Research Article:

PARTICIPATION OF WOMEN IN DECISION-MAKING AND LAND USE: A CASE OF VEGETABLE FARMING IN CHITWAN, NEPAL

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ABSTRACT

This study examines women's participation in decision-making and land use in vegetable farming in Chitwan, Nepal. Primary data were collected from 100 randomly selected female vegetable farmers through household surveys using a semi-structured interview schedule. Descriptive statistics, primarily frequency distribution, were used for data analysis. Results indicate that women contribute significantly across almost all stages of vegetable production; however, their decision-making autonomy is constrained in critical areas such as crop planning, leasing, and land allocation, where male or joint authority remains dominant. Although 41% of respondents independently managed household income and 29% made decisions regarding rented land, only 18% possessed legal land titles. Barriers to greater participation included low levels of education, limited access to agricultural information, inadequate land rights, and heavy time burdens. Only 36% of women had received agricultural training, mostly through cooperatives. Despite these challenges, 83% expressed willingness to remain involved in land-use decisions, largely due to family welfare, farming expertise, and financial necessity. Furthermore, 79% of respondents lacked awareness of available support programs, underscoring gaps in institutional outreach. The findings reveal persistent structural inequalities in women's formal authority and emphasize the need for policies promoting equitable access to resources, training, and legal land rights.

सारांश

यस अध्ययनले चितवन जिल्लामा तरकारी खेतीमा महिलाको कृषि निर्णय-प्रक्रिया तथा भूमि उपयोगमा सहभागिता विश्लेषण गरेको छ । १०० जना तरकारी खेतीमा संलग्न महिला कृषकहरूलाई अनियमित रूपमा छनोट गरी अर्ध-संरचित अन्तर्वार्ता अनुसूचीको प्रयोग गरेर घरपरिवार सर्वेक्षणमार्फत प्राथमिक तथ्याङ्क सङ्कलन र विवरणात्मक तथ्याङ्क विश्लेषणका लागि आवृत्ति वितरण विधि प्रयोग गरिएको थियो । उक्त अध्ययनको नतिजाले महिलाहरू उत्पादनका प्रायः सबै चरणमा सक्रिय भए पनि पुरुष वा संयुक्त अधिकार प्रबल भएका बाली योजना, जमिन भाडा र भूमिबाटो जस्ता महत्वपूर्ण निर्णयमो सीमित स्वायत्ततामा रहेको देखाउँछ । करिब ४१% महिलाले आय व्यवस्थापनमा स्वतन्त्रता देखाए भने २९% ले भाडामा लिएको जमिनसम्बन्धी निर्णय गरेको पाइयो जसमा केवल १८% ले मात्र जग्गाको कानुनी स्वामित्व राखेका थिए । शिक्षाको अभाव, सूचना पहुँचको कमी, कानुनी भूमिअधिकारको न्यूनता र समय अभाव प्रमुख अवरोधको रुपमा पहिचान भए । जम्मा ३६% महिलाले मात्र सहकारीमार्फत तालिम पाएका थिए । त्यसैगरी, ८३% महिलाले परिवारको हित, खेती अनुभव र आर्थिक आवश्यकताका कारण भूमिउपयोग निर्णयमा निरन्तर संलग्न रहन चाहेको जनाए । झण्डै ७९% महिलाले कुनै सरकारी वा गैर-सरकारी कार्यक्रमबारे जानकारी नपाएकोले संस्थागत पहुँचमा गम्भीर खाडल रहेको पाइयो । निष्कर्षतः महिलाको व्यवहारिक भूमिकामा सशक्तता भए पनि औपचारिक अधिकारमा संरचनात्मक असमानता कायम छ जसलाई सम्बोधन गर्न नीतिले भूमिअधिकार, तालिम तथा संस्थागत प्रतिनिधित्वमा समान पहुँच सुनिश्चित गर्नुपर्ने देखिन्छ ।

Keywords: Equality, institutions, land rights

INTRODUCTION

Many developing economies rely on agriculture to support livelihoods, ensure food security, and promote rural development (FAO, 2021; World Bank, 2023). In Nepal, agriculture continues as the primary occupation for the majority, contributes significantly to the national GDP and employ a large workforce (Joshi et al., 2021; Kharel et al., 2022; Liu et al., 2023; MoALD, 2024; Yogi et al., 2025). Within this important sector, women play an indispensable yet frequently underrecognized role, especially in subsistence and smallholder farming systems. Despite their extensive involvement in many agricultural tasks, women have limited participation in decision-making related to land use, technology use, and marketing (Chayal et al., 2013; Douangphachanh et al., 2021; Dudi & Meena, 2017; Haug et al., 2021). Joint decision-making is common, but the degree of women's influence varies. Women might report joint or sole decision-making, but men often perceive themselves as primary decision-makers, highlighting significant gender differences in perception (Acosta et al., 2020; Alwang et al., 2017; Jy et al., 2025; Qanti et al., 2021; Voss et al., 2023). Social norms and gender roles strongly shape these dynamics, with women's participation in decision-making often increasing in contexts of male out-migration or agricultural feminization but not necessarily translating into empowerment or improved well-being (Carnegie et al., 2020; Douangphachanh et al., 2021; Haug et al., 2021; Qanti et al., 2021).

In Nepal, the context of women's involvement in agriculture is dynamic and complex. Women are extensively engaged in almost all stages of crop production, from land preparation to post-harvest handling, frequently performing majority of the agricultural labor (Devkota et al., 2018; Mishra & Osti, 2021). Nevertheless, their voices in formal decision-making bodies and at the household level are often muted, often relegating them to secondary roles in decision-making processes (Rajkarnikar, 2020; Shahi, 2024), a challenge exacerbated by their limited access to credit, land, and specialized trainings (Chebet, 2023; Dunne et al., 2021; Kandi et al., 2025; Mukaila, 2024). The accelerating feminization of agriculture in Nepal, largely driven by male out-migration for employment, both domestically and internationally, has further intensified women's workload and responsibilities, positioning them as the primary actors in farming activities (Dhakal et al., 2018; Farnworth et al., 2017; Gartaula et al., 2010; Leder, 2022; Maharjan et al., 2020; Spangler & Christie, 2020; Tamang et al., 2014). Increased feminization has sometimes led to reduced productivity, land abandonment, and food insecurity, especially when women lack adequate support or resources (Lamichhane et al., 2022; Maharjan et al., 2020; Pandey et al., 2021; Tamang et al., 2014). This underscores the critical importance of their effective participation in decision-making for ensuring household resilience, national food security, and overall agricultural productivity (Aniebonam et al., 2022; Behera et al., 2024; Nguyen et al., 2023). Without equitable access to information, modern agricultural technologies, credit facilities, and, most crucially, secure land ownership, women farmers face significant hurdles in optimizing their agricultural practices, adapting to climate change impacts, and fully realizing their productive potential (Chebet, 2023; Dunne et al., 2021; Kandi et al., 2025; Mukaila, 2024).

Nepal's Agriculture Development Strategy (ADS) (2015–2035) provides a long-term framework for transforming the agricultural sector with gender equality as a core component. It recognizes the historical marginalization of women and aims to enhance their participation, resource access, and decision-making power. Key targets include increasing women's land ownership, ensuring equitable access to credit, technology, and markets, and promoting female representation in agricultural institutions. The strategy emphasizes capacity building through targeted training and mainstreaming gender considerations in policies and programs. However, entrenched cultural norms, limited stakeholder awareness, and insufficient resources pose

challenges to effective implementation. Monitoring mechanisms, such as gender-disaggregated data collection and periodic evaluations, are essential for tracking progress and accountability. By integrating gender equality, the ADS seeks to empower women and marginalized groups in agriculture. Ultimately, it envisions inclusive, sustainable, and equitable growth across the agricultural sector (MoAD, 2016).

Similarly, the Gender Equality and Social Inclusion (GESI) Strategy and Action Plan developed by the Ministry of Agriculture and Livestock Development underscores the necessity of integrating gender considerations into agricultural development. This strategy emphasizes women's access to resources, participation in decision-making, and capacity building as important components for achieving sustainable agricultural growth (ASDP, 2021).

Despite the ongoing efforts, persistent structural barriers remain. Women's limited access to financial resources (Chebet, 2023; Dunne et al., 2021; Kandi et al., 2025; Mukaila, 2024) and their underrepresentation in formal farmer groups (Ingutia et al., 2021; Othman et al., 2020; Serra & Davidson, 2020), often constrain their ability to influence agricultural policies and leverage market opportunities. Studies across various districts of Nepal consistently highlight that while women are dominant labor force in agriculture, their autonomy in strategic decisions, such as land acquisition/disposal, selection of major cash crops, and market engagement, remains significantly low, frequently necessitating joint consultation or male approval (Devkota et al., 2018; Joshi & Kalauni, 2018; Mishra & Osti, 2021).

The research focuses on examining the extent of women's participation in decision-making and land use. This study specifically aims to assess women’s participation and authority in agricultural and land use decision-making, while also identifying the key challenges they face and the types of support they require. It further seeks to examine the extent of their involvement, consultation, and future willingness to engage in land use planning. By examining women's self-reliance in decision-making, their access to vital support systems, and the multifaceted challenges they encounter, this study seeks to highlight the persistent structural barriers that limit women’s empowerment. The findings will be important for informing and refining policy considerations targeted at empowering women, improving agricultural outcomes, and fostering genuine gender equality and women's empowerment within the agricultural sector.

RESEARCH METHODS

Women's involvement in agricultural decision-making and land use in vegetable farming was explored in this study using a descriptive research design that combined quantitative and qualitative methods. Chitwan district was purposively selected as it is major vegetable producing district in Nepal (MoALD, 2024). Within the district, Bharatpur Metropolitan (ward 4, 5, 6, 8, 11, 12), Ratnanagar Municipality (ward 1, 6) and Kalika Municipality (ward 1, 4, 5), were purposively selected for their accessibility and women's active participation in vegetable farming. The population for the study were 975 registered farm households. To calculate sample size, we used the formula (Daniel, 1999);

$n = N*X / (X + N - 1)$,
where,
$X = Z_{\alpha/2}^2 *p*(1-p) / MOE^2$,
and $Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$, MOE is the margin of error, p is the sample proportion, and N is the population size.

Using a random sampling technique, 100 female farmers were selected. Household survey was carried out in June-July 2025 using a semi-structured interview schedule. Further, 4 Focus Group Discussions (FGDs) were carried out with female farmers and male farmers, separately in a group of 6-10 members. Similarly, 8 Key Informant Interviews (KIIs) were carried out with female executives of agricultural cooperatives, male executives of agricultural cooperatives, local representatives and extension workers. Though FGDs and KIIs were primarily carried out to complement and validate the results from household surveys, selected quotes from FGDs and KIIs are included in the results to enrich and contextualize the findings. Frequency calculation was employed using Stata/BE 17.0 for data analysis.

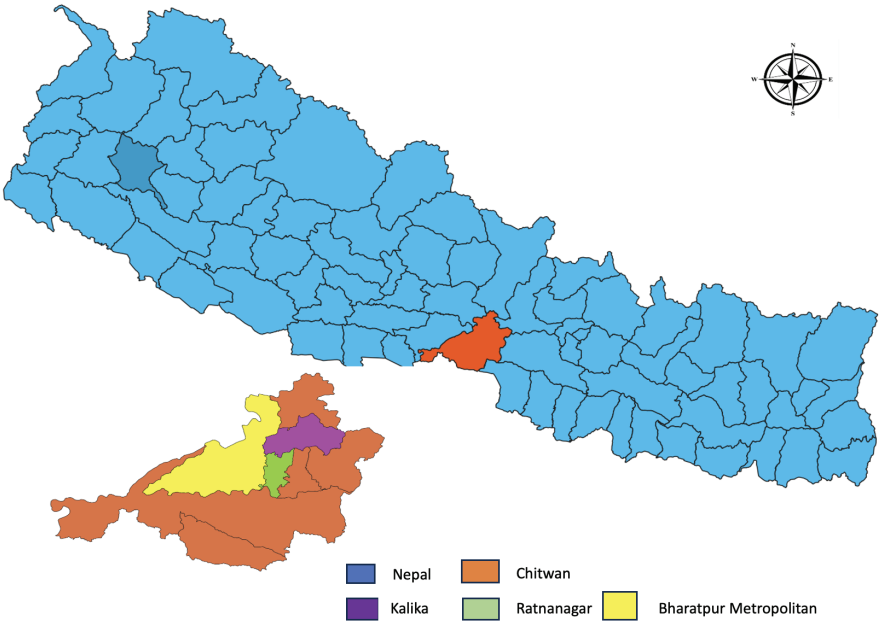

Fig. 1. Map of Nepal showing the study area

RESULTS AND DISCUSSION

Socio-demographic characteristics of the respondents

Table 1 presents the socio-demographic characteristics of the respondents. Young adults (20-40 years old) make up 55% of the respondents, 38% of the respondents were middle-aged (41-59 years) and 7% of the respondents were older adults (60 years and over). Majority of the respondents, 62% of them, belonged to the Janajati. The Madhesi represents with 25%, the Brahmin/Chhetri with 13%, and only 1% were Dalit. Similarly, 45% of respondents engaged in vegetable farming had no formal education and 34% had only completed elementary school. Just 9% had completed higher secondary education, and a smaller percentage (12%) had completed secondary school. According to the respondents' marital status, 91% of them were married, while 9% were widowed. Respondents' household sizes varied, with 51% living in medium-sized families with four to five people, 14% lived in small households with just one to three people, whereas 29% came from large families with six to eight members and just 6% of respondents lived in extended households with nine or more people. Further, 34% of households had a small number of male members (1–2), while 66% had a larger number of males (≥3). For females, 25% of households had a small number (1–2), and 75% had three and more female members.

Similarly, 56% of the respondents were from households with a moderate, economically active members (three to four earner). Similarly, 20% had only one or two earning members, while 24% came from households with five or more earners. Annual income for 19% of households was less than NPR 100,000, and 17% made between NPR 100,000-300,000. Similarly, 20% said they made between NPR 300,000-500,000, and 44% of households, the largest percentage, reported making more than NPR 500,000. Regarding farm size, half of the farmers (50%) cultivated on less than 15 katha of land, while the remaining half (50%) managed 15 katha or more. In terms of farming experience, 40% of the respondents had less than 10 years of farming experience, 30% reported 10–20 years, and the remaining 30% had more than 20 years of experience.

Table 1. Socio-demographic characteristics of the respondents

Variable	Categories	Frequency
Age	Young (20-40 years)	55 (55)
	Middle-aged (41-59 years)	38 (38)
	Older (≥60 years)	7 (7)
Ethnicity	Brahmin/Chhetri	13 (13)
	Janajati	62 (62)
	Madhesi	25 (25)
	Dalit	1 (1)
Education	No Formal Education	45 (45)
	Primary	34 (34)
	Secondary	12 (12)
	Higher Secondary	9 (9)
Marital status	Married	91 (91)
	Widowed	9 (9)
Household size	Small (1-3 members)	14 (14)
	Medium (4-5 members)	51 (51)
	Large (6-8 members)	29 (29)
	Extended (≥9 members)	6 (6)
Number of male per household	Small (1-2)	34(34)
	Large (≥3)	66(66)
Number of female per household	Small (1-2)	25(25)
	Large (≥3)	75(75)
Economically active members	Low (1-2 earners)	20 (20)
	Moderate (3-4 earners)	56 (56)
	High (≥5 earners)	24 (24)
Income (NPR)	<100,000	19 (19)
	100,000-300,000	17 (17)
	>300,000-500,000	20 (20)
	>500,000	44 (44)
Farm size (katha)	<15	50 (50)
	≥15	50 (50)
Farming experience	<10	40 (40)
	10-20	30 (30)
	>20	30 (30)

Source: Field survey, 2025
Note: Figures in parentheses indicate percentages

Institutional characteristics of the respondents

Table 2 presents institutional characteristics of the respondents with detailed status of participants' engagement in agricultural training, land ownership and access to agricultural services. The results revealed that a small minority of the study's participants have received some form of agricultural training. Specifically, 10% of the respondents have received agricultural training. For the small group of participants who did receive training, 60% of trained participants, have received training 1-2 times and 40%, have received training 3 or more times. Similarly, only 18% of the respondents have land ownership.

Results revealed that, there are notable differences in farmers' access to various agricultural services. It is observed that 97% of the respondents had access to agricultural inputs, such as seeds, pesticides and fertilizers. Financial institutions are essential in supporting female farmers, as made clear by 76% of respondents who had access to credit or loans. The use of critical knowledge-based services remained low. With 28% of women having access to agricultural extension services, 16% have access to market information, and only 9% have access to internet or mobile-based agricultural information. Similarly, access to group memberships was moderate at 41%.

Table 2. Institutional characteristics of the respondents

Characteristics	Frequency
Training	
Received training	10 (10)
Those who received (n=10)	
1-2 training sessions	6 (60)
>3 training sessions	4 (40)
Land ownership	
Yes	18 (18)
No	72 (72)
Access to services*	
Agricultural extension services	28 (28)
Credit/loan from financial institution	76 (76)
Mobile phone/Internet-based agricultural information	9 (9)
Group membership (cooperatives/farmers group)	41 (41)
Market information	16 (16)
Agricultural inputs	97 (97)

Source: Field survey, 2025

Note: *Multiple response noted; Figures in parentheses indicate percentages

Decision-making in agricultural activities

Table 3 presents the decision making of respondents in agricultural activities. The results revealed that patterns in the way decisions are made in production activities, ranging from land preparation to harvesting and subsequent post-harvest handling: a preponderance of joint decisions (46-72%), and limited individual authority (21%-29%). These results are similar to findings of previous studies (Devkota et al., 2018; Mishra & Osti, 2021), which reported that women gain power through collective decision-making as opposed to autonomous authority. Second, distinct dynamics are seen in post-production activities: marketing exhibits a similar pattern (24% individual, 32% men, 44% joint), but decisions about household- level income show greater female autonomy (41%). These findings support Resurrección (2013), which reported that women typically have more autonomy over how they manage their income than over production choices. Third, the persistent low men-only decisions in field operations

demonstrate emergent patterns of collaborative farming, which runs counter to the widespread belief in absolute male dominance and imply that joint decision-making is a crucial transitional mechanism for women's agricultural empowerment, even in the face of enduring patriarchal structures (Devkota et al., 2018).

Table 3. Decision-making in agricultural activities

Agricultural activity	Self	Men	Joint
Land preparation	21 (21)	28 (28)	51 (51)
Seed selection/purchase	24 (24)	30 (30)	46 (46)
Nursery raising	29 (29)	6 (6)	65 (65)
Transplanting	29 (29)	6 (6)	65 (65)
Fertilizer/manure application	27 (27)	6 (6)	67 (67)
Pest/disease management	25 (25)	4 (4)	71 (71)
Irrigation	29 (29)	3 (3)	68 (68)
Weed/interculture	27 (27)	3 (3)	70 (70)
Harvesting	26 (26)	4 (4)	70 (70)
Post-harvest handling	23 (23)	5 (5)	72 (72)
Marketing/selling	24 (24)	32 (32)	44 (44)
Income management	41 (41)	20 (20)	39 (39)

Source: Field survey, 2025

Note: Figures in parentheses indicate percentages

Decision-making authority in land use in vegetable farming

Table 4 presents the decision-making authority of respondents in land use. The difference is clearly observed in decisions about land allocation, where men have typically 34-37% authority compared to women, who have 25-27%. This supports Resurrección (2013) findings that men habitually have higher power in regards to land issues, even though women involve in almost all farming tasks. The exception is especially apparent in decisions concerning rented land use, where women exhibit a comparatively higher degree of autonomous control (29%) compared to men, in contrast joint decisions report for 57%. This implies that non-ownership tenure systems may give women more autonomy to make decisions. Kandiyoti (1988) termed "patriarchal bargaining," wherein women strategically negotiate shared authority within established gender frameworks instead of confronting them directly. The overall results highlight the need for policies that address the challenges in autonomous control and encourage collaborative decision-making, especially in land-related matters where gender disparities are still most noticeable.

Table 4. Decision-making authority in land use in vegetable farming

Decision category	Self	Men	Joint
Land allocation decisions			
Selection for vegetable farming	27 (27)	34 (34)	39 (39)
Land area allocation	25 (25)	37 (37)	38 (38)
Conversion from cereal land	25 (25)	37 (37)	38 (38)
Land tenure decisions			
Leasing in/out land	26 (26)	34 (34)	40 (40)
Use of rented land	29 (29)	14 (14)	57 (57)

Source: Field survey, 2025

Note: Figures in parentheses indicate percentages

Women's involvement in land use decisions

Table 5 presents the women's involvement in land use decisions. Results revealed that 52% of the respondents reported involvement in land use decisions. Women's involvement in land decisions is mostly motivated by practical farming knowledge (19.23%) and economic necessity (23.07%). About 15.38% want more ownership rights, while 17.30% are involved for the security of the family. Similarly, 13.46% take on decision-making responsibilities as a result of male absence, showing adaptive power. Further, 11.53% favours collaborative approaches implies that gender dynamics in agricultural leadership are changing. These results highlight that women's participation in land management is influenced by a combination of livelihood pressures, experiential knowledge, and progressing household structures.

Previous studies also stated women's participation in land management is not static; it is shaped by economic pressures (Alary et al., 2025; Crossland et al., 2021; Hajjar et al., 2020; Sopamena & Pattiselanno, 2023; Spangler & Christie, 2020), the value of their knowledge (Alary et al., 2025; Begum et al., 2022; Mello & Schmink, 2017; Soto-Alarcón & González-Gómez, 2021), and the evolution of household structures (Arthur-Holmes & Busia, 2020; Crossland et al., 2021; Farnworth et al., 2018; Muchomba, 2017; Spangler & Christie, 2020). While these factors can empower women and improve household resilience, persistent gender norms and increased labor burdens remain challenges.

Table 5. Women's involvement in land use decisions

Category	Frequency (n=52)	Representative quotes
Economic and livelihood needs	12 (23.07)	"Farming is our only income source; I must be involved." "Better harvests mean my children can study."
Hands-on farming experience	10 (19.23)	"I work the land daily—I know its needs." "My planting experience improves yields."
Family and future security	9 (17.30)	"Decisions affect my children's future." "I want to plan crops for food and income."
Empowerment and ownership	8 (15.38)	"If I owned land, I'd decide more." "Women's voices bring practical solutions."
Absence of male decision-makers	7 (13.46)	"My husband works abroad—I handle all decisions." "As the only adult, I must manage the land."
Collaboration and shared roles	6 (11.53)	"Men and women decide better together." "Both perspectives improve farming choices."

Source: Field survey, 2025

Note: Figures in parentheses indicate percentages

Consultation on land-related decisions

Table 6 presents the summary of the respondents who participate in decisions pertaining to land. Results revealed that, 53% of the respondents are consulted when making decisions pertaining to land. Regarding the frequency of consultations, group clearly demonstrates a pattern. With 54.71% of the responses, "Sometimes" is the most frequently given response. 'Rarely,' accounts for 30.18%, and 15.09% of respondents said they were consulted "Always."

These results imply that although participants do participate in decisions pertaining to land, they usually do not do so frequently or consistently. Consultation is frequently an occasional rather than a regular practice, as evidenced by the high percentage of "Sometimes" and "Rarely" responses and the low percentage of "Always" responses. This irregular participation may stem

from deeply rooted gender norms, limited decision-making authority, and restricted access to information and resources, which collectively reduce women's involvement in consistent land-related consultations.

Table 6. Summary of consultation on land-related decisions

Consultation status	Frequency
Yes	53 (53)
Frequency of consultation (n=53)	
Always	8 (15.09)
Sometimes	29 (54.71)
Rarely	16 (30.18)

Source: Field survey, 2025
Note: Figures in parentheses indicate percentages

Future participation in land use planning

Table 7 presents the response of respondents for future participation and not participating in land use planning. Results reveal that 83% of women intend participating in land use planning. Among the 17 of the respondents, who do not plan to participate, financial/profitability worries and labor/time limitations rank as equally significant barriers (29.4% each), followed by health/aging issues (23.5%) and dissatisfaction/external factors (17.7%). This breakdown shows that time limitations and financial stress are the basic difficulty to participation, with personal situation and disappointment playing a supporting part. The high participation intention (83%) indicates that most women feel empowered and motivated to involve in land planning processes. Similarly, targeted support addressing financial viability and workload management could help continue the remaining participants. The findings show the strong foundation for women's participation in agricultural planning and the specific areas that need to be addressed to achieve universal participation.

Table 7. Future participation in land use planning

Response	Frequency
Intend to participate	
Yes	83 (83.0)
Reasons for not participating (n=17)	
Financial and profitability issues	5 (29.4)
Labor and time constraints	5 (29.4)
Health and aging	4 (23.5)
Dissatisfaction and external factors	3 (17.7)

Source: Field survey, 2025
Note: Figures in parentheses indicate percentages

Women's perceptions on agricultural decision-making and autonomy

Table 8 presents women's autonomy and involvement in agricultural decision-making. While many women feel included, a sizable portion may not feel fully empowered, as evidenced by the confidence in farming decisions, with 39% agreeing and 41% being neutral. It suggests that although many women believe they are capable, a sizable portion still lacks confidence.

With 70% of women agreeing or strongly agreeing that they receive support from their husbands or families and 71% affirming that men respect their opinions in agricultural matters, support systems emerged as a major strength. Women's confidence and involvement are probably influenced by this strong support from their families and spouses. With 61% of women reporting control over their income, financial autonomy also seemed strong, confirming their economic

agency.

Notwithstanding these encouraging signs, 51% of women stated that they would like to play a bigger part in decision-making as a desire for more empowerment. Similarly, 79% of respondents were not aware of government or non-governmental organization programs, showing an important awareness gap regarding institutional support.

These patterns indicate that while household-level support strengthens women's confidence and involvement, it does not fully translate into strong decision-making authority due to broader structural and institutional constraints. The large neutral group suggests limited self-efficacy, often shaped by gender norms and restricted access to formal resources. The widespread lack of awareness of government and NGO programs further limits women's ability to leverage external support for greater empowerment. This disconnection between household encouragement and institutional outreach creates only partial empowerment. Bridging this gap is essential to enhancing women's agency and improving agricultural decision-making outcomes.

Table 8. Women's perceptions on agricultural decision-making and autonomy

Variable	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Confidence in farming decisions	0 (0)	12 (12)	41 (41)	39 (39)	8 (8)
Family/husband support	0 (0)	3 (3)	27 (27)	56 (56)	14 (14)
Men respect women's opinions	0 (0)	4 (4)	25 (25)	59 (59)	12 (12)
Control over income	1 (1)	9 (9)	29 (29)	36 (36)	25 (25)
Desire to increase role	1 (1)	14 (14)	34 (34)	40 (40)	11 (11)
Awareness of Gov/NGO programs	23 (23)	56 (56)	11 (11)	10 (10)	0 (0)

Source: Field survey, 2025

Note: Figures in parentheses indicate percentages

Challenges in agricultural decision-making

Table 9 presents the challenges in agricultural decision-making. Results revealed that, 99% of the respondents struggle with limited access to information and a lack of education, which significantly impairs their capacity to make wise agricultural decisions. Their participation is further limited by lack of land ownership (91%) and time constraints brought on by household chores (96%). Similarly, 86% of the respondents also experience low confidence suggests that psychological obstacles coexist with structural ones.

Previous studies also stated that women with lower educational attainment and limited access to agricultural information tend to have reduced participation in farm decision-making (Okonya et al., 2021; Shahbaz et al., 2022; Zhllima et al., 2020). Their dual responsibilities in agriculture and household chores often result in heavier workloads, leaving them little time to engage in decisions (Carnegie et al., 2020; Haug et al., 2021). Lack of secure land tenure further restricts their authority over farm management and the use of income (Acosta et al., 2020; Shahbaz et al., 2022; Zhllima et al., 2020). Additionally, entrenched patriarchal norms and low self-confidence hinder women's capacity and willingness to assert themselves in decision-making processes (Acosta et al., 2020; Carnegie et al., 2020; Jy et al., 2025; Qanti et al., 2021).

Table 9. Challenges in agricultural decision-making

Barrier	Frequency
Lack of education	99 (99)
Limited access to information	99 (99)
Lack of confidence	86 (86)
Time constraints	96 (96)
Lack of land ownership	91 (91)

Source: Field survey, 2025
Note: Multiple response noted; Figures in parentheses indicate percentages

Challenges in land decision-making

Table 10 presents the challenges in land decision-making. Results revealed that, when it comes to land-related decisions, women face even greater difficulties. With, lack of education reported by 97% of the respondents, time burdens (95%) and limited access to information (100%). Systemic exclusion from property rights is highlighted by limited access to legal rights (80%) and land ownership issues (85%).

Table 10. Challenges in land decision-making

Challenges	Frequency
Lack of education	97 (97)
Lack of land ownership	85 (85)
Limited access to legal rights	80 (80)
Time burden	95 (95)
Limited access to information	100 (100)

Source: Field survey, 2025
Note: Multiple response noted; Figures in parentheses indicate percentages

Desired support in agriculture decision-making

The results revealed a number of elements that might improve women's support and involvement in agricultural decision-making (Table 11). Every respondent (100%) underlined the significance of creating farmer groups exclusively for women, as this would give them a discussion to exchange stories and support their voices as a group. Similarly, all respondents (100%) emphasize the essential need for improved access to credit facilities, agricultural input subsidies, and additional training and awareness projects. Also, 60% of women accept that joining cooperatives was a way to increase their participation and arranging power. However, only 17% of respondents highlight the need for legal support to protect land rights, suggesting that this matter is still not given as much priority at the household or community level. Just 1% of respondents said that support from friends and family was a significant factor in enhancing their ability to make decisions in agriculture.

Table 11. Desired support in agriculture decision-making

Support in decision-making	Frequency
Women-only farmer groups	100 (100)
Involvement in cooperatives	60 (60)
More training and awareness	100 (100)
Access to credit and input subsidies	100 (100)
Legal support for land rights	17 (17)
Encouragement from friends and family	1 (1)

Source: Field survey, 2025
Note: Multiple responses noted; Figures in parentheses indicate percentages

CONCLUSION

Women play a crucial role in vegetable farming, participating in almost every stage from choosing seeds to harvesting. However, they still have little control over important choices like crop planning, leasing, and land distribution, with men frequently having more influence. Women's individual voices are still less prominent, despite the prevalence of joint decision-making, which reflects a growing practice of shared responsibility. Although they are somewhat free to manage their income and use rented land, obstacles like low levels of education, limited land rights, ignorance, and household responsibilities still limit their independence. However, the majority of women expressed a strong desire to continue being involved in land-use decisions because of their personal farming experience, family welfare, and livelihood needs. Their role has been reinforced by family and cooperative support, but government and institutional outreach is still lacking.

To turn women's practical contributions into more autonomy and recognition, specific and actionable policies must be implemented. These findings hold direct relevance for Nepal's Agriculture Development Strategy (ADS) and Gender Equality and Social Inclusion (GESI) Strategy. Aligning with these frameworks requires concrete actions such as implementing joint land-titling and legal literacy programs; redesigning extension services to be gender-intentional, using women-only groups and digital tools; ensuring equitable access to credit and inputs through women-targeted quotas; expanding training to include leadership and negotiation skills; and strengthening monitoring with gender-disaggregated data. By adopting these targeted and context-specific approaches, policymakers can ensure women are able to access and benefit from the support intended for them, ultimately bridging the gap between women's labor and their authority in agriculture.

AUTHOR CONTRIBUTIONS

Author A: Conceptualization; Validation; Formal analysis; Investigation; Data curation; Visualization; Writing-original draft.

Author B: Writing-original draft; Writing-review and editing.

Author C: Conceptualization; Methodology; Software; Validation; Formal analysis; Investigation; Data curation; Writing-original draft; Writing-review and editing; Visualization.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest regarding this publication.

ETHICS APPROVAL

Ethical approval for this study was obtained from the Institutional Review Board (IRB) of Nepal Polytechnic Institute, Purbanchal University, Nepal. All participants were informed about the objectives of the study, assured of confidentiality, and provided written informed consent prior to participation.

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