CHAPTER - II

POPULATION DYNAMICS

The study of population dynamics is one of the most significant and appropriate topics in the geographical analysis of any region. According to Finch and Trewartha (1957)\(^1\) the settlement geography is closely related to demographic features. Blache (1952)\(^2\) described that population everywhere seems to be composed of a multitude of groups, as living cells, like those of the body, which have a life in common. In the words of Petrov (1985)\(^3\), "demography is the science that studies the composition and movement of population." People then, for themselves as geographical features and for the work they do as geographical agents are of prominent importance for geographical study. Human habitat as is lightly understood, comprises of two elements in complex integration viz; man and land. The element of man has many facets, but the most fundamental is its number, distribution and movement aspects. All these are the fabric of demography. It is, therefore, essential to study the human groups composed of man, as a molecule of the society, in term of distribution of rural population, their growth, density, growth and density behaviour, literacy, sex ratio, working force and other various demographic aspects. All these features are closely related to the varying physical and cultural conditions of the settlements discussed in the sequel.

In conformity to the above quoted text, an attempt has been made to discuss distribution of rural population, their density, change in density, growth of rural population, density and growth behaviour, trend of rural population and settlements, literacy, change in literacy, male literacy, change in male literacy,
female literacy, change in female literacy, sex ratio, trend in sex ratio, working force and change in working force etc. in the study region.

**DISTRIBUTION OF POPULATION**

Distribution of population is, in fact, a process, ceaselessly operating between the land resources and human aspirations. It is not only a static assessment of number and location, but also the symbioses between different nuclei of human habitations and the integrated growth of a geographic region. The importance of these phenomena has underlined by many scholars. Steel (1955)\(^4\) stated that the distribution of population over space is governed by the general habitability of the area and its occupance in historical perspective. The direct impact of the physical environment depicts the patterns of population spread. In 1971, Kumar described that “Economy of a region, stage of production and activities of society are the major components of cultural aspects of population distribution”.\(^5\) The temporal factor intermit plays an important role in shaping the size and location of a population, thus it forms the changing human influences and values. Therefore, Clark (1972)\(^6\) stated that “population distribution is a dynamic process which is ever changing, and cause and effect vary in time and space.”

Therefore, it is population as a resource, which propels social progress and determined the economic pattern of resource utilization. Since man is a dynamic factor as a creator and also a consumer guiding the entire development, hence, the study of demographic characteristics and population traits in gaining importance in the planning of development processes.

The distribution of rural population in 1991 of Jind Plain is shown in the map by dot method [Fig. 2.1]. If we see the map at a glance, map reveals a rather uniform distribution over the area, but a closer look highlights some sub patterns. The regional contrasts in the population distribution are governed by a variety of factors. All the factors affecting the population distribution may broadly be
ONE DOT : 200 PERSONS

URBAN AREA

Figure - 2.1
classified in to three major categories of **physical, socio- cultural and demographic** factors (Chandna, 2001).\(^7\)

Broadly the study region can be divided in to two sectors i. e. northern sector and southern sector.

The southern sector of the region has more concentration of rural population as compared to the northern sector. It covers 166 villages having an area of 1251.11 sq.kms, which is 38.30 % of the total rural area, and 3.93 lakh population which marked 40.64 % of the study area. Some pockets of concentration are also visible in the sector, especially around Jind and Safidon. The denser concentration of population in the southern sector is due to fertile soil, good transport facilities, better infrastructure and irrigation facilities and semi developed agrarian economy.

On the other hand, the northern sector of the study area occupied 188 villages, which covers 2015.11 sq.kms. area, which is 61.70 % of the total rural area and 5.74 lakh population, which is about 59.36 % of the total rural population of the study area. The very low concentration of population is also observed in the peripheral area of the northern sector. Most of the villages in the northern sector have large areal size with small population size. The relatively less concentration of rural population in the northern sector of the study region is mainly due to inferior soil, lack of improved irrigation facilities, lack of water facilities, lack of infrastructure facilities, and under developed agrarian economy.

The pattern of distribution becomes sharper while describing the rural density in Jind Plain.

**DENSITY OF RURAL POPULATION**

Density gives a relative picture of population distribution in a region. So it provides a tool to signify relative population pressure upon the resource base. The concept of density, or the relationship between man and land, is usually expressed as a simple arithmetic ratio which divides total population by total area (Trewartha,
Density can be measured in relation to total area, areable area, cultivated area and inhabited house etc. which gives their different geographical values. Density is a simple concept of relating population size to the land area with a view to assessing crudely the pressure of population upon the resources of the area. Thus, it is a measure of the incidence of population concentration and is generally expressed in term of persons per square kilometer or per square mile of land area rather than of gross area (Chandna, 2001).

In the present case, population pressure upon the total area of a village has taken into consideration because there is a very small percentage of area under cultivable wasteland and barren land. According to 1961 census the density of rural population in Jind Plain was 156 persons/sq. km., which has increased to 298 persons/sq.km in 1991. However, there are great variations in the pattern of rural density.

PATTERN OF RURAL DENSITY:

The pattern of density of rural population in 1991 is represented in the map [Fig. 2.2]. The range of the density varies from less than 200 persons/ sq. km. to more than 500 persons/ sq. km. The whole range of the density of rural population is divided into the following five categories. These are;

(i) Very high density having more than 500 persons / sq. kms.
(ii) High density having 401 to 500 persons / sq. kms.
(iii) Moderate density having 301 to 400 persons / sq. kms.
(iv) Low density having 200 to 300 persons / sq. kms.
(v) Very low density having less than 200 persons / sq. kms.

(i) Areas of Very High Density (> 500 persons / sq. kms.):

The very high density of rural population is mainly confined to the southern sector around the Jind and Safidon urban centers. It occupied 11 villages, which covers 2.15 % of the total rural area and 3.45 % rural population of the study
JIND PLAIN
DENSITY OF RURAL POPULATION
1991

Figure - 2.2
region. The very high density of rural population in this sector is exhibited by villages Bhuran (294)*, Pajukalan (335), Singhpura (352), Amarkheri (202), Ahirka (204), Khera Khemawati (336), Ghimana (252), Jalalpura Khurd (218), and Karkhana (321) etc. The villages Bhuran, Pajukalan, Singhpura, and Amarkheri have very high density of population i.e. 765, 744, 668, and 635 respectively in 1991 and all are situated in the southern sector. This abnormal high concentration of population is also characteristic of very small villages in area.

(ii) **Areas of High Density (401-500 persons / sq. kms):**

The region of high density of population occupied by 38 villages, which shared 6.89% of rural area and 10.06% of rural population of the study area. The high density of rural population is found mainly in Khatla (344), Bagru kalan (302), Karamgarh (61), Pindara (222), Rattakhera (322), Wajir Nagar (132), Bahadargarh (324), Kole Khan (120), Todi Kheri (347), etc. The high density of population in these villages is due to proximity of the Jind City and Julana, Safidon, Narwana and Kalayat towns, availability of rail and road network and other infrastructural facilities like educational, medical and marketing facilities etc. The main railway line joining from Delhi to Ferozepur passes through this plain, covering whole of the extremely eastern part of the study region.

The state highway No. 15 (Rohtak to Sangrur), SH No. 14 (Jind to Safidon), SH No. 12 (Jind to Kaithal) passes through these villages.

(iii) **Areas of Moderate Density (301 – 400 persons / sq. kms.):**

This category covers 153 villages, which shared 44.24% rural area and 50.10% rural population of Jind plain. The moderate density of population is found in villages like Kandela (193) Mahal Kheri (10), Dhindoli (7), Nandgarh (270), Jheel (77), Dauhla (144), Morkhi (307), Barta (8), Kabarchha (101) and

* Village location code number.
Sudkain khurd (111), etc. The moderate density of population is confined in whole of the southern sector (except small patches around the Jind city and Safidon town) and central part of the northern sector.

(iv) **Areas of Low Density (200 – 300 persons / sq. kms.):**

The low density of population is mainly confined in northern sector and few patches in southern sector. This category covers 126 villages, which shared 39.83 % of rural area and 35.13 % of the total rural population. The low density of rural population is found in Jajwan (210)* Shamlo kalan (243), Seend (13), Dhanouri (5), Ponkar Kheri (14), Harnampura (30), Dharamgarh (340), Bhalang (109), Dubal (14), Kharal (26), villages etc. The area of low density of rural population situated mainly in periphery of the northern sector. This sector is characteristics of large villages’ area and low population. It also suffers with low fertility of soil, lack of infrastructural facilities and other educational and health facilities etc.

(v) **Areas of Very Low Density (< 200 persons / sq. kms.):**

The areas of very low density of rural population covers 22 villages which shared 6.89 % of rural area and 1.26 % of the total population. The very low density of rural population is found in Bidakhadlwa (139)* Kalayat (rural) (122), Narwana (rural) (64), Uchana kalan (97), Birbaraban (219), Jind (rural) (221), Theh Malakpur (331), Teg Bahadarpur (225), etc. These villages have large area and small population sizes because these are adjacent to the urban centers. The number of villages, percentage of rural population and areas under different density range are shown in the table 2.1.
TABLE NO. 2.1
JIND PLAIN
RURAL DENSITY
CATEGORY-WISE NUMBER OF VILLAGES, AREA AND RURAL POPULATION
1991

<table>
<thead>
<tr>
<th>Density Range</th>
<th>No. of Villages</th>
<th>Total Rural Area (Sq.Km)</th>
<th>Rural Area (%)</th>
<th>Total Rural Population</th>
<th>Total Rural Population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 200</td>
<td>22</td>
<td>223.40</td>
<td>6.89</td>
<td>12210</td>
<td>01.26</td>
</tr>
<tr>
<td>201-300</td>
<td>126</td>
<td>1291.94</td>
<td>39.83</td>
<td>339444</td>
<td>35.13</td>
</tr>
<tr>
<td>301-400</td>
<td>153</td>
<td>1434.79</td>
<td>44.24</td>
<td>484167</td>
<td>50.10</td>
</tr>
<tr>
<td>401-500</td>
<td>38</td>
<td>223.38</td>
<td>06.89</td>
<td>97168</td>
<td>10.06</td>
</tr>
<tr>
<td>&gt; 500</td>
<td>11</td>
<td>69.68</td>
<td>02.15</td>
<td>33366</td>
<td>03.45</td>
</tr>
<tr>
<td>Total</td>
<td>350</td>
<td>3243.19</td>
<td>100.0</td>
<td>966355</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Computed by Author.

The generalized regions of density pattern are also shown in the inset map [Fig. 2.2]. The three major division of rural density has been outlined viz.:

(I) **Low Density** (< 300 Persons / sq. kms.):  
It covers the peripheral part of northern sector,

(II) **Moderate Density** (301-400 Persons / sq. kms.):  
It covers whole of the southern sector and around the Narwana town in the northern sector,

(III) **High Density** (400 persons / sq. kms.):  
High density is found around the Jind and Safidon urban centers, which are situated, in the southern sector.

The density pattern as discussed above gives only a general idea of population concentration of a respective decade. It needs to be supplemented with the changing pattern in the preceding decade i.e. 1961, (before the formation of Haryana as a separate state). This study will reveal the dynamics of population change in the study region.
CHANGE IN DENSITY OF RURAL POPULATION

The change in density of rural population of Jind Plain is represented in the map [Fig. 2.3]. The average increase in density of rural population during 1961-1991 is 142 persons per sq. km. However, there are great variations in the change of rural density. The range of increase in rural density from less than 50 persons per sq. km to more than 400 persons per sq. km. A general study of Jind Plain reveals six broad categories of density change, that is;

(i) Very high increase in density (more than 400 persons per sq. km).
(ii) High increase in density (201-400 persons per sq. km).
(iii) Moderate increase in density (101-200 persons per sq. km).
(iv) Low increase in density (50-100 persons per sq. km).
(v) Very low increase in density (less than 50 persons per sq. km).
(vi) Negative change in density.

(i) Areas of Very High Increase in Density: (> 400 persons per sq. km.)

The very high increase in rural density is recorded in only five villages. These are Bhuran (294), Ghogharian (95), Singhpura (335), Kachrana kalan (142), and Paju kalan (335). The highest increase of rural density is found in Bhuran i.e. 534 persons per sq. km. followed by Ghogharian 474 persons per sq. km. and Singhpura 458 persons per sq. km.

(ii) Areas of High Increase in Density: (201-400 persons per sq. km.)

The high increase in density of rural population occupied by 58 villages. These villages are located around the Jind city by forming a ring pattern and Safidon town in southern sector and some villages found in scattered form in western part of northern sector. This category confined the villages like Amarkheri (202), Khera Khemawati (336), Jalalpura khurd (218), Ahirka (204), Todi kheri (347), Jalalpur kalan (205), Bahadargarh (324), Ghimana (252), Karkhana (321) etc.
JIND PLAIN
VOLUMETRIC CHANGE IN RURAL DENSITY
1961 - 1991

Figure - 2.3
(iii) **Areas of Moderate Increase in Density: (101-200 persons per sq. km.)**

The category of moderate increase in density occupied by 243 villages, which covered the whole of the study region except small patches around the Jind city and Safidon town. The village like Lodhar (110), Sinsar (114), Jheel (77), Khanda (171), Dhan Kheri (91), Ikas (217), Bahri (165), Sachan Khera (53), Barar Khera (258), Singhana (325) etc. have moderate increase in density i.e. 101 to 200 persons per sq. km. during 1961 to 1991.

(iv) **Areas of Low Increase in Density: (50-100 persons per sq. km.)**

The low increase in density of rural population occupied by 27 villages. These villages are located in eastern part of southern sector. These villages are Amritsar (18), Buradehar (261), Rohaj Khera (96), Kheri Sher Khan (108), Bhambhewa (309), Daroli Khera (79), Dubal (14), Jhimri Khera (174), Babodh (346), and Dharm Garh (340).

(v) **Areas of Very Low Increase in Density: (< 50 persons per sq. km.)**

Very low increase in rural density is found in nine villages. These villages are very small in areal size and found in scattered form in the study region. These villages are Desh Khera (287), Katwal (168), Siri Rag (194), Jind (rural) (221), Birbaraban (219), Santokh Majra (157), Kalasher (107), Uchana kalan (97), Kachrana Khurd (141) etc.

(vi) **Areas of Negative Change in Density:**

The negative change in rural density is also observed in five villages. These villages are Khima Kheri (244), Narwana (rural) (64), Kalwa (297), Teg Bahadurpur (225), and Kalayat (122).

**GROWTH OF RURAL POPULATION**

Population growth is pivotal to the region’s demographic dynamism. The phenomena of population growth have special significance. It has a vital index of a region’s economic development, social awakening, historical and cultural
background and political ideology. It is this attribute with which all other characteristics of population are intimately related and from which they drive their significance. Thus, the understanding the population growth in an area holds the key to the understanding of entire demographic structure of the area. The growth of population in terms of percentage is generally calculated by dividing the absolute change by the population at an earlier date and multiplying it by hundred (Chandna, 2001).  

**PATTERN OF RURAL POPULATION GROWTH:**

The growth of rural population of Jind Plain during 1961-91 is shown in map [Fig.2.4]. The growth of rural population of Jind Plain during 1961-91 is 92.3 per cent. However, there is great variation in the growth of rural population. The range of relative growth of rural population varies from less than 40 per cent to more than 320 per cent. The whole range of the relative growth of rural population is divided into six categories. A general study of the area reveals four broad categories of growth pattern, that is;

(i) Areas of high growth of rural population having more than 160 % of growth.
(ii) Areas of moderate growth of rural population having 80 to 160 % of growth.
(iii) Areas of low growth of rural population having less than 80 % of growth.
(iv) Areas of negative growth.

(i) **Areas of High Growth of Rural Population : ( > 160 per cent )**

The areas of high growth of rural population are occupied by 22 villages. The villages Julana (rural) (280), Uchana kalan (97), Kalayat (rural) (122), Shamlo Khurd (245), Dhighana (241), Birbaraban (219), Kishanpura (249) etc. have recorded more than 300 per cent increase, where as Ahlan Jogi Khera (177), Bhuran (294), Karela (285), Mator (125), Anta (348), and Nandsinghwala (9) followed the growth rate more than 200 per cent. Such high growth rate in rural population is due to proximity of the city and towns.
(ii) Areas of Moderate Growth of Rural Population: (80 to 160 per cent)

The areas of moderate growth of rural population are confined in almost whole of the study area occupied by 243 villages. The relative growth of 80 to 160 per cent during 1961-91 was the result of the modest rate of in-migration of agricultural labourers and the rising level of prosperity. This prosperity was caused by the formation of Haryana as a separate state from Punjab in 1966 and concerted approach of the Government to modernize agriculture. The region also has characteristic of intensive agriculture expressed by the fact that more than 70 per cent working force are engaged in agriculture.

(iii) Areas of Low Growth of Population: (< 80 per cent)

The areas which is under low growth of rural population recorded below 80 per cent of growth during 1961-91 as compared to the region average of 92 per cent. The relatively low growth of rural population is confined in extremely eastern part of northern sector and peripheral region of southern sector of the study area, occupied by 78 villages, which is 22.54 per cent of the total inhabited villages. The relatively low growth rate in the aforesaid areas is primarily due to out-migration of labour force. The unfertile terrain and related poverty must have forced people to move out in search of employment.

(iv) Areas of Negative Growth:

Only three villages lying close to Jind City and Narwana town recorded negative growth in their population during 1961-91. These villages are Teg Bahdurpur (225), Narwana (rural) (64), and Khima Kheri (244). It seems that the rural folk lying very close to the urban centers have preferred to shift to urban areas for habitation; making the region of their original habitated depopulated.

The generalized pattern of population change from 1961-91 [see inset map Fig.2.4] reveals that the areas around urban centers like Jind, Safidon, Julana, Kalayat and some villages situated in the periphery of the northern sector have
JIND PLAIN
GROWTH OF RURAL POPULATION
1961 - 1991

Figure - 2.4
recorded high growth, that is more than 160 per cent. The area of moderate growth, that is 80 to 160 per cent is more prevalent in the western part of the study area. In the eastern part of northern sector forming a irregular chain and a smaller patch in the southern sector the population growth has been more or less low, that is less than 80 per cent. It seems that the growth of population is more concentration in the southern sector as compared to the northern sector.

**CHANGE IN DENSITY AND GROWTH BEHAVIOUR:**

The generalized pattern of the change in density and growth rate of rural population between 1961-91 is represented in the map [Fig. 2.5]. Considering the generalized pattern, the study region reveals three broad categories, that is;

(i) **Areas of High Density and Moderate Growth:**

The areas of change in high density and moderate growth rate of rural population are mainly confined around the urban centers like Jind, Safidon in the northern sector and towards of Narwana town in northern sector which recorded 161 to 320 per cent of the growth.

(ii) **Areas of Moderate Density and Moderate Growth:**

The areas of change in moderate density and moderate growth of rural population (i.e. 301-400 persons / sq. kms. and 161 to 320 per cent growth rate) are confined in almost whole of the study area except around the urban centers and some peripheral areas of eastern part of the region.

(iii) **Areas of Moderate Density and Low Growth:**

The peripheral areas of the eastern part of the study region covered this category. There is a tendency of depopulation in the immediate surrounding urban centers. This tendency is probably due to the migration of rural population to urban
JIND PLAIN
DENSITY AND GROWTH BEHAVIOUR
1961 - 1991

GENERALISED REGIONS

INDEX

High Growth High Density
High Growth Moderate Density
High Growth Low Density
Moderate Growth High Density
Moderate Growth Moderate Density
Moderate Growth Low Density
Low Growth High Density
Low Growth Moderate Density
Low Growth Low Density
Negative Growth Low Density
Urban Area

Figure - 2.5
centers for living purposes owning to increased urban amenities and keep their agricultural land in their own possession for tilling. The number of villages in different categories of change in rural density and population growth is also expressed in table 2.2.

### TABLE NO. 2.2
**JIND PLAIN**
**DENSITY AND GROWTH BEHAVIOUR**
1961-1991

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>Density Change Persons/ Sq.km</th>
<th>Population Growth (In Per cent)</th>
<th>Number of Village</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Density/ Low Growth</td>
<td>200-300</td>
<td>40-80</td>
<td>19</td>
</tr>
<tr>
<td>Moderate Density/ Low Growth</td>
<td>301-400</td>
<td>40-80</td>
<td>55</td>
</tr>
<tr>
<td>High Density/ Low Growth</td>
<td>401-500</td>
<td>40-80</td>
<td>01</td>
</tr>
<tr>
<td>Low Density/ Moderate Growth</td>
<td>200-300</td>
<td>80-160</td>
<td>13</td>
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<tr>
<td>Moderate Density/ Moderate Growth</td>
<td>301-400</td>
<td>81-160</td>
<td>181</td>
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<td>High Density/ Moderate Growth</td>
<td>401-500</td>
<td>81-160</td>
<td>49</td>
</tr>
<tr>
<td>Low Density/ High Growth</td>
<td>200-300</td>
<td>161-320</td>
<td>05</td>
</tr>
<tr>
<td>Moderate Density/ High Growth</td>
<td>301-400</td>
<td>161-320</td>
<td>07</td>
</tr>
<tr>
<td>Low Density/ High Growth</td>
<td>401-500</td>
<td>161-320</td>
<td>11</td>
</tr>
<tr>
<td>Low Density/ Negative Growth</td>
<td>200-300</td>
<td>-</td>
<td>05</td>
</tr>
</tbody>
</table>

Source: Compiled by Author.

**TREND OF RURAL POPULATION AND SETTLEMENTS:**

The variation in size of rural settlements from area to area is a physically establishment fact due to the variations in ecological conditions (Mandal, 2001). For the size analysis of rural settlements, the data regarding total number of inhabited villages and their share of population have been compiled into seven population size groups. The frequency distribution of population among the rural settlements during 1961 and 1991 are shown in the map [Fig. 2.6]. The overall
growth pattern of villages with respect to size, number and population are also expressed in the table 2.3. The general tendency of relationship between size of population, number of villages and percentage of population are as follows.

Very small size villages (less than 200 persons per village) constitute very small percentage of population share and number of occurrence both in 1961 and 1991. Small size villages (200-499 persons per village) have relatively more share in percentages of population and moderate share in number of villages in 1961, but very small share in percentage of population and number of villages in 1991. The maximum bulk of population share and number of occurrence of villages correspond with moderately small to moderately large villages that are in between 500-4999 persons per villages [Table 2.3 and Fig. 2.6].

Moderately small size villages (500-999 persons/ village) constitute small percentage of population share and large share in number of villages in 1961 while very low share in percentage of population and moderate share in number of villages in 1991. The large size villages (5000-9999 persons per village) have small share in percentage of population and number of villages in 1961 but large share percentage of population and moderate share in number of villages in 1991 while the very large size villages (10,000 and above persons per village) have small size in percentage of population and very small share in number of villages in 1991, since there was no village under this category in 1961.

The comparative glance of percentage growth in population and number of villages from 1961 to 1991 [Fig. 2.7] also highlight some more trends as under;
(I) Very small to moderate size villages (less than 2000 persons per village) shows negative growth in percentage share of population and number of villages. Even in these categories there are variations;
JIND PLAIN
FREQUENCY DISTRIBUTION OF POPULATION

Figure - 2.6
JIND PLAIN
PERCENTAGE OF VARIATION OF POPULATION AND NUMBER OF VILLAGES IN DIFFERENT POPULATION SIZE 1961-1991

Figure - 2.7
(i) Very small size villages i.e. less than 200 persons per village indicate significant decline in population (-0.06 per cent), and in number of villages (-0.59 per cent).

(ii) Small size villages (200-499 persons per village) have recorded low / lesser decline in population percentage (-2.74 %) and moderate decline in number of villages (-9.85 %). This indicates that maximum villages i.e. more than 80 % villages of this category have shifted from their ranks to higher ranks.

(iii) Moderate small size villages (500-999 persons per village) have recorded moderately high decline in population share (-12.06 %) and high decline in number of villages (-18.62 %). This also indicates that more than 60 % villages of this category have shifted to next category resulting decline the larger share of population in the particular category.

(iv) Moderate size villages (1000-1999 persons per village) have recorded high decline in percentage of population (-16.72 %) but low decline in number of villages (-4.39 %).

(II) In the moderately large to very large size villages that is 2000 persons per village to more than 10,000 persons per village, there is a common factor of positive increase both in population percentage and number of villages. Inter variation among these categories are also significant.

(i) Moderately large size villages (2000-4999 persons per village) have recorded moderately high increase in population share but very high increase in number of villages that is 10.14 % and 24.06 % respectively during 1961 to 1991.

(ii) Large size villages (5000-9999 persons per village) show high increase in population share (15.47 %) and moderately high growth in number of villages (7.98 %).
<table>
<thead>
<tr>
<th>POPULATION SIZE</th>
<th>POPULATION</th>
<th>SETTLEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population In Each Range</td>
<td>Cumulative Population</td>
</tr>
<tr>
<td>Very Small Size (Less than 200)</td>
<td>480</td>
<td>386</td>
</tr>
<tr>
<td>Net Growth</td>
<td>(0.10)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Small Size (200-499)</td>
<td>15230</td>
<td>2763</td>
</tr>
<tr>
<td>Net Growth</td>
<td>(3.03)</td>
<td>(0.29)</td>
</tr>
<tr>
<td>Moderately small (500-999)</td>
<td>75537</td>
<td>28738</td>
</tr>
<tr>
<td>Net Growth</td>
<td>(15.03)</td>
<td>(2.97)</td>
</tr>
<tr>
<td>Moderate size (1000-1999)</td>
<td>165991</td>
<td>157664</td>
</tr>
<tr>
<td>Net Growth</td>
<td>(33.04)</td>
<td>(16.32)</td>
</tr>
<tr>
<td>Moderately Large (2000-4999)</td>
<td>196630</td>
<td>476245</td>
</tr>
<tr>
<td>Net Growth</td>
<td>(39.14)</td>
<td>(49.28)</td>
</tr>
<tr>
<td>Large Size (5000-9999)</td>
<td>48569</td>
<td>242970</td>
</tr>
<tr>
<td>Net Growth</td>
<td>(0.97)</td>
<td>(25.14)</td>
</tr>
<tr>
<td>Very Large Size (+10000)</td>
<td>0</td>
<td>57589</td>
</tr>
<tr>
<td>Net Growth</td>
<td>(0.0)</td>
<td>(0.96)</td>
</tr>
</tbody>
</table>

Note: Figures in brackets are shown in percentage.

Source: compiled by Author.
(iii) Very large size villages (10,000 and above persons per village) show comparatively moderate growth in percentage of population (5.96 %) and low growth in number of village (1.42 %).

It can be noted that size speaks about the nature of soil, topography, social, economic background of the cultural group of a particular area. The very small size villages to moderate size villages show a negative growth in population and number of villages while moderately large, large and very large size villages indicate remarkable growth in population and number of villages. These reflect a change in rural structure, mainly due to agricultural growth and development of transport and other infrastructure facilities after the formation of Haryana as a separate state.

The characteristics of these villages are summarized in the table 2.4.

The comparatively study of Fig. 2.6, 2.7 and table 2.3 and 2.4, very clearly highlight the following trend.

(i) The population share and number of villages both have shown decline in very small size to moderate size villages i.e. less than 2000 population suggesting that the people have prefer to out migrate from smaller villages to town or cities or the villages itself has grown to larger size resulting in the decline of number.

(ii) There is a general increasement of population and number of villages in the category of moderately large to large size of village i.e. 2000 to 9999 persons per village. However, population growth has been relatively less as compared to number of villages.

(iii) In very large size village, i.e. 10,000 and above population, show moderate growth in percentage of population and low growth in number of villages.

The greatest dynamism, therefore, has been experienced in moderately large to very large size villages. Such villages are the scene of transformation and rapid development.
After considering the nature or behavior of villages with respect to their size, number and population share it is befitting to analyze their status with respect to literacy, sex ratio and working force. The aforesaid parameters are very essential to assess the dynamism of villages, and their potentials of development.

**TABLE NO. 2.4**
**JIND PLAIN**
**PERCENTAGE VARIATION OF POPULATION AND NUMBER OF VILLAGE 1961-1991**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very small (Less than 200)</td>
<td>-0.06</td>
<td>-0.59</td>
<td>Rather insignificant decline in(%) age of population and number of villages.</td>
</tr>
<tr>
<td>Small size (200-499)</td>
<td>-02.74</td>
<td>-09.85</td>
<td>Low decline in % age of population and Moderate decline in number of villages.</td>
</tr>
<tr>
<td>Moderately Small (500-999)</td>
<td>-12.06</td>
<td>-18.62</td>
<td>Moderately high decline in % age of Population and high decline in number of Villages.</td>
</tr>
<tr>
<td>Moderate size (1000-1999)</td>
<td>-16.72</td>
<td>-04.39</td>
<td>High decline in % age of population And High growth in number of villages.</td>
</tr>
<tr>
<td>Moderately Large (2000-4999)</td>
<td>10.14</td>
<td>24.6</td>
<td>Moderate high growth in % age of Population and very high growth in Number of villages.</td>
</tr>
<tr>
<td>Large size (5000-9999)</td>
<td>15.47</td>
<td>07.98</td>
<td>High growth in % age of population and Moderately high growth in number of villages.</td>
</tr>
<tr>
<td>Very Large size (≥10000)</td>
<td>05.96</td>
<td>01.42</td>
<td>Moderate growth in % age of population And low growth in number of villages.</td>
</tr>
</tbody>
</table>

Source: Compiled by Author.
LITERACY

Literacy is an important indicator of socio-economic and political development of a country. Moreover, literacy is of paramount significance for eradicating poverty and mental isolation and permitting the free play of democratic processes especially in a developing country like India. It plays an important role in rising the standard of people in every aspect of life. So a minimum level of literacy is essential for a person to get out of ignorance and backwardness.

The definition of literacy differs from country to country and time to time. A definition proposed by the United Nations Population Commission has been followed by the Indian census. For the first three censuses ending with 1891 census, three categories were used to classify the population according to literacy status: Learned, Literate and Illiterate. This classification was obviously faulty for educated persons, who were still students, are reported obviously themselves as being just literate. From 1901 and onwards, the population was dichotomously classified as literate and illiterate. From 1901 to 1931 the definition of literacy varied to some extent, though the basic criteria, was the ability to read and write (Asha A.Bhende and Tara Kanitkar, 1985). The criteria of literate has been changed in 1961 and children 0-5 years considered as ‘illiterate’ (census of India, 1961). According to 1971 census, “A person who can both read and write with understanding in any language has been considered literate” (census of India, 1971). In 1981 census, the criteria of literate has been changed and children 0-5 years considered as ‘illiterate’ (Census of India, 1981). But it has been further changed in 1991 census and children 0-6 years aged are treated as ‘illiterate’ (census of India, 1991).

REVIEW OF LITERATURE:

The study of literacy in geography is not a new field. Gosal (1964) studied the spatial distribution of literacy and delivered the importance of literacy in his

In the present study literacy has been calculated as, literate in proportion to total rural population of a village, in the present context total literacy, change in total literacy, male literacy, change in male literacy, female literacy, change in female literacy have been discussed.

**PATTERN OF RURAL LITERACY**

As per 1991 census, the total rural literacy in Jind Plain was 33.3 % in which male literacy was 45.3 % and female literacy was 18.9 %. The literacy of rural population of Jind Plain in 1991 is represented in map [Fig. 2.8]. The range of total rural literacy varies from less than 15 % to more than 45 % and the whole range is divided in to the following five broad categories;

(i) Very high literacy (more than 45 per cent)
(ii) High literacy (35-45 per cent)
(iii) Moderate literacy (25-35 per cent)
(iv) Low literacy (15-25 per cent)
(v) Very low literacy (less than 15 per cent)

(i) **Areas of Very High Literacy: (> 45 per cent)**

The very high literacy is found in 26 villages and mostly confined in the southern sector of the study region, which covered 4.9 % of the total rural area and

---

[The prefixes high, moderate and low etc. are however, relative to the area of study and do not bear any reference to state or national level of literacy].
Figure 2.8

JIND PLAIN
PATTERN OF RURAL LITERACY
1991

GENERALISED REGIONS

IN PER CENT

High
Medium
Low
Urban Area

15 25 35 45 Urban Area
4.5% of the total rural population. The highest literacy is found in Santokh Majra (157), i.e. 54.2% followed by Julana (rural)(280), Bhuran (294), Baganwala (212), Bidakhdalwa (139), Ikas (217), Bahabalpur (251), Shandipur (279), Teg Bahadurpur (225), Lalit Khera (239) etc. The very high literacy is found in mainly around the Jind city and Safidon, Julana towns. This is due to proximity of city and towns, availability of means of transport network, communication and educational facilities etc.

(ii) Areas of High Literacy: (35-45 per cent)

High literacy of rural population is found in 138 villages, which covered 32.8% of rural area and 34.7% of rural population. The high literacy is found in Khima Kheri (244), Jaijaiwanti (281), Malar (320), Khunga (190), Fategarh (267), Bishanpura (250), Chabri (232), Anchara kalan (312), Bagru kalan (302), Barar Khera (258) etc. The villages of high literacy is mainly situated in southern sector is due to development of educational facilities and availability of rail and road network etc.

(iii) Areas of Moderate Literacy: (25-35 per cent)

The category of moderate literacy is found in the northern sector of the region. It occupied by 153 villages, which covered half of the total rural area and population. Moderate literacy is found mainly in villages like Jalalpur kalan (205), Shamdo (148), Pipaltha (22), Ghimana (252), Ghogharjan (95), Bhalang (109), Naguran (145), Kharad Ramji (233) etc. Most of the villages lie in this category. Fairly accessibility of transport and educational facilities are responsible factors for moderate literacy in this region.

(iv) Areas of Low Literacy: (15-25 per cent)

Low literacy is found in scattered form mainly in the northern sector. This category of low literacy occupied by 30 villages, which covered 10.2% of rural area and 9.7% of total rural population. Low literacy is found in villages like
Chattar (105), Patharath Khera (1), Kalwan (32), Rasidan (25), Dhamitan Sahib (31), Kurar (16), Mangalpur (80), Dhondhwa (17) etc. Low literacy in these villages is mainly due to less fertile soil, lack of irrigation facilities, and lack of transport and educational facilities.

(v) Areas of Very Low Literacy: (< 15 per cent)

Very low literacy is found in mainly three villages, which are situated around the Kalayat town. This category of very low literacy is found in the villages like Kalayat (rural)(122), Koel (15), Birdana (116), which have recorded the literacy rate 9.7 %, 11.9 %, 14.4 % respectively in 1991. Very low literacy in these villages mainly due to lack of social awareness in education.

The category wise rural literacy number of villages, area and rural population are also expressed in table 2.5.

<table>
<thead>
<tr>
<th>Literacy (%)</th>
<th>Number of Village</th>
<th>Total Rural Area (Km2)</th>
<th>Rural Area (%)</th>
<th>Total Rural Population</th>
<th>Rural Population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15</td>
<td>3</td>
<td>51.33</td>
<td>1.6</td>
<td>3808</td>
<td>0.4</td>
</tr>
<tr>
<td>15-25</td>
<td>30</td>
<td>329.67</td>
<td>10.2</td>
<td>94187</td>
<td>9.7</td>
</tr>
<tr>
<td>25-35</td>
<td>153</td>
<td>1639.31</td>
<td>50.5</td>
<td>489570</td>
<td>50.7</td>
</tr>
<tr>
<td>35-45</td>
<td>138</td>
<td>1064.16</td>
<td>32.8</td>
<td>335397</td>
<td>34.7</td>
</tr>
<tr>
<td>&gt;45</td>
<td>26</td>
<td>158.72</td>
<td>4.9</td>
<td>43393</td>
<td>4.5</td>
</tr>
<tr>
<td>Total</td>
<td>350</td>
<td>3243.19</td>
<td>100.0</td>
<td>966355</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Computed by Author.

Generalized regions are also shown in the inset map [Fig. 2.8]. The three sub regions of rural literacy have been outlined viz;

1. Low Literacy: (less than 25 %)

   It covered a narrow belt of eastern part in northern sector,
2. **Moderate Literacy: (25-35 %)**

It covered whole of the northern sector (except the belt of eastern part of northern sector),

3. **High Literacy: (more than 35 %)**

High literacy is found in the southern sector of Jind Plain.

**CHANGE IN RURAL LITERACY:**

The rural literacy from 1961-91 has considerably increased whole of the Jind plain except a few villages. The average literacy rate increased 24.2 % during the same period. The change in literacy of rural population is represented in the map [Fig. 2.9]. The change in total rural literacy varies from less than 10 % to more than 40 %. It divided into four broad categories;

(i) High increase in literacy (more than 30 per cent).

(ii) Moderate increase in literacy (20-30 per cent).

(iii) Low increase in literacy (less than 20 per cent).

(iv) Negative change in literacy.

(i) **Areas of High Increase in Literacy: (> 30 per cent)**

The high increase in literacy is found mainly in southern sector and occupied by 88 villages of the study region. The highest increase in literacy is found in Bidkhdalwa (139) i.e. 50 per cent followed by Beganwalal (212), Teg Bahadurpur (225), Desh Khera (285), Bhuran (294), Jitgarh (197), Lalit Khera (239), Julani (206) etc. The higher rate of increase of more than 30% is seen in the southern sector and around the city and towns.

(ii) **Areas of Moderate Increase in Literacy: (20-30 per cent)**

Moderate increase in literacy is found in 188 villages, which covered almost whole of the study region except the middle and northern peripheral areas. Moderate increase in rural literacy is found in Kinana (259), Nehra (39), Bagru
Figure - 2.9

JIND PLAIN
VOLUMETRIC CHANGE IN RURAL LITERACY
1961 - 1991

IN PER CENT

40
30
20
10
Negative Growth

Urban Area

0 10 Kms.
Khurd (315), Lajwana Kalan (272), Ghimana (252), Kishanpura (249), Kheri Jagwan (209), Data Singhwala (3) etc.

(iii) **Areas of Low Increase in Literacy: (< 20 per cent)**

The areas of low increase in literacy is situated in the middle and extreme northern part of the study region. It occupied by 65 villages. The low increase in literacy is found in Kurar (16), Mator (125), Budha Khera Latehr (278), Khapran (87), Surbrah (81), Udepur (47), Malakpur (332), Tohana Khera (78) etc.

(iv) **Areas of Negative Change in Literacy:**

Negative change in literacy is found in six villages, which are situated, in scattered form in study area. These villages are Sheogarh (66), Aftabhgarh (333), Birbaraban (219), Kalayat (rural) (122), Kalta (93), Theh bahri (161).

In 1961, the rural literacy was 9.1%, which increased to 33.3 % in 1991. The increase of rural literacy in the region was mainly due to tremendous development in the educational facilities, development of socio-economic, cultural and political conditions of the people and social awareness towards rural literacy. In 1961, there were 234 primary schools, 34 middle schools and 16 high schools in the regions but in 1991 it increased to 426 primary schools, 220 middle schools and 130 high schools and 9 higher secondary schools. In 1991 96.6 %, 52.6 % and 33.1% and 2.6 % of the villages have primary schools, middle schools, and high and higher secondary schools respectively. Besides that there are many training centers such as ITI, art school,, colleges etc in the region. Moreover dense network of road, Market system connected almost every village in the region with metalled road has also contributed to social awareness among the people about literacy.

**PATTERN OF RURAL MALE LITERACY:**

About 45.3 % of males in proportion to total males are found literate in 1991 as against the literacy rate of 33.3 % in Jind plain. The rural male literacy is shown
in the map [Fig. 2.10]. The range of male literacy varies from less than 30 % to more than 60 % and divided into fine broad categories.

(i) Very high literacy (more than 60 per cent).
(ii) High literacy (51-60 per cent).
(iii) Moderate literacy (41-50 per cent).
(iv) Low literacy (30-40 per cent).
(v) Very low literacy (less than 30 per cent).

(i) **Areas of Very High Literacy: (> 60 per cent).**

The very high literacy among the males is found around the urban centers in the southern sector of the study region. Only 21 villages have literacy rate more than 60 per cent, which covers 3.6 % of rural area and 3.4% of rural male population. The highest male literacy is found the Teg Bahadurpur (225) i.e. 66.7 per cent followed by Julana (rural) (280), Malvi (286), Sarfabad (314), Bhuran (294), Ikas (217), Shandipur (279), Khunga (190) and pauli (275) etc. The very high literacy is due to proximity of city and towns, availability of means of good transport network, communication and educational facilities etc.

(ii) **Areas of High Literacy: (51-60 per cent)**

The category of high literacy is found in southern sector of the region. It occupied by 109 villages, which covered 24.3 % of rural area and 26.2 % of rural male population. High literacy are mainly found in the villages like Karsola (266), Chabri (232), Badowala (56), Malar (320), Mando Kheri (227), Jajwan (210), Jaijaiwanti (281), Bishanpura (250), Gosian Khera (26). Bagru Kalan (302) etc. The high literacy rate in these villages are mainly due to agricultural development, better transport and educational facilities.

(iii) **Areas of Moderate Literacy: (41-50 per cent)**

The moderate literacy are mainly found in the central part and around the Narwana town of the study region. It occupied 143 villages, which covered 44.8 %
Figure - 2.10
of rural area and 45.9 per cent of rural male population of the study area. The moderate literacy are found in the villages like Khera Gondawala (104), Lajwana Khurd (268), Shamdo (148), Amarli Khera (293), Amargarh (38), Asmailpur (58), Dumarkha Kalan 68), Kahna Khera (60) etc. Moderate literacy rate in these areas is due to fertile soil, educational and other infrastructural facilities.

(iv) **Areas of Low Literacy: (30-40 per cent)**

Low literacy is found mainly in peripheral areas of northern sector of the study region occupied by 67 villages, which covered 23.8 % of rural area and 22.5 % of rural male population. These villages are Durana (160), Mundh (163), Batta (131), rajgarh Dhubhi (35), Sedha majra (74), Durjanpur (46), Nidani (236), Sinsar (114) etc. Low literacy rate in these areas due to lack of social awareness towards education and large proportion of males are engaged in primary activities.

(v) **Areas of Very Low Literacy: (< 30 per cent)**

Very low literacy is found in the scattered form in northern sector. It occupied by only 10 villages, which covered 3.5 % of rural area and 2.0 % of rural male population of the study region. The lowest literacy among males is found in Kalayat (rural) (122) i.e. 15.1 per cent followed by Koel (15), Birdana (116),

<table>
<thead>
<tr>
<th>TABLE NO. 2.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>JIND PLAN</td>
</tr>
<tr>
<td>RURAL MALE LITERACY</td>
</tr>
<tr>
<td>1991</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Literacy (in per cent)</th>
<th>No. of Villages</th>
<th>Total Rural Area (km²)</th>
<th>Rural Area (in per cent)</th>
<th>Total Rural Population</th>
<th>Rural Pop. (in percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;30</td>
<td>10</td>
<td>112.5</td>
<td>3.5</td>
<td>10507</td>
<td>2.0</td>
</tr>
<tr>
<td>30-40</td>
<td>67</td>
<td>773.11</td>
<td>23.8</td>
<td>118341</td>
<td>22.5</td>
</tr>
<tr>
<td>41-50</td>
<td>143</td>
<td>1453.55</td>
<td>44.8</td>
<td>241817</td>
<td>45.9</td>
</tr>
<tr>
<td>50-60</td>
<td>109</td>
<td>786.64</td>
<td>24.33</td>
<td>138309</td>
<td>26.2</td>
</tr>
<tr>
<td>&gt;60</td>
<td>21</td>
<td>117.39</td>
<td>3.6</td>
<td>17921</td>
<td>3.4</td>
</tr>
<tr>
<td>Total</td>
<td>350</td>
<td>3243.19</td>
<td>100.00</td>
<td>526895</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Compiled by Author
Hatho (177), Rorh (329), Dhindoli (7), Badsikir Kalan (137), Harnampura (30), Haripura (12), Budian (85).

The category-wise male rural literacy, number of villages, area and rural population are also expressed in table 2.6.

Generalized regions are also shown in the inset map [Fig 2.10]. The three sub-divisions of rural male literacy have been outlined viz.

(1) **Low literacy** (> 40 per cent)

It covers peripheral areas of northern sector and covered 77 villages of study region,

(2) **Moderate Literacy**: (40-50 per cent)

It covers central part and villages around the Narwana town of the region, which covered 143 villages i.e. 40.9 % of the total inhabited villages.

(3) **High Literacy**: (< 50 per cent)

It covers southern sector of the study region, which covers 130 villages.

**CHANGE IN RURAL MALE LITERACY:**

The rural male literacy from 1961-91 has considerably increase whole of the Jind Plain except few villages. The average male literacy rate increased 30.1% during the same period. The pattern of change in rural male literacy is represented in the map [Fig 2.11]. The change in rural male literacy varies from less than 10 % to more than 40 % and divided into six broad categories;

(i) Very high increase in literacy (more than 40 per cent).

(ii) High increase in literacy (30-40 per cent).

(iii) Moderate increase in literacy (20-30 per cent)

(iv) Low increase in literacy (10-20 per cent).

(v) Very low increase in literacy (less than 10 per cent).

(vi) Negative change in literacy.
JIND PLAIN
VOLUMETRIC CHANGE IN RURAL MALE LITERACY
1961 - 1991

Figure - 2.11
(i) **Areas of Very High Increase in Literacy: (> 40 per cent)**

The very high increase in rural male literacy are found in 44 villages and mainly confined around Jind city, Safidon town and central part of southern sector of the study region. The very high increase in male literacy is found in Teg Bahadurpur (225) i.e. 56.8 per cent followed by Baganwala (212), Siri Rag (197), malvi (286), bidkhdaalwa (139), Dumarkha Kalan (68), Mando Kheri (227) etc.

(ii) **Areas of High Increase in Literacy: (30-40 per cent)**

The category of high increase in male literacy is mainly found in southern sector and few villages situated in northern sector in scattered form. This category occupied by 161 villages of the region. These villages are Harigarh (316), Todi Kheri (347), Ludana (310), Dhan Kheri (91), Hathwala (376), Kharak Gagar (304) etc.

(iii) **Areas of Moderate Increase in Literacy: (20-30 per cent)**

Moderate increase in male literacy is found in 109 villages, which covered almost whole of the northern sector except the middle and peripheral areas. These villages are Singhwal (115) Bhangra (86), Ram Nagar (30), Manoharpur (188), Daubhal (144), Sinsar (114), Pillukhera (295), Sandil (150) etc.

(iv) **Areas of Low Increase of Literacy: (10-20 per cent)**

The areas of low increase in rural male literacy are found mainly eastern part of southern sector and few villages in the scattered form in northern sector occupied by 23 villages. The low increase in male literacy are found in Dhanauri (5), Kasoon (97), Sainthly (45), Dhatarath (183), Khatla (344), Jind (rural) (221) etc.

(v) **Areas of Very Low Increase in Literacy: (< 10 per cent)**

The category of very low increase in male literacy is found in northern sector in scattered form. It occupied by only four villages of study region. These
villages are Aftabgarh (333), Badsikir Kalan (137), Lajwana Khurd (268), and Koel (15).

(vi) Areas of Negative Change in Literacy:

The decrease in rural male literacy is found in six villages, which are situated in scattered form in the region. These villages are Theh bahri (161), Kalta (93), Kalayat (rural) (1222), Dhigana (241), Birbaraban (219), Sheogarh (66).

PATTERN OF RURAL FEMALE LITERACY:

About 18.9 % of female in proportion to total females are found literate in 1991 as against the literacy rate of 33.3 % in Jind Plain. The pattern of rural female literacy is shown in the map [Fig 2.12]. The range of rural female literacy varies from less than 15 % to more than 30 % and divided into five broad categories;

(i) Very high literacy (more than 30 per cent)
(ii) High literacy (25-30 per cent)
(iii) Moderate literacy (20-25 per cent)
(iv) Low literacy (15-20 per cent)
(v) Very low literacy (less than 15 per cent)

(i) Areas of Very High Literacy: (> 30 per cent)

The very high literacy among the females is found around the urban centers in the southern sector of the study region. Only 21 villages have literacy rate more than 30 per cent, which covers 3.9 % rural area and 3.4 % of rural female population. The highest female literacy is found in santokh Majra i.e. 476 per cent followed by Safidon (rural) (338), Julana (rural) (280), Bhugan (294), Karkhana (353), Bahabalpur (251), Bhaganwala (212) etc. The very high literacy is due to proximity of city and towns, availability of means of good transport network, communication and educational facilities.
Figure - 2.12
(ii) **Areas of High Literacy: (25-30 per cent)**  

The category of high literacy is found in scattered form in southern sector of Jind Plain. It occupied 56 villages, which covered 14 % of rural area and 14.2 % of rural female population. High literacy are mainly found in Meherera (271), Barar Khera (258), Jaijaiwanti (281), Sirsa Kheri (269), Gosian Khera (260), Bishanpura (250), Khera Gondawala (104), Theh Malakpur (331) etc. The high literacy rate in these villages are mainly due to agricultural development, better transport and educational facilities.

(iii) **Areas of Moderate Literacy : (20-25 per cent)**  

The moderate literacy covers southern sector of the study region. This category occupied by 88 villages, which covered 21.6 % of rural area and 23.4 % of rural female population of the study area. Moderate literacy are found in the villages like Baroli (247), Sachan Khera (57), Hathwala (274), Ramgarh (253), Hassanpur (107), Anoopgarh (246), Kalawati (300), Bharoli (296) etc. Moderate literacy rate in this sector is due to agricultural and industrial and other infrastructural development.

(iv) **Areas of Low Literacy: (15-20 per cent).**  

Low literacy is found mainly in central part of the Jind Plain and some villages found in scattered form in the northern sector. It occupied 97 villages, which covered 29.1% of rural area and 30.1% of rural female population of the study area. These villages are Daryawala (207), Dhillowal (181), Julani Khera (135), Kasoon (94), Frain Khurd (52), Rewar (2) etc. Low literacy rate in these areas are due to lack of social awareness towards education and large proportion of females engaged in primary activities as agricultural labourer and marginal workers.
(v) Areas of Very Low Literacy: (< 15 per cent)

The category of very low literacy occupied by 88 villages, which covered 31.4 % of rural area and 28.9 % of rural female population of Jind Plain. The very low literacy is found in almost whole of the northern sector. The lowest literacy among females is found in Bhongra (86) followed by Kharak Bhura (99), Didwara (342), Ahlan Jogi Khera (177), Khanpur (62), Karkhana (321) etc.

<table>
<thead>
<tr>
<th>Literacy (in per cent)</th>
<th>No. of Villages</th>
<th>Total Rural Area (km²)</th>
<th>Rural Area (in per cent)</th>
<th>Rural Female Population</th>
<th>Rural Female Population (in Per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15</td>
<td>88</td>
<td>1019.00</td>
<td>31.4</td>
<td>127009</td>
<td>28.90</td>
</tr>
<tr>
<td>15-20</td>
<td>97</td>
<td>943.07</td>
<td>29.1</td>
<td>132540</td>
<td>30.10</td>
</tr>
<tr>
<td>20-25</td>
<td>88</td>
<td>700.64</td>
<td>21.6</td>
<td>102785</td>
<td>23.40</td>
</tr>
<tr>
<td>25-30</td>
<td>56</td>
<td>454.84</td>
<td>14.0</td>
<td>62337</td>
<td>14.00</td>
</tr>
<tr>
<td>&gt;60</td>
<td>21</td>
<td>125.69</td>
<td>3.9</td>
<td>14789</td>
<td>3.40</td>
</tr>
<tr>
<td>Total</td>
<td>350</td>
<td>3243.19</td>
<td>100.00</td>
<td>439460</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Compiled by Author.

The category-wise rural female literacy, number of villages, area and population share is also expressed in table 2.7.

Generalized regions are also shown in the inset map [Fig. 2.12]. The three sub-divisions of rural female literacy have been outlined viz;

(I) High Literacy: (> 25 per cent)

It covers around the Jind city, Safidon and Julana Towns in the southern sector. It occupied 77 villages of study region,

(II) Moderate Literacy: (20-25 per cent)

It covers central and eastern part of the southern sector, which covers 88 villages of Jind Plain,
(IV) **Low Literacy**: (< 20 per cent)

It covers northern sector of the study region, which covered 185 villages.

**CHANGE IN RURAL FEMALE LITERACY**

The change in rural female literacy is represented in the map [Fig 2.13]. The rural female literacy from 1961-91 has considerably increase whole of the Jind Plain except few villages. The average literacy rate has increased 17 % during the same period. The change in female rural literacy varies from less than 10 % to more than 30 % and divided into four broad categories;

(i) High increase in literacy (more than 20 per cent).
(ii) Moderate increase in literacy (10-20 per cent)
(iii) Low increase in literacy (less than 10 per cent)
(iv) Negative change in literacy

(i) **Areas of High Increase in Literacy: (> 20 per cent)**

The high increase in literacy is found mainly in southern sector except few villages at the periphery of the sector. The highest increase in female literacy is found in Julana (rural) (280) i.e. 39.6 per cent followed by Bhuran (294), Beganwala (212), Pillu Khera (295), Bagru Khurd (315), Desh Khera (287), Khera Gondowala (104), Ikas (217), Barar Khera (258) etc.

(ii) **Areas of Moderate Increase in Literacy: (10-20 per cent)**

Moderate increase in female literacy is found in 182 villages, which covered almost whole of the northern sector of Jind Plain. Moderate increase in female literacy is found in Dhan Kheri (91), Dhillowal (181), Julani Khera (135), Frain Khurd (52), Gatauli (265), Kinana (259), Brah Kalan (230), Jhanja Kalan (200) etc.

(iii) **Areas of Low Increase in Literacy: (< 10 per cent)**

The areas of low increase in rural female literacy is situated in the scattered form in northern sector. It occupied 29 villages of study region. The low increase
JIND PLAIN
VOLUMETRIC CHANGE IN RURAL
FEMALE LITERACY
1961 - 1991

Figure - 2.13
in female literacy is found in Tarkha (100), Nachar Khera (82), Kalwan (32), Lodhar (110), Bhagwanpura (76), chattar (105) etc.

(iv) Areas of Negative Change in Literacy:

Negative change in rural female literacy is also observed in scattered form in Jind Plain. It occupied only eight villages. These villages are Thuha (149), Theh Bahri (161), Chuharpur (147), Kalayat (rural) (122), Kalta (93), Nandsingwala (9), Birbaraban (219), Aftabgarh (333).

SEX RATIO

Among the various elements of population composition, sex composition hold a prime place for population geographers. The balance between the two sexes affects the social and economic relationships with in a community. Since the two sexes play partly contrasting and partly complementary roles in the economy and society, the study of sex ratio composition assumed added significance for a geographer (Chandna, 2001).²⁸

According to Franklin, "a knowledge of pattern of sex ratio help to explain the employment and consumption pattern, social needs of people and perhaps the psychological characteristic of a community." He rightly observed that sex ratio was an index of economy prevailing in an area and was a useful tool for regional analysis (Franklin, 1956).²⁹ The profound effect of the proportion of the two sexes upon the other demographic elements like population growth, marriage rates, occupational structure, have also been well recognized (Shryock, 1976).³⁰ Thus, the knowledge of sex ratio is essential for understanding and employment and consumption patterns, and social needs etc of a community. Trewartha (1953)³¹ rightly remarks that the proportion of the two sexes is fundamental to the geographic analysis of an area because it is not only an important feature of the landscape but it also influences the other demographic
elements significantly and as such provides an additional means for analyzing the regional landscape.

The numerical measurement of sex composition of a population is often expressed in terms of sex ratio. This ratio is calculated differently in different countries. In New Zealand, the sex ratio is generally calculated in terms of number of females per hundred males. While in India, the sex ratio is calculated in terms of number of females per thousand males (Chandna, 2001). It is calculated as under:

\[
\frac{Pf}{Pm} \times 1000
\]

When,

- \( Pf \) = represents the number of females,
- \( Pm \) = the number of males.

**REVIEW OF LITERATURE:**

Sex ratio as a broad theme has been studied by various scholars such as psychologists, educationists, and demographers. Each scholar has a different way of study. The study of sex ratio in geography is not a new field. Geographers and research scholars have carried out many studies about sex ratio from time to time, like Ghosh (1946), Trewartha (1953), Hill and Hill (1955), Franklin (1956), Clarke (1960), Smith (1960), Gosal (1961), Thompson and Lewis (1965), Stern (1968), Trewartha (1969), Cavall-sofrza and Bodmer (1971), Beaty (1971), Clarke (1972), Krishan and Chandna (1973), Shryock (1976), Valentey (1978), United nations (1983), Manocha (1996), UNDP (1999), Hassan (1999), Chandna (2001), Hassan (2002) etc.
PATTERN OF RURAL SEX RATIO:

As per 1991 census, the rural sex ratio in Jind Plain was 834 females per thousand males. The pattern of rural sex ratio of Jind Plain in 1991 is represented in the map [Fig 2.14]. The range of sex ratio is divided into five broad categories having a class-interval of 50 females/1000 males. These are as under;

(i) Very high sex ratio (more than 950 females/1000 males).
(ii) High sex ratio (901-950 females/1000 males).
(iii) Moderate sex ratio (851-900 females/1000 males)
(iv) Low sex ratio (801-850 females/1000 males)
(v) Very low sex ratio (less than 800 females/1000 males)

(i) Areas of Very High Sex Ratio: (> 950 females/1000 males)

Very high sex ratio is found in only three villages. Highest sex ratio is found in Kharal, (26) i.e. 996 females/1000 males followed by Kalasher (107), Gosian Khera (260). The out migration particularly males is the main cause in these villages more than 58 per cent of workers are engaged in agriculture.

(ii) Areas of High Sex Ratio: (901-950 females/1000 males)

High sex ratio is found in 21 villages, about six per cent of the total inhabited villages situated in scattered form in whole of the study area. These villages are Julani Khera (135), Rewar (2), Rohaj Khera (96), Badodh (346), Hoshiyarpur (299), Santokh Majra (157) etc. The sex ratio in these villages due to out migration of males and poor agriculture in these villages is the main cause of male out migration, where more than 50 per cent of the workers are engaged in agriculture.

(iii) Areas of Moderate Sex Ratio: (851-900 female/1000 males)

Moderate sex ratio is mainly found in peripheral areas of northern sector and around the Safidon town and Jind city and few villages in southern sector in scattered form. It occupied 98 villages of study area. These villages are Amritsar
JIND PLAIN
PATTERN OF RURAL SEX RATIO
1991

GENERALISED REGIONS

FEMALE PER THOUSAND MALES
800 850 900 950

Urban Area

Figure - 2.14
(18), Sedha majra (74), Sudkain Kalan (112), Desh Khera (287), Alipura (102), Ratauli (175) etc.

(iv) Areas of Low Sex Ratio: (801-850 females/1000 males)

Low sex ratio is found in 177 villages i.e. 50.6 per cent of the total inhabited villages of the study region, which covered central part and southern sector except the area around the Jind city. These villages are Rajpura (214), Harigarh (316), Danuli (330), Loan (29), Khark Pandwan (127), Bibipur (257) etc. Fairly accessible transport network facilities comparatively better economic conditions are responsible factors of low sex ratio in these villages.

(v) Areas of Very Low Sex Ratio: (< 800 females/1000 males)

Very low sex ratio is found in the some villages of northern sector in scattered form and around the Jind city in southern sector of study area. It occupied 51 villages of the Jind Plain. The lowest sex ratio is found in Uchana Kalan (97) i.e. 588 females/1000 males followed by Jind (rural) (221), Teg Bahadurpur (225), Kalayat (rural) (52) etc. Better medical facilities, transport network facilities, educational facilities, in these villages and in southern sector surrounding by Jind city which attract males workers are the factors for this very low sex ratio.

Generalized regions are also shown in the inset map [Fig. 2.14]. The two sub regions of rural sex ratio have been outlined viz.;

(I) Low Sex Ratio: (< 850 females/1000 males)

Low sex ratio is found in 228 villages about 65 per cent of the total inhabited villages, which covered whole of the study region except around the Jind city and Safidon town.

(II) High Sex Ratio: (> 850 females/1000 males)

It covered 122 villages about 34.86 per cent of the total inhabited villages, which situated in around the Jind city, Julana town and eastern part of southern sector and north-western part of northern sector of Jind Plain.
To conclude, the sex ratio is high in those villages where agricultural potential is low and the manfolk have migrated outside for employment to urban centers or in the army. On the other hand, sex ratio is low in those villages where secondary and tertiary activities have developed due to proximity of urban centers.

**CHANGE IN RURAL SEX RATIO:**

The pattern of change in rural sex ratio from 1961-91 is represented in the map [Fig 2.15]. The average rural sex ratio has declined 22 females (females/1000 males) 1961-91. The pattern of rural sex ratio divided into six broad categories;

(i) **High increase in sex ratio (> 100 females/1000 males)**

(ii) **Moderate increase in sex ratio (75 to 100 females/1000 males)**

(iii) **Low increase in sex ratio (< 75 females/1000 males)**

(iv) **Low decline in sex ratio (< 75 females/1000 males)**

(v) **Moderate decline in sex ratio (75 to 100 females/1000 males)**

(vi) **High decline in sex ratio (> 100 females/1000 males)**

(i) **Areas of High Increase in Sex Ratio: (> 100 females/1000 males)**

The high increase in rural sex ratio are found in 17 villages and mainly confined around the Jind city, Safidon and Julana towns in southern sector and southern periphery of the study area. The highest increase in sex ratio is recorded in the village Birbarakan (219), i.e. 58 females/1000 males followed by Uchana Kalan (97), Nandisinghwala (9), 338, 116, 163, 133 respectively. The out migration particularly males are the main cause in these villages, more than 60 percent workers are engaged in agriculture.

(ii) **Areas of Moderate Increase in Sex Ratio: (75 - 100 females/1000 males)**

The category of moderate increase in sex ratio is mainly confined to northern sector. This occupied by only 10 villages. These villages are Shandipur (279), Khapran (87), Kaul (173), hari pura (12), Theh Bahri (161), Rajgarh (283) etc. Moderate increase in these villages due to out migration of males and poor
agriculture in these villages is the main cause of males out migration, where more than 50 per cent of the workers are engaged in agriculture.

(iii) **Areas of Low Increase in Sex Ratio: (< 75 females/1000 males)**

Low increase in sex ratio is found in 94 villages in scattered form in whole of the study region. These villages are Santhly (45), Nepewala (4), Narwana (rural) (64), Mundh (163), Kalta (93), Karamgarh (61) etc. Fairly accessible transport network facilities comparatively better economic conditions are responsible factors of low increase in sex ratio of these villages.

(iv) **Areas of Low Decline in Sex Ratio: (< 75 females/1000 males)**

The low decline in sex ratio is found in 159 village about 45 per cent of the total inhabited villages of the study region. These villages are Seend (13), Pegan (153), Kheri Masanai (73), Malvi (286), Desh Khera (287), Kurar (354) etc. Transport facilities, better economic conditions are responsible factors in these villages.

(v) **Areas of Moderate Decline in Sex Ratio: (75- 100 females/1000 males)**

The category of moderate decline in sex ratio is recorded in 33 villages, and most of the villages are confined around the Jind city, Junala town and some villages in the scattered form in southern sector of the study region. These villages are Jalalpur Khurd (218), Bhuran (294, Bharatana (311), Haibatpur (224), Jhanjh Khurd (201), Jheel (77).

(vi) **Areas of High Decline in Sex Ratio: (> 100 females/1000 males)**

The high decline in sex ratio is found in 37 villages of the study region. These villages are Kaer Kheri (203), Shamlo Khurd (245), Rojhla (319), Hat (317), Danuli (330), Todi Khera (347) etc. High decline in sex ratio is mainly found in southern sector of the study region. Better medical facilities transport network, educational facilities in these villages are the factors for high decline in sex ratio.
TREND OF RURAL SEX RATIO:

The rural sex ratio among the settlements during 1961 and 1991 is shown in the map [Fig. 2.16]. The average sex ratio in 1991 is 834 females/1000 males while it was 856 females/1000 males in 1961. The number of villages having sex ratio of 850 and less has increased in 1991 as compared to 1961 and vice-versa where sex ratio is more than 850 females/1000 males.

<table>
<thead>
<tr>
<th>Rural Sex Ratio (female/1000 males)</th>
<th>Number of Villages</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 800</td>
<td>40</td>
<td>51</td>
</tr>
<tr>
<td>801-850</td>
<td>104</td>
<td>177</td>
</tr>
<tr>
<td>851-900</td>
<td>135</td>
<td>98</td>
</tr>
<tr>
<td>901-950</td>
<td>49</td>
<td>21</td>
</tr>
<tr>
<td>951-1000</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>More than 1000</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Un-inhabited</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>354</td>
<td>354</td>
</tr>
</tbody>
</table>


The category-wise sex ratio and number of settlements is expressed in the table 2.8.

It is obvious that the figure of 850 females/1000 males is the dividing line, which represents the villages of out-migration versus villages of in-migration of men folk.
JIND PLAIN
PERCENTAGE OF VARIATION OF POPULATION AND NUMBER OF VILLAGES IN DIFFERENT POPULATION SIZE
1961-1991

Figure - 2.16
DIVERSIFICATION OF RURAL SEX RATIO:

An overall index of diversification of female versus male is calculated in table 2.9 by using Gibbs and Martin (1962) formula which is as under:

\[ 1 - \frac{\sum x^2}{(\sum x)^2} \]

where,

\[ x = \text{the number of rural settlements in each category of sex ratio.} \]

**TABLE NO. 2.9**

**JIND PLAIN**

DIVERSIFICATION OF RURAL SEX RATIO

<table>
<thead>
<tr>
<th>Rural Sex Ratio (females/1000)</th>
<th>1961</th>
<th>1991</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X</strong></td>
<td><strong>x^2</strong></td>
<td><strong>X</strong></td>
</tr>
<tr>
<td>Less than 800</td>
<td>40</td>
<td>1600</td>
</tr>
<tr>
<td>801-850</td>
<td>104</td>
<td>10816</td>
</tr>
<tr>
<td>851-900</td>
<td>135</td>
<td>18225</td>
</tr>
<tr>
<td>901-950</td>
<td>49</td>
<td>2401</td>
</tr>
<tr>
<td>951-1000</td>
<td>11</td>
<td>121</td>
</tr>
<tr>
<td>More than 1000</td>
<td>07</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td><strong>\Sigma X = 346</strong></td>
<td><strong>\Sigma X^2 = 33212</strong></td>
</tr>
<tr>
<td></td>
<td>[ \text{IGM} = 1 - \frac{\Sigma x^2}{(\Sigma x)^2} ]</td>
<td>[ \text{IGM} = 1 - \frac{\Sigma x^2}{(\Sigma x)^2} ]</td>
</tr>
<tr>
<td></td>
<td>[ = 1 - \frac{33212}{119716} ]</td>
<td>[ = 1 - \frac{43984}{122500} ]</td>
</tr>
<tr>
<td></td>
<td>[ = 1 - 0.28 ]</td>
<td>[ = 1 - 0.36 ]</td>
</tr>
<tr>
<td></td>
<td>[ = 0.72 ]</td>
<td>[ = 0.64 ]</td>
</tr>
</tbody>
</table>

Source: Compiled by Author.

The table 2.9 reveals the value of dispersion in 1961 and 1991, that is 0.72 and 0.64 respectively. It is observed from the above table that there is significant change in dispersion as the value is comparatively low in 1991, suggesting tendency towards more concentration. The index of Gibbs and Martin (IGM) ranges between 1 to 0 (zero), where 1 represents homogeneous distribution. This
inference suggests that the large-scale out-migration of men folk has resulted in overall concentration of female proportion in the villages.

RURAL WORKING FORCE

Among all the social attributes of population, occupation is of paramount importance, since it provides an index to many personal, social and demographic characteristics.

The study of economic composition of population remains incomplete without its reference to the occupational composition or structure of a population. The occupation of an individual refers to his trade, profession, type of work etc. The occupational structure of a society is the product of a number of intimately related factors. The nature and variety of physical resources base, of course, lay down the basic foundation in the form of good land for agriculture in dented coast for fishing, thick vegetation cover for forestry, rich geological strata for mining etc. when the primary resources are utilized on a commercial scale it generates diversification of occupational structure. In fact, the occupational itself is a reflection of verity of cultural traits of workers. An analysis of the livelihood pattern of the working force, therefore, gives a Kaleidoscopic idea of diverse demographic and cultural attributes and also provide a knowledge for formulating future plans for their social and economic development.

DEFINITION OF WORKER:

The concept of worker was introduced for the first time, In India in 1961. According to the census of India, “any person where main activity was participation in any economically productive work either by his physical or by his mental activity was classified as worker” (Census of India, 1971). Thus, work involved not only actual work but also effective supervision and direction. Ever since the introduction of the concept in 1961, the definition of a worker in India has been changing from time to time. According to census of India, 1961,
“any person who had worked for at least one hour a day on an average during
the reference period was classified as worker” (Census of India, 1961).56

In 1981, however a distinction was made between main workers and
marginal workers are those, “who worked in some economic activity over a
period of six months or more in both the agricultural seasons,” Marginal
workers, On the other hand, were those “who have worked any time at all in the
year preceding the enumeration but worked for the major part of the year
(census of India, 1981).57 Thus, the 1981 Census of India, first attempted to divide
the population into two categories of workers and non workers. The distinction
was made between main workers and marginal workers in 1981 and 1991 census.
The main workers are those who have worked for the major part of the year,
more than 186 days (census of India, 1991).58 For keeping in mind the
comparability of data, total workers have been considered by including the
marginal workers in the main workers in marginal workers in the main worker in
1991, marginal workers are not categorized separately by census. The working
force in Jind Plain is computed as percentage of workers to total population.

REVIEW OF LITERATURE:

Working force as a broad theme has been studies by various scholars, such
as educationists, demographers and geographers etc. Each scholars, has a different
way of study. The study of working force is not a new field. Geographers and
research scholars have Carried out many studies about work force from time to
Refiullah and Siddiqui (1984)62, Shafiqullah and Roomana Azhar (1966)63,
Chandna(2001)64 etc.

PATTERN OF RURAL WORKING FORCE:

The segment of working population in a society is the lifeline to the total
health and development of a region. This segment is mainly responsible to earn
bread to the family and provide for the basic amenities of sustenance. Larger the segment of working population more earning per capita in a population is expected. However, this is not always true. Some times the migrant labour force make the bulk of working population, where income is not utilized in the area where they serve but is drained to the present area from where they come. In Haryana the trend of migrating labour force from other states like Uttar pradesh, Madhya pradesh, and Bihar etc is very common.

In the region of intensive agriculture with subsistence level of economy, larger section of population is engaged in agriculture with minimum return. Therefore, even if there is a large share of working force the economy still remains poor. Similar situation prevails in the northern sector of the study region. As per 1991 census, the rural working force in the study area was 29.72 per cent. The pattern of rural working force of Jind plain in 1991 represented in the map [Fig.2.17]. The range of working force is varies from less than 25 per cent to more than 40 per cent which divided into the following five broad categories;

(i) Very large size of working force (more than 40 per cent)
(ii) Large size of working force (35-40 per cent)
(iii) Moderate size of working force (30-35 per cent)
(iv) Small size of working force (25-30 per cent)
(v) Very small size of working force (less than 25 per cent).

(i) Areas of Very Large Size of Working Force: (> 40 per cent)

The very large size of working force is mainly found in scattered form, occupied by only 11 villages. The highest working force is found in the village Kurar (354), i.e. 51.8 per cent followed by uchana Kalan (97), Gorusrar (119), Rajpura (214), Jhalehra (33), Haibatpur (224) etc. These villages have intensive agricultural occupation. Small area and population size less infrastructural facilities has force the inhabitants of these villages to engaged in agricultural activities.
JIND PLAIN
PATTERN OF RURAL WORK FORCE
1991

Figure - 2.17
(ii) **Areas of Large Size of Working Force: (35-40 per cent)**

The large size of working force is found in 25 villages, which covers peripheral area of the study region. The large size of working force in the study area is exhibited by Nidana (238), Koel (15), Gangoli (305), Rai jchandwala (182) Jhanjh khurd (201), Churala (136) etc. The people of these villages have also largely engaged in agricultural activities.

(iii) **Areas of Moderate Size of Working Force: (30-35 per cent)**

The areas of moderate size of working force are mainly confined in the northeastern part and around the urban centers like, Jind, safidon and Julana in southern sector of study region. It occupied by 88 village. This is rather an average pattern of working force in the study region.

(iv) **Areas of Small Size of Working Force: (25-30 per cent)**

The area under small size of working force constitutes more than half of the total inhabit villages i.e. 203 (58 %) Villages of Jind plain. The examples of these villages are Sarfabad (314), Bhuran (294), Fullan Khurd (37),Naraingarh (23),Sulehra (34), Mahal Kheri(10), etc. This phenomenon is mainly due to moderate to high literacy rate in these villages. This increased literacy enables men to look for job out side their villages and they subsequently migrate to the urban centers.

(v) **Areas of Very Small Size of Working Force: (< 25 per cent)**

The very Small Size of Working Force is recorded in 23 villages in scattered form. It is mainly due to high literacy rate in these villages. Due to this factor the people of these villages have subsequently migrated to the urban center for better livelihood leaving behind only older generation to care for the agricultural land or farms.

The category wise rural working force and their characteristic are also expressed in the table 2.10.
Generalized regions are also shown in the inset map [Fig.2.17]. The three sub regions of rural working force have been outlined viz:

(I) **Small Size of Working Force: (< 30 per cent)**

The small size of working force is found in the 226 villages i.e. 64.57 percent of the total inhabited villages of Jind plain. It covers whole of the study area, except northeastern part and few patches on the periphery of the study region.

(II) **Moderate Size of Working Force: (30-35 per cent)**

Moderate size of working force is found in 88 villages (25.14 %) and mainly confined to northeastern part around the safidon town of the study area.

(III) **Large Size of Working Force: (> 35 per cent)**

The region occupied by 36 villages, which covered 10.29 per cent of total inhabited villages. Large size of working force is confined to western periphery forming a narrow linear strip in the southern sector and a small patch in northern sector of the study region.
It is, therefore, concluded that the index of rural working force in the study region is opposite to the general brief. Higher the working force more substance economy is noticed (northern sector) and vice – versa. Lower the rural working force, more productive economy in agriculture is found as in case of southern sector especially around the Jind and Julana urban centers.

CHANGE IN RURAL WORKING FORCE:

The rural working force during 1961-91 has considerably decrease whole of the Jind Plain except few villages. The range of working force varies from less than 15 per cent to more than 15 per cent and decreased from less than 15 per cent to more than 30 per cent during the same period. The pattern of change in rural working force is shown in the map [Fig. 2.18]. The whole range of working force divided into five broad categories, that is;

(i) High increase in working force (more than 15 per cent)
(ii) Low increase in working force (less than 15 per cent)
(iii) Low decrease in working force (less than 15 per cent)
(iv) Moderate decrease in working force (15-30 per cent)
(v) High decrease in working force (more than 30 per cent)

(i) Areas of High Increase in Working Force: (> 15 per cent)

The High increase in working force is found in scattered from in southern sector of study region. It occupied by only seven villages of Jind Plain. The highest increase is found in Dumarkha Kalan (68), i.e. 20.9 per cent followed by Durana (160), Nandgarh (270), Haibatpur (224) etc.

(ii) Areas of Low Increase in Working Force: (< 15 per cent)

The area of low increase in working force is mainly confined around the Jind city in southern sector and scattered form in northern sector of study area. It occupied by 25 villages. These villages are Pinjupura (123), Bagana (167), Thehbahri (161), Pipaltha (22), Pindara (222) etc. The low increase in working
JIND PLAIN
VOLUMETRIC CHANGE IN RURAL WORK FORCE
1961 - 1991

Figure - 2.18
force in these villages is due to moderate to high literacy rate and other infrastructural facilities.

(iii) **Areas of Low Decrease in Working Force: (< 15 per cent)**

The category of low decrease in working force occupied by 169 villages, which covered 48.29 per cent of the total inhabited villages. The villages like Badanpur (54), Nehra (39), Frain khurd (52), Dillowal (181), Rewar (2) etc. are the examples of this category. The low decrease in working force in these villages is due to increase literacy rate and other infrastructural facilities. Moreover, the youth with higher qualification does not prefer to work in agricultural fields.

(iv) **Areas of Moderate Decrease in Working Force: (15-30 per cent)**

The moderate decrease in working force is found in 138 villages, which cover 39.43 per cent of the total inhabited villages and mainly confined around the urban centers like Narwana, Uchana and Kalayat in northern sector and southern sector of study region. Increase in literacy rate, use of modern implements like harvester, combiner and other machinery etc. are the responsible factors to decrease the work force in rural areas.

(v) **Areas of High Decrease in Working Force: (> 30 per cent)**

The area of high decrease in working force is also found in scattered form in study area. This category occupied by 11 villages. The highest decrease in working force is found in Lochab (40), Bhalang (109), Mahal kheri (10), Mohan Garh (90), Bhonsla (92) and Uchana Khurd (75) etc. The high decrease in working force is due to high literacy rate, men look for job outside their villages and they subsequently migrated to the urban centers.

**GENERALISED DISTRIBUTION PATTERN OF POPULATION DYNAMICS**

For summarizing the earlier study of the present chapter the study region is broadly divided into two sub-zones on the basis of varying demographic
characteristics i.e. distribution of rural population, rural density, growth of rural population, rural literacy, rural sex ratio and rural working force etc. The two sub-zones are namely;

(A) Northern Sector

(B) Southern Sector

The consolidated characteristics of the above two sub-zones are explained in the table 2.11, while the delimitation of the sub-zones in the map [Fig. 2.19]. The table confirms that the northern sector of the Jind Plain is striking different as compared to the southern sector.

Northern sector covers 188 villages including four un-inhabited villages. In 1991, the characteristics of this zone is relatively moderately large population size (3118 persons per village), moderate male population size (1699 persons per village), moderate female population size (1418 persons per village), moderate areal size (10.72 sq. km.), low rural density (288 persons per sq. km.), low rural literacy (29.5 per cent), moderate male literacy in proportion to total male population (41.4 per cent), low female literacy in proportion to total female population (15.5 per cent), moderate sex ratio (835 females/1000 males and moderate size of working force (29.6 per cent).

On the contrary the southern sector which covers 166 villages, has characteristics of relatively moderate large size of population (2366 persons per villages), moderate male population size (1291 persons), moderate female population size (1075 persons), small areal size (7.53 sq. km.), moderate rural density (314 persons/sq. km.), high rural literacy (38.9 per cent), high male literacy in proportion to total male population (51.5 per cent), moderate female literacy in proportion to total female population (23.8 per cent), moderate rural sex ratio (833 female/1000 males and moderate size of rural working force (29.9 per cent).
JIND PLAIN
SUB - ZONES
1991

NORTHERN SECTOR
(188 Villages)

SOUTHERN SECTOR
(166 Villages)

Figure - 2.19
<table>
<thead>
<tr>
<th>POPULATION PARAMETRES</th>
<th>JIND PLAIN</th>
<th>SUB-ZONES</th>
<th>SUB-ZONES</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of Villages</td>
<td>346</td>
<td>350</td>
<td>04</td>
</tr>
<tr>
<td>Uninhabited Villages</td>
<td>08</td>
<td>04</td>
<td>04</td>
</tr>
<tr>
<td>Average Areal Size</td>
<td>9.23</td>
<td>9.23</td>
<td>-</td>
</tr>
<tr>
<td>Density / Sq. km.</td>
<td>156</td>
<td>298</td>
<td>142</td>
</tr>
<tr>
<td>Average Pop. Size</td>
<td>1452</td>
<td>2761</td>
<td>1309</td>
</tr>
<tr>
<td>Average Male Size</td>
<td>782</td>
<td>1505</td>
<td>723</td>
</tr>
<tr>
<td>Average Female Size</td>
<td>670</td>
<td>1256</td>
<td>586</td>
</tr>
<tr>
<td>Pop. Growth (%)</td>
<td>92.3</td>
<td>-</td>
<td>92.3</td>
</tr>
<tr>
<td>Rural Literacy (%)</td>
<td>09.1</td>
<td>33.3</td>
<td>24.2</td>
</tr>
<tr>
<td>Male Literacy (%) :: M</td>
<td>15.2</td>
<td>45.3</td>
<td>30.1</td>
</tr>
<tr>
<td>Female Literacy (%) :: F</td>
<td>01.9</td>
<td>18.9</td>
<td>17.0</td>
</tr>
<tr>
<td>Sex Ratio (F/1000 M)</td>
<td>856</td>
<td>834</td>
<td>-22</td>
</tr>
<tr>
<td>Working Force (%)</td>
<td>42.0</td>
<td>29.7</td>
<td>-12.3</td>
</tr>
</tbody>
</table>

Source: Complied by Authors.
It is also observed that during 1961-91, the **northern sector** has relatively high increase in rural population size (1467 persons/village), low increase in density (136 persons/sq. km.), low increase in population growth (89.8 per cent), low increase in literacy (21.6 per cent) low increase in male literacy in proportion to total males (28.0 per cent), low increase in female literacy in proportion to total females (13.7 per cent), low decline in sex ratio (12 females/1000 males), and moderate decline in working force (12.8 per cent). On the other hand **southern sector** has recorded relatively low increase in population size (1138 persons/villages), high increase in density (151 persons/sq. km.), high increase in rural literacy (28.1 per cent), high increase in male literacy in proportion to total males (33.2 per cent), high increase in female literacy in proportion to total females (21.6 per cent), very high decline in sex ratio (38 females/1000 males) and moderate decline in rural working force (11.4 per cent).

Further for micro level study, these two sub-zones have been divided into seven micro zones with the help of super-imposition if the generalized regions as demarcated in the different patterns of population dynamics.

1A \text{ i} \quad \text{North-Northeastern}

1A \text{ ii} \quad \text{North- Eastern}

1A \text{ iii} \quad \text{North-Northwestern}

1A \text{ iv} \quad \text{North-Western}

2B \text{ i} \quad \text{South-Eastern}

2B \text{ ii} \quad \text{South-Central}

2B \text{ iii} \quad \text{South-Western}

The characteristics of the aforesaid seven micro zones are explained in the table 2.12, and 2.13, while the delimitation of these micro zones in the map [Fig.2.20]. The characteristics of the above said seven micro zones are described as follows;
1A

**North-Northeastern:**

The north-northeastern zone covers 46 villages including one uninhabited village. In 1991, this zone has characteristics of relatively moderately large population size (3205 persons), moderate male population size (1754 persons), moderate female population size (1454 persons), low rural density (279 persons/sq. km.), moderate areal size (11.4 sq. km.), low rural literacy (27.1 per cent), low male literacy in proportion to total males (37.6 per cent), very low female literacy in female literacy in proportion to total females (14.4 per cent), low sex ratio (828 females/1000 males) and moderate size of rural working force (30.5 per cent).

1A

**North-Eastern:**

This zone covers 39 villages including one uninhabited village. In 1991, the characteristics of this zone are relatively moderately large population size (3557 persons/villages), moderate male population size (1944 persons), moderate female population size (1613 persons), moderate areal size (11.0 sq. km.), high population density (316 persons/sq. km.), moderate rural literacy (30.9 per cent), moderate male literacy in proportion to total males (42.5 per cent), low female literacy in female literacy in proportion to total females (17.0 per cent), low sex ratio (830 females/1000 males) and moderate size of rural working force (29.4 per cent).

1A

**North-Northwestern:**

This zone covers 61 villages. In 1991, characteristics of this zone are relatively moderately large population size (2915 persons/villages), moderate male population size (1578 persons), moderate female population size (1337 persons), moderate areal size (10.2 sq. km.), low rural density (287 persons/sq. km.), low rural literacy (29.0 per cent), low male literacy in proportion to total males (40.9 per cent), very low female literacy in female literacy in proportion to total females (15.0 per cent), moderate sex ratio (847 females/1000 males) and moderate size of rural working force (29.4 per cent).
1Aiv **North-Western:**

Northwestern zone covers 42 villages including two uninhabited villages. In 1991, the characteristics of this zone has observed moderately large population size (2911 persons/villages), moderate male population size (1591 persons), moderate female population size (1321 persons), moderate areal size (10.4 sq. km.), low rural density (273 persons/sq. km.), moderate rural literacy (31.3 per cent), moderate male literacy in proportion to total males (44.0 per cent), low female literacy in proportion to total females (16.1 per cent), low sex ratio (830 females/1000 males) and small size of rural working force (28.8 per cent).

2Biv **South-Eastern:**

This zone occupied by 27 villages. In 1991, the characteristics of this zone are relatively moderate size of population (1693 persons/villages), moderately small male population size (912 persons), moderately small female population size (781 persons), small areal size (5.04 sq. km.), moderate population density (312 persons/sq. km.), moderate rural literacy (34.1 per cent), moderate male literacy in proportion to total males (44.2 per cent), moderate female literacy in proportion to total females (22.2 per cent), high sex ratio (856 females/1000 males) and moderate size of rural working force (29.9 per cent).

2Bi **South-Central:**

This zone occupied by 57 villages. In 1991, the characteristics of this zone are relatively moderately large population size (2585 persons/villages), moderate male population size (1411 persons), moderate female population size (1174 persons), small areal size (7.8 sq. km.), high population density (330 persons/sq. km.), high rural literacy (38.8 per cent), high male literacy in proportion to total males (51.2 per cent), moderate female literacy in proportion to total females (24.0 per cent), low sex ratio (832 females/1000 males) and moderate size of rural working force (29.0 per cent).
South- Western:

This zone covers 82 villages. In 1991, the characteristics of this zone are relatively moderately large size of population (2434 persons/villages), moderate male population size (1331 persons), moderate female population size (1103 persons), small areal size (8.0 sq. km.), moderate population density (303 persons/sq. km.), high literacy (40.1 per cent), high male literacy in proportion to total males (53.4 per cent), moderate female literacy in proportion to total females (24.0 per cent), low sex ratio (829 females/1000 males) and moderate size of rural working force (30.7 per cent).
<table>
<thead>
<tr>
<th>POPULATION PARAMETRES</th>
<th>MICRO SUB-ZONES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1Ai</td>
</tr>
<tr>
<td>No of Villages</td>
<td>46</td>
</tr>
<tr>
<td>Uninhabited Villages</td>
<td>01</td>
</tr>
<tr>
<td>Average Areal Size</td>
<td>11.5</td>
</tr>
<tr>
<td>Density / Sq. kms</td>
<td>279</td>
</tr>
<tr>
<td>Average Pop. Size</td>
<td>3205</td>
</tr>
<tr>
<td>Average Male Pop. Size</td>
<td>1754</td>
</tr>
<tr>
<td>Average Female Pop. Size</td>
<td>1452</td>
</tr>
<tr>
<td>Pop. Growth (%)</td>
<td>-</td>
</tr>
<tr>
<td>Rural Literacy (%)</td>
<td>27.1</td>
</tr>
<tr>
<td>Male Literacy (%) :: M</td>
<td>37.6</td>
</tr>
<tr>
<td>Female Literacy (%) :: F</td>
<td>14.4</td>
</tr>
<tr>
<td>Sex Ratio (F/1000 M)</td>
<td>828</td>
</tr>
<tr>
<td>Working Force (%)</td>
<td>30.5</td>
</tr>
</tbody>
</table>

Source: Complied by Authors.
### TABLE NO: 2.13

**JIND PLAIN**

**SOUTHERN SECTOR, DEMOGRAPHIC CHARACTERISTICS**

**1961-91**

<table>
<thead>
<tr>
<th>POPULATION PARAMETRES</th>
<th>MICRO SUB-ZONES</th>
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</thead>
<tbody>
<tr>
<td>Census Years</td>
<td>2Bi</td>
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<tr>
<td>No of Villages</td>
<td>27</td>
</tr>
<tr>
<td>Uninhabited Villages</td>
<td>-</td>
</tr>
<tr>
<td>Average Areal Size</td>
<td>5.4</td>
</tr>
<tr>
<td>Density / Sq. kms</td>
<td>312</td>
</tr>
<tr>
<td>Average Pop. Size</td>
<td>1693</td>
</tr>
<tr>
<td>Average Male Size</td>
<td>912</td>
</tr>
<tr>
<td>Average Female Size</td>
<td>781</td>
</tr>
<tr>
<td>Pop. Growth (%)</td>
<td>-</td>
</tr>
<tr>
<td>Rural Literacy (%)</td>
<td>34.1</td>
</tr>
<tr>
<td>Male Literacy (%) :: M</td>
<td>44.2</td>
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<tr>
<td>Female Literacy (%) :: F</td>
<td>22.2</td>
</tr>
<tr>
<td>Sex Ratio (F/1000 M)</td>
<td>856</td>
</tr>
<tr>
<td>Working Force (%)</td>
<td>29.9</td>
</tr>
</tbody>
</table>

Source: Complied by Authors.
CHANGE IN DEMOGRAPHIC STRUCTURE:

It is observed that during the last 30 years the north northeastern zone around Kalayat town (1A) has recorded relatively very low increase in density (122 persons/sq. km.), very low increase in growth of population (78.4 per cent), very low increase in literacy (18.8 per cent), and low decline in sex ratio (15 females/1000 males) and low decline in working force (9.7 per cent). While in northeastern zone around Alewa semi town (1A) has recorded relatively moderate increase in density (145 persons/sq. km.), low increase in growth of population (85.0 per cent), low increase in literacy (21.7 per cent), and moderate decline in sex ratio (16 females/1000 males) and moderate decline in working force (11.2 per cent). The north-northwestern zone around Narwana town (1A) has observed moderate increase in density (144 persons/sq. km.), high increase in growth of population (100.2 per cent), low increase in literacy (21.6 per cent), and high decline in working force (13.6 per cent). The sex ratio has increased by two points that is 845 to 847 females/1000 males during 1961 to 1991. The north-western zone around Uchana town (1A) has observed low increase in density (134 persons/sq. km.), moderate increase in population growth (95.8 per cent), moderate increase in literacy (24.7 per cent), and moderate decline in sex ratio (26 females/1000 males) and high decline in working force (18.1 per cent).

The south-eastern zone around Safidon (2B) has recorded very low increase in density (131 persons/sq. km.), low increase in literacy (21.5 per cent), and very low decline in working force (7.6 per cent). The sex ratio has increased by four points that is 852 to 856 females/1000 males during 1961-1991. On the other hand south-central zone around Pillukhera semi-town (2B) and south-western zone around Jind city (2B) have observed very high increase in density
### TABLE NO: 2.14
**JIND PLAIN**

**CHANGE IN DEMOGRAPHIC CHARACTERISTICS**

1961-1991

<table>
<thead>
<tr>
<th>POPULATION PARAMETERS</th>
<th>MICRO ZONES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>North-Eastern</td>
</tr>
<tr>
<td>Total No. of Villages</td>
<td>46</td>
</tr>
<tr>
<td>Un-inhabited Villages</td>
<td>01</td>
</tr>
<tr>
<td>Average Areal/Village</td>
<td></td>
</tr>
<tr>
<td>Density/Sq.km.</td>
<td>122</td>
</tr>
<tr>
<td>Average Pop. Size</td>
<td>1367</td>
</tr>
<tr>
<td>Average Male Pop. Size</td>
<td>757</td>
</tr>
<tr>
<td>Average Female Pop. Size</td>
<td>612</td>
</tr>
<tr>
<td>Pop. Growth (%)</td>
<td>78.4</td>
</tr>
<tr>
<td>Total Literacy (%)</td>
<td>18.8</td>
</tr>
<tr>
<td>Male Literacy (%) : M</td>
<td>24.1</td>
</tr>
<tr>
<td>Female Literacy (%) : F</td>
<td>12.3</td>
</tr>
<tr>
<td>SR (Females/1000 Males)</td>
<td>-15</td>
</tr>
<tr>
<td>Working Force (%)</td>
<td>-97.7</td>
</tr>
</tbody>
</table>

Source: Compiled by Author.
(153 persons/sq. km.), very high increase in literacy (28.6 per cent and 29.3 per cent), moderate decline in working force (12.7 per cent and 11.2 per cent) and very high decline in sex ratio that is 47 points and 40 points respectively. The low increase in population growth (87.0 per cent) is observed in south-central zone while very high increase in growth of population is recorded in southwestern zone (100.4 per cent). The change in demographic characteristics during 1961-1991 is also expressed in table 2.14. The hierarchy of zones is shown in the fig. 2.21.

It is suggested that for the balanced development of the region it is necessary to remove the existing disparities among different micro zones.
REFERENCES:
10.Ibid, p.100.


22. Ahmed, E. (1982) "Inter regional inequality in literacy levels of tribal and caste segments of population in India", 1971, (Paper Present at Regional Workshop on Long Term Educational Planning, NIEPS, New Delhi, pp. 136-139.)


28. Ibid. p. 208.


