SPATIAL AND TEMPORAL VARIATIONS IN QUALITY OF HOUSES AND AVAILABILITY OF HOUSEHOLD AMENITIES IN RURAL UTTARAKHAND STATE, INDIA

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ABSTRACT Present paper analyses spatial and temporal variations in housing and household basic amenities in rural Uttarakhand state during 2001and 2011. The paper is mainly based on secondary data sources. Data has been taken from the census of India publications for the specified period. Data has been processed with simple statistics and a composite index is prepared using a z-score to understand the relative position of overall development of household amenities in the study area. Processed data has been displayed with maps and diagrams prepared in excel and ArcGIS. The paper examines that the level of availability of housing and household amenities is highest in Dehradun district and lowest in Champawat. The level of amenities decreases with an increase in altitude.

INTRODUCTION

Housing and household amenities are basic needs for human life. According to Nayar 1997, health-promoting factors such as housing, water supply, sanitation, and hygiene. These health-promoting factors are much more required for health improvement among the society. If any region has a better condition of basic amenities, it means those people have a good quality of life. According to the census of India, household is usually a group of persons who normally live together and take their meals from a common kitchen unless the exigencies of work prevent any of them from doing so. According to Lawrence (2004) has said that "housing is meant to provide shelter and security and is considered a fundamental development process, in which the built environment is created, used and maintained for the physical, social and economic wellbeing and quality of life of individuals and households." The 7th Millennium Development Goal (MDG), targets the usage of sanitation facilities and improved water source, this goal has been targeted to be achieved by the year 2015. Adequate housing and household amenities are essential to assure a self-respectful life with physical, social, and economic surety for the people of a society and recruit their standard of living. Many programs are run by the government of India such as JNNURM (Jawaharlal Nehru National Urban Renewal Mission) Purpose of this scheme is improvement and augmentation economic and social infrastructure in select cities as well as providing affordable housing and basic services to the urban poor (BSUP) through planned interventions.

Objective

The objective of this paper is to study the spatial and temporal variations of housing and household amenities in rural Uttarakhand state during 2001 and 2011.

Study area

Uttarakhand is a hilly and small state located in the northern part of the country between $30°19'$ to $18°89'$ N latitudes and $78°1'$ to $35°82'$ E longitudes. The state was carved out of Uttar Pradesh on November 9, 2000. It is the 27th state of India. The administrative divisions of the state are into 13 districts. Seven districts in the Garhwal and six districts in the Kumaon division. Dehradun is the largest city in the state. In these 13 districts, four districts Nainital, Haridwar, Dehradun, and Udham Singh Nagar have a large area in the plains, whereas the other nine districts comprise the hill region of the state.

Database and Methodology

The database of the present research work is based on a secondary source of data collected from the census of India 2001 and 2011. In this study, a set of eight indicators have been taken from the housing and household amenities tables of Uttarakhand. The raw data of each variable have been computed into a standard score. Z-score indicates how many standard deviations an element is from the mean. The second step is the z- value of all indicators that have been added district wise. The average has been taken out for all indicators which may be called composite score (cs).

A composite score can be expressed as:

Composite score = $\Sigma Z \div N$

ΣZ = Total sums of z-value of all indicators.

N= total number of all indicators.

This composite index shows that the higher value of any indicator indicates higher development in respect of housing and household amenities. The processed data is shown with the help of choropleth maps which are prepared in Arc GIS software.

RESULT AND DISCUSSION

Adequate housing and basic amenities like electricity, toilet facility, kitchen facility, and others are essential for human life. Basic amenities are those things considered to be important to make life easier and more pleasant the government intends to provide the isolated town with basic amenities, such as roads, running water, and electricity. In rural Uttarakhand, more than 95 percent of households have the pucca structure of the house in Tehri Garhwal, Pauri Garhwal, Rudraprayag, Begeshwar, Almora, and Pithoragarh districts during 2001 and 2011. The state average improved 85.1 to 89.6 percent of households have permanent house during 2001 and 2011 respectively. On the one hand, there are below 85 percent households of four districts namely Haridwar, Dehradun, Nainital, and Udham Singh Nagar districts which have the pucca structure of a house in 2001. On the other hand, there is only Udham Singh Nagar district which has less than 85 percent pucca houses.

The availability of a kitchen facility is one of the most essential parts of a better living. In this state, 68.3 percent of households have kitchen facilities in rural areas during 2001. But it has been increased to 84.5 percent in 2011. However, the districts of Haridwar, Pithoragarh, and Udham Singh Nagar the availability of kitchen facilities is not good in 2001. But in 2011 almost all districts have 80 percent of household having kitchen facility except in Haridwar, and Udham Singh Nagar. In 2001, only three districts namely Haridwar (35.7), Udham Singh Nagar (50.8), and Pithoragarh (69.5) have least good standard, but in 2011 only one district Udham Singh Nagar (66.9) has poorest condition in terms of kitchen facility with in household. This state, very little use of LPG fuel for cooking in the rural area has been detected in 2001 and 2011. In 2001 state average is only 21.3 percent whereas in 2011 state average has slightly increased to 29.4 percent. During 2001 almost all districts of Uttarakhand state, less than 35 percent of households have LPG fuel used for cooking except Dehradun. But this scenario has been changed in 2011, there were only three districts namely Chamoli, Bageshwar, and Almora which have less than 25 percent of household have LPG fuel used for cooking. The major source of drinking water in the rural area is tap water into the household. The average percentage of household drinking water by the tap is 60.5 percent in 2001 but it has been better to 63.9 percent during 2011. The lowest tap water facility for drinking in Haridwar district 21.2 and 21 percent of the rural household has the facility during 2001 and 2011 respectively.

Bathroom facility in the rural dwelling is also a significant determinant of a good standard of living. In rural areas, only 26 percent of the village dweller in 2001 have a bathroom facility. But in 2011, the average has been increased to 49 percent in terms of bathroom facility. However, in the Champawat district, the bathroom facility is in the worst condition with less than 20 percent of households have a bathroom in the dwelling. Latrine facility is also an important indicator of household's amenities, there has 31.6 percent of rural households have this facility during 2001, but in 2011 this ratio has increased to

54.1 percent. However, in all districts of Uttarakhand except Dehradun the latrine facility is in the worst condition during 2001. But in 2011, the scenario has been changed because of almost all districts except Uttarkashi district which have more than 45 percent of households have latrine facility with in house. The state has 35 percent of households have a drainage system in a rural area during 2001. But in 2011 the 47.7 percent has enlarged this facility. But the condition of all districts except four districts namely Haridwar, Dehradun, Udham Singh Nagar, and Nainital, regarding drainage system is not good during 2001. Electricity in rural areas is one of the most essential elements of good living. 50.3 percent of rural households have electricity facility as a source of lighting in their dwelling. But this ratio has increased to 83.1 percent in terms of electricity facility. In 2001, there was not even a single district which has electricity facility more than 80 percent of the rural household. Although, in 2011 Dehradun and Rudraprayag districts have more than 80 percent of households have electricity facility.

The spatial and temporal pattern of housing and household amenities emerged from the composite score is shown in the maps (Fig. 1). If the deficiency of the amenities within a house people living in the rural area is considered in comparison to the all-Uttarakhand level data, at the first glimpse the condition of rural is so bad. The districts like Haridwar, Udham Singh Nagar, Champawat, Begeshwar, and Uttarkashi, the condition of housing and household amenities in a rural area are not good in comparison to the other districts of the state during 2001 and 2011. Four districts namely Haridwar, Udham Singh Nagar, Champawat, Bageshwar, and Uttarkashi are poor in permanent house and household amenities in Uttarakhand. There is only the Dehradun district which lies in the high (>0.7) category. In 2001, four districts stand in the low category (less than and equal to -0.3 score) namely Udham Singh Nagar, Champawat, Bageshwar, and Haridwar have low scores of housing and household amenities. But in 2011, there were the same districts that situated in this category except Bageshwar district (Fig. 1).
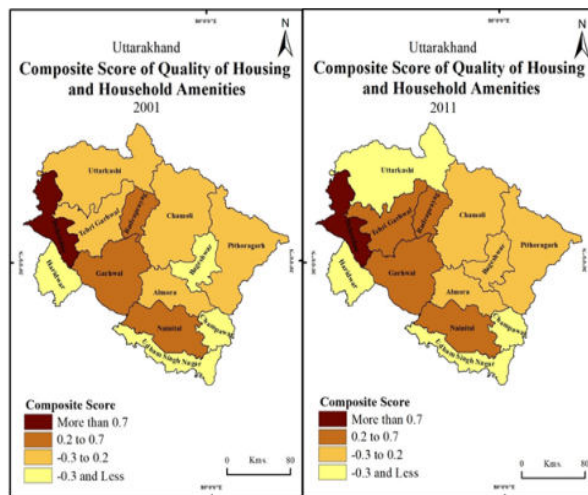

Fig.1, Source: Data compiled from census of India, 2001 and 2011

CONCLUSION
In developing countries, the population is rapidly increasing. Therefore, population pressure over the resources is increasing at an alarming rate. The unbalance between population and resources is resulting in the generation of many problems like homelessness, unemployment, poverty, hunger, slums, health, etc. The analysis further reveals that the composite score shows there are no drastic changes in housing and household amenities in Uttarakhand state from 2001 to 2011. But in rural areas, six districts were above zero composite scores and the other seven districts were falling below zero composite scores in 2001 and 2011. Therefore, the people of rural areas in Uttarakhand are still living in such a deprived condition of housing and household amenities. It may be caused by the dominance of mountainous areas are more as compare to plain areas. The level of amenities decreases with an increase in altitude. Uttarakhand is also one of the EAG states, there has been a slight improvement in housing and household amenities during 2001 and 2011. However, Haridwar and Udham Singh Nagar are among India's most backward districts, the state government of Uttarakhand to initiate steps to improve the 'abysmal ratings' of these two districts (NITI Aayog).

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