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MIGRATION AND AGRICULTURAL CHALLENGES: A STUDY OF THE PITHORAGARH DISTRICT IN UTTARAKHAND

Arti Joshi[1], Dr. Ruchi Dwivedi[2]
[1]*Research Scholar, Dept. of Regional Economics, M.J.P. Rohilkhand University, Bareilly, U.P. (India)*
[2]*Assistant Professor, Dept. of Regional Economics, M.J.P. Rohilkhand University, Bareilly, U.P. (India)*

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ABSTRACT----------
Migration from rural hilly areas has emerged as a significant socio-economic phenomenon in Uttarakhand, particularly in hilly parts of the state which consists ten districts. The present study examines the interrelation between migration and agricultural challenges in the study region district Pithoragarh. The study explores various agricultural problems that work as a push factor in the rural economy and force people to migrate for livelihood. Using secondary data and field-based insights, the paper analyzes the various key drivers of migration and their direct implications for agricultural sustainability. The study also highlights how the outmigration of youth impacts farming practices, resulting in underutilization of cultivable land and increased dependence on remittances.

KEYWORDS: *Migration, Agricultural Challenges, Livelihood, Rural Economy----------*

INTRODUCTION

Migration has become a defining feature of the socio-economic landscape of Uttarakhand, particularly in its hilly districts such as Pithoragarh. Characterized by rugged terrain, limited infrastructure, and a dependence on subsistence agriculture, the region faces multiple challenges that push its population, especially the youth, to seek better livelihood opportunities in urban areas and the plains. Gender dynamics in migration are notably addressed by (Kandari, 2013), who observes an increasing participation of women in the local economy, which correlates with migration patterns. Over the years, this migration trend has not only reshaped the demographic profile of the district but also created significant implications for the agricultural sector, which remains the backbone of the rural economy. (Mamgain et. al., 2017) emphasize that rural-to-urban migration is widespread among households, driven largely by the failure of development policies to generate adequate employment opportunities, leading to a demographic vacuum in the region.

The exodus of able-bodied workers from rural areas has resulted in labor shortages, underutilization of arable land, and declining agricultural productivity. Traditional farming practices, once sustained through community participation, are gradually eroding as households become increasingly dependent on remittances for their livelihood. At the same time, the abandonment of farmland has led to increased vulnerability to wild animal attacks, soil degradation, and a decline in food security. These intertwined issues highlight the complex relationship between migration and agriculture, underscoring the need to understand their combined impact on the socio-economic stability of hill communities. The socio-economic consequences of migration are further explored by (Sethi, 2019), who critically examines social initiatives aimed at curbing migration.
This study focuses on Pithoragarh district as a representative case to explore the dynamics between migration and agricultural challenges. By analyzing secondary data and reviewing field-level insights, it seeks to identify the key drivers of migration, assess their implications for agricultural practices, and discuss potential policy interventions to revitalize rural livelihoods. Understanding these dynamics is crucial for designing sustainable strategies that address both the push factors behind migration and the challenges confronting the agricultural sector in Uttarakhand's hilly regions.

REVIEW OF LITERATURE

Bhandari, G., & Reddy, B. V. C. (2015), This research, carried out in the Pithoragarh district of Uttarakhand, examined the impact of out-migration on agriculture and the workloads of women. Findings indicated that remittances were predominantly allocated for consumption and education rather than for agricultural investment or capital formation. Migrant households maintained a greater expanse of uncultivated land and possessed a reduced number of livestock in comparison to non-migrant households. The responsibilities of women have escalated markedly, particularly in the independent management of both agricultural and non-agricultural tasks.

Notwithstanding marginally increased agricultural expenses, migrant households experienced diminished returns owing to decreased involvement in farming activities. The burden on women resulted in health complications and increased time dedicated to external responsibilities. The research indicates that policy measures are necessary to bolster hill agriculture and alleviate rural distress.

Mamgain, R. P., & Reddy, D. N. (2017), This study examines the factors and consequences of extensive out-migration from the hill districts of Uttarakhand. It concludes that economic growth has predominantly advantaged the plains, resulting in inadequate infrastructure, diminished agricultural productivity, and limited employment prospects in hill regions. Consequently, young individuals—particularly educated males—emigrate permanently, resulting in aging demographics and deserted villages. Migration has exerted pressure on rural communities, particularly affecting women, while remittances do not significantly alter the local economy. The authors emphasize the necessity for immediate policy measures to create local employment and facilitate return migration.

Sati, V. P. (2021), This research examines the trends and determinants of out-migration in the Uttarakhand Himalaya through district-level secondary data and a village-specific case study. Migration, whether semi-permanent or permanent, is prevalent, driven primarily by employment, education, and inadequate agricultural productivity. Individuals aged 26 to 35 constitute the predominant demographic of migrants. The repercussions encompass deserted villages, neglected agricultural lands, and disrupted rural economies. Infrastructure deficiencies, diminishing agricultural yields, and heightened wildlife encroachment also play a role. The research advocates for enhanced education, healthcare, and employment to mitigate rural depopulation.

Biella, R., Hoffmann, R., & Upadhyay, H. (2022), This research examines the influence of climate change on migration patterns within the mountainous communities of Uttarakhand. The authors employ a mixed-methods approach and discover that vulnerability, particularly inadequate adaptive capacity in agriculture and infrastructure, is significantly correlated with outmigration. Young men are progressively relocating, resulting in the abandonment of aging, predominantly female demographics. Insufficient irrigation, limited livelihood opportunities, and inadequate rainfall significantly constrain rural resilience. Migration serves as both a coping mechanism and a consequence of climate-induced stress.

Vaishnava et al., (2023), Migration in Uttarakhand, particularly from mountainous regions, is predominantly influenced by disparate socio-economic development. The hill districts exhibit elevated labor participation and educational attainment; however, they are deficient in infrastructure and healthcare facilities relative to the plains. This inequality compels residents to relocate in pursuit of superior services. Regression analysis identified unemployment, inadequate infrastructure, and district classification as significant determinants of out-migration. Enhanced infrastructure was associated with diminished migration. The hilly landscape and restricted opportunities exacerbate the issue. The research indicates targeted development in mountainous areas to mitigate migration.

Hasija, A. M., Bisht, H. S., Bandooni, S. K., Kaur, U., & Rani, U. (2023), This research investigates the impact of male out-migration on women in six villages within the Dhari block of Nainital district, Uttarakhand. Research indicates that women experience a markedly heightened workload in agriculture, livestock management, and domestic responsibilities in the absence of men. While certain families gain economically from remittances, numerous women endure social isolation and diminished well-being. More than 63% of women engage in work exceeding 14 hours daily, leaving minimal time for personal respite. The study underscores both beneficial and detrimental socio-economic effects of male migration on women in mountainous communities.

Joshi, A., & Dwivedi, R. (2024), This study examines the impact of agricultural challenges in Pithoragarh district of Uttarakhand on out-migration. The research, based on a survey of 300 respondents, identifies declining agricultural viability, wildlife attacks, and inadequate infrastructure as significant push factors. The results indicate that younger, educated individuals exhibit a higher propensity to migrate for permanent employment opportunities. Consequently, arable land remains uncultivated, leading families to rely on remittances. Chi-square analysis verifies that education, economic status, and social category significantly affect migration decisions. The study concludes that migration is not merely a choice but an imperative resulting from agrarian distress. It advocates for infrastructure enhancement, livelihood diversification, and policy reforms to enhance agricultural viability.

Phartiyal, M., & Sharma, S. (2024), This research examined land use and land cover (LULC) alterations in Pithoragarh district from 1999 to 2021 utilizing satellite imagery, household surveys, and climatic data. The results indicated substantial increases in forest cover and settlements, whereas agricultural land, barren regions, and snow cover diminished. The increase in forested regions was associated with upward vegetation transitions, diminished

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reliance on forests, and plantation endeavors. The decline in agriculture was primarily attributable to climate variability, limited landholdings, and migration. Temperature has increased significantly, accompanied by diverse precipitation patterns. The research highlights the importance of sustainable land-use planning and climate-resilient rural development to tackle these transitions.

Upadhyay, H. (2024), This study examines the experiences of mountain communities in Uttarakhand that remain as others migrate due to climate change and constrained livelihoods. Migration is perceived as beneficial (remittances, acquisition of new skills), detrimental (increased strain on the elderly and women, erosion of social connections), and essential (due to insufficient employment and services). The study concludes that although migration offers certain advantages, it frequently diminishes the adaptive capacity of those who remain. Remittances primarily address immediate necessities rather than fostering long-term resilience. The study advocates for policies that simultaneously address migration and rural vulnerabilities

Lohani, J. K., & Joshi, A. (2025), This study examines migration from the hill regions of Kumaon to the urban plains, with a particular emphasis on Haldwani as a primary destination. The study delineates significant push factors such as restricted employment prospects, elevated dependency ratios, and disjointed landholdings, whereas pull factors encompass improved living conditions and enhanced access to urban infrastructure. The analysis of a sample of 50 migrants reveals substantial enhancements in income and skill levels post-migration. Social networks significantly influenced migration decisions. The study concludes that migration serves as a livelihood strategy for economic advancement, yet it advocates for policy reforms to tackle underlying issues in mountainous regions.

RESEARCH OBJECTIVES

The main objectives of the study are –

1. To study the status of migration among the respondent households.
2. Reasons related to agriculture for migration among respondents.
3. To study the Socio-Economic Characters of Migrants and Reasons of Migration.

HYPOTHESIS OF THE STUDY

The null hypothesis that has developed for the study are -

- **H_0:** Migration is not directly related to agriculture in hilly areas.

RESEARCH METHODOLOGY

(a) Research Design: The research design of the empirical study is descriptive and analytic in nature.
(b) Data Collection Method, Sampling and Sample Size: Simple random sampling technique has been adopted to select the sample from the study area and a sample of 300 respondents was selected from the targeted population of farmers in the two development blocks namely Gangolihgaat and Berinag (selected through random sampling) in Pithoragarh district of Uttarakhand. A well-prepared questionnaire was used to collect the primary data. The secondary data was adopted from various secondary sources i.e., government and other than government.
(c) Statistic tools for Analysis of data
Simple percentage, Arithmetic Mean, Standard Deviation, used in present study. Chi-Square test is adopted to check the reasons of migration with the selected ocio-economic variables.
(d) Limitations of the study
The study is limited to the selected development blocks of hill district Pithoragarh in Uttarakhand State.

RESULTS AND DISCUSSION

(a) Status of Migrants in the Family of respondents
Table 1.0 shows the status of migrants in the study region. Among the sampled households ther family status of respondents shows equal distribution for Joint and Single family, as it is sampled those households from where atleast one family member is migrant to other parts from his village for livelihood and survival of their family. The caste composition among the respondents shows that there is a high percentage of General Caste respondents (67.6 percent), the representation of Schedule Caste respondents is 30.0 percent among migrant families followed by Schedule Tribes (2.0 percent) and Other Backward Class (0.3 percent).

The age composition of the respondents shows that the highest frequency of migrant persons in family is between 30 to 39 years (63.3 percent) followed by 40-49 years group with 18.6 percent. The mean age of migrants is 34.21 years (S.D. 5.94), and the age ranges with minimum of 21 yars to maximum of 51 years. While considering the educational qualification of the migrants shows that 36.3 percent has studied upto higher secondary and 33.3 percent upto secondary classes. All above there no illiterate among the migrants from study region. The marital

status of migrants shows that majority are married (73.3 percent) and a little portion (2.66 percent) falls in 'Other' category (Separated, Widow/Widower) among them.

Place of migration among the respondents shows that 62.0 percent moved outside the Uttarakhand, 23.0 percent migrated within Pithoragarh district and 15.0 percent moved within state region for their livelihood survival. The duration of migration in study region is generally for long period. 68.7 percent migrants from respondent families have secured permanent employment (mostly in private sector jobs or through self-employment) whereas 31.3 percent are still in temporary jobs for their livelihood.

Table 1.0
Status of Migrants in the family of respondents

Variables	No. (Freq.) (n=300)
Percentage of Migrants belong to Joint Family	150 (50.0)
Percentage of Migrants belongs to General Caste	203 (67.6)
Mean age and Standard Deviation of Migrants	Mean Age = 34.21 Std. Dev. = 5.94
Highet percentage of education among migrants	Higher Secondary - 109 (36.33)
Percentage of married migrants	220 (73.33)
Percentage of Outer State migration from study region	186 (62.0)
Migrants employed in Permanent jobs	206 (68.7)

Source: Primary Survey (% value in bracket)

(b) Reasons related to agriculture for migration among respondents

Table 1.1 highlights key reasons for migration among the families of respondents in the hill regions of Uttarakhand. The prime reason for migration among them is that 'Agriculture is not sufficient to meet the family's economic requirement', which has the highest mean score of 4.58 and marked as 'Extremely important' by 67.0 percent respondents. 'Declining agricultural viability & frequent wild animal attacks on crops' is the followed reasons for migration which has the mean score of 4.45 of both with having rank of second and third reason respectively for migration from study region. A significant 55.0% and 59.0% of respondents, replied them as extremely important. 'Lack of agricultural infrastructure and institutional support' is another reason and stands as fourth rank with the mean score of 4.27 and was replied as 'Extremely important' reason by 54.6 percent respondents. 'Low returns from market and the uncertainity of market' is another reason stands at fifth (mean score = 4.03) with 28.0 percent deemed it 'extremely important'.

Overall, the analysis reveals that migration among hill farmers is largely driven by the economic unviability of farming and persistent agrarian distress, worsened by both ecological challenges and infrastructural deficits.

Table 1.1
Reasons of Migrants in the family of respondents

Reasons of Migration	Mean Score	Rank	Std. dev.	Extremely Important Reason (%)
Declining Agriculture Viability	4.45	Second	0.68	55.0
Low returns and Market Uncertainty in Farming	4.03	Fifth	0.83	28.0
Not Sufficient for Family Economic requirements	4.58	First	0.65	67.0
Lack of Agricultural Infrastructure and Support	4.27	Fourth	0.97	54.6
Frequent Wild Animal Attack on Crops	4.45	Third	0.77	59.0

Source: Primary Survey (% value in bracket)

(c) Socio-Economic Characters of Migrants and Reasons of Migration

Table 1.2 reveals the socio-economic characteristic of migrants and reasons behind the migration the of the family members of the respondent. Chi-square test is used as analysis tool to examine the data. The reason of migration is analysed with age, education, type of family, economic category, social category etc.

The first reason 'Declining agricultural Viability' is analysed with such socio-economic variables. The chi-square value of 22.2 (p=0.0000) for education level suggests that higher level of education is more likely to migrate and the declining agricultural conditions are behind this. Other variables p value is exceeding the alpha value 0.05 and this indicates that these variables do not show any significant relationship between them. 'Low returns from marketing and uncertainty of market' analysis with the variables shows that education (Chi-sq.= 14.03, P=0.00002) and Economic category (Chi-Sq. = 23.78, P=0.0000) are significant variables in this regard.

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Examining 'Not sufficient for family economic requirements' shows education (ch-Sq.=10.48, P=0.001), family type (chi-sq.=8.16, P=0.004) & social category (chi-sq=16.33, P=0.0001) are significant variables. The reason 'Lack of agricultural infrastructure and support' & 'Frequent Wild Animal attack on Crops', the analysis shows that all selected socio-economic variables are significant in this regard.

Table 1.2
Socio-Economic Characters of Migrants and Reasons of Migration

Reason of Migration	Variables	Chi-Square Value	P-value	DOF	Significance (P<α=0.05)
Declining Agriculture Viability	A	3.56	P=0.0591	4	Not Sig.
	E	22.2	P=0.0000	16	Sig.
	FT	0.71	P=0.3989	4	Not Sig.
	EC	5.41	P=0.0020	4	Sig.
	SC	15.85	P=0.0001	12	Sig.
Low returns and Market Uncertainty in Farming	A	0.74	P=0.3874	4	Not. Sig.
	E	14.03	P=0.0002	16	Sig.
	FT	2.09	P=0.1478	4	Not sig.
	EC	23.78	P=0.0000	4	Sig.
	SC	32.83	P=0.0000	12	Sig.
Not Sufficient for Family Economic requirements	A	1.69	P=0.1930	4	Not Sig.
	E	10.48	P=0.0012	16	Sig.
	FT	8.16	P=0.0043	4	Sig.
	EC	0.78	P=0.3750	4	Not Sig.
	SC	16.33	P=0.0001	12	Sig.
Lack of Agricultural Infrastructure and Support	A	4.30	P=0.0380	4	Sig.
	E	19.08	P=0.0000	16	Sig.
	FT	11.23	P=0.0008	4	Sig.
	EC	15.29	P=0.0001	4	Sig.
	SC	30.88	P=0.0000	12	Sig.
Frequent Wild Animal Attack on Crops	A	5.56	P=0.0183	4	Sig.
	E	19.77	P=0.0000	16	Sig.
	FT	14.98	P=0.0001	4	Sig.
	EC	4.78	P=0.0287	4	Sig.
	SC	7.73	P=0.0054	12	Sig.

Source: Primary Data [A-Age, E- Education, FT- Family Type, EC- Economic Category, SC- Social Category]

The hypothesis was formed in this regard that -
H_0: *Migration is not directly related to agriculture in hilly areas*.
The tested various agriculture-related reasons for migration against demographic and socio-economic variables (age, education, family type, economic category, and social category) (Table 1.2). For most agricultural reasons—Declining Agricultural Viability, Low Returns, Insufficient Family Income from Agriculture, Lack of Infrastructure, and Wild Animal Attacks—there is a significant association with at least 3 or more socio-economic variables, especially: Education and Social category is significant in all 5 reasons of migration, Economic Category is significant in 4 out of 5 reasons) and finally Family Type and Age (significant in some cases).

Descriptive Statement
Based on the chi-square analysis of the reasons for migration and their association with socio-economic variables, ***the null hypothesis -***
H_0: Migration is not directly related to agriculture in hilly areas—is statistically rejected.

CONCLUSION & SUGGESTIONS

The study highlights the intricate relationship betw0een migration and agricultural challenges in the hilly district of Pithoragarh, Uttarakhand. Findings reveal that migration is largely driven by the economic unviability of agriculture, declining productivity, lack of infrastructure, and frequent wild animal attacks, which collectively make farming unsustainable for rural households. The exodus of young and able-bodied members has resulted in labor shortages, underutilization of cultivable land, and a growing dependence on remittances. Chi-square analysis confirms that socio-economic variables—especially education, social category, and economic category—play a

significant role in influencing migration decisions. Thus, migration in Pithoragarh is not merely a choice but a compulsion emerging from persistent agrarian distress.

To address these challenges, a multi-pronged strategy is essential. First, there is a need to enhance agricultural viability through better irrigation facilities, mechanization support, and climate-resilient farming practices. Strengthening institutional support such as cooperatives, market linkages, and crop insurance can help reduce uncertainty and improve farmers' incomes. Second, programs to mitigate wild animal attacks—through fencing, community vigilance, and compensation mechanisms—are crucial to encourage farmers to continue cultivation. Third, skill development and rural livelihood diversification initiatives should be promoted to reduce the push factors of migration while ensuring sustainable income sources within the region. Lastly, policies focused on attracting youth back to agriculture by making it a profitable and dignified occupation can play a transformative role in stabilizing rural communities and curbing distress migration.

REFERENCES

1. *Kandari, P. (2013). Migration pattern and the increasing participation of females in the economy of hill rural areas: A study of Pauri district in Uttarakhand. IOSR Journal of Humanities and Social Science, 17(5), 27–33. https://doi.org/10.9790/0837-1752733*
2. *Mamgain, R. P., & Reddy, D. N. (2017). Out-migration from the hill region of Uttarakhand: Magnitude, challenges, and policy options (IF: 3). Retrieved from http://nirdpr.org.in/nird_docs/srsc/srscrr261016-3.pdf*
3. *Sethi, A. S. (2019). Out of mind, out of sight: A critical appraisal of social initiatives to curb migration in Uttarakhand. International Journal of Management, Technology, and Social Sciences, 4(2), 110–120.*
4. *Vaishnava, P., Tripathi, A. K., Chaudhary, S., & Shukla, A. N. (2023). Socio-economic study of out migration in hills of Uttarakhand. Agro Economist - An International Journal, 10(4), 307–312. https://doi.org/10.30954/2394-8159.04.2023.1*
5. *Lohani, J. K., & Joshi, A. (2025). Migration from hills to plains: A study of Kumaon region in Indian mid Himalayas. International Journal of Scientific Research and Technology, 2(2), 1–6. https://doi.org/10.5281/zenodo.14789588*
6. *Phartiyal, M., & Sharma, S. (2024). Comprehending drivers of land use land cover change from 1999 to 2021 in the Pithoragarh District, Kumaon Himalaya, Uttarakhand, India. Journal of Mountain Science, 21(7), 2394–2407. https://doi.org/10.1007/s11629-024-8630-z*
7. *Sati, V. P. (2021). Out-migration in Uttarakhand Himalaya: Its types, reasons, and consequences. Migration Letters, 18(3), 281–295. https://doi.org/10.33182/ml.v18i3.957*
8. *Bhandari, G., & Reddy, B. V. C. (2015). Impact of out-migration on agriculture and women work load: An economic analysis of hilly regions of Uttarakhand, India. Indian Journal of Agricultural Economics, 70(3), 395–404.*
9. *Joshi, A., & Dwidevi, R. (2024). Migration and agricultural challenges: A study of the Pithoragarh district in Uttarakhand (Unpublished manuscript). Department of Economics.*
10. *Hasija, A. M., Bisht, H. S., Bandooni, S. K., Kaur, U., & Rani, U. (2023). Impact of male out-migration on women in Kumaon Himalaya.* International Journal of Ecology and Environmental Sciences, *49(2), 171–185. https://doi.org/10.55863/ijees.2023.2623*
11. *Biella, R., Hoffmann, R., & Upadhyay, H. (2022). Climate, agriculture, and migration: Exploring the vulnerability and outmigration nexus in the Indian Himalayan Region. Mountain Research and Development, 42(2), R9–R21. https://doi.org/10.1659/MRD-JOURNAL-D-21-00058.1*
12. *Mamgain, R. P., & Reddy, D. N. (2017). Out-migration from hill region of Uttarakhand: Issues and policy options. National Institute of Rural Development & Panchayati Raj, Hyderabad & Giri Institute of Development Studies, Lucknow. https://www.gids.org.in/srsc-rr-090518-5.pdf*
13. *Upadhyay, H. (2024). Migration as good, bad and necessary: Examining impacts of migration on staying Himalayan communities affected by climate change. Humanities and Social Sciences Communications, 11(1696), 1–16. https://doi.org/10.1057/s41599-024-04205-9*