A Geographical Analysis of Rural Out-Migration And Its Impact on The Rural Landscape of Selected Villages in Garhwal District (Uttarakhand)

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Abstract: Rural out-migration is a common spectacle in hilly areasof Uttarakhand state and is directly associated with the socio-economic conditions of rural people. It plays a major role in the transformation of the rural areas into resonating environments because major populated villages show decline in population growth, agricultural activities, rural development, labour migration and rate of employment. Migration refers to the geographic movement of people from a particular area to another area for various purposes and continues to bethe main problem in the rural areas of Uttarakhand. Unemployment and Lack of basic facilities are the major reasons for out-migration in these areas. In this paper, an attempt has been made to analyze the rural out-migration in Dang, Agrora, Kolri, and Morora villages of Garhwal District. In this study, various dimensions of rural out-migration are considered including the types ofout- migration, purpose of migration, years wise, migration in the age group, inter and intra-state migration. It also analyses the impact of out-migration on the rural landscape through principal component analysis. Results indicate that out-migration harms rural landscape because various attributes are in the declining stage with the out-migration such as agriculture, population growth, working population, and businessin study area.

Keywords: Rural Out-Migration • Rural Transformation • Rural Development • Unemployment • Socio-economic Conditions

Introduction

Migration has become a widespread phenomenon in recent years. In UttarakhandHimalaya, it has become a serious problem of rural transformation and affected the population growth, agriculture transformation, and development activities in various villages. Almora and Pauri Garhwal district of Uttarakhand show a tangible decline inthe growth of population in 2011 as compared to 2001 due to huge out-migration. The hardship of village life, socio-economic conditions of small villages become more noticeable as compared to large villages, thus it pretence as a serious cause of out-migration in Uttarakhand (Mamgain, Rajendra P.; Reddy, 2015).Migration rates have changed drastically over the past few yearsin the various caste groups and the villages with the maximum frequencyamong the rural population living in the hilly villages.Though the well-developed rural villagesin the hilly areas with highest living expectancy and better living standardshave reduced rural migration and provided better job opportunities in the hilly areas, yetthe rate of migration has increased in rural areaswith remoteness(Deshingkar, 2010).Rural migration in the Uttarakhand state is one of the main contributors to urban development and growth, due to inadequate chances of economic development found in the rural area.Male out-migration become the serious problem of Uttarakhand state. This serious problem of male migration in a hilly area leads to the overload of work and burden on women(Yadav et al., 2018). In Uttarakhand, the hilly rural belts have been emptyingin

recent years due to the lack of opportunities in the villages and the state has an astounding 3,600 villages which are almost abounded (Sahiya, 2015)(TOI Report, 26 Sep 2015). After the formation of the state,the race of out-migration could not slow down in the hilly districts of the state due to the uneven development of the rural areas. In recent years, it has also increasedand is reflected in the latest results of the population census which indicates the very low growth rate of population in the hilly districts of the state(Mamgain & Reddy, 2015). The most significant purpose behind migration is unemployment in the rural areas consequential to poor living standards among different socio-economic groups in villages. In hilly areas, people mainly practiceagriculture for their survival and livelihood and are significantly dependent on climatic conditions.The majorreason for rural out-migration isthe non-availability of substitute sources of income in rural areas(Yadav et al., 2018). A large portion of labor migrated in the villages for work. It shows the temporary migration in search of work and the significant flow of migration in the villages for labour purposes(Mendola, 2015).

Out-migration from the rural areascan be minimized through providing employment opportunities, better health, and education development, through better infrastructural facilities, the establishment of rural skill institutions, and providing modern innovative technology in the field of agriculture(Sati, 2021).Migration is a segment of the positive living approach, but it affects the existing inhabitant's life style of particular region and reduced the social framework, social value, household arrangements, and cultural structures.It is the process of change in the different perspectives of development such as economically, technologically, and politically(Haan, 2000).Migration become a major problem in the world because of how people leave their place of origin to settle in a

different part of the country in search of their livelihood and sustainability. There are various causes behind people leaving their homeland and moving to an unknown place. Migration reduced the poverty and help to uplifting the immigrant's families for sustainable future (Usha, 2018). Migration rate in the mountainous areas has continuedto be maximum in the last decades.In the hilly areas of Uttarakhand, migration is continuous due to the socio-economic conditions of the people.The other main factorsbehind migration from the hilly area to the plains of Uttarakhandis low agriculture production, less employment, and lack of infrastructure (Sharma et al., 2019).In Uttarakhand, out-migration can be controlled by giving rural enterprises, a small-scale unit of employment, rural tourism, and livelihood opportunities in those areasthat have good advantages of development and improving health and educational infrastructure. In the origin place with limited sources of income for survival, most of the people leave their houses in search ofbetter living standards and lifestyle (Awasthi & Mehta, 2020).Rural people lack adequate skill, so they could not gain benefits in the service sector, due to insufficient skill they are not getting suitable jobs and remain unemployed. Various jobs require highly skilled labourin industrial sector, so needs to established a skill development institute in the rural area to trained the labour youth for job creation(A. Garg & Agarwal, 2021).Out-migration is thetransformation of inhabitants from mountainous areas to well-developed industrial areas having severalinternal reasons. Most of the times,it is due to the pressure of family and insufficient resources, lack of infrastructure, health care system, and lack of quality education, etc(S. Garg, 2014).

Study Area: A Geographical Aspects:

Garhwal district is located in the Indian state of Uttarakhand. Its administrative division is in Pauri town. It is located in the lower

Himalayan region having 5230 square kilometers area. It is situated between $29^0,45'$ to $30^0, 15'$ North latitude and $78^0, 24'$ to $79^0, 24'$ East longitude.The district is bounded by Dehradun and Haridwar on the west side, Bijnor district of U.P on the south side, Nanital and Almora on its South East side, Chamoli and Rudraprayag Northeast and north, and Tehri Garhwal on its North-West. The elevation of Pauri Garhwal is 1650 m from the mean sea level. The average annual temperature for the Pauri region ranges from 25^0C to 30^0C. The climate during the summer is pleasant and favourable. Pauri Garhwal district rich in flora and fauna.

Table 1: Demographic Profile of villages

Sr. No	Villages	Total Population	No. of Houses	Collected Sample of HH	Distance from HQ in km	Area in Sq. Hectare
1	Dang	326	97	50	30	93.63
2	Agrora	173	46	25	43	108.85
3	Kolari	305	95	50	51	39.43
4	Marora	148	32	16	49	31.41

(Source: -District census book, 2011)

Objectives

1. To analyse the various dimension of out-migration viz,types, reason, age group and years-wise migration in the study area.
2. To observe the inter and intra state out-migration.
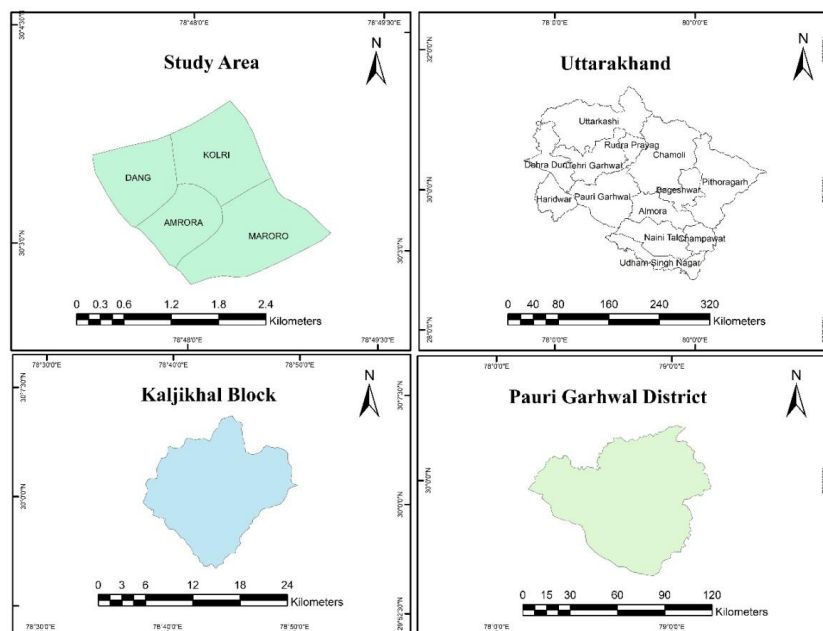3. To analyse the impact of out-migration on rural landscape in the study area**.**

Fig. No 1: - Location map of study area. (Source: - Prepared by authors using Arc Gis)

Methodology of the study

Sample Descriptions: - This study is based on the primary survey in the selected villages of the Garhwal District. A sample size of 141 householdsselected through random sampling methodfor studying the rural out-migration including their occupation, migration in the age group, inter and intra-state migration belonging to 4 different villages Garhwal district block Kaljikhal namely Dang, Agrora, Kolri, and Morora villages have been taken. These villages wereselected based on population size and households. These selected villages far way from the district Headquarter and comprises mainly hilly terrains. The present study conducted in the hilly rural area and the focused group comprises of its residents. The sample size was distributed based onthe families residing in the villages. In the Dang village, 50 sampleswere collected, 25 sampleswere collected from Agrora, 50 sampleswere collected from Kolari, and 16 sampleswere collected from Marora. The total population of 141 samples is 857 out of which 602 are out migrants.

Data Collection: - Following tools were selected for data collection.

❖ Interviews were scheduled for assessing the basic information of the rural migrants' respondents related to their occupation, types of migration, reason of migration and migration in the age group.

❖ The field observation method to observe the inter-state migration and intra-state migration that takes place in the study area.

❖ Multi-type questionaries were prepared for collecting information related to rural migrants

Data Analysis and Mapping

❖ For analysingthe data, various tools have been adopted. To work out the percentage and frequency of rural out migrants, the statistical software like Microsoft Excel has been used. Similarly, to analyse the impact of out-migration on rural transformation,the principal component analysis technique has been adopted. Subsequently,various charts and bar graphshave been prepared to present the data based on the primary survey.

❖ Study area is extracted through the Google Earth software and the study area map has been prepared using the mapping software ArcGIS.

Result and Discussion

Types of migration in the sample villages

Various types of migration were found in the sample villages such as weekly, monthly, seasonal, semi-permanent, and permanent. In the weekly migration, most ofthe students who are studying in the cities return home after a week. Likewise, the labourmigrationoccurswhen laborers working indifferent parts of Uttarakhand, return back to their homes on weekly patterns. The rate of weekly migration is 6.64% only. In monthly migration, most are the private job workers and the ratio of monthly migration is higher as compared to weekly migration which is 9.97% identified in the sample villages. In seasonal migration, most of the families migrate seasonally due to climatic variations. During winters, they migrate to the cities while in summers, they return back to their hometowns. Seasonal migration rate noticed in the Dang, Kolari and Agrora villages is similar to the weekly migration which is 6.64%. The semi-permanent and permanent migration rate is very high which is 26.91% and 49.83% respectively as shown in the table given below.

Table No 2: - Shown the types of out- migration

Sr. No	Types	Migrants	Percentage
1	Weekly	40	6.64
2	Monthly	60	9.97
3	Seasonally	40	6.64
4	Semi-Permanent	162	26.91
5	Permanent	300	49.83

Source: - Based on Primary survey

Purpose/reason for rural out-migration from a hilly area to urban area.

Without reason there is no migration taking place. People migrate from their place of origin to another place to sustain their lifestyle in a better way. In the study area, various reasonsformigrationwere identified during the field survey. These include employment, education, health, infrastructure, low agriculture production, climatic conditions, marriage, etc. Employment is one of the important sources of income in daily life but in rural and hilly terrains, there is no source of employment. Therefore, most of the people chose to migrate in pursuitof employment in industrial andtowns. For this reason, 24.92% of migration was observed during the survey which is one of the major drivers of rural out-migration. Education, health, and infrastructure development are also major primary needs of the people who are living in the tough terrainsso that people migrated in search of better facilities such as education (16.61%), health (9.97%) and Infrastructure (13.62%) rural out-migration noticed in the sample villages. Agriculture is the backbone of the Indian economy. Nowadays, in rural areas major portion of the population has observed a decline in agricultural production due to poor soil texture, lack of modern technology, climatic conditions, and for wild animal threats in rural areas. Due to the low agriculture production (13.29%) and destruction of agriculture by wild animals (11.63%), rural out-migration takes place. People migrated due to climatic variation (4.98%), following the other family that already migrated (3.32%). Another reason for out-migration identified is marriage (1.66%) as shown in table3 given below.
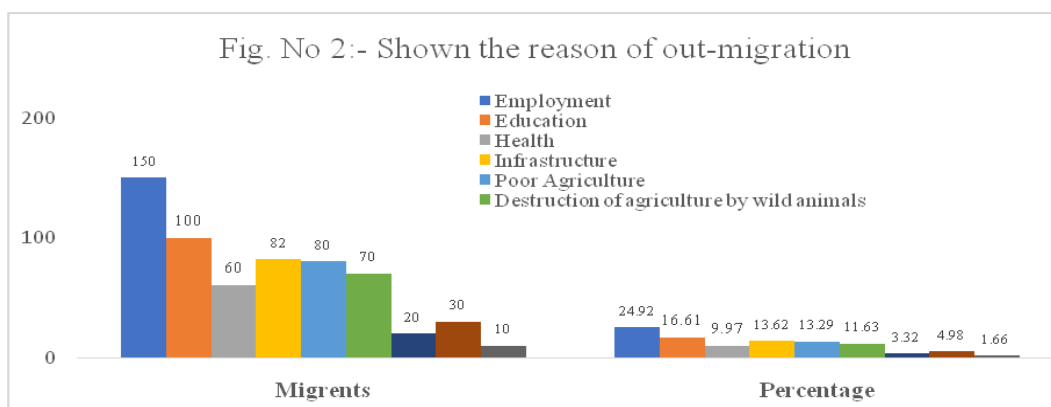

Fig. No 2:- Shown the reason of out-migration

Table No3: -Shown the reason for out-migration

Sr.No	Reason	Migrants	Percentage
1	Employment	150	24.92
2	Education	100	16.61
3	Health	60	9.97
4	Infrastructure	82	13.62
5	Poor Agriculture	80	13.29
6	Destruction of agriculture by wild animals	70	11.63
7	Follow the other family that migrated	20	3.32
8	Climatic condition	30	4.98
9	Marriage	10	1.66
	Total	602	100.00

Source: -Data based on primary survey

Table No4: - Shown the out-migration in the age groups

Sr.No	Age Group	No. of Migrants	Percentage
1	Below 15	78	12.96
2	16-25	210	34.88
3	26- 35	221	36.71
4	36-45	62	10.30
5	Above 46	31	5.15
6	Total	602	100.00

Source: - Data based on primary survey

Rural out-migration in the age group in villages

Migration also takes place in the age group because age is the major factor in migration. In the below table, it is clearly shown that the younger age group population is at the forefront of this phenomenon. In below 15 age group, only 12.96% out-migration was identified because this age mostly migrated with family while on the other hand under the 16-25 age group, 34.88% migration was observed because in this age cluster mostly young generation migrates for education and some others migrate for the search of employment in the cities. The maximum out-migration was observed in the 36-45 age group. In this age group,a maximum number of people are in the government services and some are laborers, private workers who are living in towns and working in industries, hotels, etc. While in the above 46 age group, the observed migration is very low 5.15% as shown in the table and graph.

Migration in years wise in sample villages

The pattern of out-migration is studied within a period of 10 years from 2012 to 2021. In 2012, 8.64% and in 2013, 7.31% rural out-migration was noticed in the study area while in 2014 the rate of out-migration was 10.31% which isslightly high as compared to the previous years but in 2015 the rate of out-migration decreases to (9.63%). In the years 2016, migration saw an upsurge (11.30%) because in this year, most of the families migrated for better facilities in towns. The rate of out-migration fluctuated in the years 2017, 2018 and 2019to stay at8.31%, 11.13% and 7.31% respectively. In 2020, the rate of out-migration remained very low i.e., 3.82% due toCOVID-19 pandemic whichrestricted people in their hometowns. In 2021, the rate of out-migration (19.93%) whichis very high because

maximum reverse migration takes place due to pandemic, most of the people become jobless during this period. Later, on the normalization of pandemic rate of out-migration recorded very high because people migrated again for the search of employment in different part of the country as shown the table no 5, below.

Table No5: -Shown out-migration in years wise (within 10 years)

Sr. No	Years	No of migrants	Percentage
1	2012	52	8.64
2	2013	44	7.31
3	2014	61	10.13
4	2015	58	9.63
5	2016	68	11.30
6	2017	50	8.31
7	2018	67	11.13
8	2019	44	7.31
9	2020	23	3.82
10	2021	120	19.93

Source: - Data based on a primary survey by the author

Fig.No 3:-Shown the percentage of years wise migration
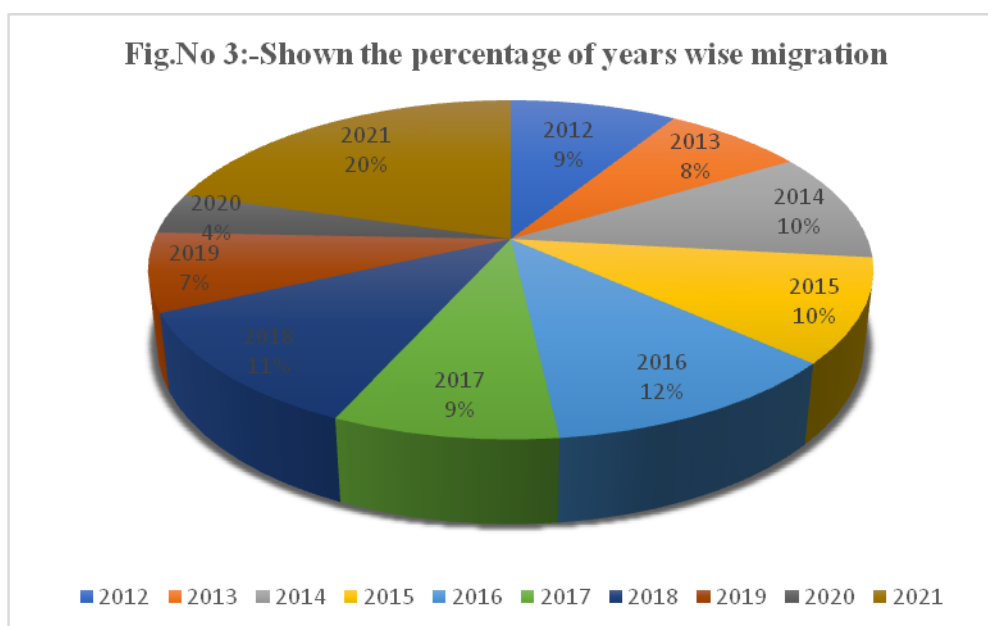
Intra-state rural out-migration in the village of Garhwal Himalayas

The maximum number of people migrated within the statein search of better facilities for education, health, and employment. Dehradun is the capital city of Uttarakhand state and a well-developed industrial region equipped with enhanced transport connectivity. The out-migration rate in Dehradun (32.89%) in Rishikesh (4.15%). In Tehri Garhwal and Nanital, out-migration was 0.83% and 0.50% respectively. Haridwar is a religious site of pilgrims and is fast emerging as anindustrial hub. Many people migrated to Haridwar for employment in the hotel, restaurants, and labours works from the rural and hilly areas of Uttarakhand. The out-migration rate from the selected villages of Pauri Garhwal in Haridwar (2.82%) and Pithoragarh (8.14%) is shown below in Table6 and Fig 4.

Table No6: -Shown the intra-state migration

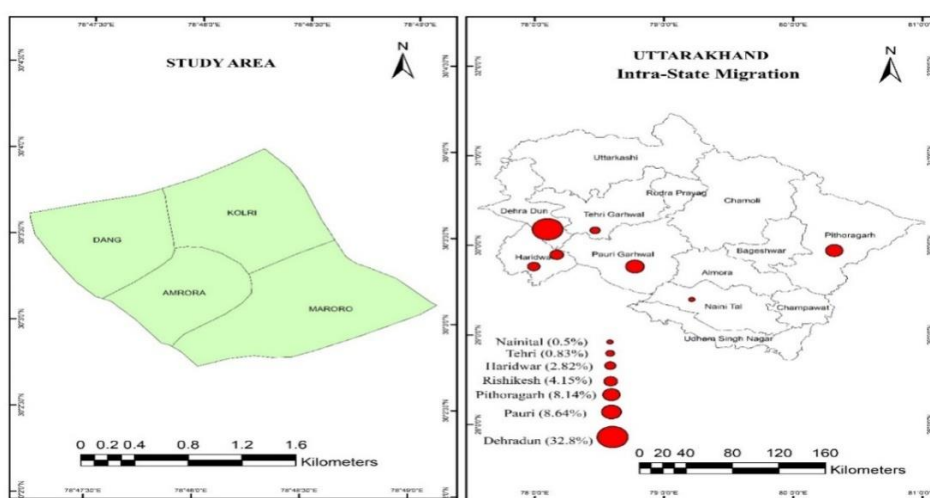| Sr. No	Intra-state	Migrants	Percentage
1	Dehradun	198	32.89
2	Rishikesh	25	4.15
3	Tehri Garhwal	5	0.83
4	Pauri Garhwal	52	8.64
5	Haridwar	17	2.82
6	Nanital	3	0.50
7	Pithoragarh	49	8.14
8	Total	349	57.97

Source: -Data based on primary survey

Fig. No 4: Intra-state migration

Inter-state rural out-migration

Lack of employment opportunities in the rural area of Uttarakhand forces people to move to different parts of the countryin search of a private job. It is mentionedin the below table that people from the selected areas move to 12 different states of India for the sustainability of their families. Delhi is the capital city of India, and a world tourist hub and zone of industrial development people prefer to live in the well develop city so the rate of out-migration is very high in Delhi (14.95%) and Uttar Pradesh (8.64%) from selected villages. In other major industrial citiessuch as Bangalore (1.66%), Mumbai (1.83%), Assam (1.00%), Kerala (1.33%), Rajasthan (1.00%) and West Bengal (1.83%) on the other hand Chandigarh (4.15%) and Punjab (3.49%), the out-migration rate is average from the selected villages of Garhwal district. Two hilly statesviz. Jammu and Kashmir (0.3%) and Himachal Pradesh (0.5%), show a very low rate of out-migration as shown below in Table No7and Fig. No. 5.

Table No 7: - Shown the Inter-state migrations

Sr. No	Inter-state	Migrants	Percentage
1	Delhi	90	14.95
2	Bangalore	10	1.66
3	Mumbai	11	1.83
4	Himachal Pradesh	3	0.50
5	Jammu &Kashmir	2	0.33
6	Chandigarh	25	4.15
7	Assam	6	1.00
8	Kerala	8	1.33
9	Rajasthan	6	1.00
10	West Bengal	11	1.83
11	Uttar Pradesh	52	8.64
12	Punjab	21	3.49
	Total	245	40.70

Source: - Data based on primary survey

Fig. No5: - Map showing the Inter-state migration
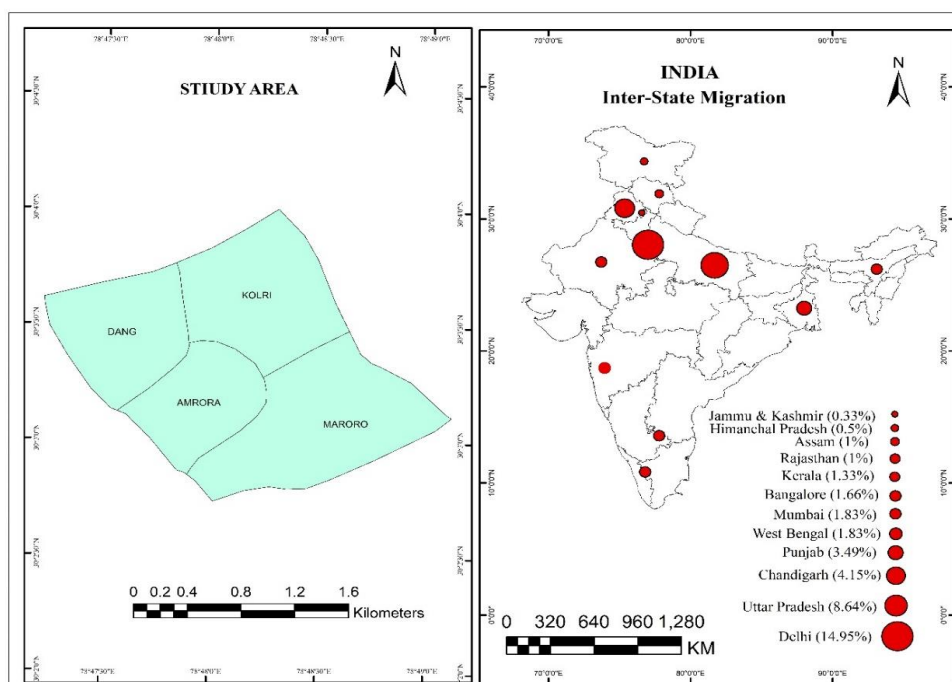
Impact of rural out-migration on the rural landscape in sample villages

To understand the impact of rural out-migration in the selected village, a principal component analysis technique has beenapplied. It is clearly shown in graph 6 that rural out-migration transforms the rural areas and widely impacts agriculture, working population and population grow thin these areas. The impact is very high in the years 2019-2020 but 2021-2022 shows the maximum impact on business. But income and tourism remain the least impacted by the out-migration in the study area.

As shown in the below table and graphPC1, PC2, and PC3, there isa positive value on agriculture attributes which means that movement of people or out-migration widely

impacts agriculture and transformed the agriculture system in a rural area. In the income attribute, PC1 shows a negative value which means that there is no impact of out-migration on the income of residents but PC2 and PC3 show a positive impact on the people's perception in years-wise analysis. Population growth and working population are in declining stage in the villages as shown in the table. In population growth attributes PC1, PC2, and PC3, indicates the positive results

which means that out-migration highly impacted. In working population analysis PC1 and PC2 show a positive impact of out-migration but PC3 shows a negative value on people's perception. In tourism, there is a fluctuation between either positive or negative impact of the movement of people but in business PC1 and PC2 indicate that the movement of population transforms the rural activities as represented in the below graph and Table 8.
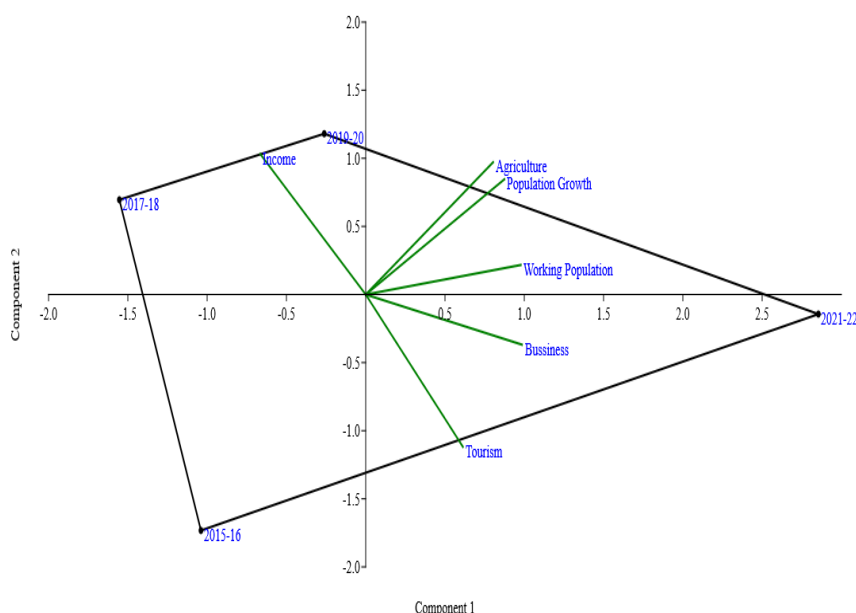

Fig. No 6: - Shown the Impact of Migration on the rural environment

Table No 8: - Score of Principal component Analysis

Sr.No	Attribute	PC 1	PC 2	PC 3
1	Agriculture	0.77879	0.60913	0.14979
2	Income	-0.64447	0.64668	0.408
3	Pop. Growth	0.84771	0.5304	0.008158
4	Working Pop.	0.94786	0.13608	-0.28818
5	Tourism	0.59365	-0.70066	0.3958
6	Business	0.95512	-0.23064	0.1859

Source: - Based on primary survey and calculation by authors

Conclusion and suggestions

Out-migration emerged as a major problem inUttarakhand because rural areasare slow in

the progress of developmentand urban areasare loaded with population pressure.Rural out-migration harms rural transformation because rural areas show a negative rate of

development anddecline in agriculture productivity.Amajor portion of the working population moves outside the state in search of employment.
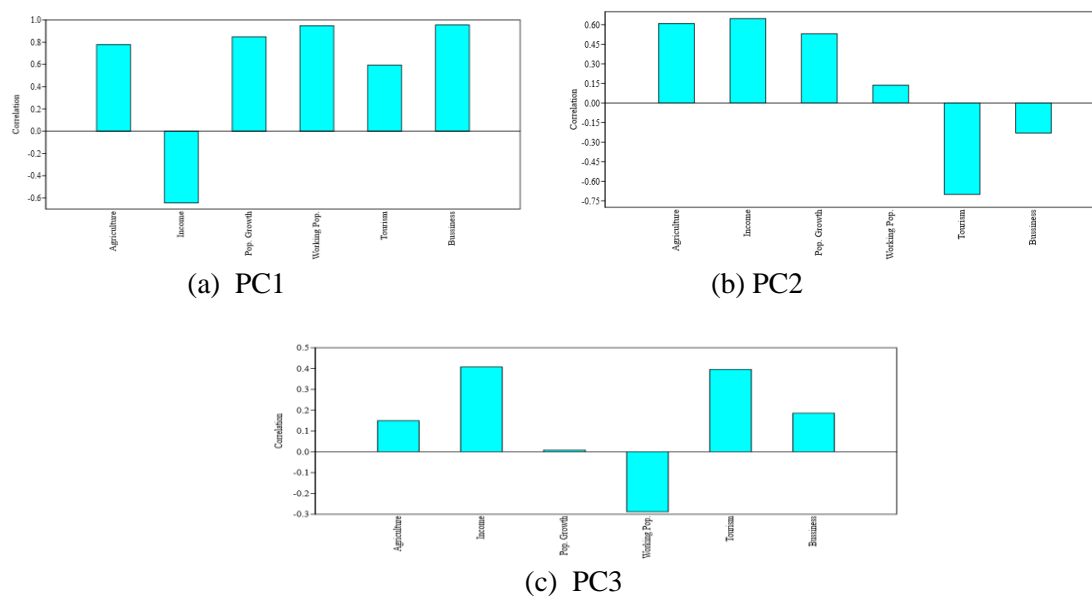

(a) PC1

(b) PC2

(c) PC3

Fig. No 7: - Shown the PC result on various attributes

The study shows that the out-migration also impacts business in the sample villages. In reason and purpose of migration, it is clearly shown that people migrated for employment (24.92%) which is a very high rate of out-migrationwhile if we look at the migration in the age group, the result indicates that the maximum youngage people opt to migrate (34.88%) elsewhere for better education and employment. Inyear-wise analysis of out-migration, 2021 shows the highest rate of Out-migrationwhich is(19.93%).In this year maximum reverse migration takes place, most of the people become jobless so the search for employment out-migration is recorded as very high.Most of the people migrated from villages to Delhi.The rate of out-migration is very high in Delhi (14.95%) and within the state maximum number of people migrated to Dehradun. The rate of out-migration in Dehradun (32.89%) is very high when compared to other districts of the state. We

need to restrict the out-migration from the rural areasby providing better education facilities, and health care systems, to established small-scale industries for employment, training skilled labour, and establishing rural institutions. The study shows that people also migrate for the reason of low production of agriculture due to the destruction of crops by wild animals. Government should adopt new methods to reduce the risk of wild animals' threatsfor providing the conservation of crops. To reduced the out-migrations, in rural area need to established the rural entrepreneurship, to boost the rural tourism, need to improve the agriculture infrastructure in the rural area.For self-employment Government should provide the lone or funds to rural residents for small scale business. Engaged the rural youth in organic farming and trained them for better adaptation of technology in agricultural field. We needs examine the causes of unemployment,

absenteeism in education and other social welfare programmes and issues in rural area.

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