Depopulation in Rural Areas and Agricultural Transformation:A Study of Kirtinagar Block, Tehri Garhwal District

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Abstract: *Out migration is a majorphenomena at the present time of the world especially in the mountain region. This global issue effect the world socio-economic, cultural and demographic structure. According to the United Nations Department of Economic and Social Affairs (UN DESA), the number of international migrants reached 281 million in 2020, indicating the increased migration of people across borders due tos economic inequities, wars, and environmental changes.As per the report of Periodic Labour Force Survey (PLFS) 2020-21, released by MoSPI (Ministry of Statistics and Programme Implementation), the total migration rate in India was 28.9% and in rural was 26.5%. Out of the total migrant persons, around 10.8% persons were migrated due to employment-related reasons, especially in the hilly region. According to a recently published report,Kirtinagar block has experienced mass migration in the last 10 years where nearly 6644 persons migrated permanently and 5395 semi-permanently. The migration direction toward the batter economic region from less economic regions. It is necessary to understand the various drivers and implications of out migration in the hilly region. The present study tried to find out the basic reasons, patterns, and impact on agricultural activities of this mass migration.Both primary and secondary data are used to find out the overall picture of depopulation villages. Primary data is collected through the questionnaire, interviews, and focused group discussion, whereas secondary data is collected through the district census handbook, government reports, district statistical diary, papers, etc.*

Keywords: Agriculture Activities, Depopulation, Hilly Areas, Migration, Rural Livelihood,

INTRODUCTION

Migration from rural to urban areas is a long-standing trend. Throughout history, humans have consistently relocated. Beyond fleeing famine, disasters, and insecurity, individuals seek improved livelihoods, new experiences, quality education, skill enhancement, and better job prospects (McKeown, 2004; Bernard and Bell, 2018). The hilly regions continue to struggle with low incomes, inadequate job opportunities, and scarce basic services such as education and healthcare. However, both natural and human-induced factors like climate change, natural calamities, diminished agricultural practices, population growth, globalization, and infrastructure advancements have led to a surge in migration from these areas in recent years (Tiwari and Joshi, 2015; Sati, 2019). The effects of these transformations have been exacerbated by the distinct characteristics of mountainous regions, including marginalization, fragility, vulnerability, and poor accessibility. Furthermore, individuals residing in these mountainous locales are increasingly aware of the opportunities available elsewhere. Thanks to advancements in communication technologies and reduced transport costs, previously stationary individuals are now capable of relocating. The expansion of urban centers in lowland areas and mountain valleys has created a significant demand for affordable, flexible labor. Consequently, a substantial number of people are migrating from mountainous regions to these urban service centers (Sati, 2021; Biella et al., 2022).The rise in population, regardless of job prospects, serves as the fundamental cause of migration, which subsequently results in structural changes in agriculture, either by reducing the labor force available for farming, increasing abundant agricultural land, Technology, and knowledge transfer or by boosting investments in agricultural sectors.Farmers suffering a liquidity limitation in agricultural production are more inclined to relocate because they believe that remittances will solve the liquidity problem. Thus, remittances have a more egalitarian impact on the distribution of rural income than previously anticipated (Taylor & Wyatt, 2017). In view of literature review mentioned positive and negative and equitable effects and cause of migration on agriculture activities and farmers' socio-economic condition. The present study tries to analysed and find out the cause of migration and it's effects on agriculture activities in the Kirtinagar block of Tehri Garhwal district Uttarakhand. According to the Uttarakhand Migration Commission, kritinagar block is one of the most affected areas in terms of migration.

THE STUDY AREA

Migration is major problem throughout Uttarakhand. Recently released migration commission report

expose the situation. Kittinagar block is taken as study area because it is one of the blocks in Uttarakhand where migration is a big challenge and taking place very rapidly. Kittinagar tehsil located bank of Alaknanda rivers in the Tehri Garhwal district of Uttarakhand.It lies between 30º12´ to 30º24´ north latitude and 78º30´ to 78º54´ eastern latitude. Its eastern boundary along with the Augustmuini block of Rudraprayag district and western boundary with the Jakhanidhar block, its northern boundary along with the Bhilangana block, and its southern boundary is bounded by the Holi Alaknanda rivers and Pauri Garhwal district.

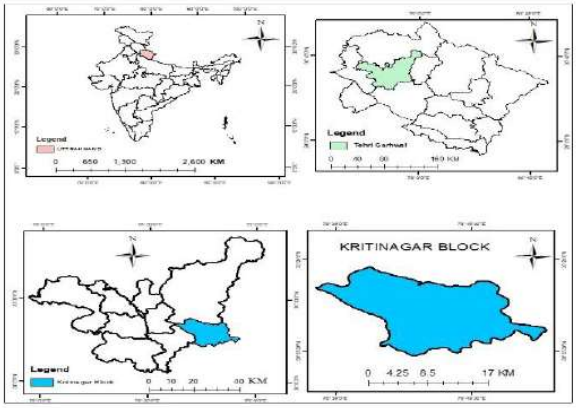

Figure-01 Location Map of Study Area

According to the census 2011, the total geographical area of the block is 362.64 km2. There are a total of153 villages in Kirtinagar community development block of Tehri Garhwal. The total population of Kirtinagar block is 45,629 with a male population of 21,542 and a female population of 24,087 and there are 10,580 households. Out of the total population, the ST population is 143&SC population is 8,494. There are total literacy rate is 79.25%. Block has a total working population of 21,257 of which 15,782 are main workers & 5,475 are marginal workers. 10,615 people are engaged full-time in farming or cultivation while 10,615 persons pursue farming for less than 6 months in a year. The major aim of this study to know the migration pattern, cause and it's impact on different agriculture activities in the study area.

DATA SOURCE & METHODOLOGY

In the current research study, both primary and secondary data have been utilized. For the collection of primary data, 6 villages were chosen from a total of 154 using a random sampling approach. Within these villages, 84 households were selected. Among the 252 respondents, 139 were male while the remaining 113 were female. This represents 55% and 45% of the total respondents, respectively. Secondary data was gathered from various sources. The primary sources of secondary data included the Census of India, the district census handbook, and the district statistical report. Additionally, various research papers and government reports were consulted for secondary data collection. The gathered data has been analyzed using both graphical and statistical techniques. Relevant maps have been employed to illustrate the distribution of specific migration characteristics in the area. For statistical analysis, suitable statistical techniques were applied, primarily descriptive statistics such as percentage change and proportions. Furthermore, the data has been presented using tables and charts. For data analysis, different software tools were utilized; Arcgis 10.3 software was employed for map creation, while MS Excel and MS Word were used for generating tables and charts.

RESULTS AND DISCUSSION:

Nature of Migration

Table 1: Migration in Different Age Groups

Age Group	Migrant	Non-Migrant
Below 18	32.3%	67.07%
18-35	65.07%	34.93%
35-55	27.01%	72.99%
Above 55	7.1%	92.94%
Total	32.9 %	67.1%

source: compiled by researcher based on primary survey

It is evident from the statistics in table 01 that the type of migration is age-specific.the total migration in Kirtinagar block is close to 35%, including migration for marriage. it is the only factor that inflates the overall results. The highest migration occurs in the 18-35 years of age group.Since the majority of people in this age group got married and are looking for better jobs to secure their future, they are the most mobile in the area. There aren't any suitable economic opportunities in Kirtinagar. The majority of people worked in agriculture, one of the main sectors but because of the present economic situation, it is no longer a significant employment. However, migration is not entirely driven by economic or employment factors. Another significant factor in this age group's relocation is education.It has been discovered that most migration happens up until the age of 35, after which it tends to decline significantly. Only 7% of adults over 55 are migrants, making them the least mobile age group, Majority of people in this age grouped migrated due to the shift their family in another place and their migration is not permanent.

Purpose of Migration

Table 02: Cause of Migration

S.no.	Cause of Migration	Percentage of Respondent
1	Economic Factors	43.29
2	Educational Opportunities	19.18
3	Social and Cultural Factors	24.03
4	Environmental and Climatic Conditions	13.09
5	Other	1.41

source: compiled by researcher based on primary survey

In the table no 02 cause of migration has been analysed if we see the above the data of cause of migration in the area, it shows that the highest 43.29 % of people leave their native place for the reason of uneconomic condition, which included the less job opportunity, income, food security and investment and 19.18% of people migrate due to the less opportunity of quality education and included higher education in the study area. Whereas the 24.03% migrate for the reason of marriage and batter life style and 13.09% people leave their place for the reason of environmental and climatic condition which included the land degradation, water scarcity, flood etc. overall data show the most people migrate due to the economic reason in the study area.

Change in the Number of Main and Marginal Agriculture Workers (2001-11)

Table 03: Main and Marginal Agricultural Workers in 2001

Main Workers	Villages	Percent	Cumulative %
Below -0	21	13.73	13.73%
0-25	48	31.37	45.10%
25-50	23	15.03	60.13%
50-75	18	11.76	71.90%
75-100	6	-3.92	75.82%
above 100	37	24.18	100.00%
Marginal Workers	**Villages**	**Percent**	**Cumulative %**
Below -0	49	32.03	32.03%
0-25	63	41.18	73.20%
25-50	15	9.80	83.01%
50-75	8	5.23	88.24%
75-100	6	3.92	92.16%
above 100	12	7.84	100.00%

Source: Census of India

Table 04: Main and Marginal Agricultural Workers in 2011

Main Workers	Villages	Percent	Cumulative %
Below -0	13	8.50	8.50%
0-25	53	34.64	43.14%
25-50	23	15.03	58.17%
50-75	22	14.38	72.55%
75-100	18	11.76	84.31%
above 100	24	15.69	100.00%
Marginal Workers	**Villages**	**Percent**	**Cumulative %**
Below -0	25	16.34	16.34%
0-25	77	50.33	66.67%
25-50	20	13.07	79.74%
50-75	12	7.84	87.58%
75-100	5	3.27	90.85%
above 100	14	9.15	100.00%

Source: Census of India

The primary form of agriculture in Kirtinagar block is subsistence farming since it is crucial to the region's economy and migration presents difficulties for it; therefore, it is crucial to examine statistics on agricultural laborers. Main agricultural workers and marginal agricultural workers are the two categories of agricultural workers identified by the 2011 and 2001 Census of India. Agricultural workers who work in agriculture for more than six months or the majority of the year are referred to as main agriculture workers, whereas those who work in agriculture for less than six months in a year are referred to as marginal agricultural workers.In the table, village wise data of the change in main agricultural workers during 2001 to 2011 is shown. The data shows the both negative and positive change in the main worker from 2001 to 2011, out of the 153 villages of kirtinagar block, 116 villages are there in which negative change has seen during the given time period in the main agriculture workers and only 24.18% of all villages of the block has been seen the positive change in the main agriculture workers in kirtinagar block. This is significant because the kirtinagar block experienced positive population increase between 2001 and 2011. As a result, the vast majority of farmers have tended to abandon farming. If this is the case, however, there ought to have been a concurrent growth in the number of marginal workers in agriculture. If we see the data regarding marginal agriculture workers, here also, the Kirtinagar block has seen a sharp fall, and the number of marginal agriculture workers has decreased in 147 of the block's villages. It makes up almost 96.07 percent of all the villages in the block of kirtinagar.It is evident from the data on main and marginal agricultural workers that both are decreasing at the same rate, which is only possible if migration is taking place in those areas.

Table 5: PercentageChange in agricultural workers from 2001 to 2011

Worker Category	Change in Main Workers	Change in Marginal Workers
Below -0	61.53%	96.02%
0-25	-9.44%	-18.18%
25-50	0.00%	-25.02%
50-75	-18.22%	-33.29%
75-100	-66.67%	19.88%
above 100	54.11%	-14.32%

source: compiled by researcher based on secondary data Migration Impact on Agriculture Aspects

Table 06: Impact on Different Agriculture Aspects

S.no.	Agriculture Aspects	Percentage of Respondent
1	Labour Shortage	68.87
2	Abandoned Agricultural Land	48.32
3	Decline Soil Fertility	38.96
4	Shift Crop Pattern	40.78
5	Decline in Livestock Farming	53.23
6	Adoption of Technology	24.31
7	Wild Life Intrusion on Farm	37.67

source: compiled by researcher based on primary data

The analysed data table 06 highlight the significant impact of migration on various aspects of agricultural in the study area. In the data shown earlier majority of the peoplemigrate due to economic reasons in kirtinagar block. Hence the number of migrants in a family has a direct effect on thetheirsocio-economic status. As per the 70% respondent, it was stated that the biggest shortage of agricultural workers is being seen there due to the out migration and 48% of the respondents said that agriculture land is tuning into barren land and 40% people said

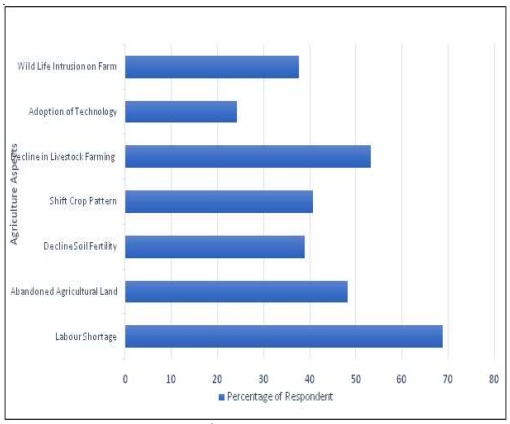

Figure 01

changes are being seen in the crop pattern there. Apart from this, there is a direct relation between animal husbandry and agriculture. 53% of respondent said that change are being seen in the livestock farming and 25% respondent said that there are some peoples adopted new mechanization at slow rate and about the 37.67% respondent said, migration is the major cause of intrusion of wild life animals on people farms and it's increase day by day in the rual areas. furthermore, respondent also said, in the rural areas most of the male migrate from their home to improve their social-economic status. As a result, the women there have to dual responsibility of household work as well as farm work. The effect of which is seen on their health.. about 70% of the female respondents said due to the increase dual responsibility, their health problems have increased such as headaches, joint pain, back pain etc. so that after analyse the data we can say out migration not only impact on the agriculture activities, lt also affect their social and cultural life.

Land Use Change From 2015-16 to 2021-22

Table 07: Land Use Analysis

Land Use Category	Percentage in 2015-16	Percentage in 2021-22	% Change from 2015-16 to 2021-22
Forest	69.84	78.69	13.00%
Cultivated Barren land	12.69	10.72	-17.00%
Fallow land	3.66	1.45	-60.00%
Barren and Uncultivated land	0.67	0.95	42.00%
use of land than agriculture	1.08	0.85	-22.00%
Pasture land	0.02	0	-100.00%
Park, Trees, Shurbs	0.72	1.06	47.00%
Net Shown Area	11.01	6.29	-43.00%
Area Shown more than once	4.79	3.07	-36.00%

Source: Compile by research based on the secondary data

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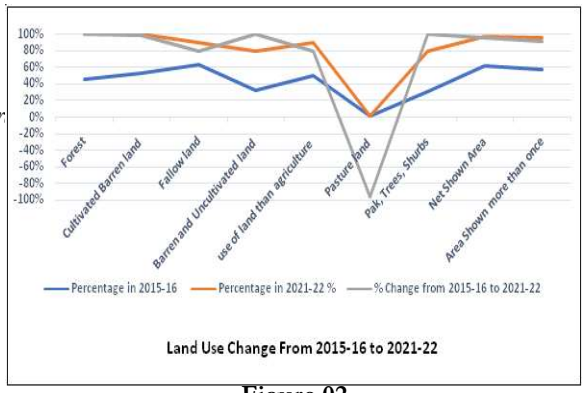

Figure 02

In the above table number 06, different land use category have been analysed on the basis of secondary data.in which has been taken from 2015-16 to 2021-22. The data clearlyshows, 13% in forest, 42% in Barren and Uncultivated land and 47% in Park trees have experiencepositive change in land use,furthermore net shown area -43% and Area shown more than once -36% shows the negative change out of the total land use change in the given time period. Based on the earlier data, we can see the agriculture worker and land use directly affected by the out migration in the study reason.

CONCLUSION:

The study identify various factors that push people migrate from the study areas, such as employment opportunities, education facilities, limited irrigation facilities, shrinking gaderas low agricultural productivity, destruction of agriculture by wild animal and other social and environmental factors. It also assessed the impact of out migration on the agriculture activities and their livelihood. Migration, especially out migration has become a majorphenomena not only in kirtinagar block of theri Garhwal district but throughout the hilly district of Uttarakhand. In the study region population grow day by day and available socio-economic facilities not full fill their demand, food supply, batter income, job facilities, batter education and batter social environmental life. In the study region agriculture distress is the main region of out migration. We can see the migration and agriculture positively corelated. As out migration increase agriculture distress also will increase due to shortage of agricultural workers. If the agriculture distress will decrease as higher productivity, sufficient in fulfil their economic demand, it will lead less migration form that region, but in the hilly region we can see clearly agriculture distress leading more migration.

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