

Out-Migration and Agrarian Crisis in Uttarakhand: Permanent Migration, Land Abandonment, and the Decline of Hill Agriculture

Mohit Pandey

PhD Student, School of Development Studies, Dr B. R. Ambedkar University Delhi, India.

DOI: 10.46609/IJSSER.2026.v11i10.008 URL: <https://doi.org/10.46609/IJSSER.2026.v11i10.008>

Received: 16 August 2026 / Accepted: 25 September 2026 / Published: 10 October 2026

ABSTRACT

Agrarian distress in India's Western Himalayan states has received far less scholarly and policy attention than in the high-farmer-suicide states of central and southern India, even though its consequences for mountain livelihoods are severe and, in important respects, poorly understood. This paper examines the ongoing out-migration and agrarian crisis in Uttarakhand. A defining feature of Uttarakhand's agrarian crisis, and a central concern of this paper, is the changing nature of its out-migration. Historically, long-term, employment-driven male migration has increasingly become permanent household-level migration, a pattern that differs in important ways from the circular, short-duration labour migration long associated with states such as Uttar Pradesh and Bihar. The paper situates this shift historically, tracing the origins of hill out-migration through the colonial and post-colonial periods, and examines how Uttarakhand's migration trajectory correlated with the state's agrarian crisis. For the analysis, this paper draws on secondary literature, government reports, and Census and Agriculture Census data. The paper examines land reform, landholding structure, and economic diversification before turning in detail to migration patterns and the current state of its agricultural sector, including its declining share of state income, its continuing dominance of the hill workforce, and its exposure to climate-related hazards. The paper argues that rural out-migration, particularly land abandonment and the emergence of ghost villages, are core expressions of a possible agrarian crisis in Uttarakhand. The paper closes with policy recommendations, addressing land consolidation, economic diversification, and the resilience of hill agriculture.

Keywords: Agrarian crisis, Out-migration, Uttarakhand, Landholdings, Development.

1. Introduction

While there is no single definition, given the vastness of the literature, agrarian distress can be characterised by farmers' singular perception that agriculture is now unviable (Bhoi & Dadhich, 2019) and a liability to the well-being of the peasant family. Unviability has been understood in a

poor light in the context of agricultural trade vis-à-vis other sectors, ineffective minimum support prices (MSPs), and indebtedness due to rising production costs. The causality is attributed to liberalisation policies since the 1980s and the peasantry's poor political mobilisation as a voting bloc. While agrarian distress is not new to India, farmers' suicides are. This is what lends the term 'crisis' its current character in agrarian distress (Suri, 2006). The agrarian crisis in the Western Himalayas is highly neglected, as very few scholars have paid attention to it. One reason could be that Western Himalayan states, such as Himachal Pradesh and Uttarakhand, are not among the states most affected by the agrarian crisis. In a paper that includes well-known rural journalist P Sainath as its contributor, Himachal Pradesh and Uttarakhand are considered part of Group IV states, where farm suicides are not considered a significant problem, unlike Group I states that include Maharashtra, Karnataka, Andhra Pradesh, Chhattisgarh and Madhya Pradesh, where the cultivator suicide rate is alarmingly high (Nagaraj et al., 2014). If suicide is only seen as one of the forms of the agrarian crisis, then we can look for other signs of the same, ones that are based on the regional contexts.

It is well known that Uttarakhand is experiencing high rates of out-migration, and that this migration is increasingly long-term and, more recently, permanent in character (Mamgain & Reddy, 2015). This distinguishes it in an important way from other migrant-sending states, such as Uttar Pradesh and Bihar, which have historically been dominated by short-duration, circular movement (Srivastava, 2011). This shift to permanent, whole-household migration is itself one of the more consequential and comparatively under-examined features of Uttarakhand's agrarian crisis (Mamgain & Reddy, 2015; Tiwari & Joshi, 2015).

A comparison with the wider Western Himalaya is also instructive. In Himachal Pradesh, the horticultural transformation of the state economy has kept a much larger share of the rural population engaged in remunerative farming, moderating (though not eliminating) the pressure toward permanent out-migration seen in Uttarakhand. Jammu and Kashmir presents a starker but less clean comparison. Kashmir Valley has a long horticultural tradition of its own (apples, saffron, orchards), yet migration and demographic change there over the past three decades have been driven overwhelmingly by prolonged conflict, militarisation, and, since 2019, a change in constitutional status, rather than by the agrarian and economic factors alone. For this reason, this paper draws its sustained comparison from Himachal Pradesh rather than Jammu and Kashmir, while still briefly referring to Kashmir's horticultural economy, which illuminates the wider Himalayan picture.

The objective of this paper is to examine Uttarakhand's ongoing agrarian crisis and understand the reasons behind its sustained, increasingly permanent out-migration. Himachal Pradesh is used throughout as a comparative benchmark rather than as a co-equal case because two states share a similar ecology, terrain, and colonial-to-post-colonial policy starting point. Himachal

Pradesh's comparatively better agrarian outcomes offer a useful counterfactual for identifying which of Uttarakhand's difficulties are the product of geography, and which are the product of policy choices and historical trajectory. The paper proceeds by first situating Uttarakhand's agrarian and migratory history, before turning to the method: a comparative review of land reform, technological change, and diversification; Uttarakhand's migration patterns specifically; the current state of its agricultural sector; and policy implications.

2. Methodology

This paper adopts a single-case, mixed-methods design centred on Uttarakhand. Himachal Pradesh is drawn selectively, as an illustrative comparative reference, in sections that sharpen the argument, rather than as a formally matched comparative case. This is a deliberate choice as Uttarakhand's own agrarian and migratory dynamics are the paper's central concern, and treating Himachal Pradesh as anything more than a contextual benchmark would overstate the paper's comparative scope.

The research relies on a multi-layered analysis of secondary data, such as previously published studies, government publications, and reports from the Uttarakhand Rural Development and Migration Commission, which provide a clearer picture of out-migration patterns from Uttarakhand's hill region and quantify the growth of ghost villages¹. The paper additionally draws on the Census of India and the Agriculture Census data, Periodic Labour Force Survey (PLFS) results, and recent government and research reports on climate-related hazards in the state, to trace the current state of Uttarakhand's agricultural sector and the hazards it faces.

3. Historical Background: Agrarian Life and Migration in the Uttarakhand Himalaya

Understanding Uttarakhand's present agrarian crisis requires some sense of how hill communities in the region have historically organised agricultural and forest-based livelihoods, and how out-migration became embedded in that system. Prior to colonial rule, the Kumaon and Garhwal hills were governed at various points by the Katyuri and Chand dynasties in Kumaon and the Parmar (Panwar) dynasty in Garhwal. Hilly region supported small, dispersed populations practising subsistence agriculture on terraced hillsides, closely integrated with the surrounding forests, which supplied fuelwood, fodder, small timber, and leaf mulch for terrace soils. Population pressure on this system was low enough that extraction remained broadly sustainable, tied directly to household and livestock numbers rather than to any commercial demand.

¹ The term 'ghost village' is frequently used to describe villages that have been entirely deserted. A 2018 government report indicated that the number of such ghost villages had reached 1,792 ('Interim Report on the Status of Migration in Gram Panchayats of Uttarakhand', Rural Development and Migration Commission, Uttarakhand, <https://uttarakhandpalayanayog.com/pdf/English%20version.pdf>). See also <https://scroll.in/article/1066545/view-from-the-margins-uttarakhands-ghost-villages-embodiment-the-states-economic-challenges>.

This relatively stable arrangement was disrupted first by Gorkha rule (from 1790 in Kumaon, 1804 in Garhwal), and then British rule, established after the Anglo-Nepalese War (1814-16). British colonial rule brought systematic land settlement to the region to formalise agrarian relations. The colonial era's heavy military and labour recruitments established migration pathways and networks. During the colonial period, employment opportunities emerged in the forest department, iron and steel mines, tea plantations, the railways department, and the public works department, and people were brought in from various parts of the state for these projects (Pathak et al., 2017; Bora, 1996). These experiences and contact with the outside world played a significant role in changing the mindset of local people and in fostering a 'labour migration culture' and a preference for salaried jobs among the youth (Jain, 2010; Pathak et al., 2017).

The post-independence period also saw increased recruitment into the military services due to high demand following the 1962 India-China War and the subsequent Indo-Pakistan conflicts of 1965 and 1971 (Pathak et al., 2017; Bora, 1996). Early studies documented that, by the 1990s, roughly half of the hill households in Uttarakhand already had at least one out-migrant member (Bora, 1996). Looking at decadal population growth rates, in 1941, the average growth rates in the plains and hilly regions were 12.6 per cent and 14 per cent, respectively. By 1971, these rates had changed to 37.6 per cent for the plains and 17.5 per cent for the hills. In 2011, the growth rate in the plains districts was 32 per cent, while in the hilly regions it was only 7.02 per cent (Pant et al., 2022; Mamgain & Reddy, 2015).

After Independence, out-migration continued toward the plains for employment, education, and other basic facilities. For a long time, there was a sustained movement advocating for the development of the hilly region, better access to employment and education, and against the prevalence of alcoholism and the exploitation of natural resources, which ultimately led to the formation of the state of Uttarakhand in the year 2000 (Pathak et al., 2017). However, even after state formation, industrialisation, economic growth, and the development of health and educational opportunities are largely limited to the plains regions, while people in the hilly areas continue to struggle for a good quality of life (Awasthi & Mehta, 2020). The four districts of Haridwar, Udham Singh Nagar, Dehradun, and Nainital account for nearly 63% of the state's enterprises and 72% of the workforce (Pathak et al., 2017; Mamgain & Reddy, 2015). A distinguishing feature of out-migration from Uttarakhand is its predominantly longer duration and permanence, which distinguishes it from the cyclical and seasonal migration that dominates the broader landscape of internal migration in India (Awasthi & Mehta, 2020; Sati, 2021).

4. Comparative Analysis: Structural and Economic Factors

This section undertakes a thematic comparative review of Uttarakhand and Himachal Pradesh's structural and economic responses to the pressures facing Western Himalayan agriculture,

drawing on published secondary literature and government reports. The comparison is organised around three structural and economic components: land reform, technological uptake via the Green Revolution, and economic diversification, before turning specifically to Uttarakhand's migration patterns and to the current state of its agricultural sector.

Land Reforms and the Green Revolution in the Western Himalayas

Land reforms in Himachal Pradesh include the Himachal Pradesh Tenancy Rights and (Restoration) Act, 1952 and the Himachal Pradesh Tenancy and Land Reforms Act, 1972. Due to the presence of orchardist and tenant-farmer interests in the first state ministry of Himachal Pradesh, the land reform legislation of the early 1970s favoured these two farmer lobbies. The ceiling on orchard land was the highest (30 acres), which indirectly induced some landlords to hurriedly convert their farms into orchards (and sometimes fictitiously). Tenants who had cultivated land for the last 12 years were granted proprietary rights, and the ejection of tenants was prohibited. Only owners of small parcels of agricultural land, from Kangra and Una districts, were left in the cold in the land legislation exercise (Bhatnagar, 1981). Besides these reforms, a special land reform in Himachal Pradesh, known as the Nautor Land Rules, came into effect in 1968. Under this, up to 20 bighas (about 4 acres) of land per family was to be granted to those who owned fewer than 20 bighas, with priority allocation given to the landless and marginal holders, SCs and STs. The land granted was to be used for specific purposes, such as horticulture. Additionally, lands with a slope of more than 15% were required to be used for horticulture, raising fodder, growing special grasses, and cultivating herbs. The Nautor rules played a significant role in eradicating landlessness among SCs and STs and in diverting new acreage towards cash crops such as apples, pears, plums, and strawberries (Rahimzadeh, 2016).

Uttarakhand has undergone only one permanent land settlement to date, which took place between 1960 and 1964 under the 'Kumaun and Uttarakhand Zamindari Abolition and Land Reforms Act 1960'. This Act was passed by the Uttar Pradesh ministry and applied to the entire Kumaun and Uttarakhand divisions, with certain exceptions. The legislation addressed the abolition of Zamindar intermediaries; however, no robust data exists on the impact of this land reform. Amendments were made after the formation of the Uttarakhand State, mainly in 2003 and 2018, and most recently in 2025, but they primarily addressed land purchases by outsiders. The absence of comparable reforms in Uttarakhand is plausibly attributable to its lack of an independent development strategy, since it was part of Uttar Pradesh until 2000. Even after Uttarakhand became a separate state, such reforms did not materialise, despite their potential to help tackle the ongoing agrarian crisis in the state (Sati, 2020).

Less than 15% of the land in both Himachal Pradesh and Uttarakhand is suitable for cultivation. Thus, in the scarce Western Himalayas, agricultural land and foodgrains were imported in the

initial decades after Independence. Although delayed, the widespread adoption of Green Revolution technologies, particularly in biophysical inputs, ended the need to import food grains from other states (Holden & Sankhayan, 1998). The technological gains of the Green Revolution may have plateaued for traditional crops, such as wheat, rice, and maize. Interestingly, the production of high-value cash crops, such as fruits, has eased some dependence on the extraction of natural resources (such as timber). Technological advancement and the Green Revolution appear to have mitigated the agrarian crisis in Himachal Pradesh to a greater extent than in Uttarakhand. In Himachal Pradesh, technological gains in cash crops such as fruits and vegetables have helped farmers reduce their dependence on traditional crops, whereas in Uttarakhand, the transition to cash crops has not occurred to the same extent, and farmers still rely predominantly on traditional crops.

Landholding Pattern

Table 1: Distribution of Operational Landholdings, Uttarakhand and Himachal Pradesh (%)

Category of Landholding	Uttarakhand Holdings (%)	Uttarakhand Area (%)	Himachal Pradesh Holdings (%)	Himachal Pradesh Area (%)
Marginal (< 1 hect.)	73.68	36.27	71.41	30.30
Small (1-2 hect.)	17.21	27.57	17.45	25.63
Semi-medium & medium (2-10 hect.)	9.00	33.09	10.84	39.09
Large (>10 hect.)	0.11	3.07	0.30	4.98
Total	100	100	100	100
Average size of holding (ha)	0.90	NA	0.95	NA

Source: Uttarakhand: Sati, 2020. Himachal Pradesh: Department of Agriculture, Government of Himachal Pradesh (<https://agriculture.hp.gov.in/en/land-use-pattern-english/>); author's calculations from underlying holding and area figures.

As Table 1 shows, the two states' landholding structures are nearly identical: marginal holdings account for 73.68% of all holdings in Uttarakhand and 71.41% in Himachal Pradesh, and the average holding size is nearly the same (0.90 ha in Uttarakhand versus 0.95 ha in Himachal). In Uttarakhand, most cultivators depend on rain, as less than 10% of the arable land is irrigated. Data on fertiliser and seed consumption also show that the average chemical fertiliser consumption across all hill districts is less than 10 kg per hectare (Sati, 2020; Sati & Kumar, 2023). Some authors argue that, because of the fragmented and scattered nature of landholdings, the technological advancements of the Green Revolution have had a limited impact in the hills of Uttarakhand (Sati, 2020; Shukla et al., 2018). However, if landholding fragmentation itself were the main driver of Uttarakhand's weaker agrarian performance, Himachal Pradesh, starting from a nearly identical structure, should show comparable distress, which it does not. Land fragmentation is a shared structural constraint of Western Himalayan hill agriculture generally, and the two states' differing outcomes are better explained by differences in land reform, technological uptake, and diversification, and by the historical and migratory trajectories of Uttarakhand, rather than by landholding structure alone.

Economic Diversification

Economic diversification in a largely rural region entails a shift from traditional, less remunerative crops to high-value-added ones, accompanied by a transition of the rural population from farming to non-farming activities. It is the next stage, following the advent and eventual flattening out of the first instance of technological dynamism in agriculture, i.e., the Green Revolution (Haque, 2020). The success of such diversification is contingent on price policy, technological improvement, and infrastructural development related to communication and the agricultural market, all of which the Himachal Pradesh government prioritised via the public sector from the 1970s (Panwar, 2011). A study that applied the Herfindahl-Hirschman Index to primary land-use data from 1971-72 to 2015-16 showed that, of the 12 districts in Himachal Pradesh, eight were moderately diversified in sown crops, while the remaining four were less diversified. No single district emerged as specialising primarily in one crop. It was demonstrated using Compound Annual Growth Rates (CAGR) that, while the state had shifted towards cultivating cash crops (predominantly apples), traditional crops such as wheat, paddy, and maize were still grown, likely as a risk-averse strategy (Dhanta & Negi, 2018).

Uttarakhand has immense potential for crop diversification. Some studies have also revealed that diversification is occurring in the state, with a shift from traditional crops to market-oriented ones (Sati, 2020; Sati & Kumar, 2023). Higher returns from vegetables, fruits, and other cash crops are motivating farmers in Uttarakhand to innovate and adopt improved technologies. However, data shows that Uttarakhand is lagging behind Himachal Pradesh in this regard. While Himachal Pradesh has diversified its economy over the past 50 years, Uttarakhand's

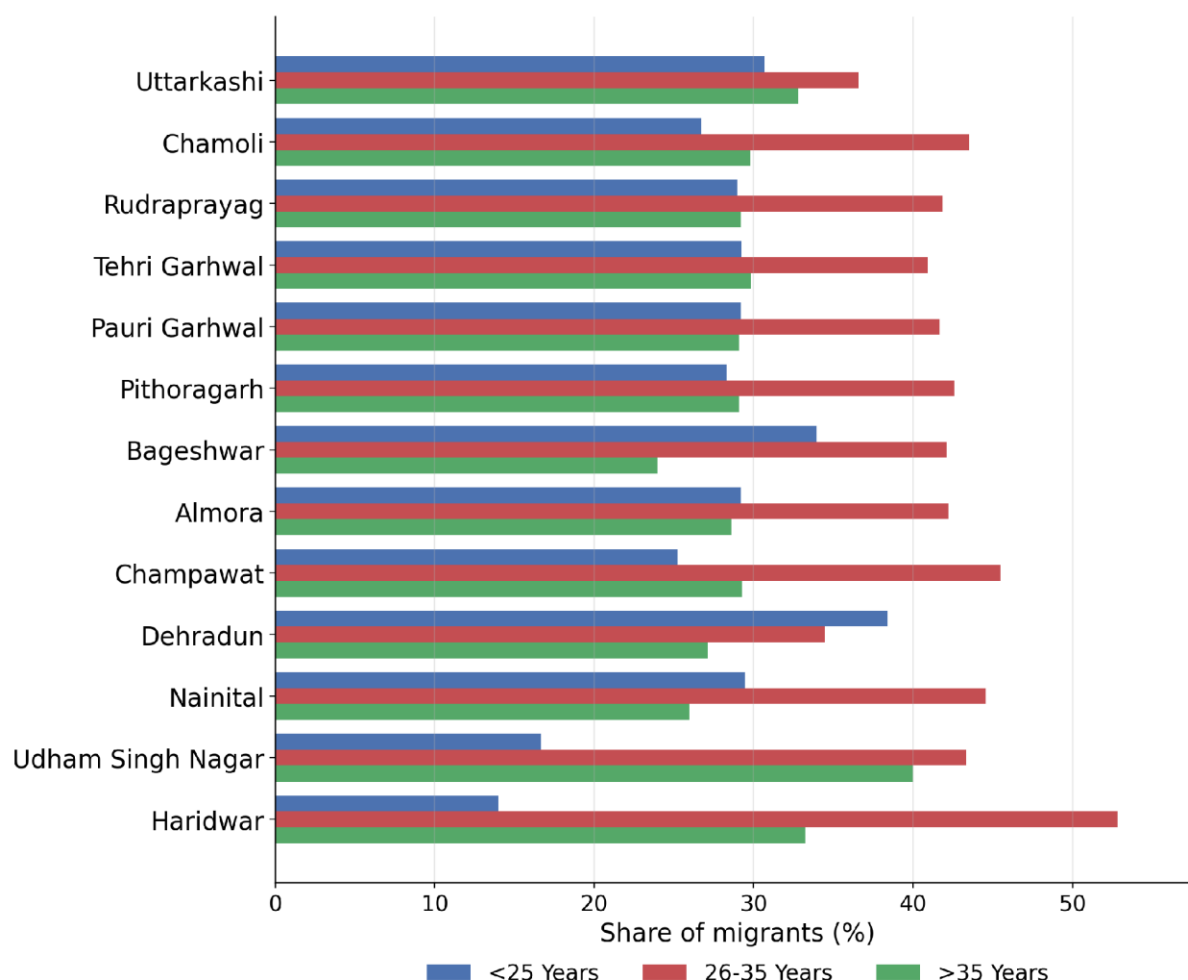
diversification has been minimal by comparison. While fruits and vegetables accounted for 34% of the agricultural sector's contribution to Uttarakhand's SGDP, the figure was nearly 60% for Himachal Pradesh (Integrated Mountain Initiative, 2023). The challenges hindering crop diversification in Uttarakhand include infrastructure limitations, limited market access, and the need for education on diversified practices, compounded by acute gaps in state intervention in these areas. The absence of policies such as minimum support prices and assured purchases for horticulture crops, policies the Himachal Pradesh government has followed, is consistent with this comparative neglect (Sati, 2020).

5. Out-Migration and Land Abandonment in Uttarakhand

The phenomenon of male out-migration from across the Himalayan region is well documented. Out-migration from the hill districts has deep historical roots reaching back through colonial army, forest, mining, plantation, and railway recruitment, which, combined with contact with the outside world, fostered a lasting 'labour migration culture' and preference for salaried employment among the hill youth, further reinforced by post-1962 military recruitment (Pathak et al., 2017; Bora, 1996; Jain, 2010). According to some scholars, the labour shortage caused by out-migration and the use of remittances to import goods and commodities has led to a decline in local food production, also due to a shift away from existing food habits (Satyal et al., 2017; Pathak et al., 2017). In the two decades since the state's formation, about 35% of the population in the hill districts of Uttarakhand have out-migrated. Census data also show that between 2001 and 2011, 226,949 farming families left their native villages (Integrated Mountain Initiative, 2023).

A distinguishing and worsening feature of this out-migration from the hill districts of Uttarakhand is its shift toward permanence. Mamgain and Reddy (2015) found that 73% of migrants reported long-term migration, compared with only 10% short-term, and that 88% of surveyed households had at least one member working elsewhere. Additionally, 46.3% of surveyed households in Pauri Garhwal and 34.2% in Almora have out-migrated completely over a ten-year period (Mamgain & Reddy, 2015). According to the Rural Development and Migration Commission, 5.02 lakh people migrated from the state gram panchayats between 2011 and 2018 (3.8 lakh temporary, 1.2 lakh permanent), and a further 3.35 lakh between 2018 and 2022, with an average of 193 people leaving every day. This data also indicates a decisive and accelerating shift toward permanent, irreversible out-migration (Rural Development and Migration Commission, Uttarakhand, 2018, 2025). Most of the people migrating from hill areas are young males, which negatively affects the lifestyle of rural women in Uttarakhand (Tiwari & Joshi, 2015; Mamgain & Reddy, 2015). The data show that the out-migration rate is highest among individuals aged 20 to 35 (Figure 1).

Figure 1: Migration from Districts of Uttarakhand, by Age Group



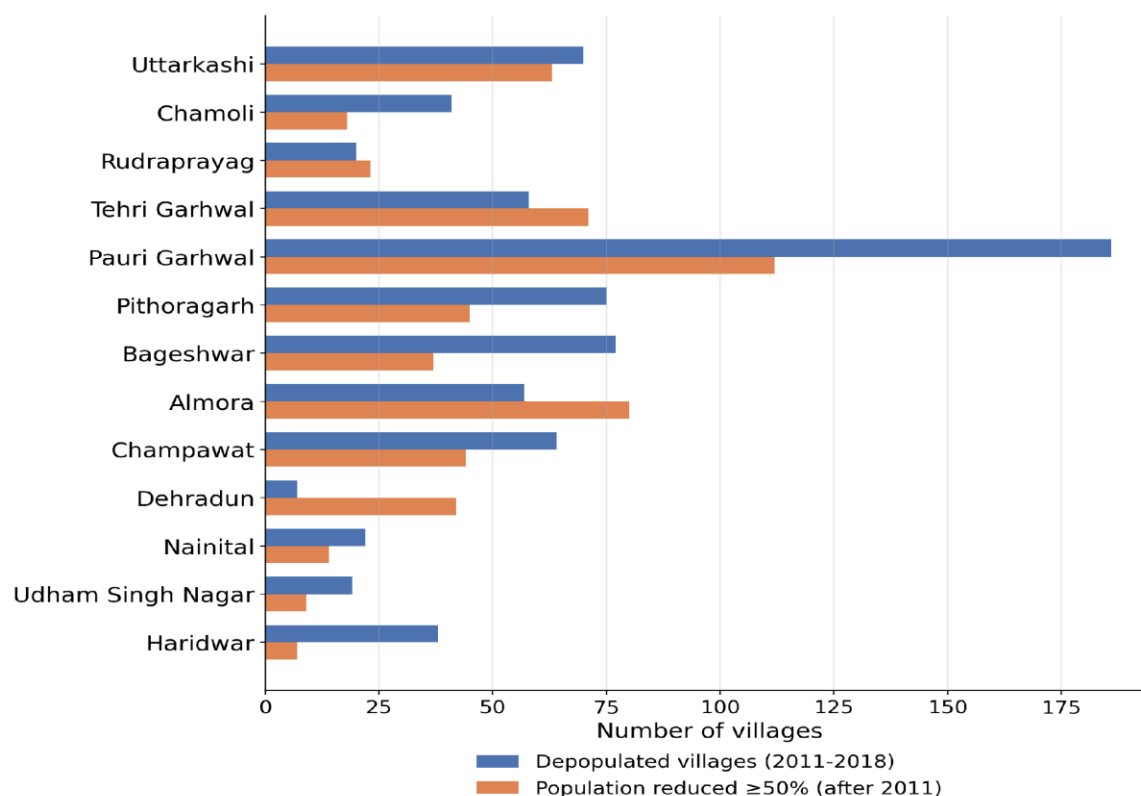
Source: Rural Development and Migration Commission, Uttarakhand (2018), Table 4.4.2.

As Figure 1 shows, the 26-35 age cohort dominates out-migration in almost every district, while the under-25 and over-35 cohorts contribute more evenly. Because migration is concentrated among prime working-age adults, it is not simply reducing the number of people available to farm, but systematically removing a specific age band from the agricultural labour force, leaving cultivation disproportionately to those above and below that age band.

This out-migration is compounded by emerging climate change-induced disruptions to agricultural cycles, which have adversely affected agricultural production and productivity (Shukla et al., 2018; Tiwari & Joshi, 2015). Another reason the migration numbers are higher in Uttarakhand is the limited degree of economic diversification in agriculture, which further

deepens farmers' sense that agriculture is becoming unviable (Shukla et al., 2018; Sati, 2020). According to government data, the net sown area in Uttarakhand since state formation has declined by 32% (from 7.70 lakh hectares in 2000 to 5.27 lakh hectares currently), while fallow land has nearly doubled over the same period (from 1.07 lakh to 2.08 lakh hectares) (Santoshi, 2026). In Himachal Pradesh, the net sown area has also declined, from 18% of the total land area in 1974-75 to 11% in 2007-8. Nonetheless, the decline in acreage in Himachal Pradesh has not necessarily meant a decline in production or productivity, which is the case in the hill areas of Uttarakhand. According to the Migration Commission's 2018 report, 734 villages became depopulated between 2011 and 2018, and a further 565 villages saw their population fall by half or more over the same period (Rural Development & Migration Commission, 2018; Kumar & Sati, 2023). Unsurprisingly, most newly depopulated villages are concentrated in hill districts (Figure 2). This indicates that, when regional factors are considered, rural out-migration is a clear sign of agrarian distress in Uttarakhand.

Figure 2: Depopulated and Severely Depopulated Villages in Uttarakhand, by District (2011-2018)



Source: Rural Development and Migration Commission, Uttarakhand (2018), Tables 4.6.1.2 and 4.8.1.2.

6. The Agricultural Situation in Uttarakhand

Agriculture remains central to hill livelihoods in Uttarakhand, even though its shrinking contribution to the state economy no longer reflects this. Agriculture's share of Uttarakhand's economy has fallen sharply since the state's formation. According to the 2010-11 Agriculture Census, agriculture contributed 16.90% to the state's domestic product, which had fallen to just 10.6% share of the state's Gross State Value Added (GSVA) by 2021-22, and recent estimates put it at around 10% for 2023-24 (NITI Aayog, 2025). Yet this declining contribution to output has not been matched by a comparable decline in the share of the workforce still dependent on it. PLFS 2022-23 round data shows that 47.4% of Uttarakhand's working population remained engaged in agriculture, forestry and fishing (NITI Aayog, 2025). The total number of operational holdings in Uttarakhand rose from 890,667 in 2000-01 to a peak of 912,650 in 2010-11, before falling to 882,791 by 2015-16, a net decline of roughly 30,000 holdings in just five years (Agriculture Census, 2000-01, 2010-11, 2015-16). This overall figure conceals a sharper underlying shift, while the number of marginal holdings (below 1 hectare) has stayed broadly stable, holdings in every larger size category have shrunk steadily across all four census rounds.

Climate change compounds these structural and demographic pressures. Several studies suggest that temperature increases in the Himalayas have been significantly higher than the global average of 0.74 degrees Celsius over the past century. While the total number of rainy days has reduced, the number of days of intense rainfall has increased (Tiwari & Joshi, 2015). This has coincided with a drop in agricultural production, once again creating a food deficit, especially in Uttarakhand. According to a study conducted in the Ramgarh area of Uttarakhand, the number of rainfall events and the number of rainy days have declined by 52% and 34%, respectively, during the last ten years, with high-intensity rainfall and droughts increasing, resulting in crop failure, a decline in irrigation potential by 25%, and a 26% decline in agricultural productivity (Tiwari & Joshi, 2015). Another study conducted in the Bageshwar district of Uttarakhand shows that, due to climate change and other factors, cultivated area and productivity have declined by 17% and 43%, respectively (Sati & Kumar, 2023). The wild animals, such as monkeys, wild boars, and nilgais, that raid crops further reduce production. Migration-affected villages have been found to be more prone to such wildlife conflict, as abandoned land allows wild animal populations to live closer to remaining farms (Thakur et al., 2022; Mamgain & Reddy, 2015).

Beyond these gradual pressures, Uttarakhand's hill districts have experienced a series of acute, high-profile disasters in recent years. The notable instances are the February 2021 Chamoli flash-flood disaster, the Joshimath land subsidence in 2023, and, most recently, a cloudburst-triggered flash flood that struck Dharali village in Uttarkashi district in August 2025. These recurring catastrophes are compounding the region's fragility, leaving the mountain region and its inhabitants increasingly vulnerable. This highlights the critical need for policymakers to

prioritise these high-risk hill districts with targeted environmental safeguards, resilient infrastructure planning, and proactive disaster management strategies.

7. Policy Suggestions

Addressing the agricultural crisis in Uttarakhand requires a fundamental shift that goes beyond traditional subsidies to structurally rebuild the hill economy and improve the lives of people in the mountains. A long-standing suggestion involves land consolidation, or 'chakbandi', which the state government can implement with better planning and leadership. Agricultural land in the hilly regions is highly fragmented, trapping Uttarakhand's mountains in a cycle of low productivity. The scattered and terraced nature of the land makes mechanisation and efficient irrigation virtually impossible. The state needs to involve the people living in these areas in policymaking and move towards hybrid models to better address these problems. Those who are entirely dependent on agriculture require robust support, including modern infrastructure, to improve their livelihoods. The state of Uttarakhand needs to work towards creating Special Horticulture Zones (SHZs) and focus on the commercial farming of off-season vegetables, walnuts, apples, and other fruits. To ensure the success of this transformation, the government needs to establish marketing federations that assist farmers with price stabilisation and the development of essential cold-chain infrastructure.

Himachal Pradesh's own policy record, such as the Nautor land-access rules, minimum support prices and assured purchase arrangements for horticultural crops, and investment in cold-chain infrastructure, remains the most immediately relevant model. Furthermore, the state needs to provide basic development to improve the daily lives of the people still living in the hilly regions, primarily the elderly. Sustaining the current population in these areas is crucial, and better policies can then be formulated for future return migration. The hilly regions of the state are grappling with the socio-economic and demographic vacuum left by out-migration, and the government needs to take decisive steps to address it.

8. Conclusion

Agriculture has historically been one of the most important sources of livelihood for the people of the Uttarakhand hills and, even today, remains the occupation of nearly half the state's workforce. It is against this backdrop of historical centrality that the sector's present decline should be read. The agriculture's contribution to the state economy has fallen from close to 17% at the time of state formation to around 10% today, even as the workforce dependent on it has barely shrunk. The net sown area has also fallen by roughly a third since 2000.

The above discussion demonstrates that in Uttarakhand, the effects of climate change and rural out-migration, particularly land abandonment and the emergence of ghost villages, are core

expressions of a possible agrarian crisis (Pathak et al., 2017; Bora, 1996). The regional factors that affect agriculture can be classified into positive factors, such as better-implemented land reforms and policies, agricultural advancements from the Green Revolution, and economic diversification, and negative factors, including the effects of climate change and rural out-migration. Himachal Pradesh performed better on the positive factors than Uttarakhand, which is associated with its greater ability to mitigate the ill effects of the agrarian crisis. At the same time, the effects of climate change and excessive out-migration in Uttarakhand have intensified the agrarian crisis. The example of Himachal Pradesh also suggests that agricultural diversification can help address the agrarian crisis. Uttarakhand has the potential for economic diversification, and better policies are needed to realise it. Himachal Pradesh has fared better than Uttarakhand, and the nature of agrarian distress is deeper in the latter, with the clearest signs of crisis manifesting in a large and growing number of ghost villages, de-agrarianisation, land abandonment, and a hill agricultural sector whose economic weight continues to shrink even as it remains, for now, the livelihood of nearly half the state's workforce.

References

- Awasthi, I., & Mehta, B. S. (2020). Forced out-migration from hill regions and return migration during the pandemic: Evidence from Uttarakhand. *The Indian Journal of Labour Economics*, 63(4), 1107–1124.
- Bhatnagar, S. (1981). Politics of Land Reforms in India: A Case Study of Land Legislation in Himachal Pradesh. *Asian Survey*, 21(4), 454-468. <https://doi.org/10.2307/2643934>
- Bhoi, B. K., & Dadhich, C. L. (2019). *Agrarian Distress in India: Possible Solutions* (p. 17). Indira Gandhi Institute of Development Research, Mumbai.
- Bora, R. S. (1996). *Himalayan migration: A study of the hill region of Uttar Pradesh*. Sage Publications.
- Business Standard. (2023, September 27). 65% houses in Joshimath impacted by land subsidence, shows govt report.
- Dhanta, R., & Negi, Y. S. (2018). Agricultural Growth and Crop Diversification in the Western Himalayan State of Himachal Pradesh. *Pacific Business Review International*, 11(4), 10.
- Government of Himachal Pradesh, Department of Agriculture. (n.d.). Land use pattern. <https://agriculture.hp.gov.in/en/land-use-pattern-english/>

- Haque, J. (2020). Economic Diversification as a Strategy Against Agrarian Crises: A Review of Existing Literature (SSRN Scholarly Paper 3708816). <https://papers.ssrn.com/abstract=3708816>
- Holden, S. T., & Sankhayan, P. L. (1998). Population Pressure, Agricultural Change and Environmental Degradation in the Western Himalayan Region of India. *Forum for Development Studies*, 25(2), 271-300. <https://doi.org/10.1080/08039410.1998.9666086>
- Integrated Mountain Initiative. (2023). State of Mountain Agriculture: A study about social, economic and ecological factors changing the mountain agriculture scenario (Strengthening Institutional Capacities for Sustainable Mountain Development in the Indian Himalayan Region, p. 196). FAO.
- Jain, A. (2010). Labour Migration and Remittances in Uttarakhand; Report of a case study. International Centre for Integrated Mountain Development (ICIMOD). <https://doi.org/10.53055/ICIMOD.532>
- Kumar & Sati, V. P. (2023). Depopulation and ghost villages in the Uttarakhand Himalaya.
- Mamgain, R.P. & Reddy, D.N. (2015). Out-migration from the hill regions of Uttaranchal: magnitude, challenges, and policy options. National Institute of Rural Development and Panchayati Raj, Hyderabad.
- Nagaraj, K., Sainath, P., Rukmani, R., & Gopinath, R. (2014, January 9). Farmers' Suicides in India: Magnitudes, Trends, and Spatial Patterns, 1997-2012. On Agrarian Issues. Tenth Anniversary Conference of the Foundation for Agrarian Studies, Kochi, Kerala.
- NITI Aayog. (2025). Macro and Fiscal Landscape of the State of Uttarakhand. Government of India.
- Office of the Registrar General & Census Commissioner, India. (1991, 2001, 2011). Census of India: District-level population and work participation tables.
- Office of Agriculture Census, Government of India. (2000-01, 2005-06, 2010-11, 2015-16). Agriculture Census of Uttarakhand, various rounds.
- Official website of the Agriculture Department, Govt. Of Uttarakhand. <https://agriculture.uk.gov.in/>
- Pant, B. R., Chand, R., & Mehta, B. S. (2022). Uttarakhand jansankhya: Paridrishya evam parivartan. Pahar Foundation.

- Panwar, T. (2011). Apple Production in Himachal Pradesh: An Impending Crisis? Economic & Political Weekly, 46(25).
- Pathak, S., Pant, L., & Maharjan, A. (2017). De-population trends, patterns and effects in Uttarakhand, India, a gateway to Kailash Mansarovar (ICIMOD Working Paper 2017/22). International Centre for Integrated Mountain Development.
- Periodic Labour Force Survey (PLFS), Annual Report 2022-23 and 2023-24. Ministry of Statistics and Programme Implementation, Government of India.
- Rahimzadeh, A. (2016). Mountain Livelihoods in Transition: Constraints and Opportunities in Kinnaur, Western Himalaya. UC Berkeley.
- Rural Development and Migration Commission, Uttarakhand. (2018). Interim report on the status of migration in gram panchayats of Uttarakhand. <https://uttarakhandpalayanayog.com/pdf/English%20version.pdf>
- Rural Development and Migration Commission, Uttarakhand. (2025). <https://www.uttarakhandpalayanayog.com/pdf/EducationReport.pdf>
- Santoshi, N. (2026, March 13). Uttarakhand's agricultural land declines nearly 16% since state formation in 2000: Govt. Hindustan Times. <https://www.hindustantimes.com/india-news/uttarakhands-agricultural-land-declines-nearly-16-since-state-formation-in-2000-govt-101773392530321.html>
- Sati, M. C. (2020). Agricultural Transformation and Diversification in Uttarakhand: Options and Opportunities. In Agricultural Transformation and Rural Development in India: Issues, Challenges and Possibilities (pp. 217-238).
- Sati, V. P., & Kumar, S. (2023). Declining Agriculture in the Garhwal Himalayas: Major Drivers and Implications. Cogent Social Sciences, 9(1). <https://doi.org/10.1080/23311886.2023.2167571>
- Satyal, P., Shrestha, K., Ojha, H., Vira, B., & Adhikari, J. (2017). A new Himalayan crisis? Exploring transformative resilience pathways. Environmental Development, 23, 47-56. <https://doi.org/10.1016/j.envdev.2017.02.010>
- Shukla, R., Chakraborty, A., Sachdeva, K., & Joshi, P. K. (2018). Agriculture in the western Himalayas - an asset turning into a liability. Development in Practice, 28(2), 318-324. <https://doi.org/10.1080/09614524.2018.1420140>

- Srivastava, R. (2011). Labour migration in India: Recent trends, patterns and policy issues. Indian Journal of Labour Economics, 54(3).
- Suri, K. C. (2006). Political Economy of Agrarian Distress. Economic & Political Weekly, 41(16).
- Thakur, R. K., Walia, A., Mehta, K., Kumar, V., & Lal, H. (2022). Economic Assessment of Crop Damages by Animal Menace in Mid-Hill Regions of Himachal Pradesh. The Indian Journal of Animal Sciences, 92(4), Article 4. <https://doi.org/10.56093/ijans.v92i4.124173>
- Tiwari, P. C., & Joshi, B. (2015). Climate Change and Rural Out-migration in the Himalaya. Change and Adaptation in Socio-Ecological Systems, 2(1). <https://doi.org/10.1515/cass-2015-0002>