Outmigration and the rural-urban transition: Challenges and opportunities to crop-livestock interactions in Nepal

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The Sustainable Intensification of Mixed Farming Systems Initiative aims to provide equitable, transformative pathways for improved livelihoods of actors in mixed farming systems through sustainable intensification within target agroecologies and socio-economic settings.

Through action research and development partnerships, the Initiative will improve smallholder farmers' resilience to weather-induced shocks, provide a more stable income and significant benefits in welfare, and enhance social justice and inclusion for 13 million people by 2030.

Activities will be implemented in six focus countries globally representing diverse mixed farming systems as follows: Ghana (cereal–root crop mixed), Ethiopia (highland mixed), Malawi: (maize mixed), Bangladesh (rice mixed), Nepal (highland mixed), and Lao People's Democratic Republic (upland intensive mixed/ highland extensive mixed).

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Abbreviations and acronyms

CIMMYT	International Maize and Wheat Improvement Center
DFID	Department for International Development
HWC	Human-Wildlife Conflict
ILO	International Labor Organization
IWMI	International Water Management Institute
NARC	Nepal Agricultural Research Council
PICO	Population, Intervention, Comparison, and Outcome
SDG	Sustainable Development Goals
SI-MFS	Sustainable Intensification of Mixed Farming Systems Initiative

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1. Introduction

Outmigration is a significant driver of rapid rural-urban transformations in Nepal, influencing demographic, economic, and social dynamics while reshaping farming systems. Labor migration, particularly to international destinations, has resulted in agricultural labor shortages and evolving gender roles, leading to the feminization of agriculture. Simultaneously, remittances sent by migrants have created opportunities for rural households, enabling investments in mechanization, irrigation, and high-value crops. However, the impacts of outmigration remain highly heterogeneous, with evidence of both positive and negative consequences. Labor shortages often disrupt traditional crop-livestock systems, particularly for smallholders, while remittances encourage shifts from subsistence to commercial farming. These contrasting effects raise critical questions about how migration influences labor allocation, gender roles, and sustainable agricultural practices (Khatri et al., 2023; Paudel et al., 2020).

Existing literature highlights key challenges such as land abandonment, reduced farming intensity, and changing rural power dynamics. For example, the traditional crop-livestock integrated production system, which relies heavily on household labor for feed and manure management, is compromised by labor shortages, leading to internal migration and underutilized agricultural land (Jaquet et al., 2015; Zhou et al., 2020). At the same time, behavioral factors, such as risk perceptions and aspirations, and structural barriers, including small land sizes, challenging terrains, and limited access to credit, constrain mechanization adoption and agricultural resilience (Gartaula et al., 2020; Paudel & Pandit, 2021). Additionally, gender disparities and unequal decision-making power further exacerbate vulnerabilities among non-migrant households, deepening rural inequalities (Sharma et al., 2022; Thapa et al., 2023). Despite its critical importance, the transformation of feed and manure management within crop-livestock systems due to outmigration remains understudied.

This study examines the effects of outmigration on rural-urban dynamics and their implications for Nepal's farming systems, with a specific focus on crop-livestock interactions. It aims to (i) explore how outmigration shapes rural-urban migration and crop-livestock systems, (ii) analyze transformations in livestock subsectors concerning feed and manure management, and (iii) investigate the gendered dimensions of these changes. The manuscript is organized as follows: Section 2 outlines the systematic review methodology, Section 3 discusses labor shortages and gender dynamics, Section 4 explores the role of remittances in mechanization and commercialization, Section 5 addresses regional and socio-economic variations, Section 6 provides actionable policy recommendations, and Section 7 concludes with broader implications and future research directions. This structure offers a comprehensive understanding of outmigration's transformative effects on farming systems in Nepal and identifies pathways for sustainable agricultural development.

2. Conceptual framework

This study's conceptual framework explores the multi-dimensional effects of outmigration on agricultural systems in Nepal, focusing on achieving increased agricultural resilience and productivity. The framework identifies five interconnected domains: external drivers, policy and institutional environments, community and regional impacts, household-level dynamics, and farm-level adaptations. External drivers, such as climate change, economic shifts, and technological advancements, disrupt traditional agricultural practices while creating opportunities for innovation and adaptation. Policies on migration, mechanization, and skills development further shape farm-level strategies by influencing agricultural decisions and resource allocation.

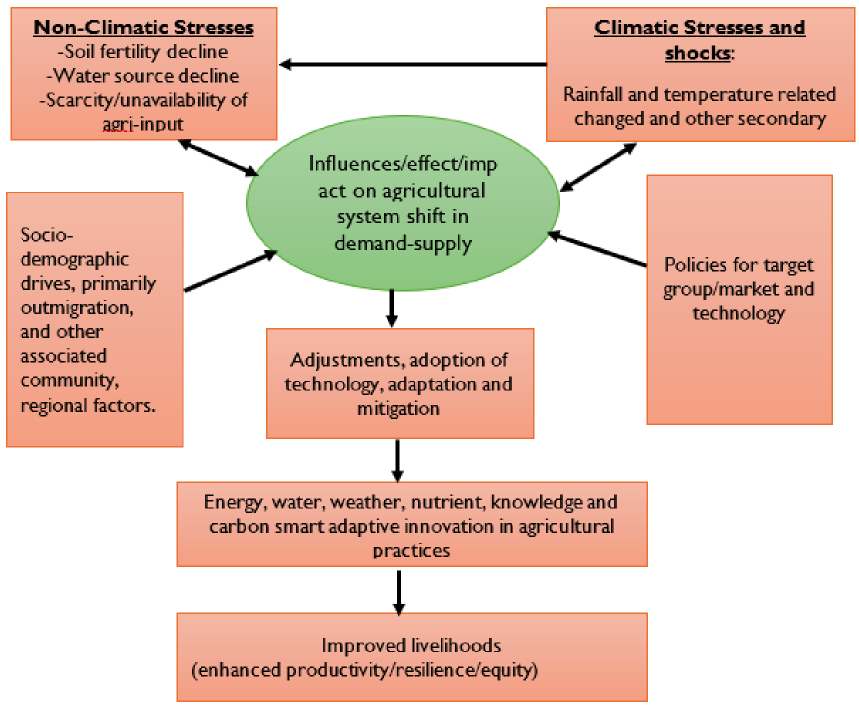

Figure 1 Conceptual Framework for study.

At the community and regional level, outmigration reshapes local labor markets, drives rural-urban transformations, and empowers households through remittances, improving access to agricultural resources and enhancing resilience. At the household level, migration leads to labor reallocation, income diversification, and shifts in gender and youth roles, influencing crop choices and investments in mechanized or labor-saving technologies. Finally, at the farm level, labor shortages encourage mechanization, technology adoption, and new crop preferences as households adapt to economic and environmental pressures. Together, these domains illustrate the complex interactions between migration, socio-economic conditions, and agricultural practices, offering insights into how outmigration drives both challenges and opportunities for agricultural sustainability in Nepal, as depicted in Figure 1.

3. Methodology

3.1 Geographical coverage

This systematic review focuses on Nepal, examining how outmigration affects rural and agricultural systems. We prioritize studies that address outmigration, rural-urban transitions, labor shortages, gender dynamics, and their impacts on agricultural practices. The review covers all regions of Nepal, from national to provincial levels, and includes literature that explores the interactions between migration and farming systems.

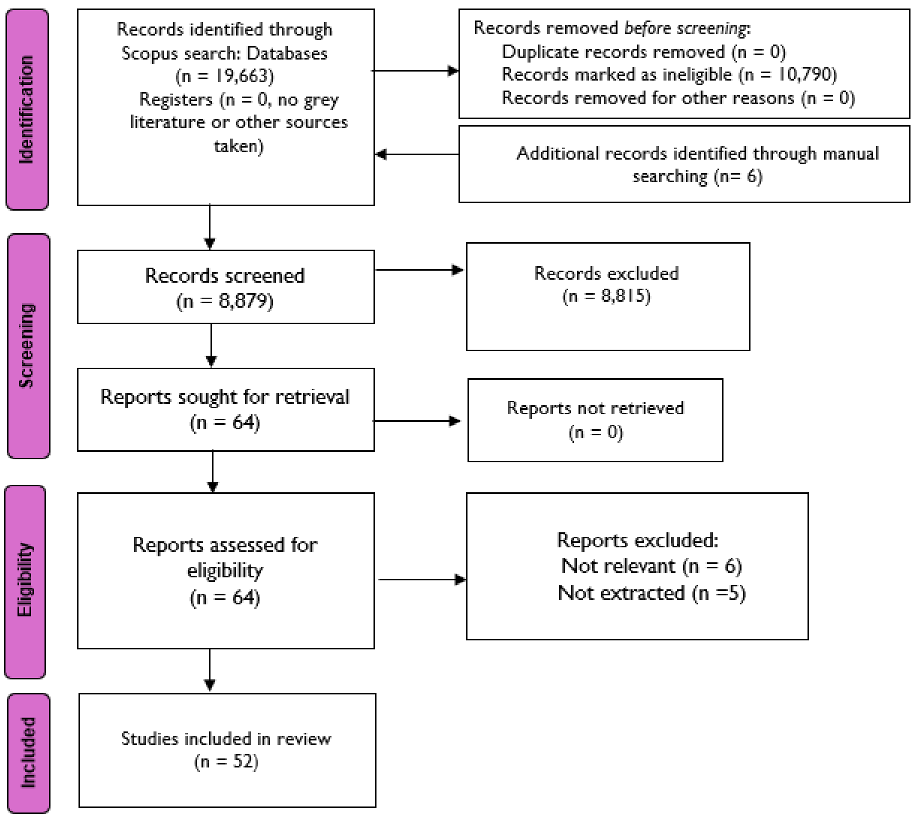

Figure 2 Flow diagram showing the steps involved in the systematic review.

3.2 Process and intended outcomes

We conducted a systematic review using deductive content analysis. First, we identified relevant areas through brainstorming and developed a broad understanding of the topic. To focus on our objectives, we excluded studies on the drivers of outmigration and concentrated solely on its consequences for farming systems. We reviewed studies published since 2010 and selected those that examined crop-livestock interactions, particularly in relation to feed and manure management.

3.3 Literature search strategy

We designed the search strategy using predefined inclusion and exclusion criteria. We applied the PICO (Population, Intervention, Comparison, Outcome) framework to create search strings that captured various aspects of outmigration and agriculture in Nepal. Boolean operators (AND, OR, NOT), truncation symbols (*), and wildcards (?) helped optimize search results. Between August and November 2024, we conducted a pilot search to refine key terms, such as “Migration,” “Agriculture,” “Livestock,” “Sustainable Farming,” and “Remittance.” We also included related terms like “labor,” “land use,” “inputs,” and “urbanization” to ensure comprehensive coverage of the topic.

3.3.1 Identification of databases

We searched academic and grey literature databases to ensure comprehensive coverage. The key databases included SCOPUS, NepJol, and institutional repositories like the International Labour Organization (ILO), Ministry of Agriculture and Livestock Development (MoALD), and Central Bureau of Statistics (CBS). This approach allowed us to capture peer-reviewed studies, policy reports, and region-specific unpublished research.

3.3.2 Screening and eligibility

We managed the search results using reference management tools like Jabref and Zotero. Two reviewers independently screened titles and abstracts using Rayyan to assess relevance. We applied eligibility criteria that included studies published between 2010 and 2024, written in English or Nepali, and focusing on outmigration's impacts on farming systems. We excluded studies that did not meet these criteria.

3.3.3 Inclusion, exclusion and quality assessment

We followed a rigorous two-stage process to select studies. From an initial pool of 19,662 records, we narrowed the list to 51 articles. Snowball searches added six additional studies. We assessed the quality of each study using the UK Department for International Development (DFID) framework, which evaluates conceptual framing, transparency, validity, and reliability. This ensured the inclusion of only high-quality studies.

3.3.4 Data collation and analysis

We used summative qualitative content analysis to group the findings into challenges, opportunities, and missing links. We classified the impacts as significantly positive, significantly negative, or mixed. We categorized the variables into four main groups:

- Structural and Institutional Variables: Access to roads, credit, irrigation, and extension services.
- Asset and Wealth-Related Variables: Land size, mechanized tools, and productive assets.
- Cognitive and Non-Cognitive Variables: Farmers’ knowledge, beliefs, and risk preferences related to sustainable practices.

- Sociodemographic Variables: Gender, family size, education, and migration status, including remittance effects.

3.4 Key variables
We identified key outcome variables, including cropping intensity, livestock management, feed and manure practices, and crop-livestock integration.

- Structural and Institutional Variables: Access to credit, irrigation, and extension services positively influenced outcomes, while road access and irrigation duration had mixed impacts depending on local contexts.
- Asset and Wealth-Related Variables: Productive assets like tractors and land ownership improved outcomes, though smallholders faced constraints due to limited economies of scale.
- Cognitive and Non-Cognitive Variables: Farmers' knowledge, beliefs, and pro-environmental attitudes played a significant role in adopting improved practices.
- Sociodemographic Variables: Migration and remittance flows had mixed effects—remittances improved income and mechanization, but labor shortages hindered productivity.

4. Results and discussion

4.1 Study area and publications statistics

This review covers studies from 38 districts in Nepal. Six papers are from Kavre, four each from Kathmandu, Kaski, and Ramechhap, and three each from Doti, Gorkha, Nuwakot, Dolakha, and Ilam, primarily representing mountainous and hilly regions. Additionally, there are two papers each from Surkhet, Rupendehi, Palpa, Syangja, Tanhun, Chitwan, Sindhupalchowk, Sarlahi, Dhanusha, Mahottari, Siraha, Okhaldhunga, and Sunsari. One paper is included for each of 21 other districts. Most studies (90%) were published between 2010 and 2024, with sample sizes ranging from two to 2,528.

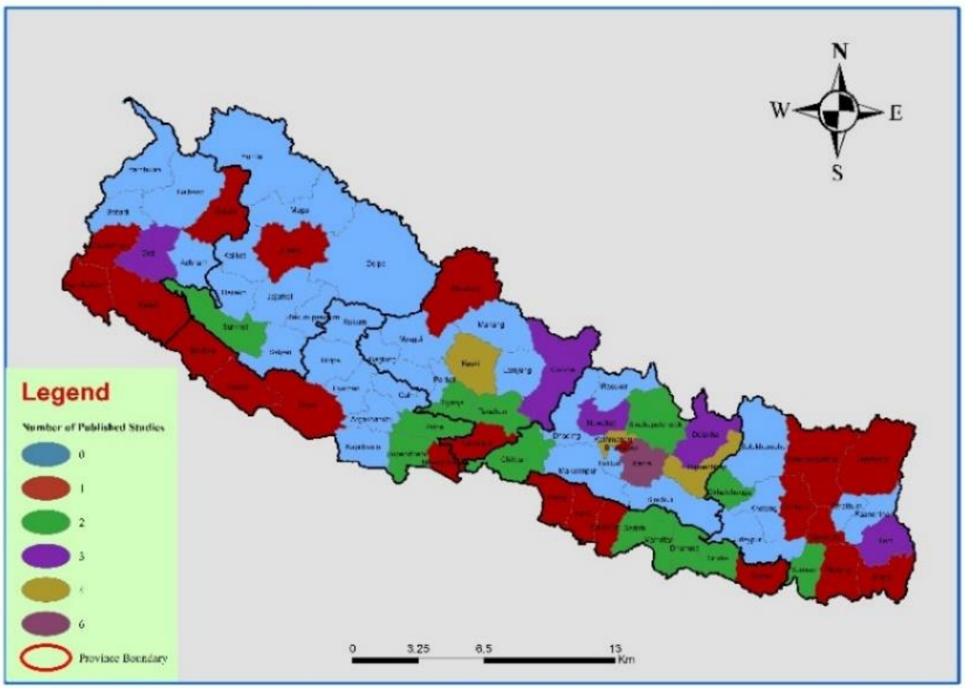

Figure 3 A map showing number of studies included in the systematic review by districts.

4.2 Climate change and environmental shocks influences outmigration

Climate change and environmental shocks are significant drivers of outmigration in rural Nepal, disrupting agricultural livelihoods and household stability. Studies indicate that environmental stressors such as climate variability, natural disasters, and pandemics often compel rural households to migrate for better opportunities (Prasain, 2018; Gautam et al., 2020; Khatri et al., 2023). For instance, climate-induced water stress in Dhye Village forced residents to relocate as an adaptive response (Prasain, 2018). The 2015 earthquake caused substantial outmigration due to the loss of critical resources like livestock (Gautam et al., 2020). Additionally, the COVID-19 pandemic intensified food insecurity by disrupting labor migration (Khatri et al., 2023). Variations in findings reveal context-specific dynamics shaped by regional attributes. For example, Prasain (2018) identifies water scarcity as a key migration driver in *Dhye* Village. In contrast, Khatri et al. (2023) show how subsistence farming served as a safety net during the pandemic. Overall, these findings highlight the critical role of environmental shocks in shaping outmigration decisions.

4.3 Influences of outmigration

4.3.1 Rural-urban transition

Outmigration significantly influences rural-to-urban transitions as individuals seek better opportunities (Bhandari et al., 2022; Gautam et al., 2020; Poudel et al., 2019). Studies show that declining agricultural incomes compel migration to urban areas (Baral et al., 2021; Gathala et al., 2021). Adverse climatic conditions and civil conflicts also drive migration (Nepal et al., 2021; Wolking et al., 2020). The COVID-19 pandemic has reversed some migration trends due to urban job losses (Khatri et al., 2023).

4.3.2 Outmigration, labor shortage and agriculture

The relationship between migration and agricultural practices reveals complex dynamics affecting labor availability and farming systems. Migration-induced labor shortages have transformed traditional agricultural systems by prompting shifts from subsistence to cash crops (Bhandari et al., 2022). Reverse labor migration has partially alleviated challenges for subsistence farming during economic uncertainty (Khatri et al., 2023). Male outmigration disproportionately affects farming systems by reducing labor availability and increasing costs (Thapa, 1996; Bryld, 2003).

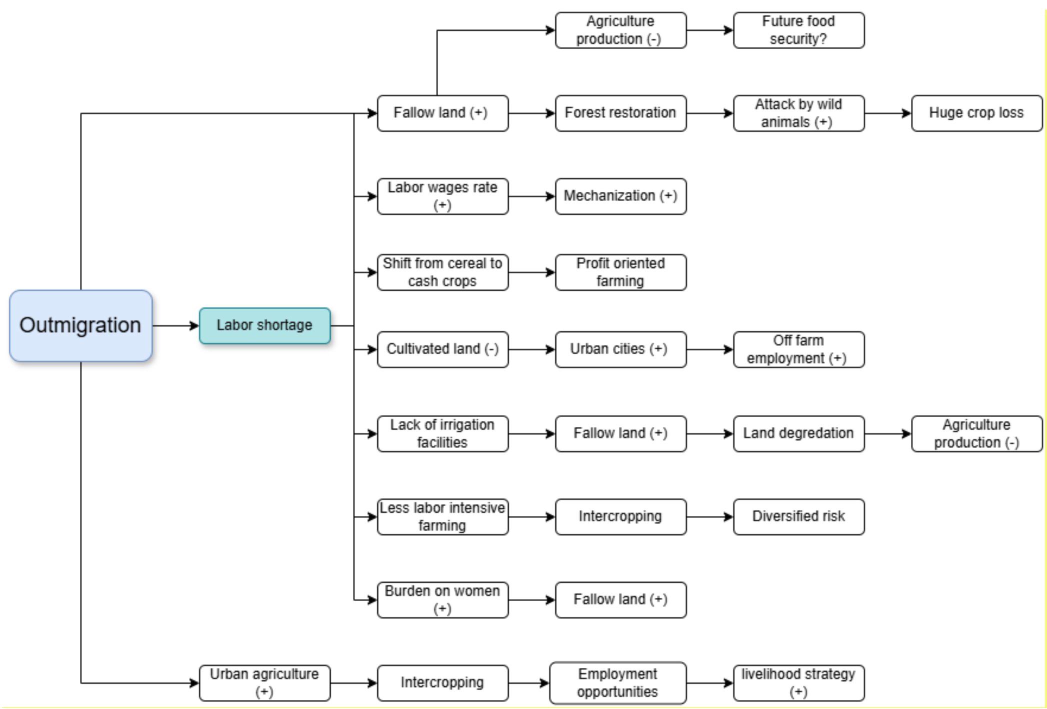

Figure 4 A flow-chart presenting outmigration's influences on farming systems in Nepal through labor shortage and urbanization channels.

4.3.3 Outmigration and remittances

Remittance has become a crucial income source for many rural households in Nepal (Paudel et al., 2019; Gathala et al., 2021; Khatri et al., 2023). It generally supports household consumption and enable investments in agriculture. However, the COVID-19 pandemic raised concerns about the sustainability of remittance flows due to migrant job losses (ILO, 2020).

4.3.4 Outmigration and fallowing

Outmigration in rural Nepal has led to significant land abandonment due to labor shortages and rising production costs (Prasain, 2018; Rijal et al., 2020). The persistence of fallow land is well-documented, with studies showing a decline in agricultural land from 1990 to 2010 (Dahal et al., 2009). The COVID-19 pandemic further worsened this trend by intensifying labor shortages (Rasul et al., 2021).

4.3.5 Outmigration, remittance, and mechanization

Labor shortages have accelerated the adoption of agricultural machinery in rural Nepal. Farmers increasingly use mini tillers to address labor challenges (Paudel et al., KC et al., 2019). Rising household purchasing power through remittances has facilitated the acquisition of machinery for tasks like threshing and plowing (Rasul et al., 2021).

4.3.6 Outmigration and gender roles

Outmigration has reshaped labor dynamics and gender roles. Gautam et al. (2020) found that women increasingly collect firewood in the absence of male household members. Pradhan and Sharma (2017) reported greater female participation in community forestry programs, where 71% of income-generating beneficiaries were women. Similarly, Jaquet et al. (2015) and Paudel et al. (2019) highlight the feminization of agriculture, where women assume more agricultural responsibilities. Mechanization, such as mini-tillers, reduces women's workloads, freeing time for education and income-generating activities (Gathala et al., 2021; Rai et al., 2023). When male migrants return, they sometimes share responsibilities, fostering household unity during uncertain times (Maraseni et al., 2022). These findings emphasize the need for interventions to support women's roles in agriculture amidst high outmigration.

4.3.7 Access and availability of financial and extension services

Outmigration influences financial access and agricultural practices in complex ways. Wealthier farmers typically access formal credit, enabling investments in cash crops and technologies (Paudel et al., 2019). In contrast, small farmers face barriers in accessing credit, compounded by labor shortages due to migration (Pradhan and Sharma, 2017). Remittances, however, provide an alternative income source, enabling some farmers to overcome financial constraints (Chaudhary et al., 2020; Karki et al., 2022). Barrueto et al. (2018) found that financial resources support sustainable practices like tree farming, enhancing resilience to environmental shocks. Cooperatives play a key role in improving credit access for small farmers (Paudel et al., 2019; Matthys et al., 2024). However, outmigration reduces their effectiveness as younger contributors leave. While remittances help offset migration's negative impacts, improving access to credit and strengthening cooperative structures remain essential.

4.3.8 Migration and social capital

Outmigration profoundly impacts social structures and agricultural systems. Returnee migrants often foster economic revitalization by re-engaging in agriculture with new skills and capital (Khatri et al., 2023). However, Wang et al. (2020) highlight that rural-to-urban migration erodes traditional social networks that support cooperation. Abandoned farmland exacerbates these challenges, weakening cultural ties to mountain farming systems (Chaudhary et al., 2020). Thapa (1996) illustrates how caste-based networks and shared religious practices once shaped agricultural cooperation. Outmigration disrupts these traditions, straining social cohesion and resource management. While migration offers economic opportunities, it also weakens the social capital essential for sustaining rural livelihoods.

4.3.9 Access to irrigation

Access to irrigation significantly enhances agricultural productivity, particularly in rice farming (Paudel et al., 2019). However, inadequate irrigation, exacerbated by climate change, remains a major challenge (Pradhan and Sharma, 2017; Nepal et al., 2021). Migration increases irrigation adoption, as remittances enable investment in systems like pump irrigation, reducing labor demand and encouraging further outmigration (Karki et al., 2023; Piotrowski et al., 2013). This reciprocal relationship highlights both the benefits and challenges of irrigation infrastructure in sustaining agricultural systems amid outmigration.

4.3.10 Subsidies in agri-input

Labor shortages due to outmigration have prompted government subsidies to promote farm mechanization. Paudel et al. (2019) reported that nearly 75% of farmers received subsidies for mini tillers, reducing reliance on manual labor. These incentives facilitate the shift from subsistence to commercial farming (Rijal et al., 2020; Karki et al., 2023). While subsidies address immediate labor shortages, long-term sustainability requires systemic support for rural economies and technological adoption.

4.3.11 Outmigration and asset ownerships

Outmigration affects landholdings and agricultural investments. Smaller landholdings, often divided through inheritance, increase the likelihood of migration as farming becomes less viable (Piotrowski et al., 2013; Khatri et al., 2023). However, remittances enable households to invest in irrigation and mechanization, indirectly improving farming systems despite limited land availability (Karki et al., 2023).

4.3.12 Outmigration and feed, forage and fodder

Outmigration exacerbates challenges in livestock management, including rising feed costs and declining grazing land availability (Khatri et al., 2023; Jaquet et al., 2015). Environmental factors, such as invasive species and drought, further constrain feed and fodder resources (Nepal et al., 2021). Women increasingly shoulder the burden of feed collection after male migration, reflecting shifting gender roles and increased workloads (Meinzen-Dick et al., 2022).

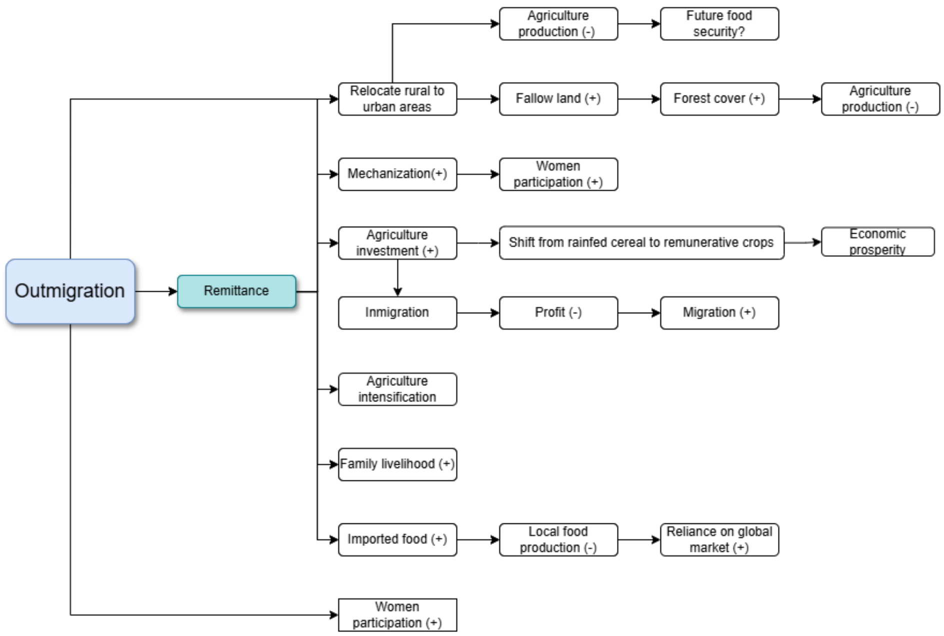

Figure 5 A flow-chart presenting outmigration's influences on farming systems in Nepal through remittances.

4.3.13 Outmigration and changes in consumption and production behavioral attributes

Outmigration has influenced farming practices, with a shift toward commercial agriculture as households seek stable incomes (Khatri et al., 2023). Gender roles have also changed, with women increasingly participating in irrigation and farm activities (Meinzen-Dick et al., 2022). Remittances have surpassed agriculture as a primary income source, reducing reliance on traditional practices like firewood collection (Shahi et al., 2022). These trends highlight the evolving consumption and production behaviors in response to migration and socio-economic shifts.

4.4 Challenges and opportunities

The reviewed studies provide a comprehensive understanding of the diverse challenges and opportunities in rural farming systems. Outmigration significantly shapes rural-urban transitions and agricultural practices in Nepal, influencing land use, labor dynamics, and farming systems. One of the key impacts of outmigration is the reduction in agricultural labor, which is particularly felt in regions with high male migration. This labor shortage leads to an increase in the abandonment of agricultural land, contributing to the expansion of fallow land. Multiple studies highlight this trend, showing that as male workers migrate for better opportunities, women and children are left to manage the remaining agricultural tasks, often under more challenging conditions (Jaquet et al., 2015; Piotrowski, Ghimire and Rindfuss, 2013; Gautam et al., 2020). The shortage of labor, along with the high costs of agricultural production, has pushed farmers to abandon traditional farming systems and transition to cash crops (Bhandari et al., 2022), or in some cases, to leave land uncultivated altogether (Poudel et al., 2020; Nepal, Tripathi and Adhikari, 2021).

In addition to labor shortages, environmental and socio-economic factors like climate change, poor agricultural infrastructure, and the impacts of natural disasters further exacerbate rural-urban migration patterns. Prasain (2018) notes that climate-induced water scarcity has driven farmers to relocate, while Rijal et al. (2020) highlight the negative impact of urbanization on cultivable land and the growing concerns over food security. Migration is also linked to increased dependency on remittances, which, while providing financial relief, also encourage the conversion of agricultural land to urban use, leading to a reduction in food production and contributing to the increasing vulnerability of rural communities (Bhandari et al., 2022; Khatri et al., 2023).

The consequences of outmigration extend beyond agricultural productivity to include significant shifts in social dynamics. As outmigration weakens community cohesion, it impacts traditional agricultural practices and resource management, making it harder for remaining community members to manage common resources effectively (Wang et al., 2020; Chaudhary et al., 2020). These changes, including the abandonment of farmland, pose a serious challenge to food sovereignty, as highlighted by Barrueto et al. (2018), who discuss how labor shortages undermine local food production and increased reliance on food imports. Furthermore, as migration leads to an aging farming population, gendered labor dynamics emerge, with women increasingly taking on more responsibilities in agriculture and household management, which affects both their well-being and their ability to engage in income-generating activities (Meinzen-Dick et al., 2022; Gathala et al., 2021). In summary, while outmigration offers economic opportunities through remittances, it also brings profound challenges for agricultural systems, particularly in rural areas where labor shortages, environmental stresses, and shifts in land use create long-term vulnerabilities. To address these issues, it is crucial to develop policies that support labor access, sustainable land management, and the resilience of rural communities, particularly by enhancing the involvement of women in agriculture and facilitating the reintegration of return migrants into farming systems (Rai et al., 2023; Shahi et al., 2022).

Despite these challenges, there are several opportunities that could address the issues and support sustainable rural development. Subsistence farming continues to play a critical role in helping households cope with economic shocks and stressors, especially in rural areas with limited resources (Khatri et al., 2023). A growing interest in semi-commercial farming is observed among farmers with better access to land, who are seeking state support to develop such production systems. The need for policy support for both subsistence and commercial crops is critical to ensuring secure and prosperous farming futures amid evolving social and economic changes in rural communities.

Studies highlight opportunities for agricultural diversification and innovation in response to challenges such as labor shortages and climate change. In some areas, the transformation of low-productivity land into private forests has created opportunities for income generation through the sale of logs, while migration has allowed families to invest in better farming techniques with remittances (Gautam et al., 2020; Bhandari et al., 2022). Returning migrants bring back new skills and knowledge that foster innovation in agricultural practices. Mechanization, driven by labor shortages, is another opportunity for improving productivity and reducing the time and effort required for farming (Paudel et al., 2019). The development of irrigation infrastructure, such as relocating to riverbanks to address water scarcity, has intensified farming activities, as demonstrated in apple farming (Prasain, 2018).

Urbanization has created employment opportunities and spurred the expansion of off-farm activities, resulting in better housing, improved medical services, and financial incentives that support rural-urban migration (Rijal et al., 2020; Wang et al., 2020). The demand for agricultural products in urban areas has boosted market prices for produce from areas like Panchkhal, Chitlang, and Bhaktapur, offering a significant economic incentive for farmers. Opportunities for commercial agriculture in high-value crops like large cardamom, ginger, seeds, and fruits are emerging, particularly near roadways where access to markets has improved (Pradhan and Sharma, 2017). Transforming traditional farming into commercial agriculture through land pooling of fragmented and abandoned land has been proposed as an effective solution to attract younger generations to agriculture while increasing domestic food supply (Chidi et al., 2021). Cash income from agricultural intensification could further raise living standards, enabling farmers to purchase land in towns and cities and reinvest in farming systems (Dahal et al., 2009).

4.5 Missing links, critical gaps and suggested policies

Critical gaps remain in understanding the interaction of outmigration and farming systems in Nepal. Structural, cognitive, behavioral, and demographic factors are underexplored, despite their significant implications for sustainable farming intensification. Limited research exists on how access to irrigation, financial institutions, and agricultural subsidies can mitigate labor shortages and facilitate capital flows for mechanization. Similarly, farmers' knowledge, attitudes, and behavioral attributes such as risk preferences and time horizons remain understudied, despite their centrality to adoption of sustainable practices. Nuanced aspects of migration, such as the impacts of seasonal versus long-term migration, are also overlooked. Seasonal migration disrupts labor availability during peak periods, whereas long-term migration causes structural household changes like increased land acquisition but reduced reliance on farming.

To address these gaps, future research must focus on linking institutional variables with migration trends, assessing farmers' cognitive and behavioral dimensions, and differentiating the impacts of seasonal and long-term migration. By harnessing the opportunities created by outmigration and mitigating its challenges, Nepal can strengthen institutional access to irrigation and credit, shift farmer attitudes toward sustainability, and tailor interventions to diverse migration contexts.

The findings highlight a need for targeted policy interventions to support sustainable intensification, equity, and resilience. Addressing the feminization of agriculture, policies should prioritize gender-inclusive mechanization by providing subsidies, credit access, and training for women farmers. Encouraging remittance reinvestment into farming systems through matched savings programs, agricultural bonds, and financial literacy can enhance productivity. Scaling up training programs on sustainable agricultural practices and climate-resilient technologies will build capacity in migration-prone regions. Policies must also support land-use sustainability, improve rural infrastructure and credit access, and facilitate market integration for commercial agriculture. By aligning these policies with migration dynamics, Nepal can navigate the dual challenges of outmigration and agricultural transformation while fostering a resilient and inclusive farming future.

5. Conclusion

Outmigration has emerged as a transformative force shaping Nepal's rural and urban landscapes, with profound implications for farming systems. This systematic review highlights the dual challenges of labor shortages and evolving power dynamics, as well as opportunities stemming from remittance inflows and technological adoption. While the impacts of outmigration are heterogeneous and context-specific, common trends include the feminization of agriculture, increased mechanization, and a gradual shift from subsistence to commercial farming. These findings point to a critical juncture for Nepal, where strategic policy interventions can mitigate the adverse consequences of migration while leveraging its opportunities for sustainable farming intensification.

To address the challenges of labor shortages and feminization, gender-sensitive mechanization and training programs are essential. Incentivizing the reinvestment of remittances into agriculture can further support productivity gains, while improved access to credit and rural infrastructure can enhance the resilience of farming households. Sustainable land management practices and targeted commercialization policies will be vital in promoting equitable growth and ensuring long-term food security. Future research should deepen the understanding of understudied variables, such as cognitive and behavioral factors, migration typologies, and social value orientations, to inform more holistic and effective policies. By adopting these measures, Nepal can navigate the complexities of outmigration and build a resilient, inclusive, and sustainable farming future.

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