



## DISTRIBUTION, CONCENTRATION AND GROWTH OF RURAL POPULATION IN HISAR DISTRICT

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### Abstract

The present paper is an attempt to understand the distribution, concentration and growth of rural population in Hisar district of Haryana state. The study is based on census data of 1971 & 2011 at village level. The hard copy of administrative map of Hisar District is procured from District Census Handbook of Hisar District-1991 and then, scanned at 300 dpi and georeferenced (QGIS – open-source software) using appropriate projection parameters i.e., Projection- Universal Transverse Mercator (UTM), Datum- WGS-1984 and Zone- 43N for database generation. The village boundaries of the villages are digitized and accordingly attributes are attached. Population concentration calculated using location quotient formula and growth rate of population are mapped with choropleth technique. The study concludes that population concentration was observed higher in North, north-east & eastern part of the district as compare to north-west, western, south-west & southern part of the district. The villages having moderate size of population (3000 to 6000 persons) significantly increased almost double from 21.88 percent in 1971 to 44.49 percent in 2011. About 68.75 percent villages experienced moderate population growth rate i.e., 75 – 150 percent. A pocket of villages near to Hisar city & along National highway witnessed high population growth.

**Keyword:** Population Concentration, Rural, Growth, Pattern.

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### Introduction

The United Nations has displayed the population distribution in terms of each individual in a particular place, which is compiled from the Multilingual Demographic Dictionary. The geographical or spatial distribution of a population is studied with reference to the pattern of distribution found in a particular area. The population distribution of an area is delimited by its historical background, natural, demographic and cultural-economic factors. Thompson (1936) observed that taking a closer look at the history of human development, it can be clearly seen that the availability of agricultural land has been an important factor in determining the distribution of population, whereas dry land and mountains the impact has been minimal and has a scattered population pattern. More clearly speaking, it is the size of the population that forms the two major links of human development; determines the nature and pattern, while the distribution of population reflects how humans have used other available natural resources, including land (Singh and Rana, 1977). The influence of natural factors is determined by the lifestyle of the human being of an area (Zachariach and Ambannavar, 1967). According to the increasing level of development of the society, the effectiveness of the physical factors in distribution decreases and vice versa (Singh, A. K. 1985). Thus, the distribution pattern of population of an area is governed by geographical factors. Since population distribution is a

time-varying process and cause and effect are completely different in time and space (Clarke, J. I. 1972). Therefore, the analysis of population distribution is of paramount importance to understand the degree of population concentration of a geographical area or region.

Social scientists including geographers have always been keen in studying population growth. The varying content and methodologies of different disciplines including geography studying population and have made valuable contributions toward the understanding of Spatio-temporal pattern of population (Woods, Ropert 1979).

Population analysis provides an insight of the social and economic structure of society. Nonetheless, the knowledge of these factors is essentials for understanding social changes and for formulating and implementing the programs for their upliftment (Thakur and Kumar, 2013). The study of population characteristics plays a vital role in formulating development plans at different administrative levels. The population behavior of any region can be analyzed and mapped with the study of demographic variables (Raj, Hans. 2003). Rao (1981) has emphasized that special attention should be paid to the individual states and inter-states variations for the purpose of formulating the demographic policies.

Therefore, the present study is an attempt to evaluate the population distribution, concentration and growth in rural areas of Hisar district of Haryana state.

### **Study Area**

The study area of the present study is Hisar district of Haryana state. The District Hisar is located between  $28^{\circ} 53' 45''$  N to  $29^{\circ} 34' 50''$  N latitude and  $75^{\circ} 19' 44''$  E to  $76^{\circ} 18' 15''$  E longitude (fig. 1). Its total geographical area is 3983.00 square kilometer in which rural and urban areas are 3835.53 square kilometer and 147.47 square kilometer respectively. It is covered by Fatehabad and Jind districts in the north, and north-east & east respectively, Bhiwani and Rohtak districts in the south and south-east apart, whereas Rajasthan state in the west. The district headquarter of Hisar is Hisar city. Hansi, Barwala, Narnaund, Uklana, Adampur are the urban town & Tehsil headquarter in the district. The imprints of Pre-Harappan culture (Rakhigarhi-Siswal) are also found in the district. Two National highway i.e., NH-9 and NH-52 cross the district. Hisar station has the railway junction of Rewari-Bhiwani-Hisar-Sirsa & Sadulpur-Hisar-Ludhiana railway line. Hisar district has a hub of educational institutes including CCS HAU, GJU of Science & Technology, Haryana Agricultural & Livestock Farms, Colleges, Polytechnic & ITI and schools etc.

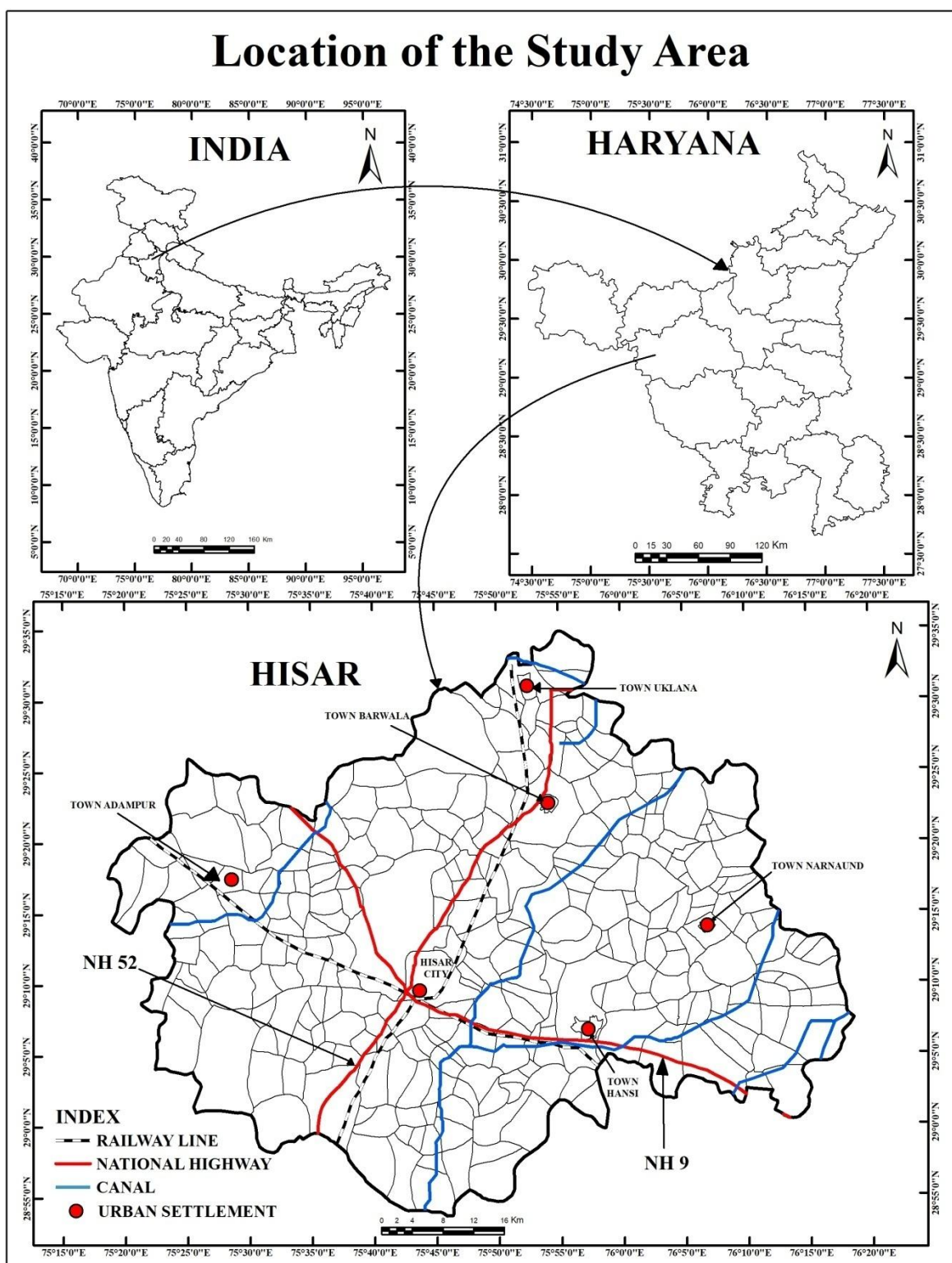


Fig. 1

## Objective

- To evolves the distribution and concentration of rural population.
- To examine the pattern of growth rate of rural population.

## Database and Methodology

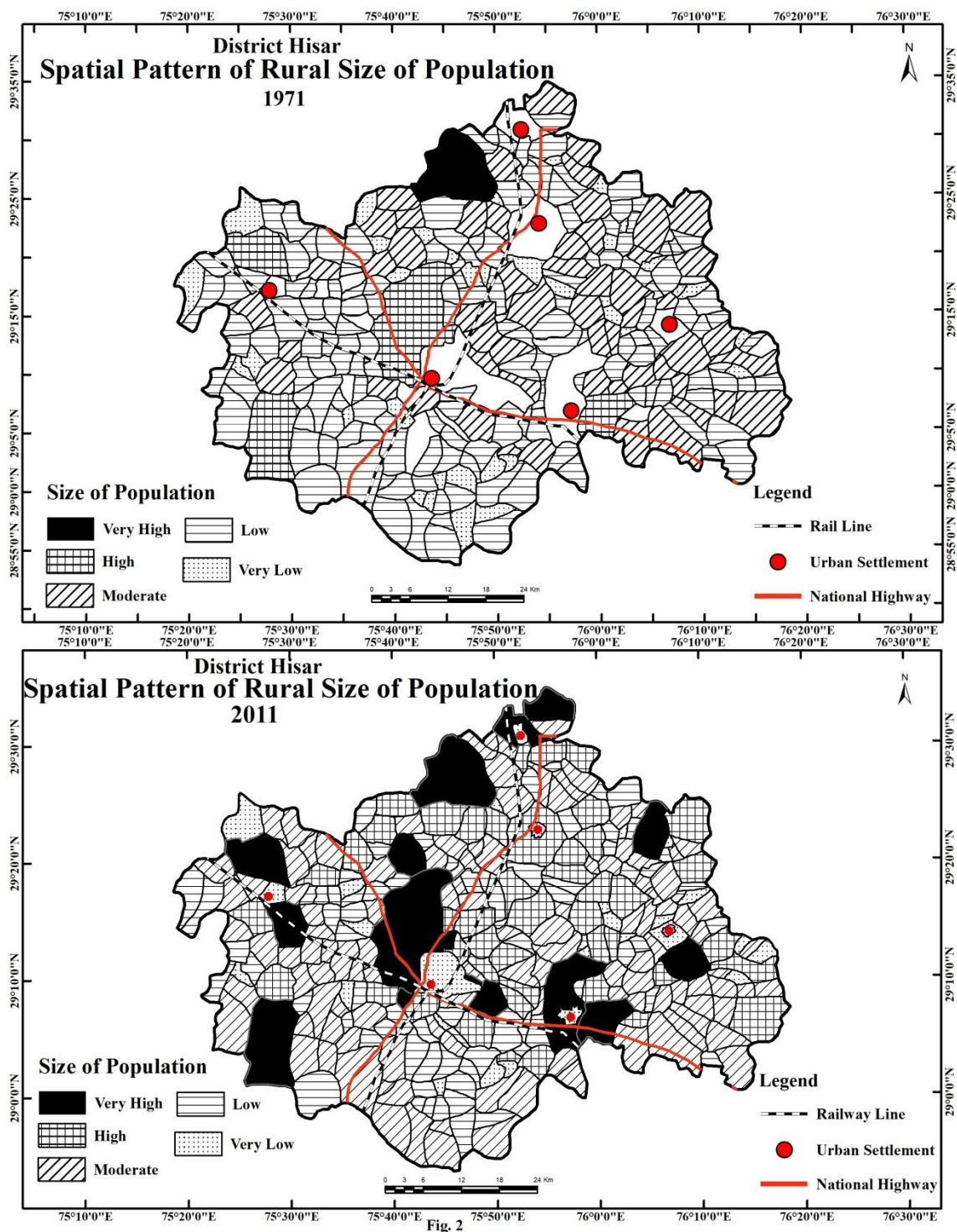
The present study has used secondary sources of data to understand and evaluate the distribution & concentration and growth rate of population. The hard copy of administrative map of Hisar District is procured from District Census Handbook of Hisar District-1991 and then, scanned at 300 dpi and georeferenced (QGIS – open-source software) using appropriate projection parameters i.e., Projection- Universal Transverse Mercator (UTM), Datum- WGS-1984 and Zone- 43N for database generation. The village boundaries of the villages are digitized. The secondary data relating to Population have been collected from census of India - 1971 & 2011 at village level of Hisar District. To understand the pattern of population distribution and concentration, the villages are categorized such as population above 10000, 10000 – 6000, 6000 – 3000, 3000 – 1000 and below 1000. Population growth rate has been calculated using formula  $(\text{Population of 2011} - \text{Population of 1971} / \text{Population of 1971} * 100)$ . The tools used in analysing the data collected include simple percentages, descriptive statistics and appropriate attribute data integrated with village shape file and accordingly mapped with choropleth technique.

## Results and Discussion

### Pattern of Population Distribution and Concentration (1971 - 2011)

Table 1 fig. 2 reveals the distribution and concentration pattern of rural population of Hisar District. In 1971, total rural population of Hisar district was 575834 persons. It doubled in 2011 i.e., 1137420 persons. The average distribution and concentration of population was 2291 persons in 1971 which increased to 4325 persons in 2011. The village-wise distribution & concentration of population has been discussed into following categories.

**Areas of Very High Population Concentration (above 10000 persons):** in 1971, only one village (Pabra) had the high population concentration. By 2011, 10 villages accounting 3.80 percent of total villages registered this category of population concentration. Fig. 2 reveals that the villages of this category scattered in every parts of the district.



**Areas of High Population Concentration (6000 - 10000 persons):** in 1971, only 4 villages (1.57 percent) recorded in this category. But it was accounted 15.97 percent share of total villages in 2011. It is evident from fig. that majority of villages concentration in north & north-eastern area of the district in 2011.

**Areas of Moderate Population Concentration (3000 - 6000 persons):** in 1971, 56 villages (21.96) had moderate population concentration. But, in 2011, about half of villages (44.49 percent) out of total villages recorded in this category. It is evident from fig. that majority of villages located in north & north-eastern region of the district in 1971. In 2011, the villages of this category shifted their location towards north-west, south-west & southern part of the study area.

**Areas of Low Population Concentration (1000 - 3000 persons):** in 1971, highest share of villages (61.51 percent) recorded with low population concentration. This category has shown declining trend in share of villages in 2011 i.e. 28.52 percent. It is evident from fig. that majority of villages located in north-west & south-western part of the district in 1971. In 2011, the villages of this category located in different pockets of the district i.e. south of Hisar city, between Agroha village and Adampur town etc.

<b>Table</b> <b>District Hisar</b> <b>Distribution of village by Size of Population</b>		
<b>Size of Population</b>	<b>No. of Village (%) 1971</b>	<b>No. of Village (%) 2011</b>
Above 10000	1 (0.39)	10 (3.80)
6000 to 10000	4 (1.56)	42 (15.97)
3000 to 6000	56 (21.88)	117 (44.49)
1000 to 3000	158 (61.72)	75 (28.52)
Below 1000	37 (14.45)	19 (7.22)

**Areas of very low Population Concentration (below 1000 persons):** in 1971, 37 villages accounting 14.51 percent share of total villages were found having very low population concentration. In 2011, the share of villages in this category decreased to 7.22 percent. It is evident from fig. that majority of villages concentrated in north-west & south-western part of the district in 1971. Figure reveals that the villages of this category scattered in every parts of the district.

**Pattern of Population Growth (1971 - 2011):**

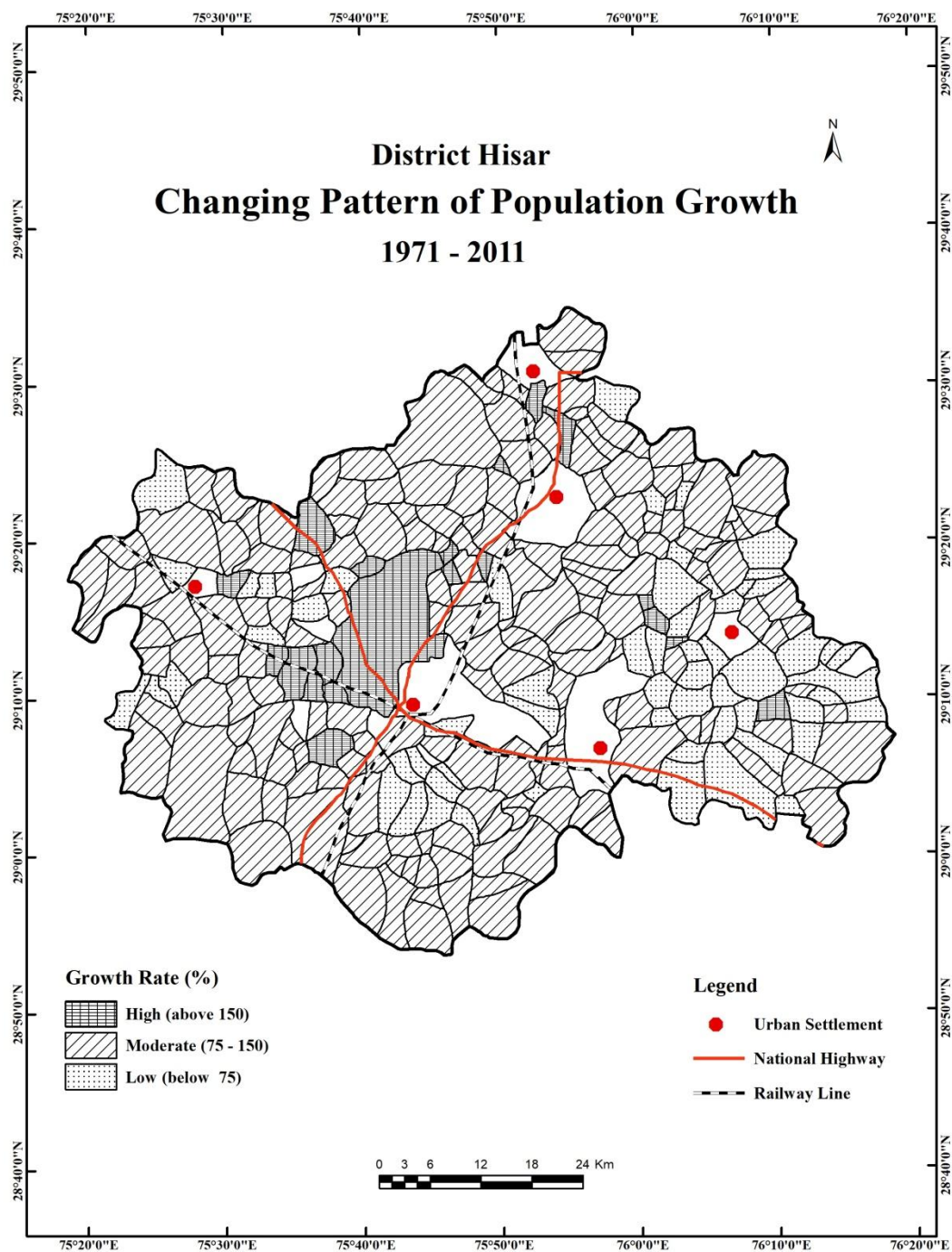


Fig. 3

Table 2 fig. 3 reveals the pattern of rural population growth of Hisar District. During 1971 to 2011, the average growth rate of the study area was 110 percent. The village-wise pattern of population growth has been discussed into following categories;

**Areas of High Population Growth rate (above 150 percent):** 20 villages (constituted about 7.81 percent) out of 256 villages experienced high growth rate. Figure exhibits that a pocket of villages near to Hisar city & along National highway witnessed high population growth.

**Areas of moderate Population Growth rate (75 - 150 percent):** 176 villages (constituted about 68.75 percent) out of 256 villages experienced moderate growth rate. Figure shows that the villages of moderate population growth were distributed in all parts of the district.

**Areas of Low Population Growth rate (below 75 percent):** 60 villages (constituted about 23.44 percent) out of 256 villages experienced low growth rate. Figure exhibits that a pocket of villages in eastern part of the district witnessed high population growth.

### Conclusion

The study concludes that population concentration was observed higher in North, north-east & eastern part of the district as compare to north-west, western, south-west & southern part of the district. The villages having moderate size of population (3000 to 6000 persons) significantly increased almost double from 21.88 percent in 1971 to 44.49 percent in 2011. The villages with moderate to large size of population increased while the villages with low to very low size of population decreased during the study period. About 68.75 percent villages experienced moderate population growth rate i.e. 75 – 150 percent. Nearly one – fourth villages showed low population growth rate i.e. below 75 percent. A pocket of villages near to Hisar city & along National highway witnessed high population growth.

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