CHAPTER III

DISTRIBUTION AND GROWTH OF URBAN POPULATION
DISTRIBUTION OF URBAN POPULATION

Distribution of towns in terms of numbers, degree of concentration and size and spacing of settlements is the most fundamental aspect of urban geography.

The distributional aspect of population study is more or less inseparable from the concept of population density. It is impossible to discuss distribution of inhabitants without indicating that there are more in some places, leading to lower densities elsewhere. This discussion, likewise, is concerned with the patterns of relative density and not with absolute densities.

Data and Methodology

Data used for the analysis of distribution of towns have been obtained from the Census Reports. The distribution of rural population has been mapped by making use of the dot and choropleth methods. The population of different urban centres has been depicted by proportionately varying circles.

A glance at the population map reveals that densely populated parts lie in juxtaposition with regions of sparse population. For example, there is a striking contrast between the Narmada Valley and the high lands adjoining it both to the
north and south. Because of level topography, rich black alluvial soil and plenty of surface and underground water, the Narmada Valley is agriculturally very productive and is consequently populated. The distribution of population within the valley is, however, far from uniform. One type of tract, locally known as 'kanthar' is very much dissected, and hence has fewer inhabitants, typical examples being the 'kanthars' of the Hiran, Narmada, Sher and Shakkar rivers. The other type, designated as the 'haveli', is the more level tract, is well-watered, intensively cultivated and very densely populated. The 'haveli' of Jabalpur district is a typical example. It is one of the chief wheat-growing areas of Madhya Pradesh and extends from north of the Narmada to Sihora, a small industrial town. Jabalpur, the third largest town of present day Madhya Pradesh, marks the eastern limit of the Narmada Valley. A railway line extends westwards from Jabalpur through the heart of the Narmada Valley, along which are strung market towns. Most of the villages in this part are also located along roads, avoiding river banks, which are subject to floods and erosion. South of the Narmada, the forested Mahadeo hills of the Satpura system rise to a height of 1 000 m, much of it appearing blank on the population map. Rachmarhi is a hill station, but around it for kilometres, the population is very sparse.
The uneven distribution of the population appears to be very striking. There are wide stretches of land with very few people, especially in forested high hills. On the other hand, large pockets of dense population in river valleys and low alluvial plains fringing the coast are also found.

The great scarp that appears on the map to the north of the Narmada represents the most elevated part of the Vindhyan, averaging 450 m above seal level, and is clothed with dense teak forests. Throughout the entire length of 450 km, from about 30 km east of Hosangabad to Banjara in the west, there are very few permanent settlements except in forest clearings like that of Chaidullaganj. Also found are some ancient forts and rock-cut caves, as at Mandu. Small and scattered villages, however, appear in larger numbers on its southern slopes, well-drained but not too steep; quite a few towns have grown up there, especially on river banks, the typical examples being Kuashi, Manavar and Kannod. Because of high banks and flanking spurs of the Vindhyan to the north and the Satpuras to the south, the Narmada river is confined within a narrow rockey bed, and could not build up extensive flood plains in the past. This explains why a large population is not found in general in the Narmada Valley. The only exceptions are, however, the easternmost and westernmost portions of the valley.
the former containing a wide expanse of alluvium, south of the river between Hoshangabad and Namewar. The Valley is also fairly wide between Barwaha and Barwani and has a number of flourishing settlements, including Maheshwar, an old capital noted for its temples and palaces.

South of the Narmada the Satpuras extend in an arcuate form, from the Tawa Valley on the east to Rajpipla on the west, comprising an extensive tableland, characterized by open mixed forest, good grazing ground and very sparse population. There is some concentration of population on the northern slopes below 450 m along north-flowing streams like the Chhota Tawa, Kundl Deb and Goli. Khandwa is the largest town of great antiquity in this part, and serves as a collecting and distributing centre of cotton.

Factors Affecting the Distribution of Urban Population.

The uneven distribution of urban population in the Narmada Valley is the result of some physical and human factors. The physical environment determined by climate, soil, terrain and means of water supply has considerably influenced the distribution of population in the Valley.

The climate of the Valley does not directly influence the distribution of population. It does so only in an indirect way. An important feature of temperature
and rainfall distribution has a great significance for crop production. The uniformly high temperatures during the period of heaviest rainfall are of great benefit for the quick growth and maturity of the summer kharif crops. Thus, the terrain of the district of Jabalpur provides favourable conditions for the growth of kharif crops. The sudden change from summer to winter enables the cultivators to sow the winter rabi crops, before the ground moisture received during the rainy season dries up. East Nimar and West Nimar are the tracts of rabi crops on which about 60 per cent of the total population depends for its subsistence.

Deep black soil dominates most of the Narmada Valley, specially in the districts of Narsimhapur, Hoshangabad and East Nimar. As a matter of fact, a narrow strip of alluvial soil on both sides of the bank of the river Narmada offers a favourable condition for the concentration of population. Intensive cultivation is practised in these tracts and hence the agglomeration of population here.

Terrain and water-supply play an equally important role in the distribution of population. As already mentioned, the rugged topography does not attract human settlement. The dissected high lands are therefore sparsely populated. On the other hand, the lowlying flat lands of the middle and lower valley provide ample scope for cultivation, irrigation and
means of communication. The dot map of the valley clearly shows a great cluster of dots all along the low, flat lands of the Narmada. (Plate 4A)

Besides these physical factors, the industrial cities of the valley are also provide strong attracting centres to which the rural population migrates in search of employment.

GROWTH OF URBAN POPULATION

Urbanization is relatively a new phenomenon in human history: so recent that its rapid growth and full potentialities are not yet thoroughly understood or realized. The first small urban centres appeared only some five to six thousand years ago.

The rise of civilization has been intimately bound up with the gathering of men to live in cities because the two phenomena have a common geographical basis. (Smailes 1953, 1) Cities and their related urban way of life, may therefore be regarded as old as the civilization itself.

Areas designated as urban in the censuses include, besides all places with more than 5,000 population, all municipalities, cantonments notified areas, and such other places as in the opinion of the Census Commissioner, possess
urban characteristics — variously defined in different provinces irrespective of their population size.

The proportion of urban to total population, however, is a rather crude indicator of urbanization because it does not take into account the distribution of the urban population in the region. (Govani 1965, 33)

**Parameters of Urban Growth**

'Urban growth' connotes a wide and complex phenomenon, and is amenable to analysis from diverse angles. It may be studied in terms of variation over a stipulated period of time in a multiplicity of related elements such as the ratio urban to the total population, number of urban centres, population size or areal expansion of individual towns, betterment of urban life, enhancement of rural-urban relationships, and many others. Each of them has its own merits and demerits, and cannot cover all the aspects of urban growth. Moreover, each is beset with its own specific problems of measurement and suitable statistic.

1. **Population size of Towns:** This is the most important element, and fundamentally signifies the dimension of a town. The easy availability of population figures of individual towns, though mostly for only recent periods, from the Census reports and municipal records facilitates its analysis.
The usefulness of these data is, however, substantially impaired by arbitrary changes in the statutory limits of towns.

(2) Physical size—A positive change in this element encompasses both the expansion of town area as well as the vertical rise of buildings. Such data are, however, neither systematically recorded nor reported; further, there is a widely varying proportion of vacant open land incorporated within the statutory limits of towns. This factor greatly affects the comparability of these area figures of towns as well as their density figures.

Other parameters like the functional base, urban infrastructure, hinterland—dominance, etc. of towns are even more abstract and involved. They suffer even more seriously as regards appropriate measures and data base. Thus, the labour involved in their employment is not commensurate with the output of result. They as well as the physical size of towns are, therefore, rarely employed as factors in urban growth, and one ultimately falls back upon the population size as the only workable measure of urban growth.

As regards the growth in total urban situation of a region taken collectively, the limitations are even more stringent. Little can be done beyond pursuing the
variation over pertaining to elements such as the total urban population, its proportion in total population, size class structure of towns, number and size of towns, and economic sectional composition of work force of towns. An analysis of these elements is pursued in the sequel of this chapter, except for the last named element which is dealt with elsewhere in this work.

**Measures of Urban Growth**

The urban population growth is an outcome of

(i) natural growth through excess of births over deaths, (ii) reclassification of rural settlements into urban settlements and (iii) net in-migration (excess of in-migration over out-migration). Normally, the rate of natural growth is supposed to be almost the same in both rural and urban areas so that the rate of growth from the reproductive change is roughly the same in both cases. Hence, there can be very little urbanization from vital processes alone. The reclassification or upgrading of the previously rural settlements when they grow and fulfil certain stipulated conditions may be a factor in the growth of urban population. In any region where the influence of this factor is not profound, the rate of urbanization will be almost equal to the rate of net in-migration into the urban settlement.
Relative growth, in which the magnitude of net change is expressed relative to initial size of population over and above which this net change has occurred, such as percentage of the initial population, may be expressed by the following equation, present growth:

\[ G = \frac{P_2 - P_1}{P_1} \times 100 \]

Where \( P_1 \) and \( P_2 \) are population of previous and last decades respectively.

This simple-interest formula works well provided that all towns have growth either only positively or only negatively. Where both types of variations are involved, the formula suffers from the inherent weakness in that negative growth appears markedly smaller than the positive growth with the same initial population and the same amount of net change over the same period. From a statistical standpoint the growth rates, thus worked out, are positively skewed (Robson 1973, 71-72).

In order to remove this inadequacy of the formula, it is more useful to take the mean population, i.e. \( \frac{P_1 + P_2}{2} \) in the denominator, rather than the initial population as suggested by Gibbs (1961, 107-8).
Thus this formula becomes:

\[
\text{percentage growth rate} = \frac{P_2 - P_1}{\frac{P_1 + P_2}{2}} \times 100
\]

Notwithstanding the definite improvement brought about by this latter formula, the first formula has been employed in the present study, because in view of the rather crude base of census data (without reference to change in towns areas, as noted elsewhere), such a refinement would seem superfluous.

The rate of urban growth shows the pace at which the process of urbanization is taking place, and it provides a good statistic for comparative studies. The rate of growth of urban population:

\[
x = \frac{(P_2 - P_1)/t}{(P_2 - P_1)^2/3} \times 100
\]

where \(P_1\) is the urban population size in the initial period of time, \(P_2\) is the urban population at a later period, and \(t\) is the number of time units, such as years or decades over the period.

or:

\[
\text{Growth rate} = t \sqrt[3]{\frac{P_2}{P_1}} - 1 \times 100
\]

where \(t\) is the number of time sub-units.
Robson (1973, 98-99) has introduced yet another refinement to the measures of urban growth. Recognising sub sets within the wide range of towns of different size classes - he expressed the actual growth rates of towns by the amount by which they differed from the mean growth rates of respective sub-sets, relative to the corresponding standard deviations. It is thus the actual growth rate minus the mean growth rate and divided by the S.D.

**Variation of Urban Population**

The analysis of the growth of population during the last 70 years, to be undertaken in this section, may advisedly be prefaced by a quotation from Kingsley Davis- "Throughout its history the lulls and spurts in Indian population growth have been governed not by fluctuations in the birth rates but by wide variations in the death rates. In those years when the population remained fixed or even declined the reason lay in some catastrophe - a famine, an epidemic, a war or a combination of these which took millions of lives". The above statement will partly help us understand the growth of population in the Narmada Valley.

During the first three decades (1901 to 1931) the growth rate was very slow and the population actually
suffered a decline during 1901-21. Thus, in order to get an accurate picture of the overall trend the variation of population between 1901 and 1921 needs to be studied while for the proper evaluation of the present trends the consideration of the 1921-71 period is essential. This is so because both rural and urban population show different trends in these two periods.

The Period of Slow Growth (1901-21)

The decline in urban population during the first two decades of the present century was due mainly to famines and the outbreak of the first World War of 1914-18. Those years witnessed very poor harvests due to late rains. This was followed by an epidemic of influenza. The widespread influenza epidemic took the toll of several thousands lives not only in the Narmada Valley but in almost all parts of the country. The epidemic started in September 1918 and extended well into the next year. It is said to have been so severe that "there was no parallel to it in the records of Madhya Pradesh". This considerably weakened the population that survived.

The Period of Recovery (1921-1971)

Population has grown steadily during these five decades. Soon after the epidemic was over the conditions
improved thanks to a good harvest. There have been periods of famines and failures of crops, as in 1927–30. However, the growth of population has not been noticeably affected so far as the total population of the Narmada Valley is concerned. The increase has been due both to an actual excess of births over deaths and to immigration.

The percentage growth of population 1901–71 is given in the Table 3.1. The table shows that the urban population of the region has grown more than fourfold during the present century.

Table 3.1
Growth of urban population in the Narmada Valley

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of towns</th>
<th>Population</th>
<th>Decade variation</th>
<th>Percentage variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>19</td>
<td>236,663</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1911</td>
<td>21</td>
<td>242,135</td>
<td>5,452</td>
<td>2.3</td>
</tr>
<tr>
<td>1921</td>
<td>21</td>
<td>270,972</td>
<td>28,837</td>
<td>11.9</td>
</tr>
<tr>
<td>1931</td>
<td>27</td>
<td>359,722</td>
<td>88,750</td>
<td>32.8</td>
</tr>
<tr>
<td>1941</td>
<td>31</td>
<td>480,137</td>
<td>120,415</td>
<td>33.4</td>
</tr>
<tr>
<td>1951</td>
<td>31</td>
<td>620,998</td>
<td>140,861</td>
<td>29.3</td>
</tr>
<tr>
<td>1961</td>
<td>40</td>
<td>890,940</td>
<td>259,942</td>
<td>41.9</td>
</tr>
<tr>
<td>1971</td>
<td>41</td>
<td>1,237,226</td>
<td>356,286</td>
<td>40.4</td>
</tr>
</tbody>
</table>

Total growth (1901–71) 422.7 per cent.
The total variation in the seventy years has been 422.7 percent or 60.4 percent in a decade on an average. The varying figures given in Table 3.1 are not strictly comparable, as the number of towns had changed from year to year.

The average percentage decennial growth of population (between 1901–71) has been as follows:

Table 3.2
Growth of urban population.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Town</th>
<th>1901</th>
<th>1971</th>
<th>Total percentage increase</th>
<th>Average percentage increase 1901–71</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jabalpur</td>
<td>90,316</td>
<td>534,845</td>
<td>492.2</td>
<td>70.3</td>
</tr>
<tr>
<td>2</td>
<td>Khandwa</td>
<td>19,401</td>
<td>85,403</td>
<td>340.2</td>
<td>48.6</td>
</tr>
<tr>
<td>3</td>
<td>Itarsi</td>
<td>5,769</td>
<td>46,866</td>
<td>712.4</td>
<td>101.8</td>
</tr>
<tr>
<td>4</td>
<td>Khargone</td>
<td>7,624</td>
<td>41,316</td>
<td>441.9</td>
<td>63.1</td>
</tr>
<tr>
<td>5</td>
<td>Betul</td>
<td>5,566</td>
<td>30,862</td>
<td>454.5</td>
<td>64.9</td>
</tr>
<tr>
<td>6</td>
<td>Hoshangabad</td>
<td>14,300</td>
<td>29,434</td>
<td>97.0</td>
<td>13.6</td>
</tr>
<tr>
<td>7</td>
<td>Harda</td>
<td>16,300</td>
<td>28,504</td>
<td>74.8</td>
<td>10.7</td>
</tr>
<tr>
<td>8</td>
<td>Narsimhapur</td>
<td>11,233</td>
<td>25,552</td>
<td>127.5</td>
<td>18.2</td>
</tr>
<tr>
<td>9</td>
<td>Barwani</td>
<td>6,277</td>
<td>22,099</td>
<td>252.0</td>
<td>36.0</td>
</tr>
<tr>
<td>10</td>
<td>Gadarwara</td>
<td>8,198</td>
<td>18,676</td>
<td>127.8</td>
<td>18.6</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>11.</td>
<td>Sendhwa</td>
<td>5,635 (1941)</td>
<td>19,415</td>
<td>226.8</td>
<td>75.6</td>
</tr>
<tr>
<td>12.</td>
<td>Sihora</td>
<td>5,595</td>
<td>19,385</td>
<td>229.5</td>
<td>29.7</td>
</tr>
<tr>
<td>13.</td>
<td>Piparia</td>
<td>3,968 (1931)</td>
<td>19,281</td>
<td>360.7</td>
<td>90.2</td>
</tr>
<tr>
<td>14.</td>
<td>Barwaha</td>
<td>6,094</td>
<td>17,047</td>
<td>179.7</td>
<td>25.7</td>
</tr>
<tr>
<td>15.</td>
<td>Sanawad</td>
<td>3,506 (1911)</td>
<td>15,180</td>
<td>332.9</td>
<td>55.5</td>
</tr>
<tr>
<td>16.</td>
<td>Kukshi</td>
<td>5,402</td>
<td>13,313</td>
<td>146.4</td>
<td>20.9</td>
</tr>
<tr>
<td>17.</td>
<td>Anjad</td>
<td>4,833 (1931)</td>
<td>13,047</td>
<td>169.9</td>
<td>42.5</td>
</tr>
<tr>
<td>18.</td>
<td>Alirajpur</td>
<td>5,148 (1931)</td>
<td>13,342</td>
<td>159.1</td>
<td>39.8</td>
</tr>
<tr>
<td>19.</td>
<td>Kareli</td>
<td>2,992 (1941)</td>
<td>12,350</td>
<td>312.8</td>
<td>104.2</td>
</tr>
<tr>
<td>20.</td>
<td>Schagpur</td>
<td>7,420</td>
<td>12,097</td>
<td>69.0</td>
<td>9.0</td>
</tr>
<tr>
<td>21.</td>
<td>Seoni-Malwa</td>
<td>7,531</td>
<td>9,831</td>
<td>60.2</td>
<td>9.6</td>
</tr>
<tr>
<td>22.</td>
<td>Panagar</td>
<td>7,448 (1961)</td>
<td>11,812</td>
<td>58.6</td>
<td>58.6</td>
</tr>
<tr>
<td>23.</td>
<td>Chhota-Chhindwara</td>
<td>4,216</td>
<td>10,746</td>
<td>154.9</td>
<td>22.1</td>
</tr>
<tr>
<td>24.</td>
<td>Rajpur</td>
<td>5,104 (1931)</td>
<td>10,513</td>
<td>105.9</td>
<td>26.5</td>
</tr>
<tr>
<td>25.</td>
<td>Nanawar</td>
<td>4,311 (1931)</td>
<td>10,139</td>
<td>135.2</td>
<td>33.9</td>
</tr>
<tr>
<td>26.</td>
<td>Maheshwar</td>
<td>7,042</td>
<td>9,831</td>
<td>39.6</td>
<td>5.7</td>
</tr>
<tr>
<td>27.</td>
<td>Pachmarhi</td>
<td>3,020</td>
<td>9,224</td>
<td>205.4</td>
<td>29.3</td>
</tr>
<tr>
<td>28.</td>
<td>Barailey</td>
<td>3,748 (1941)</td>
<td>8,263</td>
<td>41.3</td>
<td>41.3</td>
</tr>
<tr>
<td>29.</td>
<td>Betul-Bazar</td>
<td>4,739</td>
<td>8,165</td>
<td>65.3</td>
<td>9.3</td>
</tr>
<tr>
<td>30.</td>
<td>Kannod</td>
<td>5,095 (1941)</td>
<td>8,421</td>
<td>65.3</td>
<td>21.7</td>
</tr>
<tr>
<td>31.</td>
<td>Dharampuri</td>
<td>5,584 (1961)</td>
<td>7,106</td>
<td>27.3</td>
<td>27.3</td>
</tr>
<tr>
<td>32.</td>
<td>Timurini</td>
<td>4,951 (1941)</td>
<td>7,896</td>
<td>59.5</td>
<td>19.8</td>
</tr>
<tr>
<td>33.</td>
<td>Mandleshwar</td>
<td>5,094 (1951)</td>
<td>6,645</td>
<td>30.4</td>
<td>15.2</td>
</tr>
</tbody>
</table>
(Table 3.2 contd.)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.</td>
<td>Patan</td>
<td>5,617 (1961)</td>
<td>7,517</td>
<td>33.9</td>
<td>33.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>Khategaon</td>
<td>5,573 (1961)</td>
<td>7,495</td>
<td>34.5</td>
<td>34.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>Bhikangaon</td>
<td>4,350 (1961)</td>
<td>6,682</td>
<td>53.6</td>
<td>53.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>Jobat</td>
<td>4,040 (1961)</td>
<td>5,235</td>
<td>29.6</td>
<td>29.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Madya Pradesh 1,458,045 6,394,767 365.3 52.2


It is obvious that towns of industrial importance like Jabalpur and Itarsi have shown a very rapid rate of growth in comparison to other towns. An important factor has been the opening of railways whose effect was best seen in the case of Itarsi. Itarsi, prior to this event, was a small village known only for its brick and rope industry. The very small rate of growth of the district headquarter town of Hoshangabad is to be specially noted and is probably due to the absence of any industries. It can also be seen that the rank in the rate of growth roughly corresponds to that of the total population of a town. In other words, in most cases, larger towns have expanding faster than smaller
tions. During the seventy-year period 1901 to 1971, the urban population of the Narmada Valley has shown steady increase from 1921 onwards. (Plate 6)

On the other hand, the continuous growth of Jabalpur city is mainly due to immigration attracted by industrial activities. Even as early as 1921, the number of inhabitants of this city, recorded as having been born outside the district, was almost 50 per cent of its total population. In more recent years, the growth has probably been due more to natural increase.

**Regional Patterns of Decennial Growth of Towns, 1901-71**

In this section the salient features and trends of growth of individual towns are analysed, along with their spatial distribution, relation of growth rate of towns, with their population size, and with trends of previous decades. Throughout this section, reference is extensively made to the Plate 7 and 8.

**The First Decade, 1901-11**

In the year 1901 the total urban population in the Narmada Valley was 236,683, which was 16.2 per cent of the total urban population of Madhya Pradesh. At that Jabalpur was only class II town, the population of which was 90,316; this accounted for 39.1 per cent of the total urban population of the Narmada Valley. There was no class
III town. There were four towns in class IV, viz. Harda, Hoshangabad, Khandwa and Narsimhapur, the total population of which was 61,874 which comes to 26.1 per cent of the total urban population of the region. Class V contained eleven towns; all but two of which belonged to the central and western part of the region. Class VI contained three towns, Betul-Bazar, Chhota-Chhindwara and Piparia. The mean of the town-wise growth rates works out - 0.64 per cent, which indicates that medium towns decreased more rapidly. Due to many high negative growth rates and some positive rates the variability in quite high, standard deviation being 28.2. Towns whose population decreased very rapidly were Hoshangabad (-63.2%), Harda (- 49.3%) Gadarwara (- 42.5%), Itarsi (-23.2%) and Chhota-Chhindwara (-19.3%). Narsimhapur, Sihora, Schagpur, Seoni-Malwa etc. are other towns are population decreased notably. All these towns are in the central-eastern part of the region. In the western part of the region, most towns increased their population fairly highly.

The 19 towns involved in urban growth during the first decade, the mean growth rate of -0.64%. Only eight towns increased of which five belong to the western part and three two the eastern side. Of the only Jabalpur is most important. Among others, only two decreased slightly (between mean - 1 S.D.) 6 decreased more rately.
and remaining 3 decreased highly.

The Second Decade, 1911-21

In the year 1911 the total urban population in the Narmada Valley was 242,135, which was 18.64 percent of the total urban population of Madhya Pradesh. This increase from 16.2 per cent in 1901 means a faster growth of towns in this region than in other parts of the State. At that time Jabalpur was the only town in class I, its population being 100,651, which was 41.56 per cent of total urban population of the Narmada Valley. There was no town in class II. Khandwa was the only class III town. The population was 21,604 which was 8.92% of the total urban population of the Narmada Valley. Class IV contained only one town, Narsinghapur whose population was 10,630, constituting 4.39 per cent of the total population of the Valley. Class V contained twelve towns, with 23,508 population which comprised 9.7 of total urban population of the region.

The mean of the town-wise growth rate works out at 23.04 per cent, which indicates that medium and large towns increased slightly. Variability of growth rates, pretty is also high, S.D. being 28.7. Out of the 21 towns involved 6 decreased, 14 increased and 1 got derecognised as a town. During the first decade the
the highest negative growth was registered by Koshangabadd (-63.17\%), followed by Harda (-49.33\%), Gadarwara(-42.49\%) and Itarsi (-23.21\%). The highest positive growth rate can be seen in the case of Koshangabadd (118.9\%), Sanawad (116.9\%), Gadarwara (81.1\%), Itarsi (58.1\%) and Khandwa etc. are other notable examples of this 'inversion' of growth trend from first to the second decade.

Only 20 towns existed at both ends of the decade, which on an average grew by 23.04\%. Eight of them, increased very slightly - less than the mean growth rate of the decade. All of them except Khargone and Rukhi belonged the eastern part of the region. 3 medium towns in central part belonged to the mean to mean + 1 S.D. range of growth, while Gadarwara stood more than 1 S.D. above the mean, and Koshangabadd and Sanawad stood more than 2 S.D. above the mean growth rate of the decade. All these belonged to the central part of the region.

Population growth of towns as well as villages got retarded in the second decade, largely due to the influenza epidemic which raged in 1918-19. However, its impact on the urban growth was much less severe as compared to that of the consecutive drought years of the preceding decade.
The Third Decade, 1921-31

In the third decade the urban population of the region grew from 271 thousands to 360 thousands and increase of 11.9%. Its share in the total urban population of Madhya Pradesh also increased from 19.8% to 20.3%, which clearly indicated the greater dynamic of urban growth in Narmada Valley as compared to other parts of the State. The mean growth rate of 20 towns, that entered the growth process in this decade, worked out at 13.5 per cent. This somewhat larger mean growth rate than the growth rate of total urban population gives an over impression of faster growth rates of smaller towns. In fact, the smaller towns have mostly decreased, instead as many as seven new towns were recognised against only one declassified. Thus there number of towns also grew from 21 to 27, which is the main cause of total urban population growth appearing slower than the mean growth rate despite the decrease in many smaller towns.

Seven towns have been pretty sluggish in this decade and their growth rates ranges from 0 to mean growth rate. They most belonged to the central part of the region. In the next upper category mean to mean + 1 S.D. there are only four towns - Jabalpur in the east, Sohagpur in the central part and Khandwa and Khargone in the west.
Three more towns stand in the mean + 1 S.D. to mean + 2 S.D. range, while the fastest grown town, Itarsi is above mean + 2 S.D.

In this period the commerce industry and transportation were the main functions of the town and these functions were developing rapidly consequently the population was increasing. Itarsi rose up as a fairly well established trade centre of Hoshangabad district. The rural urban migration gave impetus to this growth of population.

The Fourth Decade, 1931-41

During this decade the urban population of the region grew from 360 thousands to 480 thousands - an increase of 33.4%. Its share in the urban population of Madhya Pradesh, however, remained constant. Jabalpur continued to be the only class I town. Growing at the rate of 43.4 per cent during this decade, it came to have 178 thousand population, which in 1941 constituted 34.5% of total urban population of the region. Class II was totally un-represented, while class III also had only one town- Khandwa - which contributed 16% of total urban population of the region. Class IV contained five towns namely Harda, Hoshangabad, Itarsi, Khargone and Narainshapur. Their combined population was 63,394, which was 17.62 per cent of the total population of the region.
Class V contained fifteen towns namely Barwa, Barwana, Betul, Betul-Bazar, Gadarwara, Kukshi, Maheshwar, Pachmarhi, Seoni-Malwa, Sibora, Schagpur, Banawad, Rajpur, Ajnad and Alirajpur. The population was 101,566, which was 20.30% of the total population of the region. There were four towns in class VI namely Chhota-Chhindwara, Piparia, Manawar and Dharampuri. The total population was 15,703 which was 4.36 per cent of the total population of the region.

There were twenty seven towns in 1931-41. The mean of which was 20.00. Fourteen towns, Khandwa, Hoshangabad, Narorschapur, Gadarwara, Barwa, Banawad, Kukshi, Alirajpur, Schagpur, Seoni-Malwa, Rajpur, Maheshwar, Pachmarhi and Betul-Bazar came between 0 to mean (20.00). From mean to 1 S.D. (39.26) were Itarsi, Khargone, Betul, Sibora, Anjad, Chhota-Chhindwara and Manawar. 1 S.D. to 2 S.D. (59.26) there are three towns namely Jabalpur, Barwani and Piparia and above 2 S.D. only town is Jabalpur Cantt. 0 to 1 S.D. = (iv) 00.74 there is no town. From 1 S.D. = (iv) to 2 S.D. = (iv) 20.74 only town is Harda.

Out of these twenty-six towns, one decreased (Harraa-5.68) while 25 increased. However, as noted above, Jabalpur (43.38%), Barwani (40.45%) and Piparia (46.03%) increased rapidly. The mean of the growth rate works out at 20.00, and the S.D. value 19.56.
The Fifth Decade, 1941-51

The urban population of the region was 480,137 in 1941-51, that is, 20.4 per cent of the total urban population of Madhya Pradesh. Jabalpur was still the only town in class I, its population was 178,339 comprising 37.14 percent of the total urban population of the Narmada Valley in Madhya Pradesh. There was no town in class II. There were two towns in class III, Khandwa and Jabalpur Cantt. Their population was 76,605, 15.95 percent of the total urban population of the region. Class IV contained eight towns: Barwani, Betul, Gadarwara, Harda, Hoshangabad, Itarsi, Khargone and Narsimhapur. The combined population was 101,994 which was 21.86 per cent of the total urban population of the region. Class V contained sixteen towns namely Barwaha, Betul-Bazar, Kukshi, Maheshwar, Rashwarhi, Seoni-Malwa, Sihora, Saghpur, Sanawad, Piparia, Rajpur, Anjad, Nanawar, Alirajpur, Kannod and Sandhya. The population was 104,047 which was 21.67 per cent of the total urban population of the region. Class VI contained four towns namely Chhota-Chhindwara, Baraity, Kareli and Timurni. The population was 16,152 which was 3.36 per cent of the total urban population of the region.

There were thirty towns in 1941-51. The mean of which was 23.13. Fifteen towns, Hoshangabad, Narsimhapur,
Barvari, Sihora, Barwaha, Sanawad, Kukshi, Anjad, Schagpur, Seoni-Malwa, Rajpur, Maheshwar, Betul-Bazar, Kannod and Timurni ranged between 0 to mean (23.13). From mean to 1 S.D. (44.22) there are eight towns namely Jabalpur, Khandwa, Khargone, Betul, Harda, Gadarwara, Alirajpur and Chhota-Chhindwara. 1 S.D. to 2 S.D. (65.31) there were two towns namely Sendhwa and Karedi. Above 2 S.D. there were only two towns namely Itarsi and Piparia. 0 to 1 S.D. (iv) there were no town in this period 1 S.D. (iv) to 2 S.D. (iv) there are three towns namely Jabalpur Cantt., Nanawar and Pachmarhi. (Plate 5, E)

Out of the 30 towns, one got derecognised, 3 decreased and 26 increased. However, as noted above, medium size towns, Itarsi (73.77%), Piparia (74.16%), Sendhwa (48.39) increased rapidly, and Pachmarhi (-21.71), Jabalpur Cantt. (-10.2%), and Nanawar (-2.47) decreased, so that the mean works out at 22.13 per cent, and the S.D. value at 21.09.

The Sixth Decade, 1951-61

The urban population of the region was 620,998 which was 19.82 per cent of the total urban population of Madhya Pradesh. During this decade also Jabalpur was the only town in class 1, with a population of 256,998 that is, 41.38 per cent of the total urban population of
the Narmada Valley in Madhya Pradesh. There was only one town—Khandwa— in class II. Its population was 51,940 which came to 8.36 per cent of total urban population of the region. There were two towns in class III namely Itarsi and Khargone. Their population was 45,557 which came to 7.33 per cent of the total urban population of the region.

Class IV contained seven towns, namely Barwani, Betul, Gadarwara, Harda, Hosangabad, Narsinghpur and Piparia. The total population was 100,378 which was 16.16 per cent of the total urban population of the region. Class V contained eighteen towns: Barwaha, Betul-Bazar, Chhota-Chhindwara, Kukshi, Maheshwar, Pachmarhi, Seoni-Malwa, Sihora, Sohagpur, Sanawad, Rajpur, Anjad, Manawar, Alirajpur, Kannod, Sendhwa, Timurni and Mandleshwar. The aggregate population of these towns was 127,487 which came to 20.52 per cent of the total urban population of the region.

There were thirty one towns 1951-61. The mean of which was 29.76. Twenty towns came between 0 to mean (29.76). From mean to 1 S.D. (50.02) there are seven towns 1 S.D. to 2 S.D. (70.26) there are two towns namely Sendhwa and Manawar, and above 2 S.D. there are Sihora and Kareli. (Plate 8, P)
The urban population of the region rose to 875,013, accounting for 18.91 per cent of the total urban population of Madhya Pradesh. Jabalpur persisted in being the only town in class I, with a population of 367,014. Khandwa also continued to be the only class II town. The population rose to 63,505 which came to 7.25 per cent of the total urban population of the region. There were three towns, Khargone, Itarsi and Harda, in class III. Their population was 86,542 which came to 9.89 per cent of the total urban population of the region. Class IV contained thirteen towns. The combined population was 182,731 which came to 20.88 per cent of the total urban population of the region. Class V contained eighteen towns. Their total population was 121,073 which came to 13.83 per cent of the total urban population of the region. There were three towns, Bhopal, Gogaon, and Jabalpur in class VI. With a population of 13,134 they accounted for 1.5 per cent of the total urban population of the region.

There were fourteen towns in 1961-71. The mean of which was 34.62. Twenty-three towns, ranged between 0 to mean (34.62). From mean to 1 S.D. (45.35) there were nine towns. From 1 S.D. to 2 S.D. (56.08) there were six towns namely Jabalpur, Betul, Hoshangabad, Barwaha,
Bhikangaon and Rachmarhi 2 S.D. above is Panagar. There is no town showing negative growth in this decade. (Plate 7, C)

During the last 70 years (1901-71) the urban population in the Narmada Valley increased from 2.36 lakhs to 12.37 lakhs i.e., by 422.7 per cent, while for the state as whole, the per centage increase was 365.3.

Variation in Size Rank of Towns, 1901-71

Fluctuations in the size ranks of towns over time also furnish an effective method to analyse relative dynamism of town in a region. This is presented in Plate 8, H wherein the rank, at each census year, of the town of Narmada Valley are plotted and the shown by a line connecting these points of corresponding towns. These lines are distinguished into 4 categories according the number of ranks involved in the total fluctuations of the town. Robson, B.T. (1973 P.39) has incorporated the size differences and growth there of in his portrayal of rank variation for the 25 largest towns of England and Wales, 1801-1911. A pre-requisite of such portrayal is that all the towns involved should have existed through the time period in question. Such an exigency would thrown more than half the towns out of consideration. There fore, a simpler presentation of only rank fluctuations, as adopted by Reddy, N.B.K. (1970 P.283) has been presented.
Apart from distinct line types, actual total number of ranks covered in the fluctuation by any town can readily be measured from the diagram.

An observation of this diagram reveals that Jabalpur and Khondwa have not changed their ranks. Most of the middle ranking towns have fluctuated greatly, most often the downward trend. Most of the smaller town came in 1961 and have decreased 2-3 steps down in the size ranks. Maheshwar decreasing town throughout has highly position from 4th in 1911 to 27 in 1971. Itsarai an increasing town throughout has highly improved its position from 17th in 1911 to 4th in 1971.

REFERENCES


