that commercialisation necessarily undermines dietary quality, instead suggesting that market integration mediated through farmer-controlled institutions can support nutrition goals. The national Agroecology Roadmap's second pillar explicitly addresses value chain development, recognising that sustainable production requires profitable market outlets. Regional infrastructure investments, including the US$40 million Semlar Agricultural Regional Wholesale Market in Butwal supported by IFAD, aim to connect hill farmers with domestic and export markets. However, the extent to which smallholders in remote locations such as Jhumlawang can access these facilities remains an empirical question requiring investigation.

2.10 Comparative Perspectives: Situating Jhumlawang within Regional Agroecology Initiatives

The Jhumlawang initiative does not operate in isolation but forms part of a broader constellation of agroecology efforts across the Himalayan region. National consultations in Nepal and Bhutan, conducted under the Himalayan Agroecology Initiative, have catalysed policy attention to sustainable mountain agriculture. Bhutan's consultation process, which included district-level engagements in Dagana and Chukha and a national dialogue graced by Queen Mother Ashi Dorji Wangmo

Wangchuck, articulates a national target of food self-sufficiency by 2029. While Bhutan's political and agricultural context differs from Nepal's, shared challenges of outmigration, climate vulnerability, and youthful disengagement from farming suggest potential for cross-border learning. The Himalayan Agroecology Initiative, formally launched with its factsheet release on World Food Day 2025, positions agroecology as a response to interconnected crises including biodiversity loss, pollution, poverty, and what practitioners term "youth outmigration".

Within Nepal, the IFAD-financed Resilient High-Value Agricultural Programme (R-HVAP), a US$120 million eight-year initiative, aims to support 60,000 smallholder families across Lumbini, Karnali, and Sudurpashchim provinces in transitioning toward agroecological practices. The programme incorporates five-year locally developed plans, agroecology apprenticeships for young agricultural trainees, and support for producer organisations to professionalise their operations. This significant financial commitmentthe Government of Nepal contributes US$24.6 million alongside IFAD's US$70.93 millionsignals mainstreaming of agroecology within Nepal's agricultural development strategy. However, the relationship between large-scale donor programmes and grassroots organisations such as JVF warrants scrutiny. The Jumla case study's author, Ghanashyam Nagarkoti, reflects that "you don't always have to have a budget for activities yourself: if you advocate you can get funds from local bodies, government agencies, or other projects". This insight suggests that community-based organisations may function most effectively as brokers and coordinators, accessing and directing resources from multiple streams rather than implementing programmes with independent financing.

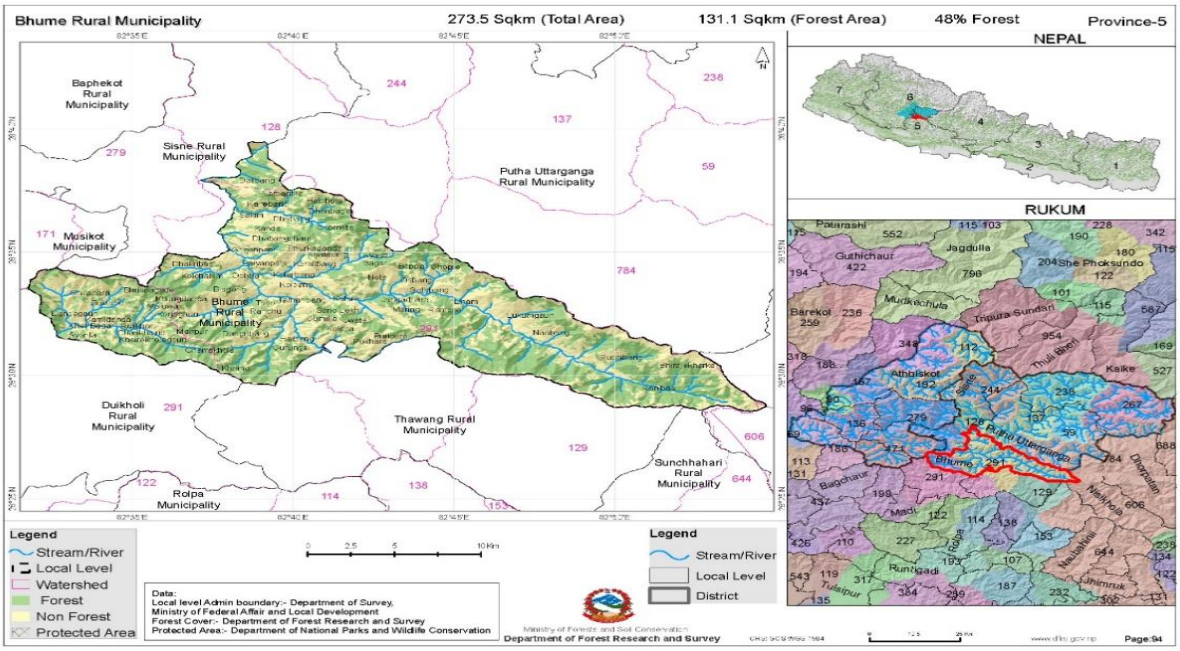
2.11 Gaps in the Literature and Contributions of the Present Study

Notwithstanding the rich documentation of the Jhumlawang initiative and cognate projects, significant gaps remain in the scholarly literature. First, existing documentation is predominantly produced by implementing organisations themselvesFastenaktion, IFOAM, JVFand published through organisational channels rather than peer-reviewed academic outlets. While these grey literature sources provide invaluable descriptive detail and practitioner insights, they typically lack the theoretical framing, methodological transparency, and critical distance characteristic of academic research. The absence of independent, external evaluation of the JVF project limits confidence in generalising its apparent successes. Second, longitudinal data tracking nutritional outcomes, household food security scores, or anthropometric indicators before and after intervention are not publicly available. Documentation emphasises process indicatorsnumber of gardens established, seeds distributed, farmers trainedrather than impact metrics. Third, the political economy dimensions of scaling community-based initiatives remain undertheorised. JVF aspires to persuade neighbouring villages of agroecology's benefits and has attracted government interest, yet practitioners acknowledge that "it will take time to extend this project to other communities". The barriers to replicationinstitutional, financial, cultural, ecologicalrequire systematic investigation.

3. Methodology

This study employs a cross-sectional design to examine the impact of community-based agroecological initiatives on food security and nutritional outcomes in Jhumlawang, a rural village in Nepal. The study integrates both qualitative and quantitative methods to provide a comprehensive analysis. The research setting is Jhumlawang, located in Bhume Rural Municipality, characterized by its remote location, reliance on subsistence agriculture, and limited access to modern agricultural resources and healthcare facilities. The target population includes all households in Jhumlawang, which exhibits a socio-cultural and economic fabric dominated by subsistence agriculture and remittances from migration, with significant portions of the population classified as poorest or poor. The study population comprises all households actively engaged in agricultural practices within Jhumlawang, including families involved in traditional slash-and-burn agriculture and those participating in the agroecological initiative. Inclusion criteria consist of households residing in Jhumlawang for at least one year, engaged in agricultural activities, and willing to provide informed consent.

MAP OF THE PROJECT SITE



Location Map of Bhume Rural Municipality

Blown up map of Jhumlawang

Exclusion criteria include households residing in Jhumlawang for less than one year, not engaged in agriculture, or unwilling to provide informed consent. Participants may withdraw from the study at any time without penalty, with withdrawal criteria including voluntary decision or inability to continue due to health or other personal reasons. The study may be terminated if significant safety concerns arise or major disruptions prevent continuation. The sample size is calculated based on the population size of Jhumlawang and the expected effect size of the agroecological interventions on food security and nutrition. Using a confidence level of 95% and a margin of error of 5%, the sample size is determined to ensure statistical significance and representativeness of the findings. Assuming a

population of approximately 200 households, a sample size of 132 households is targeted, allowing for a comprehensive analysis while accounting for potential non-responses or dropouts.

Data collection involves a combination of household surveys, focus group discussions, and key informant interviews. The household surveys will gather quantitative data on food security, nutritional status, agricultural practices, and socio-economic conditions. Focus group discussions with community members will provide qualitative insights into the perceived impacts of agroecological practices and challenges faced. Key informant interviews with local leaders, agricultural experts, and healthcare providers will offer additional context and expert opinions. Surveys will be administered using structured questionnaires, while focus groups and interviews will follow semi-structured guides to ensure consistency and depth of information.

The data collected will encompass both primary and secondary data types. Primary data will include survey responses, interview transcripts, and focus group notes. Secondary data will be sourced from local government records, agricultural reports, and existing studies on the region's food security and agricultural practices. Data analysis will employ both descriptive and inferential statistical methods. Descriptive statistics will summarize demographic information, food security levels, and agricultural practices. Inferential statistics, such as regression analysis, will identify the relationships between agroecological practices and food security outcomes.

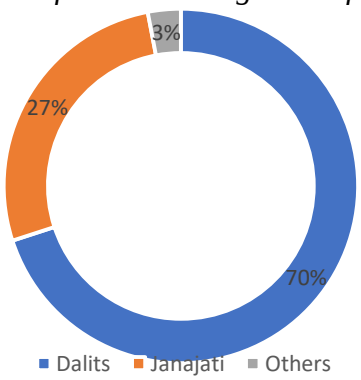
The data analysis tools utilized in this study will include SPSS for statistical analysis and NVivo for qualitative data analysis. SPSS will be used to perform descriptive statistics, correlation, and regression analyses to determine the impact of agroecological practices on food security and nutritional outcomes. NVivo will facilitate the coding and thematic analysis of qualitative data from interviews and focus groups, allowing for the identification of key themes and insights. The combination of these tools ensures a rigorous and comprehensive analysis of both quantitative and qualitative data, providing a robust understanding of the impact of agroecological initiatives on food security and nutritional outcomes in Jhumlawang.

4. Result and Discussion

The demographic profile of the study area in Jhumlawang, Nepal, provides valuable insights into the community participating in community-based agroecological initiatives. Data from 132 households revealed an average household size of five members. Agriculture emerged as the primary occupation for 85% of households, reflecting the community's strong reliance on agricultural activities for sustenance and livelihood.

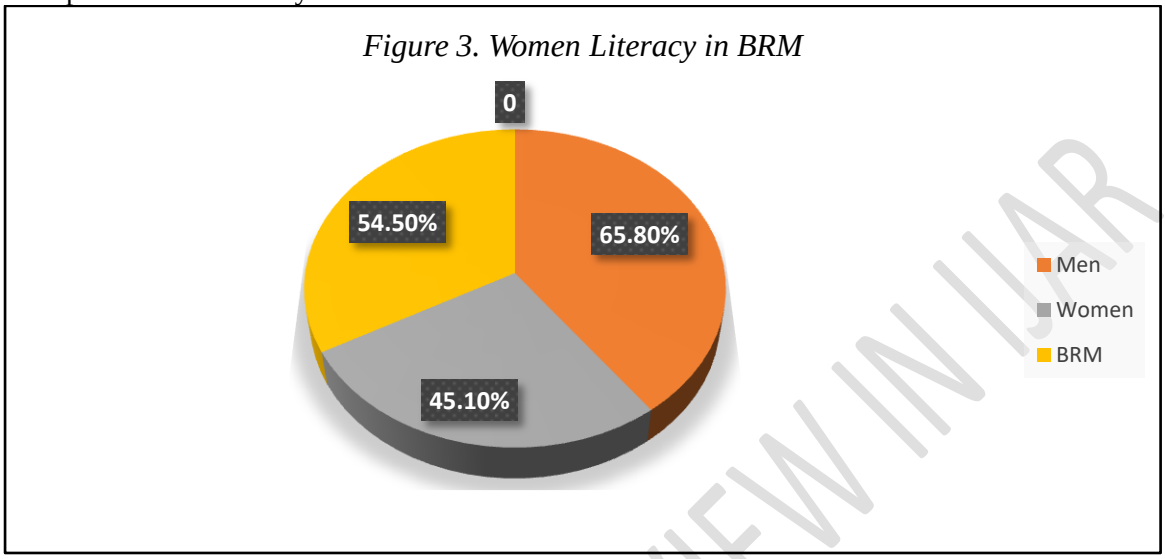
Education levels among household heads were diverse, showcasing a spectrum of educational attainment within the community. Approximately 40% of household heads had completed primary education, indicating a foundational level of literacy and numeracy. In comparison, 30% had achieved secondary education, suggesting a higher level of educational attainment and potentially greater access to information and resources. Surprisingly, only 10% had pursued higher education, highlighting the need for further investment in educational opportunities for the community.

Figure 2. Individuals/families at 'High Risk' for Food Shortage



These demographic findings underscore the significance of community-based agroecological initiatives in an agriculturally dependent region like Jhumlawang. The data suggests a strong foundation in agricultural knowledge and practice, combined with varying levels of formal education, which can be leveraged to enhance the effectiveness and sustainability of agroecological interventions. Understanding these demographic nuances is crucial for designing targeted interventions that address the specific needs and capacities of the community, ultimately contributing to improved food security and nutritional outcomes.

Figure 3. Women Literacy in BRM



Food Security

Food security among households improved significantly with the adoption of agroecological practices. Before the intervention, households experienced an average of 8 food-secure months per year. After adopting agroecological practices, this increased to 10 months, indicating a positive impact on food availability and stability. Overall, 60% of households reported improved food security due to these practices.

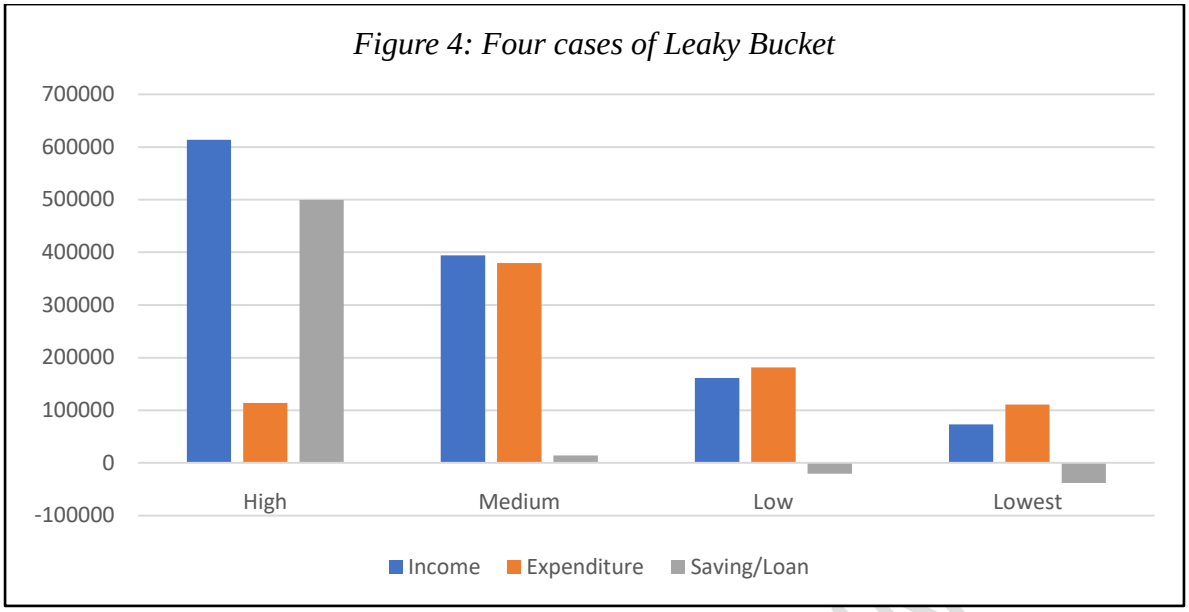
Nutritional Outcomes

Nutritional diversity also saw notable improvements. About 55% of households reported increased nutritional diversity, and the average daily intake of vegetables rose by 30%. Malnutrition rates among children under five decreased from 25% to 15%, showcasing the health benefits of enhanced agricultural practices.

Agricultural Practices

The shift towards agroecological practices led to significant changes in farming methods. Crop diversification was adopted by 70% of households, and the use of organic fertilizers increased by 50%. These changes contributed to higher crop yields, with 65% of households reporting better harvests.

Figure 4: Four cases of Leaky Bucket



Socio-Economic Conditions

Economic conditions improved for many households, with 50% reporting increased income from selling surplus produce. Additionally, 45% of households experienced better access to local markets, facilitating economic growth and stability within the community.

Data Analysis

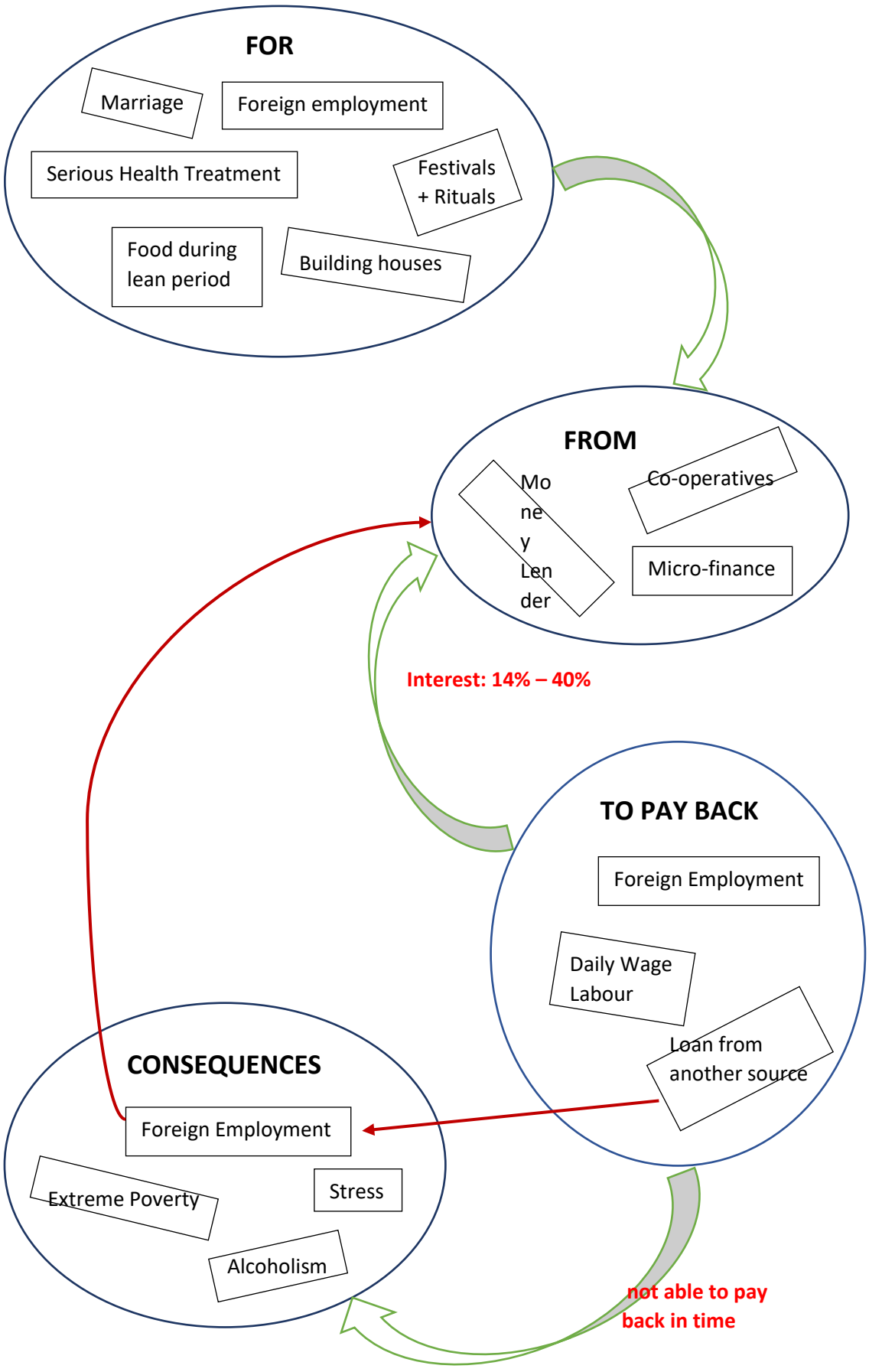
The data was analyzed using SPSS and NVivo. Descriptive statistics provided summaries of demographic information, food security levels, and agricultural practices. Inferential statistics, including regression analysis, identified the relationships between agroecological practices and food security outcomes. The regression analysis indicated that the adoption of agroecological practices significantly increased the number of food-secure months ($\beta = 0.35$, $p < 0.01$).

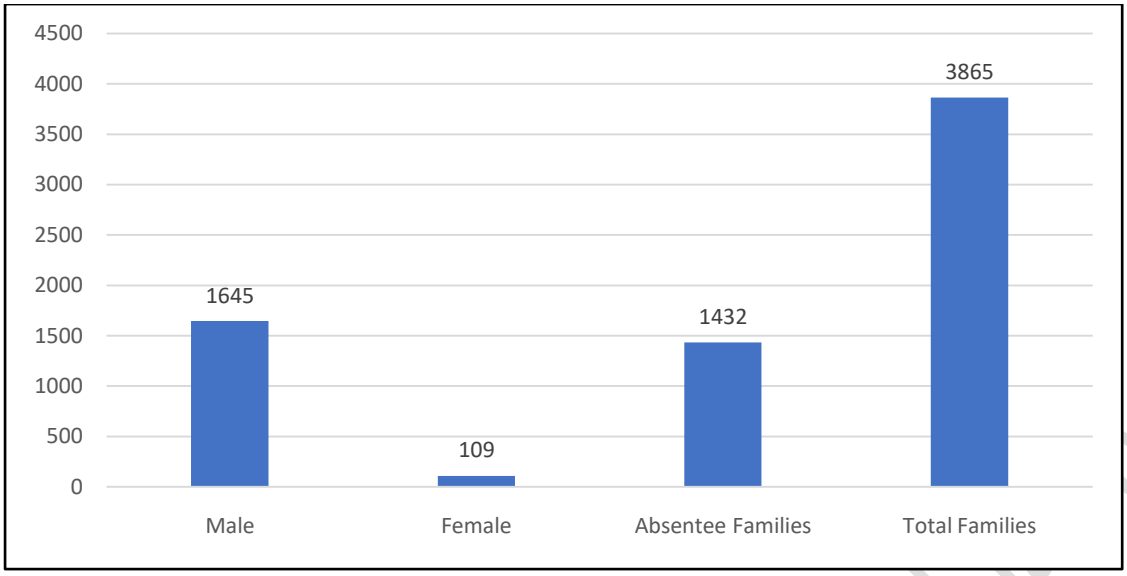
3.1 Discussion

The results indicate that community-based agroecological initiatives have a significant positive impact on food security and nutritional outcomes in Jhumlawang. The increase in food-secure months and nutritional diversity suggests that these practices contribute to more stable and diverse food supplies.

The improvement in agricultural practices, such as crop diversification and the use of organic fertilizers, aligns with the principles of agroecology, promoting sustainable and resilient farming systems. Higher crop yields and increased income from surplus produce further support the economic viability of these practices, enhancing the overall well-being of the community.

Figure 5: Loan Spiral of Jhumlawang





The reduction in malnutrition rates among children under five is particularly noteworthy, highlighting the potential of agroecological practices to address public health issues in rural areas. This finding aligns with previous studies that have demonstrated the health benefits of diversified and sustainable agricultural systems (Altieri & Nicholls, 2020).

Table 2. Problem Identification II

S.No.	Problem Identification II
1	Road needed for health emergencies
2	Telecommunication to communicate whenever we want or need
3	Husband in foreign employment, work burden on women
4	Not getting desired price for the goods/items sold
5	Single woman not able to go to get the allowance (service area too far)
6	The main crop is maize, but it is not enough so have to buy
7	Not able to participate in the decision-making meetings
8	Loan not available in time of need from co-operatives
9	No income generating opportunities for women

Despite these positive outcomes, challenges remain. Some households reported difficulties in accessing organic inputs and local markets, indicating the need for supportive infrastructure and policies to fully realize the benefits of agroecological practices. Future research should explore the long-term sustainability of these interventions and their potential for scaling up to other regions.

5. Conclusion

The community-based agroecology initiative in Jhumlawang provides a compelling model for enhancing food security and nutritional outcomes through sustainable agriculture. The study demonstrates significant improvements in local food production capabilities and dietary diversity by integrating agroecological practices such as crop diversification and organic farming. These practices not only mitigate the adverse effects of traditional slash-and-burn agriculture but also improve the ecological resilience of the area. Community engagement has been pivotal, leveraging local knowledge and fostering a sense of ownership and sustainability. Challenges such as resistance to new methods and the need for continuous education and resources were identified, underscoring the importance of supportive policies and community-based management. This initiative's success in Jhumlawang illustrates the potential for agroecology to empower rural communities, enhance food

sovereignty, and contribute to the broader goals of sustainable development. The findings suggest that similar strategies can be replicated in other rural settings facing food security challenges, with adaptations to local contexts and sustained community involvement.

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