



The Impact Of Migration On Land Use Pattern And Agriculture Production In Almora District: With Special Reference To Salt And Bhikiyasen Blocks

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Abstract:

Migration, a multifaceted phenomenon characterized by the movement of people from one region to another, significantly influence land use patterns and agriculture production. It often results in the depopulation of rural areas. The interplay between migration and agriculture practices is complex and contingent on various factors, including the nature of migration (rural-to-urban, international, or seasonal), socio-economic conditions, and policy frameworks. The exodus of a substantial portion of the population from hill area leads to notable shifts in land use patterns. The immediate consequence of the migration is land abandonment, where previously cultivated or utilized land left fallow. This abandonment results from the reduction in labor availability and the shift in focus of remaining residents, who may prioritize other livelihood strategies over traditional agriculture. This study is related to achieve the knowledge about the change in land use pattern and change in agriculture production due migration in the Almora district.

Keywords: Hill area, Migration, Land use, Wasteland, Agriculture Production

1. Introduction:

The human population is responsible for the land use change on the Earth's surface. In the initial period of civilization, forest land was converted into agricultural land then agricultural land was converted into built-up land. It is a continuous process. First, we must understand the land use. There is one more term called 'land cover'. Land use and land cover refer to the physical and functional characteristics of the Earth's surface within a particular region. Their concepts are interrelated, but still, there is a difference between them.

1.1. Land Use: Land use describes how humans utilize the land for various activities, such as residential, agricultural, industrial, commercial, recreational, or conservation purposes. It focuses on human activities and the purpose for which land is used.

1.2. Land Cover: Land cover, on the other hand, refers to the physical or biological coverage of the Earth's surface, including natural and human-made features. It refers to the vegetation, water bodies, bare soil, impervious surfaces (such as roads and buildings), forests, wetlands, croplands, and other land features in an area.

Land use and land cover are often analyzed to understand the patterns and changes in the landscape. These concepts are essential for land management, urban planning, environmental assessment, and conservation efforts. By studying land use and land cover, researchers and policymakers can gain insights into the impacts of human activities on the environment and make informed decisions about resource management and sustainability.

2. Objective of the study:

1. To study the extent of agriculture waste land in both the blocks.
2. To analyse the change in agriculture production of different foodgrains in study area due to migration.

3. Sampling procedure:

The data were collected randomly from Salt and Bhikiyasen blocks of the Almora district. The respondents were selected based on the available information related to migration, the feasibility of conducting the Survey, getting the required sample size, etc. Altogether 300 samples from both blocks of Almora district were collected, including 150 from Salt and 150 from Bhikiyasen.

4. Analysis of study area:

If we talk about land use in Almora, it is rapidly changing. People are migrating from villages, so agricultural land use is also changing. In 2018-2019, the area of agricultural wasteland was 41552 hectares and 42819 hectares in 2020-2021. Land use change analyses play a crucial role in tracing out-migration patterns and

understanding the factors that drive population movements. Land use change analyses provide valuable insights into migration dynamics by revealing the underlying environmental, social, and economic factors. Understanding these patterns is essential for developing effective policies and interventions to manage Migration, address its impacts, and promote sustainable development.

Land use and land cover help us understand the economic growth condition in any area. These are closely interrelated. For example, if agricultural land is converted into built-up land, we can observe that the primary sector of the economy is going towards secondary or tertiary. These small but essential changes help to understand the complete picture of the area of investigation.

Table 4.1: Area of agricultural Wasteland of Almora District

Year	Agricultural Wasteland (in hec)
2018-2019	41552
2019-2020	41594
2020-2021	42819

Source: Statistical Hand Book, Almora

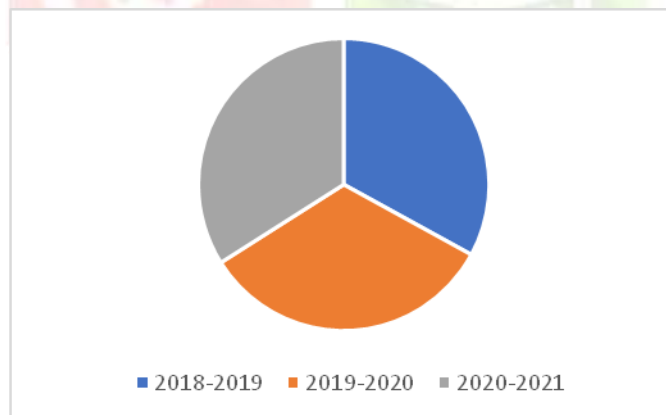


Figure 4.1: Area of Agricultural Wasteland (in hec) of District Almora

Table 4.2: Area of agricultural Waste land in Salt Block

Block	Year	Agricultural Wasteland
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		(in hec)
Salt	2018-2019	11240
	2019-2020	11251
	2020-2021	11581

Source: Statistical Hand Book, Almora

If we analyze table number 4.2, which represents the area of agricultural wasteland in Salt block, is increasing yearly. The same thing is happening for the Bhikiyasen block in Table number 3. In the year 2018-2019, the area of 11240 hectares for Salt; this has been increased in 2020-2021.

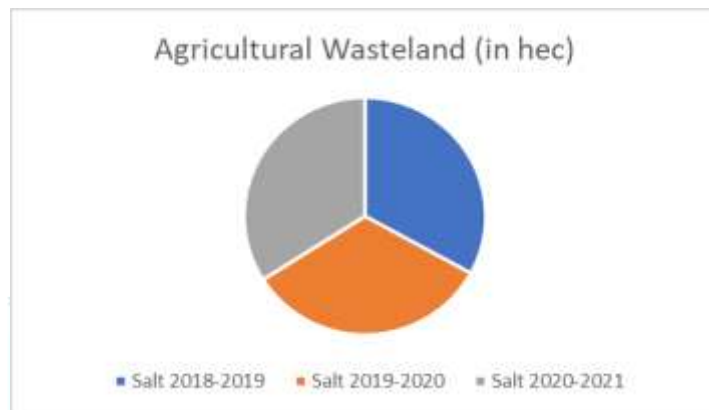


Figure 4.2: Agricultural Wasteland (in hec)

Table 4.3: Area of agricultural Wasteland in Bhikiyasen Block

Block	Year	Agricultural Wasteland (in hec)
Bhikiyasen	2018-2019	9426
	2019-2020	9436
	2020-2021	9712

Source: Statistical Hand Book, Almora

Table number 4.3 is clearly showing the increased area for the Bhikiyasen block in 2019-2020 & 2020-2021, respectively. If we analyze table number 4.1, the Agricultural wasteland area is increasing district as a whole.

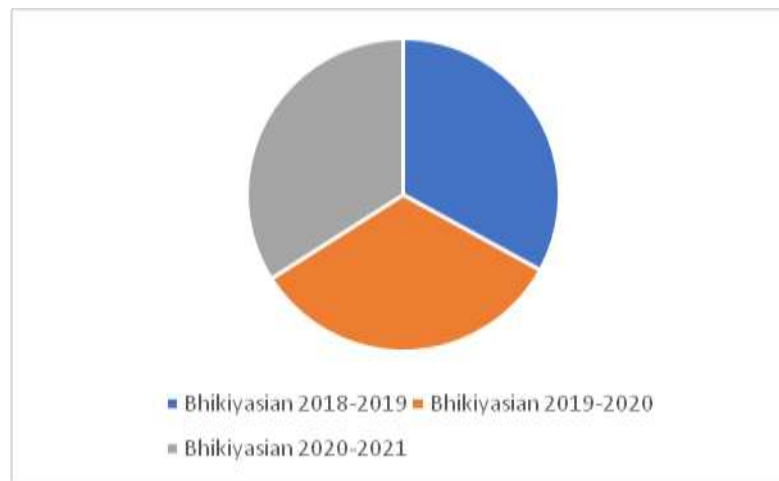


Figure 4.3: Agricultural Wasteland (in hec)

So, we can say firmly say that both the blocks have migration and people are changing their traditional occupation, i.e., agriculture. Researchers found in the study area that huge agricultural land was left barren during the fieldwork.

4.2. AGRICULTURAL PRODUCTION & MIGRATION

The Himalayas present challenging conditions for agriculture and resource utilization due to their rising heights, steep slopes, and harsh climate. These factors impose severe restrictions on the region's productivity and carrying capacity of natural resources. As a result, most of the population in the Himalayas relies on subsistence farming as the primary source of food and livelihood.

One of the primary challenges farmers face in the Himalayas is the limited availability of arable land. The steep slopes and rugged terrain make it difficult to find suitable areas for cultivation. Farmers often have to terrace the land and construct terraced fields to create flat surfaces for farming. However, even with these efforts, the amount of cultivable land remains limited, leading to small landholdings for most farmers. Low agricultural productivity can have a momentous impact on migration patterns. Here are several ways in which low agricultural productivity can affect Migration:

Economic Factors: Agriculture is often a primary source of income and livelihood for rural communities. When agricultural productivity is low, it can result in decreased incomes and limited job opportunities in the farming sector. As a result, people may be compelled to seek better economic prospects elsewhere, leading to rural-to-urban Migration or even international Migration.

Poverty and Food Insecurity: Low agricultural productivity can contribute to poverty and food insecurity in rural areas. Insufficient crop yields or failed harvests can lead to inadequate food supplies and increased vulnerability to hunger and malnutrition. In such situations, people may migrate for better access to food and economic opportunities.

Rural-Urban Migration: Low agricultural productivity can drive Migration from rural to urban areas. Urban centres often offer a more comprehensive range of employment opportunities in non-agricultural sectors, such as manufacturing, services, and construction. Individuals and families may move to cities for better-paying jobs and improved living conditions.

Land Degradation and Climate Change: Agricultural productivity can be vulnerable to land degradation, desertification. The adverse impacts of climate change, such as droughts, floods, and unpredictable weather patterns. These environmental factors can make farming less viable and push people to abandon their lands. Consequently, they may choose to migrate to areas less affected by such issues or to urban centers where alternative livelihood options are available.

Social Disruption: Low agricultural productivity can create social disturbance within rural communities. As people face challenges sustaining their livelihoods, social unity and traditional community structures may weaken. Sometimes, this can lead to conflicts over limited resources, land disputes, or social unrest, prompting individuals to migrate to escape such conditions.

It is important to note that low agricultural productivity is rarely the sole factor driving Migration. Migration decisions are influenced by economic, social, political, and environmental factors. However, the impact of low agricultural productivity on Migration should not be overlooked, as it can play a significant role in shaping migration patterns, particularly in rural areas heavily dependent on agriculture.

Table 4.4: Percentage of Different Reasons behind Migration in Almora District

Reason	Percentage
Employment	47.78
Medical Facilities	8.61
Education	11.75
Infrastructure	3.81
Poor Agriculture Produce	8.37
Followed by the family that Migrated	2.68
Destruction of Agricultural by Wild Animals	10.99
Others	6.02

Source: Rural Development and Migration commission, Uttarakhand, Pauri Garhwal

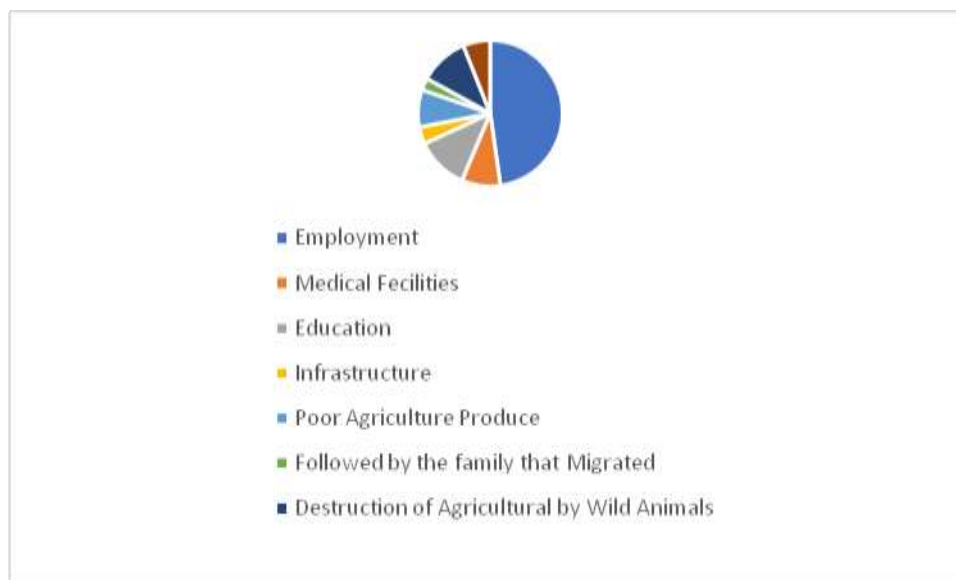


Figure 4.4: Percentage of Different Reasons behind Migration in Almora District

Table 4.4 shows the percentage of different migration reasons in the Almora district. If we study this table thoroughly, we can find that issues related to agricultural production are essential. A total of 19.26 % reasons are related to poor agricultural produce and the destruction of agriculture by wild animals. If we segregate this value, it is 8.37 & 10.99, respectively.

So, we can say there are many reasons to migrate, but reasons related to agricultural production are essential to reason in one of them because it is directly related to food security which is very important in a democratic society. Overall, while subsistence farming remains the mainstay of the Himalayan population, the limited arable land, low agricultural productivity, and dependence on other natural resources highlight the need for sustainable development strategies that can enhance livelihood opportunities and ensure food security in the region to check out Migration in the study area.

4.3. AGRICULTURAL PRODUCTION AND MIGRATION IN THE STUDY AREA

Two forms of agriculture can be seen in the Himalayan region. The first is irrigated, and the second is rainfed. Irrigated land is significantly less in amount, whereas a large amount of land is cultivated as rainfed agriculture. In mountainous regions, where agriculture depends on rainfall, the higher elevated areas are referred to as the "Uparanv" or "upland". The land where irrigation is practised is known as "Talaav" or "reservoir".

Table 4.5: Amount of Land under Different Food Grains According to Irrigated and Rainfed land in Bhikiyasain Block

Food Grains	Irrigated Land (Talav)	Rainfed Land (Upranv)
Wheat	382	2821
Paddy	384	1243
Mandwa (Ragi)	4	3235
Lentils		207

Source: Statistical Handbook Book (2020)

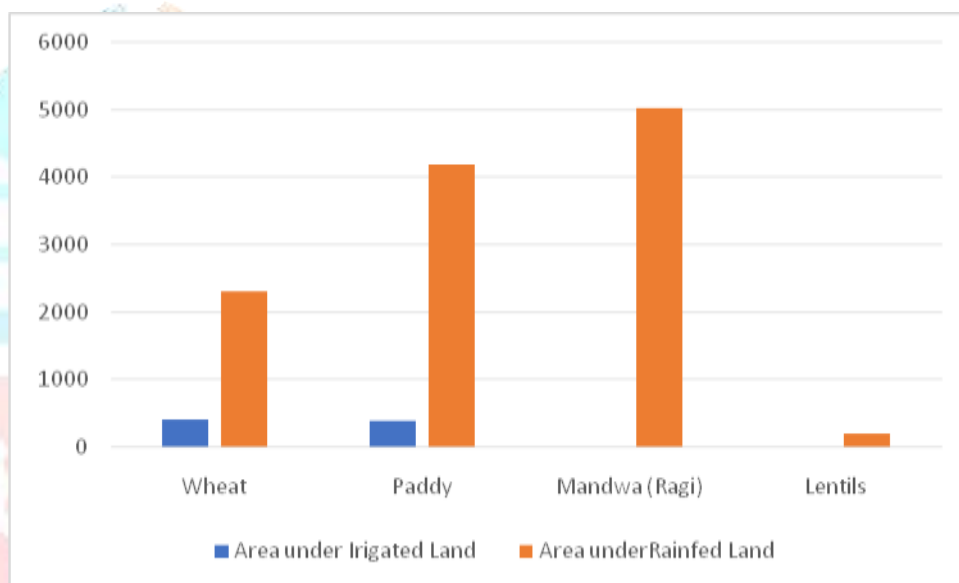


Figure 4.5: Amount of Land under Different Food Grains According to Irrigated and Rainfed land in Bhikiyasen Block

Table 4.6: Amount of Land under Different Food Grains According to Irrigated and Rainfed land in Salt Block

Food Grains	Irrigated Land (Talaav)	Rainfed Land (Uparanv)
Wheat	399	2304
Paddy	389	4190
Mandwa (Ragi)	07	5020
Lentils		197

Source: Statistical Handbook Book (2020)

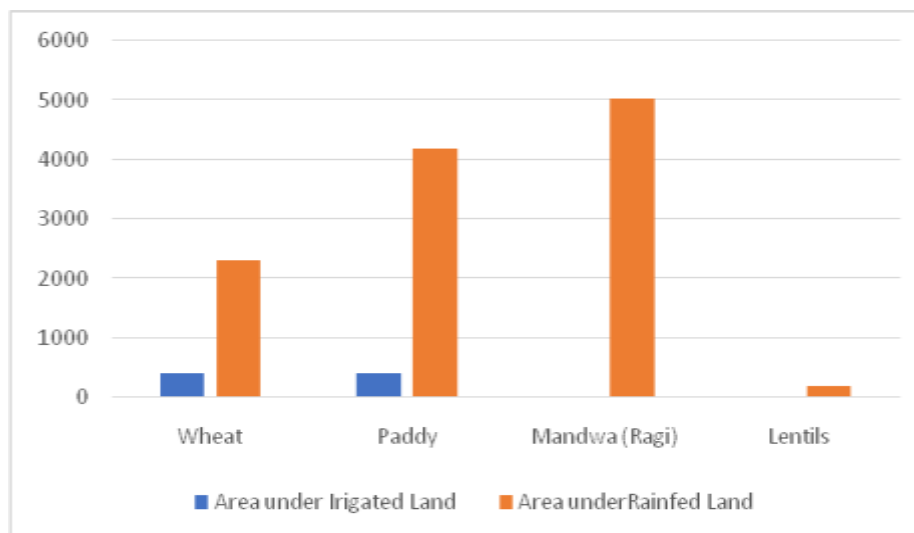


Figure 4.6: Amount of Land under Different Food Grains According to Irrigated and Rainfed Land in Salt Block

Table number 4.6 shows the total amount of land under rainfed and irrigated categories. Irrigated land is less in amount as compared to the category under rainfed. During the survey, the researcher found that production is also less in rainfed agriculture. People are leaving agriculture due to low productivity. The planning commission of Uttarakhand state also identifies this fact. According to the report of the migration commission, 8.37 % of people admit that low productivity is one primary reason in the whole state for Migration.

In mountainous regions, agriculture is indeed the primary source of livelihood. The possibility of commerce and trade is limited because agriculture in these areas primarily depends on weather conditions. However, in irrigated land, production is comparatively higher, allowing farmers to generate more income. Agricultural production is deficient in rainfed or non-irrigated land, and people rely solely on farming for their subsistence. In the present times, due to rapid population growth, agriculture is struggling to meet the needs of the people.

Table 4.7: Production of different Food Grains in Almora District in Quintal/Hectare

Year	Food Grains	Wheat	Paddy	Lentils	Mandwa (Ragi)
2014-15		12.94	11.89	7.56	11.67
2015-16		11.47	11.70	7.12	12.68
2016-17		4.93	10.90	8.44	11.97

Source: Statistical Handbook Book (2020)

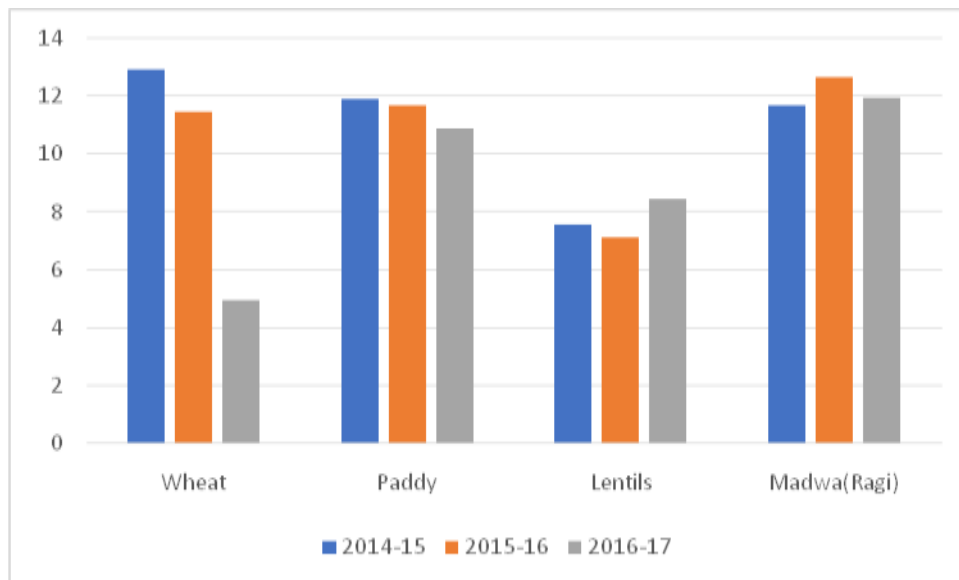


Figure 4.7: Production of different Food Grains in Almora District in Quintal/Hectare

According to table number 4.7 from 2014-2017, usually, a Decreasement is observed in agricultural production. It is subsistence agriculture from the past, but now this is impacted by climate change. Climate change has become one of the significant hurdles for decreasing crop production and productivity in the Himalayan region. Increasing temperatures, decreasing rainfall, and extreme weather conditions have been observed in the Himalayas. Agriculture is also destroyed by wild animals like monkeys and wild bears, forcing people to migrate.

A primary survey has been conducted by the researcher in both blocks with their inhabitants about agricultural productivity. A questionnaire was formed for the survey based on present and past agricultural productivity. It was done with 300 households in the area of investigation.

Table 4.8: Comparison of Production of Different Food Grains in 30 years' time span

SN	Food Grains	Average production Before 30 years in kg/Nali*	Average Production in Present in kg/Nali*
1	Wheat	40	2
2	Paddy	35	2
3	Mandwa(Ragi)	50	5
4	Lentils	10	1

Source: Primary Survey

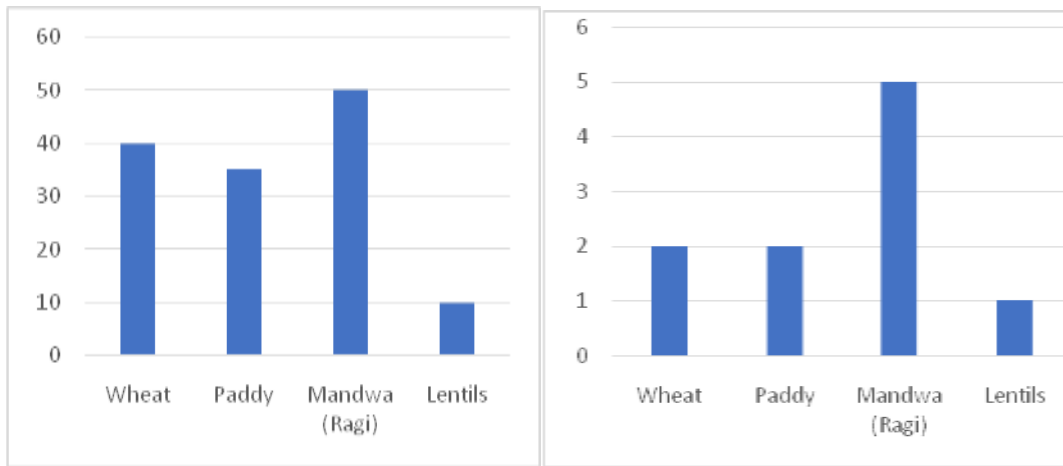


Figure 4.8: Comparison of Production of Different Food Grains in 30 years' Time Span

1'Nali' is a local unit for land measurement & 1 Nali is equivalent to 2160 sq. Feet.

According to the table number 4.8, the production of different food grains is decreasing. Thirty years ago, people used to grow 40 kg wheat/Nali, which is now 2 kg/Nali only. This pattern is typical in the entire study area. Respondents told many reasons behind it, which are the following:

1. Destruction of crops by wild animals such as wild boars and monkeys.
2. Erratic rainfall.
3. Extreme weather events, i.e., Landslides and Cloud bursts.
4. Water resources are drying.
5. Unemployment
6. Gloomy Visions of State
7. Attraction towards urban centres.

5. Conclusion:



Plate1: A Dried Traditional Water Source' Naula and Agricultural Waste Land

Both pictures represent an example of Migration and its causes in the area of investigation. Drying up water sources and abundant land are fundamental indicators of Migration.

Climatic change has transformed many circumstances in the study area. Irregular rainfall patterns and extreme weather events are widespread in thrust areas.

Therefore, low agricultural Production and Migration are closely related. Land use pattern is also being changed by Migration in the study area. Agricultural land is converted into wasteland or barren land.

Out-migration and land abandonment are the significant costs of declining agricultural production. Food security is another aspect Infront of them. Low productivity in agriculture creates the problem of food security in the Himalayas. So, people are migrating from their villages to big cities.

6. Suggestions:

Migration in hill areas is a complex phenomenon with far-reaching implication for land use patterns and agriculture production. While it poses significant challenges, it also offer opportunities for innovation and development. Balancing the socio-economic and environmental impacts of migration requires intrigated policies that promote sustainable land management, community resilience, and equitable development. By addressing these issues comprehensively, hill region can adapt to the changing dynamics of migration while preserving their unique culture and ecological landscape.

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