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ORIGINAL ARTICLE

Patterns and Implications of Rural-Urban Migration in the Uttarakhand Himalaya, India

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ABSTRACT

Rural-urban migration in the Uttarakhand Himalaya is although an old form of movement of people yet, it has been intensified during the recent pasts. This paper illustrates an appraisal of rural– urban migration patterns and focuses on the major driving forces that influence out-migration. It also assesses the impacts of migration in sending and receiving areas. We used both qualitative and quantitative approaches to conduct this study. Data was gathered from both secondary and primary sources. A case study of two villages was carried out and 42 households were surveyed. Data was also gathered from secondary sources, which show that about 12.7% populations out migrated from rural to urban centres during the recent decades. From the study villages, this figure stands for 54.8%. The study concludes that the high rate of rural-urban migration is driven by the various forces (push factors) such as poor socio-economic conditions, climate, education, unemployment and overall lacking in infrastructural facilities. It was observed that rural-urban migration has several implications both in sending and receiving areas. We suggested that development of rural areas through implementing various innovative programmes may control rural-urban migration.

Keyword: *Rural-urban migration; drivers; education; employment; Uttarakhand Himalaya.*

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INTRODUCTION

Migration is a process of movement of people from one region or country to another. The scholars worldwide have conceptualized migration differently and so far no unanimity over the meaning of migration is observed (Clarke 1965). UN (1958) defines that migration is a form of geographical or spatial mobility between one geographical unit and another, generally involving a change in residence from the place of origin to the place of destination. It (1993) further defines that a move from one migration defining area to another, usually crossing administrative boundaries made a given migration interval and involving a change of residence. Migration has also been defined as a set of places linked by flows and counter flows of people, goods, services and information which tend to facilitate further exchange, including migration between the places (Mabogunje 1970).

The people move from one location to other for a variety of reasons i.e. natural and socio-economic (Bodvarsson & Berg 2009a). These historical facts of migration are unanimously accepted by the experts working in the field of migration research. However, there is a debate on who is a migrant. Skeldon (1997) analyzes that although migration evidently emanates from the desire to improve one's livelihoods, it is rarely the poorest that migrate. He further states that rather absolute poverty, certain level of socioeconomic opportunities seems to be the most important cause of migration. Usher (2005) supports it with stating that the most of migrants do not belong to the poorest, but are individuals

who have access to some resources. Meanwhile, Burki (1984) analyzes that in many areas migration is performed by the poorest people. He studies that it was primarily the very poorest, the bottom 20% that contributed to the stream of international migration to the Middle East. Our study says that migrants are not only the poor but also the middle and rich people who migrate for the better living standard. However, whoever the migrant is, it is obvious that migration takes place for the better livelihood and employment, as Connell et al. (1977) and Baril et al. (1986) observed that primary motivation of rural-urban migration is indeed economic consideration.

Analysis of migration is important to understand the people's movement within the country as a response to change in economic, political and cultural factors (Singh 1998 a). Rural to urban migration has historically been an important part of the urbanization processes and continues to be significant in scale in developing counties (Remi and Adeyoke 2011). It is facilitated by the concentration of migrants of some origin in the destination city (Mora and Taylor 2005). Harris and Todaro (1976c) explain rural-urban migration is a response to the expected rather than current income differential between rural and urban areas. Further, rural migration incurs costs, both in money and time spent away from rural subsistence tasks, but economic remittances, the flow of money back to the household and improved social capital and networks are all perceived to reduce the costs of migration and increase the resilience of the rural households (Tacoli 2002; Taylor 1999; Cohen 2011).

The complexity of the migration process, and range of push and pull factors which may influence the decision to migrate from rural to urban centres has been clearly demonstrated by demographers, economists and evolutionary anthropologists (Harris and Todaro 1970b; Low 2006). Many driving forces such as economic, social, cultural and political play an important role in taking decision to move (Singh 1998 b). The push factors are those life situations that give one reason to be dissatisfied with one's present location, while the pull factors are those attributes of distance places that make them appear appealing (Dorigo & Tobler 1993). Braunvan (2004) states that the people tend to be pulled to the areas of prosperity and pushed from the areas of decline. On the other word, migration is a product of push and pull factor. While push factors comprises poor living conditions, pull factors largely relate to job and other economic opportunities. Apart from economic opportunities, several non-economic elements are also contributing to push and full factors. The major push factors in the source areas that encourage migration are: famine, poverty, low wages, unemployment, overpopulation, high taxes, discrimination, religious persecution, civil war, violence and crime, forced military service and social immobility. The major pull factors are: high wages, employment, property rights, personal freedom, economic freedom, law and order, peace, religious freedom, educational opportunity, social mobility, low taxes and family reunion (Bodvarsson & Berg 2009b). Migration also takes place due to imbalance in the spatial distribution of resources and remains continue until a new equilibrium has been reached (Lewis, 1954; Ranis & Fie, 1961; Harris & Todaro, 1970a; Todaro, 1976).

Migration's implications are large and different both in sending and receiving areas. It changes population as well as economic activities. The socio-economic development of both the origin and destination e.g. remittances sent back to family members could alter the social and economic context in the area of origin and encourage subsequent migration (van Dalem et al 2005). Stark and Taylor (1991) have observed that income remittances from household members who migrate have a dual impact on the household's wellbeing: first, by contributing to its absolute income; second, by improving its income position relative to that of others. Migration brings in remittances, which result in increase in wealth of the family and consequent improvement in education and nutrition of the members of the household and greater use of hospital facilities during times of illness of the members of the family (Zachariah & Rajan 2004). Evidences show that migrant families spent much more on education of their children than non-emigrant families did (GOI 2008). The change in residence can take place either permanent, semi permanent or

temporary basis (Premi 1990). However, if has negative impacts. In receiving areas, several socio-economic and human security problems rise. Over population leads to transport congestions, pollutions and health hazards in developing countries. On the other hand, the sending areas suffer from under population, agricultural land abandoned and decreasing economic activities. However, migration also enhances educational and economic opportunities.

Migration is very common phenomena in the Uttarakhand Himalaya. It characterises rural to urban and urban to urban migrations within and outside the state. Jain (2010) describes that Uttarakhand has three types of migration such as seasonal, rural-urban and international. He further states that most common forms of migration from Uttarakhand were to work in the private sector industries mainly in the hotels and restaurants. The districts of Tehri, Pauri and Almora had a trend of outmigration since the 1870 due to the job created in the British Indian Army (Singh 1998 c). At present, about 60% educated youth of the region are recruited in the national army and 15% migrants are teachers (Census of India 2011). Census of India (2001) reports that there were 3.07 million migrants, of which, 2.06 million were women and 1.01 million were men. Women migration was noted mainly societal, as about 66% migrated for marriage, 19% migrated along with families and only 2% migrated to employment, the report states. In terms of men migration, about 39% migrated for employment, 27% along with family and 4% migrated for education.

The Uttarakhand Himalaya comprises primitive economy. Subsistence agriculture practices dominate in occupation (70%) and livelihoods. Meanwhile, limited arable land (13%) high population growth (18.8% decadal; 2011), low output from cereals (production is limited to maximum six months), poverty and malnutrition (40% people live below poverty line; 2011) forced people to out-migrate from the region. The other driving forces (push factors) observed are geographical constraints, inadequate infrastructural facilities, industrial backwardness, high educational level and unemployment. This paper aims to examine the patterns of outmigration in Uttarakhand and its implications both sending and receiving areas. We analyzed types of outmigration, elaborated the major driving forces and suggested how outmigration can be controlled.

METHODS AND MATERIALS

The Study Area:

The Uttarakhand Himalaya (Figure 1) constitutes an integral part of the Himalaya has abundant natural resources – land, water and forests, and panoramic landscape. Stretches between 28^{o} 53' 24''-31^{o} 27' 50'' N and 77^{o} 34' 27''-81^{o} 02' 22'' E, its geographical area is 51,125 km^2, of which, about 90% areas is mountainous. It has the five vertical divisions – the valleys, the mid-altitudes, the highlands, the alpine pastures and the snow clad mountain peaks. It is a source of the major rivers of India that drain from this region and feed the hundreds of thousands of people in the downstream areas. It has range of climates from sub-tropical to temperate, cold and frigid cold. Having been rich in natural and human resources, this region is socially backward and economically underdeveloped, as it could not harness the abundant natural resources due to topography and climate constraints. Agriculture is the main occupation of the people; however, agricultural land is only 13% of the total geographical area. Out of the total working population (36.9%), 60.1% population is engaged in agricultural practices. Total population is 10116752 persons, of which 30.55% is urban share. It means that a large number of population lives in the rural areas. Density of population is quite low (189 persons living per square kilometer) and sex ratio is 963 women per thousand men (COI 2011).

Data Collection and Survey Methods:

In this paper, both qualitative and quantitative approaches of study were employed. Data was gathered both from secondary and primary sources. Secondary data was gathered

from the State's Economic and Statistical Directorate's Statistical Diary 2013 and the Census of India, 2011. We conducted a case study of two villages. Total 42 villages were surveyed. A structured questionnaire was constructed and questions were framed on migration, the major driving forces – push and pull factors – education, occupation and income. We used certain statistical method such as correlation and regression. The study was conducted in 2014 and rapid field visit was made during the same time. We interview the heads of the surveyed households in terms of the push factors and other constraints that impact outmigration.

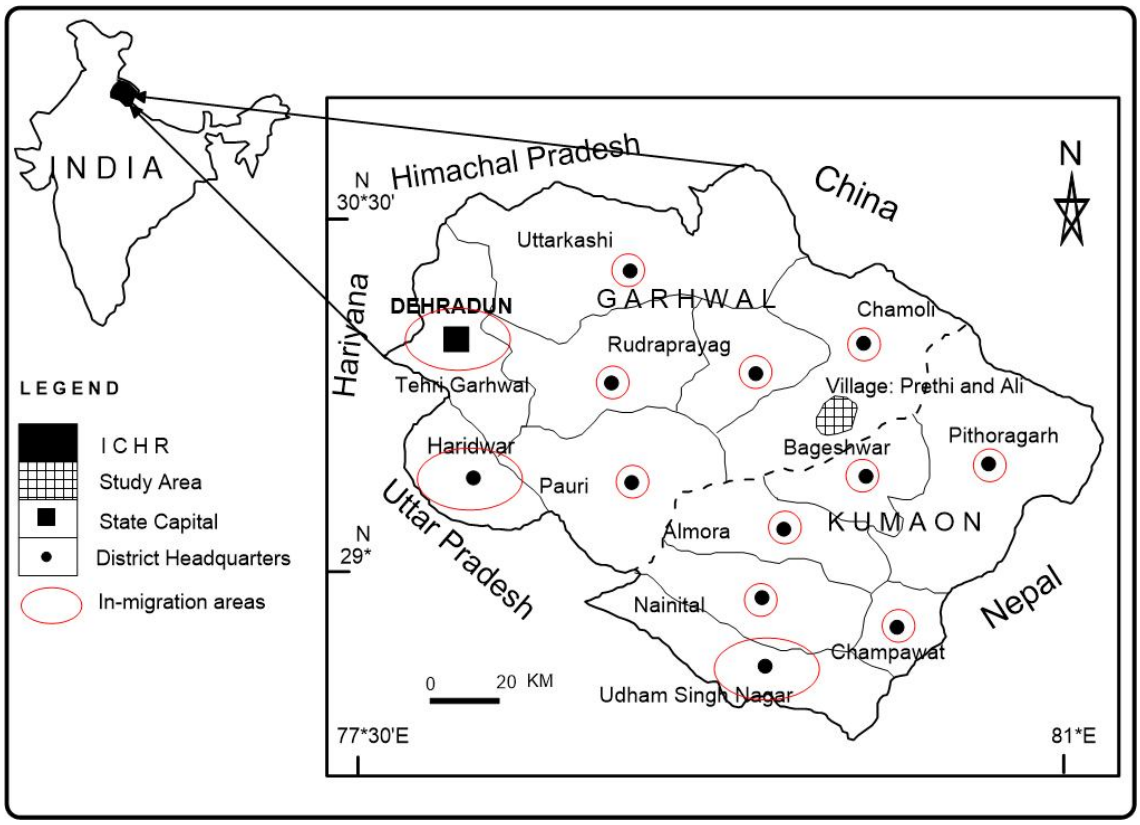

Fig. 1: Location map of the Uttarakhand Himalaya showing case study village and major urban centres

RESULT

Population Distribution and Changes:

Table 1 shows district wise population distribution and changes in the Uttarakhand Himalaya in 2011 and 2001. District Hardwar obtains the highest population share in both censuses– 18.7% in 2011 and 17.1% in 2001. It is followed by Dehradun (16.8%) and Udham Singh Nagar (16.3%). Nainital district ranks fourth with 9.5% population share. Likewise, other districts obtain population ranging from 6.6% to 2.4% population share. It seems that the order of population share in districts of Uttarakhand in 2001 is similar as of 2011. If we look into decadal changes in population growth, we find, it varies from districts obtain the highest population to districts have the lowest population share. For example, the first four districts Udham Singh Nagar (33.4%), Dehradun (32.3%), Hardwar (30.6%) and Nainital (25.1%) have the highest decadal growth rate. A decrease in decadal growth rate was noticed in Pauri (-1.4%) and Almora (-1.3%) during the period 2001 and 2011. In the remote districts– Champawat (15.6%) and Uttarkashi (11.9%) have average growth rate, higher than the state average (11.8%). Other districts of Uttarakhand have less than 10% population growth.

Table 1: District wise population distribution in the Uttarakhand Himalaya

District	Population					
	2011	%*	2001	%*	Change	%
Hardwar	1,890,422	18.7	1,447,187	17.1	443,235	30.6
Dehradun	1,696,694	16.8	1,282,143	15.1	414,551	32.3
Udham Singh Nagar	1,648,902	16.3	1,235,614	14.6	413,288	33.4
Nainital	954,605	9.5	762,909	9	191,696	25.1
Pauri	687,271	6.8	697,078	8.2	-9,807	-1.4
Almora	622,506	6.2	630,567	7.4	-8,061	-1.3
Tehri	618,931	6.1	604,747	7.1	14,184	2.3
Pithoragarh	483,439	4.8	462,289	5.4	21,150	4.6
Chamoli	391,605	3.9	370,359	4.4	21,246	5.7
Uttarkashi	330,086	3.3	295,013	3.5	35,073	11.9
Bageshwar	259,898	2.6	249,462	2.9	10,436	4.2
Champawat	259,648	2.6	224,542	2.6	35,106	15.6
Rudraprayag	242,285	2.4	227,439	2.7	14,846	6.5
Total	10,086,292	100	8,489,349	100	1,596,943	11.8

Source: Census of India, 2011 & 2001
Share of India's population is 0.83% in both censuses
*State share

Gender Distribution and Density of Population:

We analyzed gender distribution of population at district level both in 2011 and 2001. Female ratio in per thousand populations is less as far as Uttarakhand is concerned as it stands 963 in 2011 and 962 in 2001. In the six districts of Uttarakhand, female population is less than male population in 2011. Female population is the lowest in Hardwar district in both censuses (880 in 2011 and 868 in 2001). It is followed by Dehradun (920 and 893 respectively) and Udham Singh Nagar (920 and 902). Nainital district has 934 and 906 female population. Other districts where female population is less are Uttarkashi (in both censuses) and Champawat (in 2011).

In hill districts, Almora has the highest female population (1139 women per thousand men), in 2011, followed by Rudraprayag (1114) and Pauri (1103). The districts where female population is above 1000 are Bageshwar (1090), Tehri (1077), Pithoragarh (1020) and Chamoli (1019). Female population was also high (above 1000) in 2001 in the same district. There was a mix response of in growth of gender population. In plain districts, female population increased substantially where as in hill districts its growth was mixed. Overall, a small increase in female population was noticed from 2001 to 2012.

Population density varies from hill districts to plain districts and from 2001 to 2011. The highest population density was recorded in Hardwar district in both censuses (801 in 2011 and 612 in 2001) followed by Udham Singh Nagar (649 in 2011) and Dehradun (541). Nainital district recorded 225 population densities. Hill districts registered less than 200 population density. The lowest population density was noticed in Uttarkashi district (41) followed by Chamoli (49) and Pithoragarh (68). Change in population density was recorded. Almora registered -3.4% changes and Pauri received 0% change. The highest change was observed in Udham Singh Nagar with 53.1% increase. It was followed by both Hardwar (30.9%) and Dehradun (30.7%). Other district got 1.7% (Rudraprayag) to 16.7% (Champawat). Overall 18.9% growth was registered in Uttarakhand.

Rural-Urban Migration:

We gathered district wise migration data from the secondary sources and calculated them using two different ways. The first one is % share of district population and the second is % share of total migration. The migration share is changed in both ways. On account of % share of district population, the highest outmigration was registered in Bageshwar (64.8%) followed by Pithoragarh (36.9%) and Chamoli (29.3%). Other districts with above 14% outmigration are Rudraprayag (24.2%), Champawat (22%), Uttarkashi (16.6%), Pauri (15%), Almora (14.8%) and Tehri (12.2%). They all are hilly and remote

district. Four districts which are fully and partially plain areas have less the 10% migration. In terms of % share of total outmigration, it varies from 3.9% (lowest) in Bageshwar to 14.2% (highest) in Almora. 13.9% outmigration was noted from Pauri and 13.1% from Tehri. From other districts, outmigration was below 10% (Table 3).

Table 2: Gender Distribution and Density of Population

District	Gender Distribution			Density		
	2011	2001	Change (%)	2011	2001	Change (%)
Hardwar	880	868	1.4	801	612	30.9
Dehradun	902	893	1	541	414	30.7
Udham Singh Nagar	920	902	2	649	424	53.1
Nainital	934	906	3.1	225	198	13.6
Pauri	1103	1104	-0.1	129	129	0
Almora	1139	1147	-0.7	198	205	-3.4
Tehri	1077	1051	2.5	170	148	14.9
Pithoragarh	1020	1031	-1.1	68	65	4.6
Chamoli	1019	1017	0.2	49	48	2.1
Uttarkashi	958	941	1.8	41	37	10.8
Bageshwar	1090	1110	-1.8	116	108	7.4
Champawat	980	1024	-4.3	147	126	16.7
Rudraprayag	1114	1117	-0.3	122	120	1.7
Total	963	962	0.1	189	159	18.9

Source: Census of India, 2011 & 2001

Table 3: Outmigration (% share)

District	Outmigration	% share of district population	% share of total migration
Hardwar	92185	9.6	7.2
Dehradun	103125	2.9	8
Udham Singh Nagar	58550	5.6	4.5
Nainital	75375	5.9	5.9
Pauri	178270	15	13.9
Almora	182005	14.8	14.2
Tehri	168445	12.2	13.1
Pithoragarh	114680	36.9	8.9
Chamoli	92675	29.3	7.2
Uttarkashi	58550	16.6	4.5
Bageshwar	50365	64.8	3.9
Champawat	56405	22	4.4
Rudraprayag	54855	24.2	4.3
Total	1284125	12.7	100

Source: Economic and Statistical Directorate, Statistical Diary, 2013, Dehradun
Note: Original data on migration were gathered in households. We multiplied them by five to get number of out-migrants (Five is an average family size in Uttarakhand, 2011).

CASE STUDY

A case study of two villages – Ali and Prethi was conducted. We selected 10 households (100% sample size) from Ali village and 32 households (40% sample size) from Prethi village. The study was conducted through purposive random sampling. Mean value of all variables was calculated. It is inevitable to present here geographical and socio-economic background of both villages. Ali village lies at an altitude of 1100-1200 m about a km from Narainbagar town, located in bank of the Pindar River. It has west facing slope, surrounded by pine trees. Temperature is cold during winter and hot during summer, has valley influence. Limited arable land with gentle to steep slope characterises agricultural fields. Production and yield of traditional cereal crops is less while, it has conducive climate to grow citrus fruits. The second village Prethi lies at altitude of 1600-1800 m, in a

gentle slope, have temperate climate; cold in winter and quite feasible during summer. The village is spread in two slopes – east and west facing. The chilled air from the great Himalayan ranges keeps the village cold during winter. Seldom, snow falls. Crop diversity is high however, production of crops does not meet food requirement. Climate is also suitable for cultivating varieties of fruits.

Table 4 shows demography, migration, occupation and income of both villages. Mean value of age of the heads of households was 52.4 years and family size was 4.5. Mean migration value was 2.8 persons per households. Mean annual income was Rs. 82,500 per households. About 54.8% households were involved in job, 19% in farming, 19% in farming and job and only 7.1% households were involved in business. We tried to find out pattern of migration. The result was that 66.7% people were migrated within the state's urban centres and rest of people (33.3%) to urban centres outside the state. Most of the migrants migrated permanently (44.4%) followed by migrants migrated for the service period (33.3%) Daily migrants were 15.6% and seasonal migrants were only 6.7%.

Table 4: Family information (n=42)

Variables	**Mean value**	**Std. Deviation**
Age (years)	52.4	9.3
Family size (number)	4.5	1.0
Income (Rs.)	82,500	22,209
Migration (number)	2.8	2.0
Education (number)	3.3	1.2
Occupation	**% of head of households**	
Business	7.1	
Farming	19	
Farming and Job	19	
Job	54.8	
Pattern of migration	**% of migrants**	
Within state's urban centres	66.7	
Urban centres outside the state	33.3	
Types of migration	**% of migrants**	
Permanent	44.4	
Service period	33.3	
Seasonal	6.7	
Daily	15.6	

Source: Field study, data calculated by author

Education has been observed as one of the major driving forces of out-migration in the Uttarakhand Himalaya. A correlation between education and migration was established through using Pearson Correlation method, where correlation is significant at the 0.01 level. We hypothesized that higher the level of education, higher is the rate of migration and significant value was 0.005. Other drivers of migration were income and occupation. An effort was made to establish a correlation between income and migration and it was hypothesized that higher the income, higher is the rate of migration and vice-versa. Correlation of noticed between the two with 0.009 significant value. Occupational structure of the people also varies from the primary activities to tertiary and quaternary sectors. However, no one is engaged in secondary activities. It was obvious that the people who are engaged in tertiary activities are mainly out-migrated.

Table 5 shows level of education of the head of family in the case study villages and migration. It demonstrates that although, the number of the head of family, those are highly educated is only 33.3% of the total educated people, their proportion in the total migration is 78.6%. About 16.7% of the head of family are primary passed; the rate of migration is only 14.3%. Similarly, the highest numbers of the head of family are under the category of secondary education and their percentile in terms of migration is 52.4.

Therefore, it is very clear from the fact that the rate of migration is high among the head of family, who are highly educated.

Table 5: Level of education and migration of the heads of family

Level of education	Migration (%)	Heads of family (%)
Primary	14.3	16.7
Secondary	52.4	50
Tertiary	78.6	33.3
Total	54.8	100

Source: Field survey; calculated by author

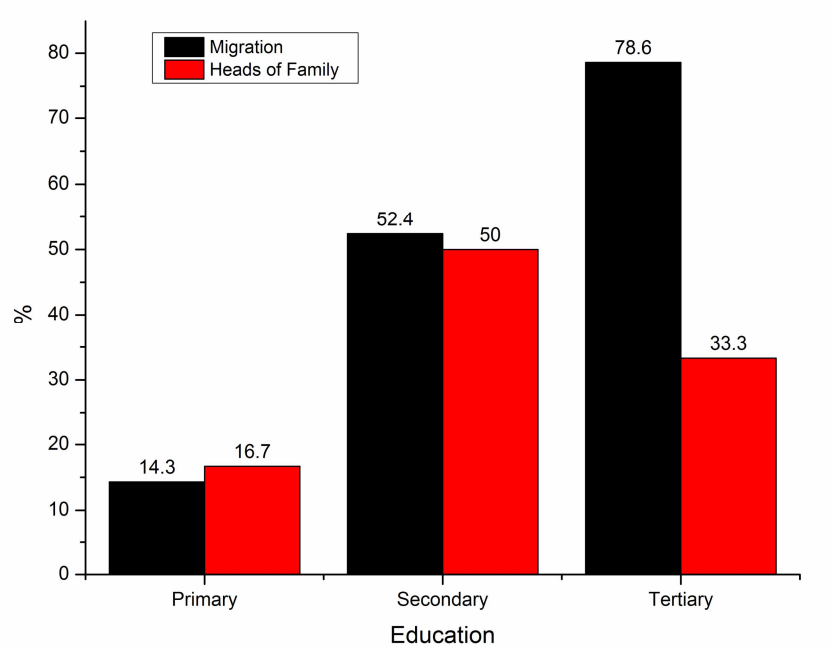

Figure 2: Education, heads of family and migration

MAJOR DRIVERS OF RURAL-URBAN MIGRATION

Drivers of migration from rural to urban areas have largely been discussed in the past decades by the academicians who were involved in evaluating the implications of migration. In the study area, the major significant drivers of migration have been observed as push factors – pushing the people from rural areas to urban centres for employment opportunities and living better life; the rural areas are lacking in rural credit, opportunities of employment, better education, basic infrastructural facilities and characterizing general rural poverty; and pull factors – the urban centres have abundant infrastructural facilities and livelihood opportunities, including urban employment, perception of high wages, better education and other basic amenities. In the Uttarakhand Himalaya, migration is practiced mainly for employment and for the better economic opportunities. It leads to regional economic disparities, backwardness, small land holdings, climate change, unemployment and high growth of urban population. A proverb says '*paharon ki jawani and pani dono maidano main bah gayi*', which denotes the youth and water from the hills has been drained to the plain areas. The major driving forces of out-migration in the Uttarakhand Himalaya are as follows:

Inadequate Socio-Economic Conditions:

Socio-economic conditions in this region are significantly poor and it varies from the people, involved in practicing agriculture to the people engaged in tertiary activities. About 40.8% (2004-2005) people are living below poverty line which is quite high in comparison to the neighboring state of Himachal Pradesh where only 10.7 % people are living below poverty line. Health facilities are very inadequate in the rural areas; it is therefore, death rate is higher (7) than the urban centres (5.5). Similarly, birth rate is also

higher (22) in the rural areas in comparison to the urban centres (17.3). We observed higher infant mortality rate (54) in rural areas (State Health Department, 2007). Water supply is too inadequate, mostly during the summer season. Out of 39,967 inhabitations, water supply is available only for 23,128 inhabitations. More than 50% of the villages are inaccessible due to poor transportation facilities. Roads, the only mode of transportation, have the total length of 24,208 km (2007), out of which, only 8807 km is painted. It is comparatively very less than to Himachal Pradesh, which geographical area is less than the State of Uttarakhand. Energy potential is 30,000 MW but only 3,168 MW (16%) energy is harnessed (Sati 2014). Although, 96.4% villages are electrified yet, only 60.30% households have electricity as a source of lightning (2001) and most of the time, there is no electricity supply. The economic development of the Uttarakhand Himalaya is dependent on the adoption of new innovation in the agricultural field, as the production and productivity from the traditionally cultivated subsistence crops is insufficient to meet out the total food need of the people.

Industrial backwardness of the region is another push factor. Although, the mainland of the Uttarakhand Himalaya characterises of abundant natural resources in the forms of land, water and forest, which supports the base for the establishment of industries yet, the fragile landscape does not permit large scale industrial development. At this point of time, employment opportunities are lagged behind in all the economic activities and most of the educated youth are jobless. It is therefore, the exodus of people have out-migrated.

Climate Change:

Climate change has largely been observed as a major driver of changing land use mainly declining agricultural land, crop production and per ha yields. Its impact can be noticed in all walks of life in the study area. While interviewing the marginal farmers of the region, it was noticed that climate change has significant impact on declining agriculture and changing cropping pattern. Agriculture in the Uttarakhand Himalaya is predominately rain-fed, depending largely on monsoon rainfall. Further, it is characterized by small and fragmented holdings, lack of irrigation, shallow soil and lack of mechanization and technology. Significant decrease in agricultural productivity has been observed overtime that led to increase the rate of migration. Unusual heavily rainfall damages the existing crops, leading to food insecurity. Snowfall rate decreased however, seldom heavy snowfall occurs that damages crops. A study carried out by government owned water department shows that about 221 natural springs dried in the whole Uttarakhand Himalaya (2013). As a result, output from agricultural land decreased and as a result, people out-migrated to other areas.

Education:

Education is one amongst the most significant driving forces. Literacy rate in the Uttarakhand Himalaya is very high (about 80%), quite higher than to the national average of 74 %. Similarly, the level of education is high. As the whole region is lacking in providing employment to the educated youth thus, the brain-drain from the rural areas is persistent. Generally, these educated youth do not work on the agricultural field, which may be the potential area for generating employment. A decreasing trend of agricultural workers has also been observed during the case study of the two villages.

IMPLICATIONS OF RURAL-URBAN MIGRATION

Migration has significant implications in both sending and receiving areas. We observed both positive and negative implications of outmigration. Case study shows that the households, who are out-migrated, are economically sound than those who are living in the villages and practicing agriculture. However, a large number of negative impacts are seen due to outmigration. Land abandoned is a major problem. This led to decrease ground water and disappearing springs. We observed decrease in working population (mainly male workers). It has led to two acute problems: overburdened women and low

output from the cropped land. Decrease in arable land and increase in forestland also led to increased number of wildlife who damage ripening crops. Our study demonstrates that about 20% crops are damaged due to wildlife. All these factors accelerated food scarcity and poverty among the households who live in the rural areas and fully dependent on agriculture.

Situation in receiving areas is so grim. Over population, unplanned sprawl of towns, transport congestion, sanitation and slums are amongst the major impediments in the urban centres mainly in the major cities of Uttarakhand such as Dehradun, Haridwar, Rishikesh, Haldwani and Udham Singh Nagar. Further, a large area under agriculture has been transformed either into residential areas or the major business avenues in these cities. Dehradun, a capital city of Uttarakhand, was known for its climate and cultivation of high quality paddy crop is now converted into a jungle of concrete. The small towns, located along the river valleys are sprawling in the agriculture and forestland. Large-scale felling of trees made landscape vulnerable, leading to high intensity hazards and disasters (Sati, 2013).

DISCUSSION AND CONCLUSIONS

Our study shows that from four districts – Udham Singh Nagar, Hardwar, Dehradun and Nainital – lie in plain area (fully and partially) has considerably less outmigration (6% average). Meanwhile, in-migration in these districts is the highest (population growth 30% average and population density 400 averages) was noticed during the last decade. We observed that these districts obtain a number of pull factors such as availability of infrastructural facilities – roads, rails and airways; industrial development, educational facilities and high output from agriculture. Outmigration from these districts was also noted. Level of education and rate of literacy is the highest in Dehradun district. The highly educated people prefer to out-migrate mainly for better jobs and for better living standard. Thus, state share of migration from Dehradun is 8%. On the other hand, the hilly districts, where agriculture is the main occupation however output is less, outmigration was observed very high (Almora 14.2%, Pauri 13.9% and Tehri 13.1%). The other causes of outmigration from these regions are education and unemployment. In these districts, about 10% villages are completely vanished and several others are partially. These villages are called 'ghost villages'. Tehri district has different story of outmigration. A large number of people rehabilitated from Tehri to Hardwar and Dehradun districts due to construction of Tehri high dam. Total 114 villages were submerged into Tehri high dam partially and fully. As we already mentioned several push factors of outmigration from the hill districts, among them high level of education, unemployment and food insecurity are main drivers.

Outmigration in Uttarakhand Himalaya has two patterns i.e. within and outside the state. Outmigration takes place from the remote rural areas to the towns located in the river valleys mainly along the routes connected to the highland pilgrimages and the four districts, which characterise plain areas and where pull factors dominate in comparison to hilly districts. Clustering of towns with establishment of hotels, motels, restaurants, dhabas and tea stalls, along the roads and river valleys can be noticed. Other pattern of outmigration is from the state to other states of India. This generally takes place for better opportunities of jobs and better livelihoods. The pattern of outmigration from the study villages was analyzed. About 66.7% people out-migrated within the state's urban centres, mainly in Dehradun and 33.3% people out-migrated to other state's urban centers.

Among the types of outmigration, permanent stands for 44.4%. As we noted that level of education is high and the highly educated people out-migrated and settled permanently. These people mainly involved in the tertiary sector. The second type of migration is for service period. In this type of migration, some persons of the family are out-migrated for service period, sent remittances to their families. Among them, most of the people are serving the national army. Remittance has greater impact on income of the families as they carry their livelihoods sustainably. People involved in seasonal and daily migration

account about 22%. Seasonal migration practiced during summer (peak tourist/pilgrim season). People migrate to the valley regions, located along the routes that lead to the major pilgrimages. Rest of the season they come back to their homes. People also move daily to other places. Among them, some are teachers and others are students.

Education and employment seem to be the major driving forces of rural-urban migration. This study exhibits, that migration has both positive and negative impacts. We observed that the families who have out-migrated are economically sound. However, it put more pressure on the families practicing agriculture. Land abandonment, increase number of wildlife, low production and yield of crops and overburdened women are also due to decrease in working population, mainly male population. On the other hand, the receiving areas are over populated, suffering from severe health and environmental problems.

To cope with the problems aroused from out-migration, we tried to find out some solutions. The whole Uttarakhand Himalaya is bestowed with plenty of natural resources, most of them are unused. Optimum use of the resources available will generate income and augment employment and thus will check outmigration. Small-scale village level forest and agricultural based industries such as food and fruit processing centres and timber and non timber forest products may be the options. Development of eco-tourism and small-scale hydropower projects with more involvement of the local people will definitely check outmigration. Although, tourism is the major economic activity yet, its share in the local economy is not substantial. Establishment of educational and business institutions and development of infrastructural facilities in the rural areas will creates jobs and the educated youth of the region can get involved. Although, migration cannot be checked fully but our objective is to minimize it through farming and implementing various policy measures listed above. Development initiatives in the population receiving areas such as towns and cities within the state are the need of the hour to adjust the migrants of rural areas.

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