

CHAPTER - II

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THE CHARACTERISTICS OF CITY POPULATION

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1. Introduction
2. City population growth
3. Population distribution
4. Density of population
 - 1) Density-distance relationship
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1. INTRODUCTION :

Towns and cities owe their existence to the presence of certain social and economic activities which requires the concentration of people, buildings and machines within relatively small area. These activities and the type of employment associated with them, can be described as distinctively "Urban", and hence an important characteristics of urban population are provided by the study of city population distribution and density, its occupational structure and other demographic characteristics. The visible landscape of the city is perhaps the most obvious object of geographical study. In this chapter the population of Miraj city and its characteristics have been considered. In the analysis of city population the population figures for the year 1971 and 1981 have been considered.

2. CITY POPULATION GROWTH :

In 1971 census, Miraj was annumerated as class II town as its population was less than one lakh. Miraj has been represented as a class I city in the map of cities of India first time in 1981. After careful computetion and examination of the decadal growth rate of the city population, it is observed that preindependence growth rates varies from 15 to 21 percent. The growth rates in the post-independence period have steadily increased. The decade 1961-1971 has registered the highest growth rate i.e. 45.47 percent.

There were 77,606 inhabitants in the city in 1971, however, city population has reached upto 105,455 in 1981 by net increase of 27,849 inhabitants. It is worth mentioning that so far as population growth rate is concerns the Miraj tops in the list of other urban centres within the jurisdiction of Sangli district. The comparative study of population growth rates of the urban centres of Sangli district for the decade 1971-1981 shows that Miraj has the highest growth rate i.e. 35.89 percent which is higher than the Sangli city, a counter part of Sangli-Miraj twin cities. This reveals that presently Miraj is rapidly growing rather than Sangli. This increasing growth rate of Miraj city is only because of the following reasons.

- i) The introduction of broadguage railway line between Miraj and Kolhapur has facilitated the interaction among Miraj and the adjoining settlements.
- ii) The inception of new industrial estates have absorbed the larger number of the workers.
- iii) Miraj being a central place provides goods and services to its hinterland. Examples of these are educational services (Arts, Commerce and Science College, Medical college and technical institutions), Medical services (hospitalization, medical stores and family planning centres), Administrative services (A sub-divisional centre, tahsil headquarter) and other specialized services.

3. POPULATION DISTRIBUTION :

The geographers are more interested in the study of spatial distributional patterns of geographical phenomenon. Whereas urban geographers are deeply interested in the study of Intra-urban spatial distribution of urban phenomenon and complexity within it.

Population of Miraj city was distributed over 31 municipal wards in 1971. These municipal wards are disproportionate in their size. The ward boundaries have reconstructed in the year 1981 and therefore the total number of wards of the city became fourty. Thus there is a net addition of nine wards in the span of ten years. Here an attempt is made to study the wardwise distribution of city population for the year 1981. The wardwise population distribution has been summarized in Table 2.1 and represented in Fig.2.1.

TABLE 2.1 : Wardwise population distribution.

Population	Number of Wards	Total Wards
Above 2000	14, 18, 22, 26, 35, 36	6
2001 to 2500	3, 5, 9, 11, 12, 15, 16, 17, 19, 27, 32, 33, 34, 37, 38, 39	16
2501 to 3000	4, 6, 7, 8, 10, 13, 20	7
3001 to 3500	25, 28, 29, 31, 40	5
Above 350	1, 2, 21, 23, 24, 30	6
Total		40

SOURCE : Compiled by author.

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WARD-WISE POPULATION DISTRIBUTION
1981

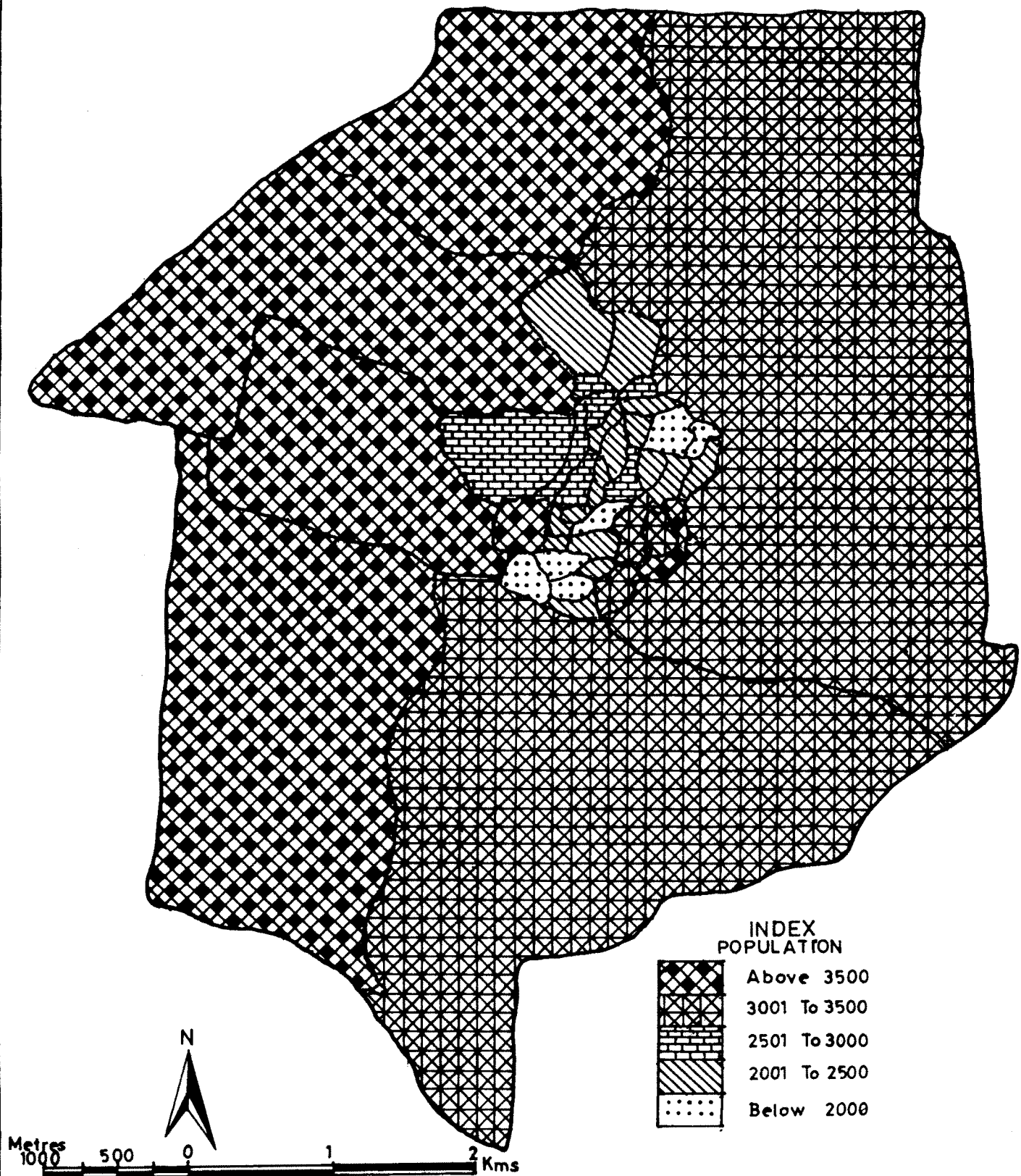


FIG. 2-1

The Miraj city was divided into 40 units called the census wards by the census authority in 1981. The wardwise population distribution pattern shows the distinct picture, as the census wards varies in size. So far as the size of the ward is concerned the internal wards are smaller in size rather than the peripheral wards which are larger in their size. Here the absolute number of population residing in the ward is the criteria used in the pattern of population distribution. Generally larger population is the residents of central wards (No. 21 & 30) and the wards of western side (No. 1, 2, 23 and 24) where more than 3,500 people are the residents. The eastern peripheral wards (No. 28 and 40) are larger in size and provides the accomodation for the population between 3001-3500. The close examination of the Fig.2.1 shows that there are 16 wards centrally located are having the residence between 2001-2500. The ward Nos. 4, 6, 7, 8, 10, 13 and 20 have the population ranging from 2,501 to 3,000. These wards are characteristically residential areas of the Miraj city. Within the Intra-urban population distribution it is observed that the wards having commercial locations and shopping establishments are relatively thinly populated, at the other end of the scale the wards of residential localities are thickly populated. Thus intra-urban distribution of population is affected by locational aspects and the functional magnitude of the urban space.

The distribution of population within the census wards and the municipal limits of the city may be represented by dot method. Fig.2.2, shows the distribution of population in Miraj for the year 1981. This figure clearly indicates that the crowded population pockets in the inner zone where ward boundaries encompassing a little geographical area and higher population pressure on it. Comparatively the man-land ratio in the wards of outer zone is very insignificant. Thus, the intra-urban population distribution pattern is by and large determined by the available urban space and the pressure of population.

4. DENSITY OF POPULATION :

The population density figures of Miraj like many other centres of the country would be misleading due to the existence of extensive open spaces in the form of public gardens, parks, playgrounds, educational and cultural institutions, industrial establishments, hospital complexes and yards grave. The average population density of Miraj city is 2,470 persons/km². In fact the entire area incorporated within the municipal limit is not developed in a true sense. Underdeveloped area is also considered in calculating the average population density within Miraj city.

The wardwise population density is calculated by considering the area covered by the ward and the resident population of the ward. The wardwise density of population

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WARD WISE DISTRIBUTION OF POPULATION
1981



FIG. 2-2

for the year 1981 has represented in Fig.2.3, which indicates that it is not the heart of the city which has the highest density of population, but the area surrounding the heart (C,B,D), that records the maximum density of population. The highest density i.e. above 80,000 persons/km² is observed, in ward No.6 and 16 which are located at the margin of C, B, D, Ward Nos. 12, 14, 17, 18, 19 and 29 are the locations for central commercial complex where population density is relatively lower i.e. below 40,000 persons/km². The medium level of density i.e. 40,000 - 80,000 persons/km² is observed in 11 wards of the city (Fig.2.3).

1) Density - Distance Relationship :

The city population density is studied in terms of the distance from the city centre. The wardwise population density varies on account of various wardwise and population within the wards, so such wardwise density analysis merely shows Intra-urban density variations. Here an attempt has been made to observe any generalized order in the city population density from the city centre. The density of population has been observed to decline with distance from the city centre. The form of decline summerized in Table 2.2 and represented in Fig.2.4.

The form of population density can be written as per Colin Clark's Model :

$$dx = doe^{-bx}$$

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WARD-WISE DENSITY OF POPULATION
1981

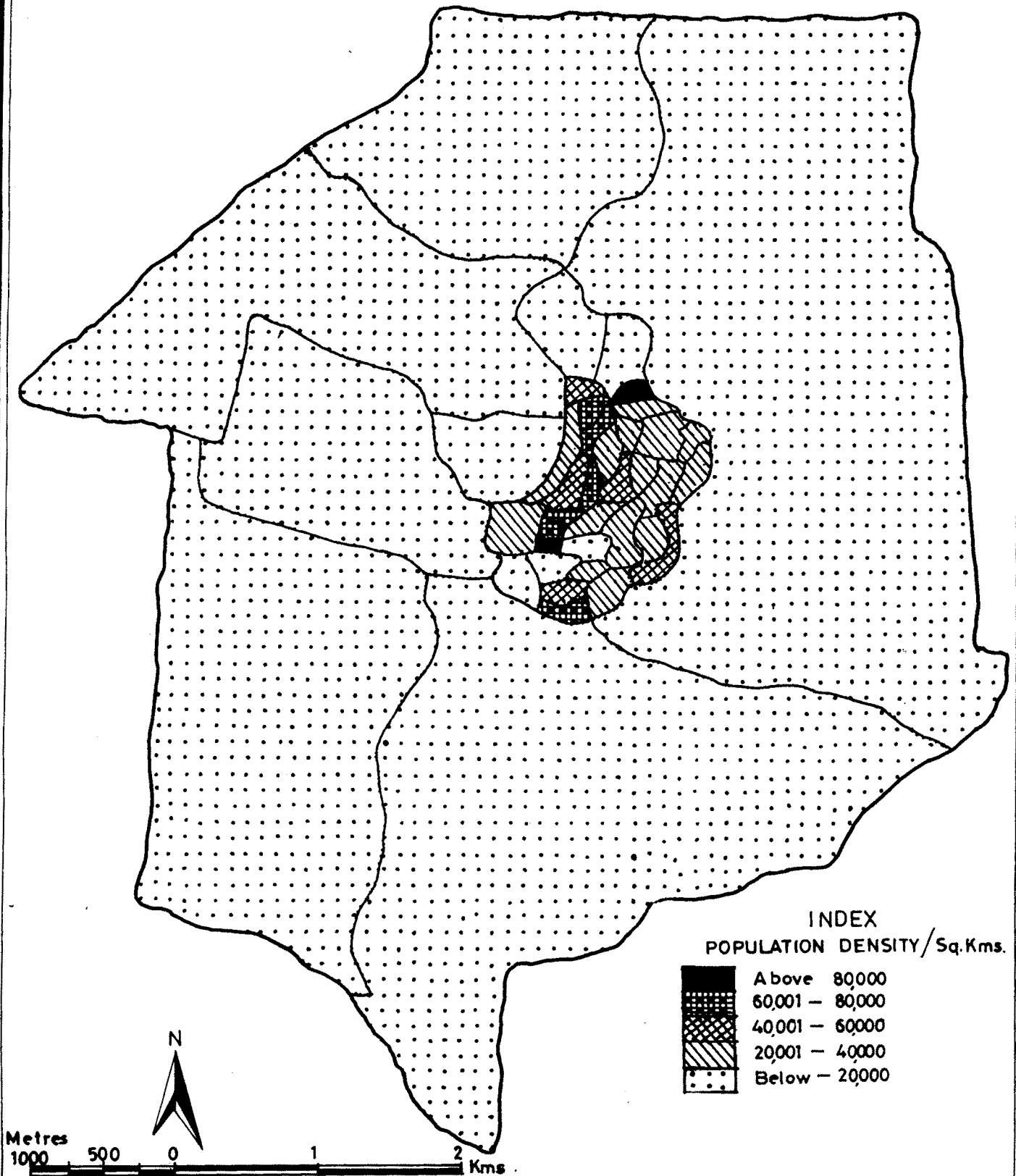


FIG. 2-3

Where, dx = population density at distance 'x' from the city centre

do = interpolated (estimated) population density at the city centre

e = base of Napierian logs i.e. 2.718

bx = population density gradient indicating the rate of diminution of population density with distance

TABLE 2.2 : Miraj city - population density, 1981.

Direction from city centre	Distance from city centre in meters	Natural logs of pop. density	Direction from city centre	Distance from city centre in meters	Natural logs of pop. density
East	0	10.05	North	0	10.05
"	250	10.99	"	250	10.32
"	500	5.55	"	500	10.44
"	750	5.55	"	750	11.41
"	1000	5.55	"	1000	9.45
West	0	10.05	South	0	10.05
"	250	11.19	"	250	10.05
"	500	10.78	"	500	10.99
"	750	8.09	"	750	5.55
"	1000	7.14	"	1000	5.55

SOURCE : Compiled by the Author.

With the application of the aforesaid model, density-distance relationship for Miraj has been observed and found that the urban population density declines in a negative exponential manner with increasing distance from the city centre. Such relationship also exists in most of the Indian cities. The same feature has been graphically represented in Fig.2.4 for Miraj.

Laxmi market is the city centre of Miraj, which has a moderate density of population. The four graphs in the figure shows that the natural logs of population density diminishes in all the four directions from Laxmi Market.

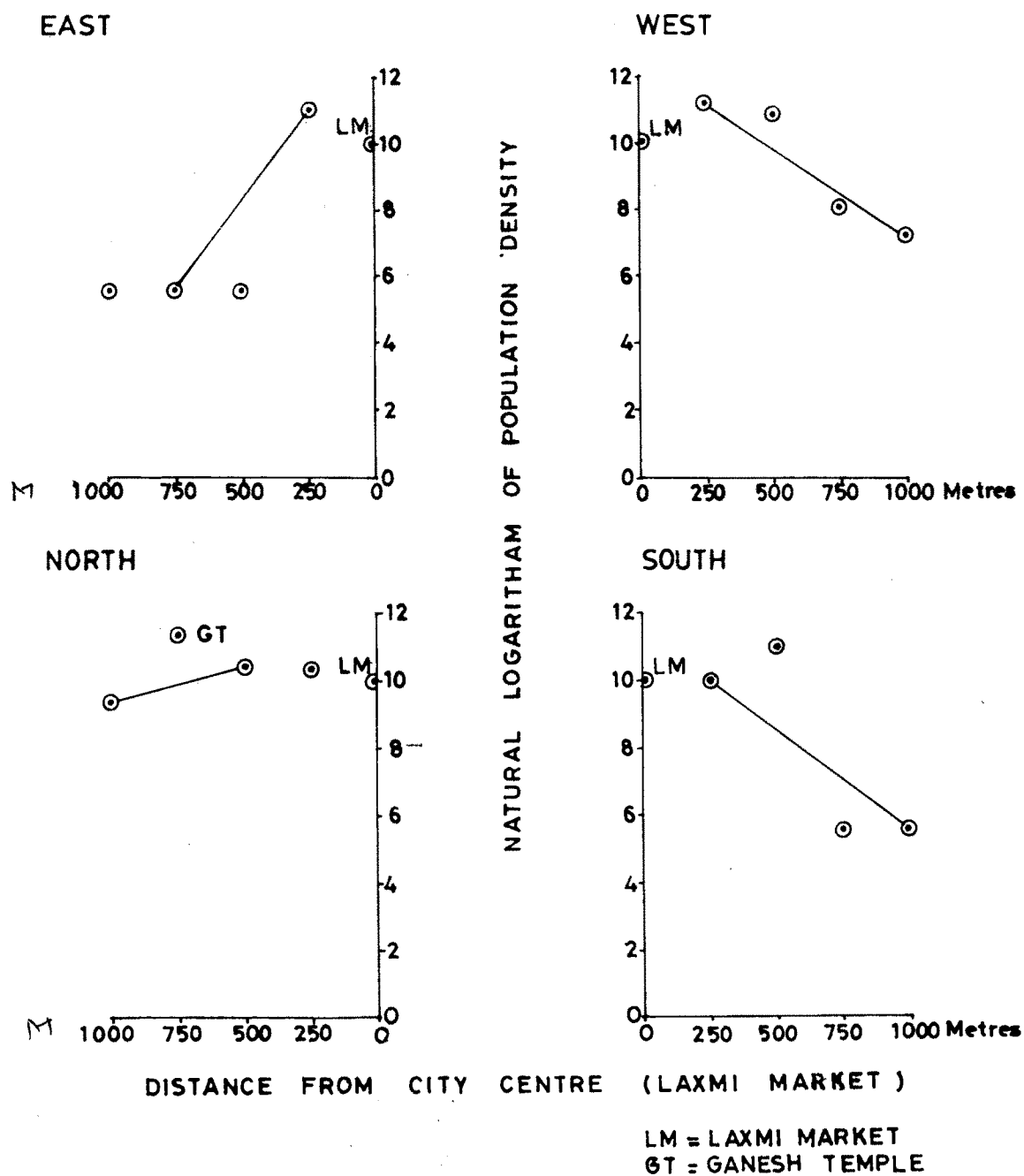
A cursory glance at the Fig.2.4 reveals that while proceeding towards west from the city centre there is a slight rise in the population density first which is followed by continuous decline. It is because Ward Nos. 12, 10, 8 and 20 have a moderate density of population, as they have much of the area under railway yard, ware houses and open spaces.

While proceeding eastward from city centre it is found that the density of the population first rises slightly at the 250 meter distance (Table 2.2) and then gradually fall towards the periphery of the city. However, it is worth mentioning that the localities at the distance of about 500, 750 and 1000 meters the density remains constant and further declines towards the margin.

As one proceeds northward the fall in density is not considerable. The density at the observed localities reveals

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POPULATION DENSITY DISTANCE RELATIONSHIP



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FIG. 2.4

a somewhat abnormal conditions i.e. slight increase from the city centre upto 750 meters from the city centre and then follows a sharp fall. This is because the area between city centre and northward distance of 750 meters is most suitable land from construction point of view, having shallow foundations and infrastructural facilities. It is a zone of high density of population. After this zone the density seems sudden fall and gradual decline towards the periphery.

The southward trend of population density is akin to western portion of the city. It is interesting to note that the poor resides at heart of the city particularly near the Laxmi Market, Nadiwes road and the more well to do and mobile group of people resides at the peripheral portion of the city.

5. SEX RATIO :

One of the most striking features of the demographic structure of Miraj is its masculine character. Here, the number of females per thousand males have always been lower as is clear from Table 2.3.

TABLE 2.3 : Changes in sex ratio, females per thousand of males.

Years	1901	1911	1921	1931	1941	1951	1961	1971	1981
Sex Ratio	968	969	958	924	959	955	946	926	921

Table 2.3, shows that the male female ration which was regularly on the decline from 968 per thousand in 1901 to 924 in 1931. Sex ratio has again raised upto 959 per thousand in 1941 and then continuously declined upto 921 in 1981. Thus the sex ratio of the Miraj has the highest extreme in 1911 (969) and the lowest extreme in 1981 (921). A comparison with the Kolhapur city (899/1000 male), the sex ratio for the year 1981 for Miraj is higher i.e. 921 females per thousand of males.

1) Wardwise study of sex ratio :

A wardwise study of sex ratio for the year 1981 indicates that the number of females per thousand of males. Below the average for the city in case of wards nos. 1, 3, 4, 7, 8, 9, 15, 17, 20, 21, 23, 26, 27, 28, 29, 30, 32, 35, 38, and 40. The lowest sex ratio (833) is observed in Ward No. 20. Out of the total wards, 20 wards (50% wards) have higher sex ratio than the city average. It is notable that Ward No.22 has the highest sex ratio (1029) females/1000 males). Fig.2.5-B represents the general sex ratio of the city and wardwise fluctuations in sex ratio.

The wardwise comparative study of sex ratio shows that the wards with industrial estates registered lower level, the wards having residential localities experiences balanced level of sex ratio e.g. Ward Nos. 12, 27, 35 and 32, the higher level of the sex ratio is typically associated with the wards where

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DEMOGRAPHIC STRUCTURE AT A GLANCE

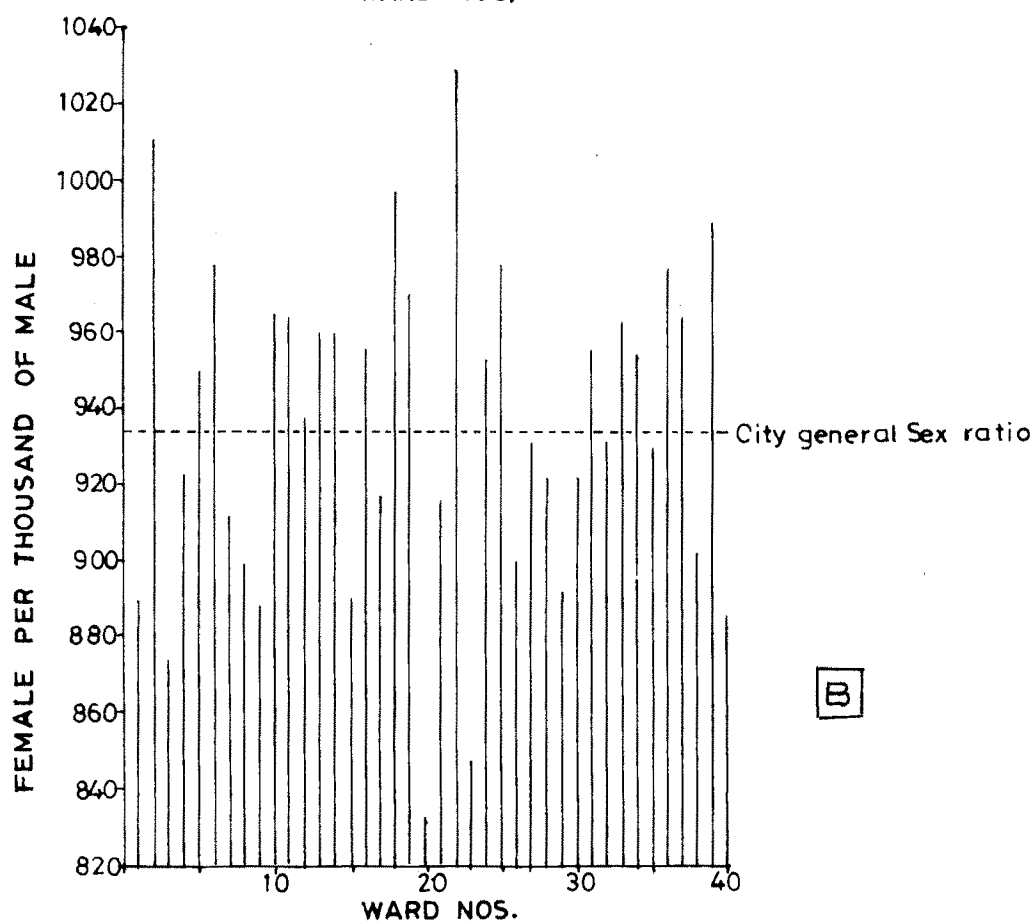
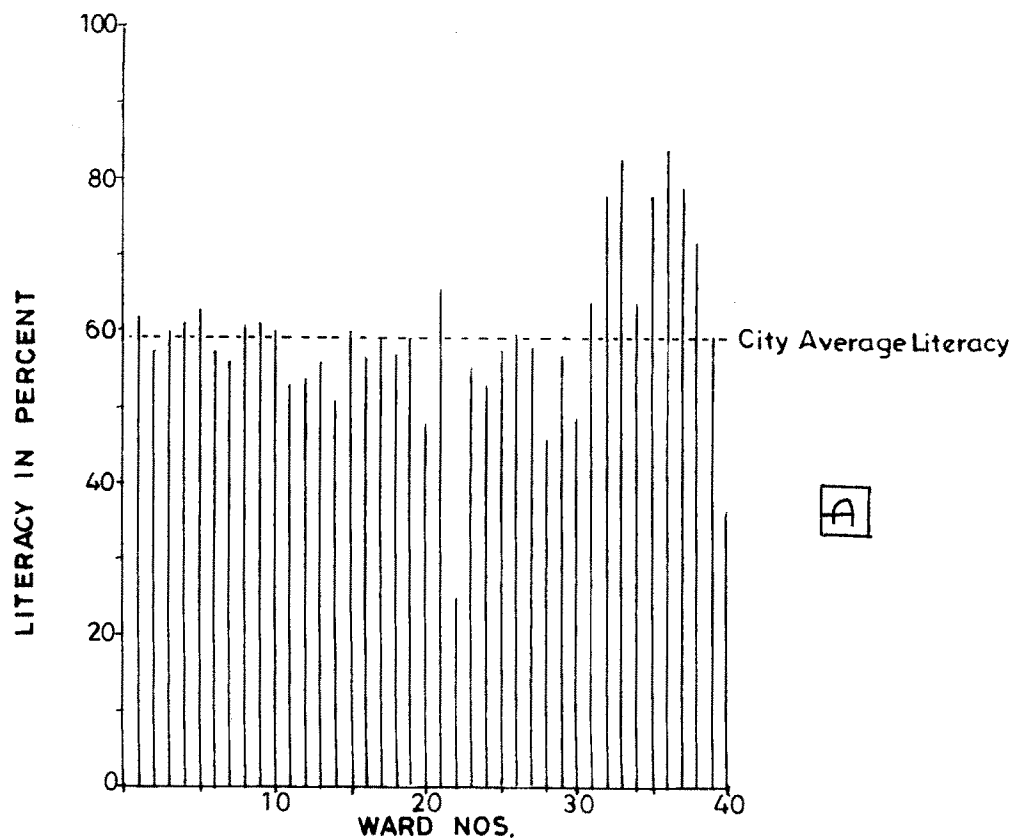


FIG. 2-5

muslim community is residing. Thus the levels of sex ratios are attributed to the locational patterns of wards, the residential community of wards and functional characteristics of the wards within the city.

Intra-urban sex ratio patterns of Miraj city are summerized in Table 2.4.

TABLE 2.4 : Intra-urban sex ratio pattern (Miraj city).

Females/1000 male	Ward Nos.	Total no. of wards
Below 850	20, 23, 40	3
851 to 900	1, 3, 9, 15, 29	5
901 to 950	4, 7, 8, 12, 17, 21, 26, 27, 28, 30, 32, 35. 38	13
951 to 1000	5, 6, 10, 11, 13, 14, 16, 18, 19, 24, 25, 31, 33, 34, 36, 37, 39	17
Above 1000	2, 22	2

SOURCE : Compiled by the Author.

6. BIRTH AND DEATH RATES :

Population growth of a city is by and large determined by the relative number of births and deaths per thousand persons. The growth is also either accelerated or decreased by the number of persons inmigration or outmigration. Thus, natural increase

of population and migration patterns are the determinant of city population growth. Decennial birth and death rates and the natural population growth has been presented in Table 2.5.

TABLE 2.5 : Decennial birth and death rates.

	1961	1971	1981
Birth rate	35.2	29.6	40.9
Death rate	17.0	11.9	19.5
Natural increase	18.2	17.7	21.4

A comparative study of the natural population growth of Miraj shows that during the decade 1961-71 there is a slight change in the amount of natural increase of population. The decade 1971-81 registered relatively greater natural increase of population. Natural increase of population for the year 1971 was 1.7 percent which has replaced by 2.1 percent in 1981. Fig.2.6 indicates the birth and death rates as well as natural increase of population during the period of two decades. It is worth mentioning that since 1971 there is a continuous rapid increase of birth rate, while mortality rate is slowly increased. This is probably because of vast improvements in the field of medical technology and public health facilities.

On account of the paucity of the data pertaining to the age and sex structure, religious population composition

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BIRTH AND DEATH RATES

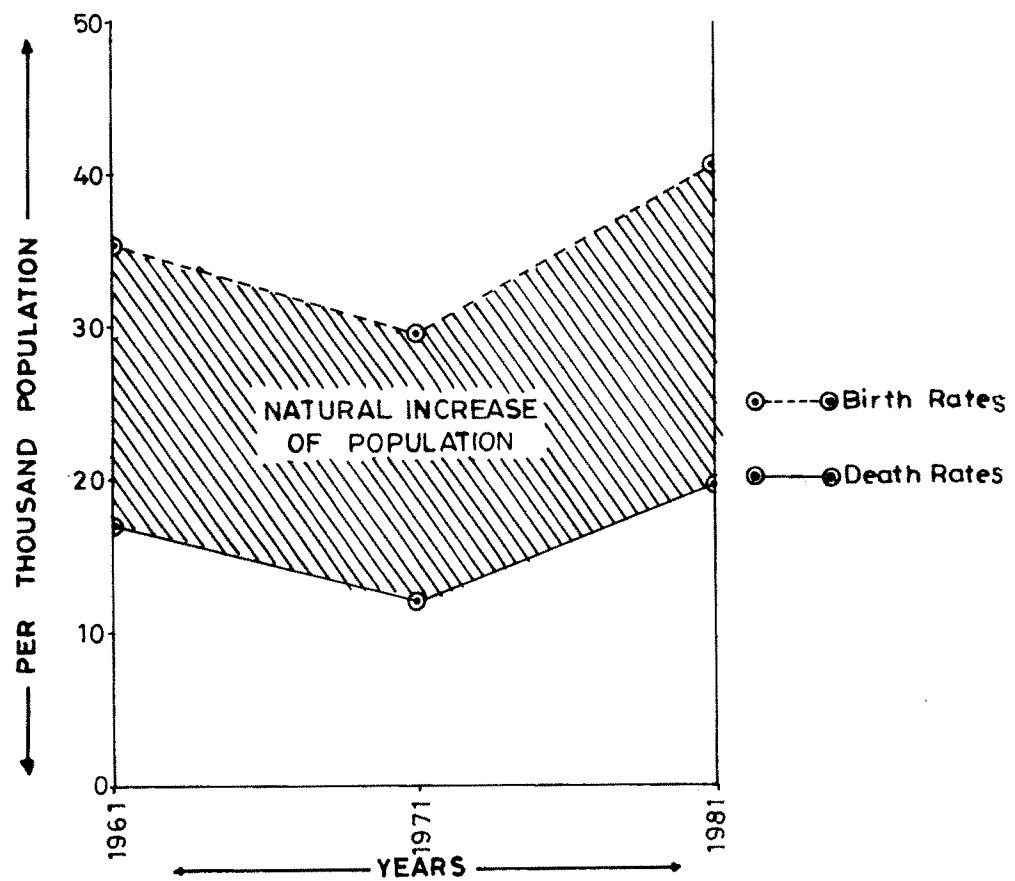


FIG 2.6

and linguistic population composition of the Miraj city etc., demographic aspects are not analysed and included in the present chapter.

7. LITERACY :

The proportions of the literate persons to the total population of a settlement is a general literacy of that settlement. Literacy is a good indication of development. The city Miraj is an old centre and a seat for higher education. Presently the city has ten secondary schools, two degree colleges, one medical college and number of private technical institutions and training centres.

It would be interesting to study the general and ward-wise literacy of the city. The comparative studies of general literacy shows that in 1971 the general literacy was 52.2 percent, it has raised to 59 percent in 1981. The sexwise literacy is also considerably changed during the span of ten years. In 1971 there was 33 percent male literacy and 19.2 percent was female literacy. In 1981 the male literacy has increased by 3 percent, while female literacy has raised by 4 percent. Fig.2.7 shows the literacy pattern of Miraj city for the year 1971 and 1981.

1) Wardwise literacy :

The analysis of literacy pattern at the individual ward level reveals that the highest proportion of the literate persons are observed in ward nos. 33 and 36. This is because

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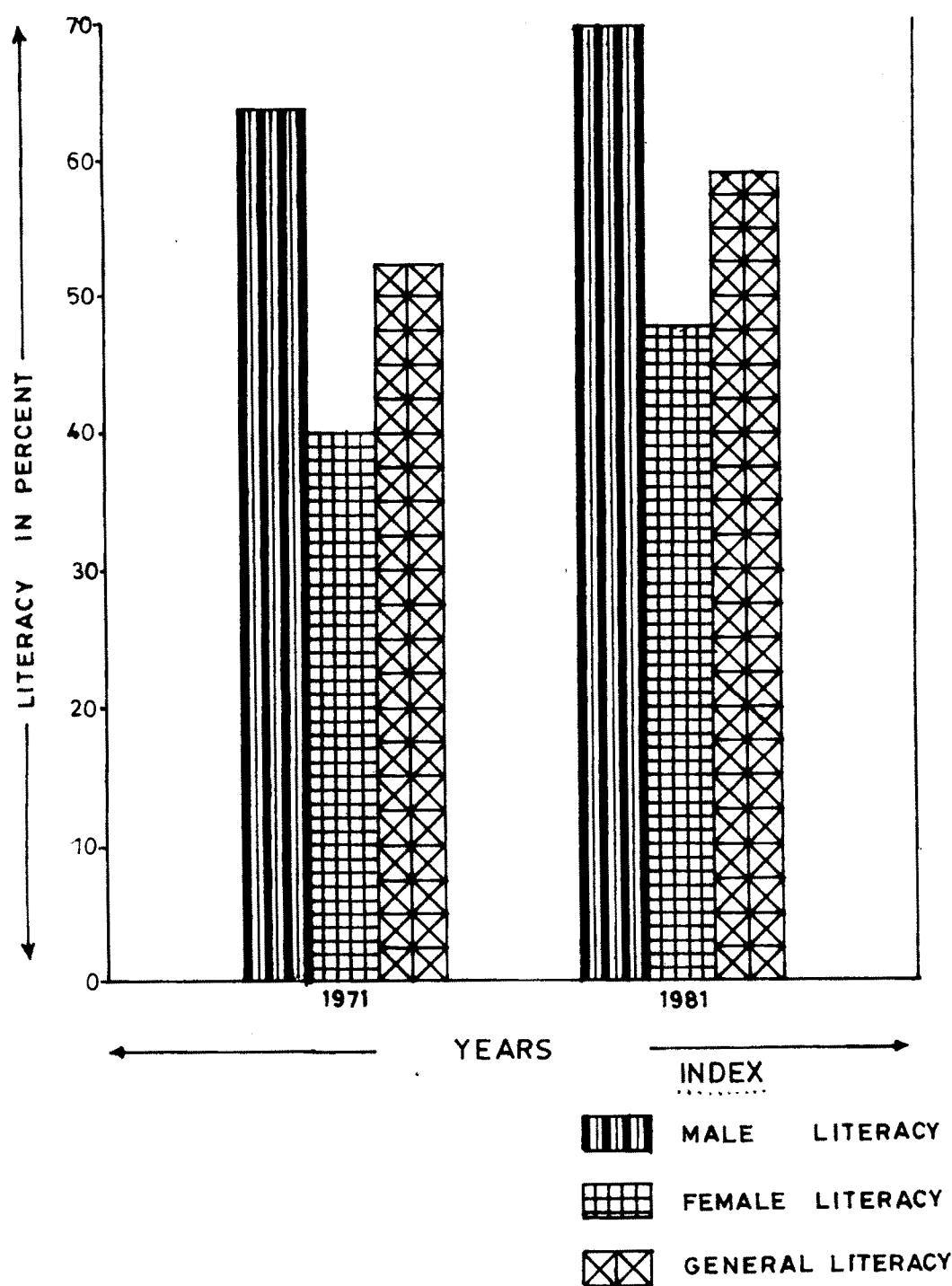
LITERACY 1981

FIG. 2-7

these wards are the localities of Brahmin community. Locally this area is known as 'Brahmanpuri'. At the other end of the scale the lowest level of the literacy is found in the ward nos. 22 and 40 (Fig.2.5-A). This is so because ward number 22 is the home for slum dwellers and ward number 40 is a location for the railway yard and cultivation. Fig.2.8 shows the ward-wise literacy pattern of Miraj city in 1981.

According to the census of 1981 it is observed that the percentage of literate persons is highest in ward number 33 (85.5 percent) followed by ward number 36 (84.1 percent), ward number 37 (78.6 percent) and ward number 32 (78.2 percent). Table 2.6 shows wardwise literacy percentage and percentage of females per thousand of males.

Out of the total wards of the city nearly 50 percent of the wards having the general literacy ranging between 50 to 60 percent.

In the literacy of males one can find that highest position has been maintained by the ward number 36 (88.8 percent) followed by ward number 33 (87.4 percent) and ward number 37 (84.9 percent). In the literacy of females it is seen that the ward no. 22 has the lowest percentage of female literacy (13.6 percent) and ward no. 33 has the highest female literacy (89.5 percent).

Table 2.7 indicates wardwise male and female literacy for the year 1981. It is a matter of coincidence that ward

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WARD-WISE LITERACY

1981

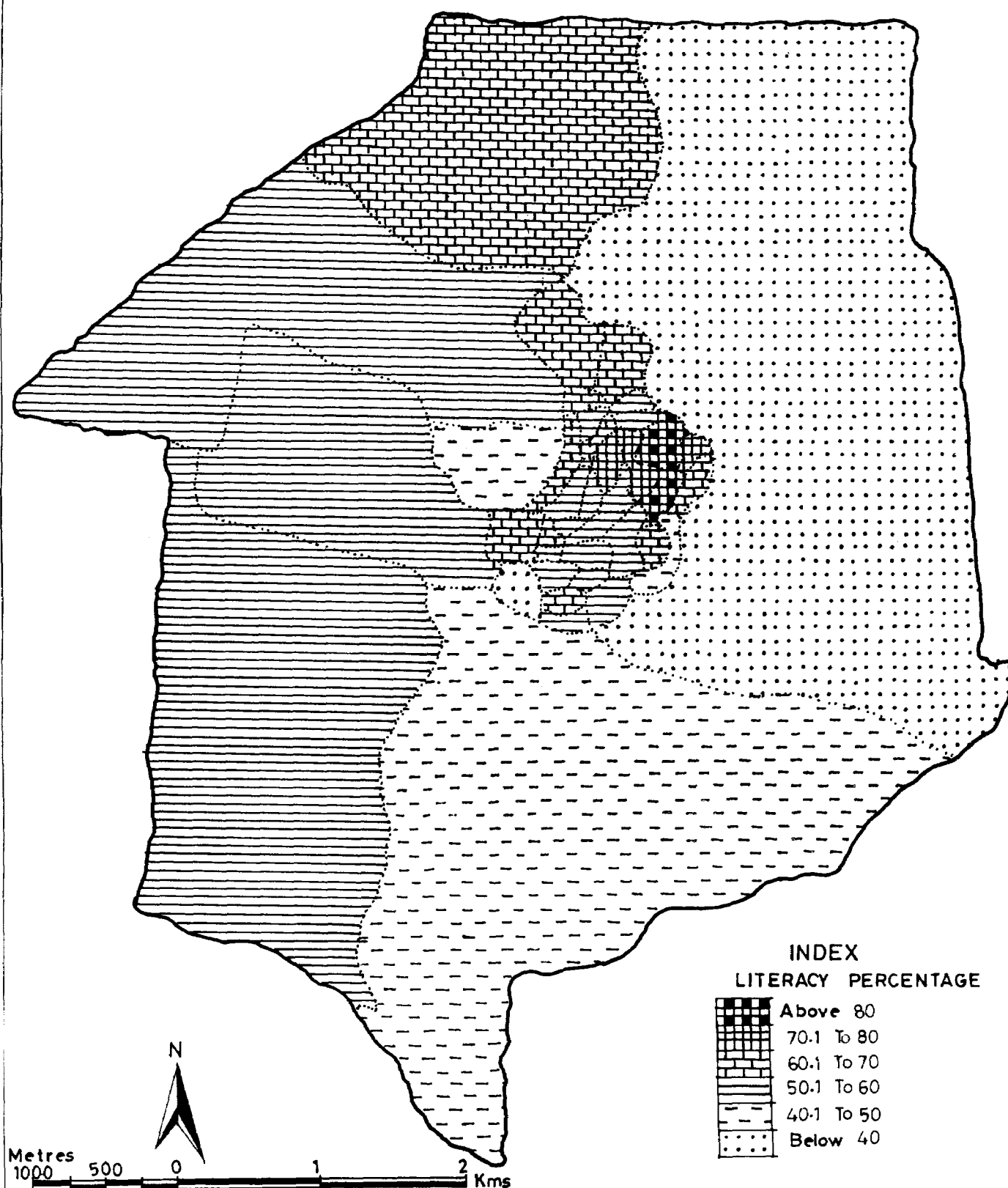


FIG 2-8

TABLE 2.6 : Wardwise literacy and sex ratio of Miraj city (1981).

Ward No.	Literacy (%)	Female/ 1000 male	Ward No.	Literacy (%)	Female 1000 male
1	62.2	897	21	65.6	916
2	57.0	1011	22	24.7	1029
3	65.3	874	23	55.7	848
4	60.8	923	24	53.1	953
5	62.6	951	25	58.3	978
6	57.1	978	26	60.3	900
7	56.1	913	27	57.7	931
8	60.7	900	28	46.4	923
9	61.2	888	29	57.0	892
10	60.0	965	30	49.2	922
11	53.4	965	31	64.3	956
12	54.5	937	32	78.2	932
13	56.1	960	33	83.5	984
14	51.2	960	34	64.6	955
15	60.4	890	35	77.6	930
16	57.0	957	36	84.1	978
17	59.1	917	37	78.6	965
18	57.0	997	38	72.2	903
19	58.6	969	39	59.1	989
20	48.3	833	40	36.7	886

SOURCE : District Census Handbook of Sangli District, 1981.

TABLE 2.7 : Wardwise male and female literacy, 1981.

Ward Nos.	Percentage of literacy to total population		Ward Nos.	Percentage of literacy to total population	
	Male	Female		Male	Female
1	71.6	51.7	21	75.1	52.2
2	64.0	50.2	22	36.2	13.6
3	75.8	53.3	23	64.8	45.0
4	74.5	49.2	24	82.9	40.6
5	74.5	50.1	25	71.0	45.3
6	69.8	44.0	26	72.2	47.2
7	68.4	42.7	27	72.2	42.1
8	76.8	43.0	28	60.2	31.6
9	73.5	47.4	29	63.4	49.7
10	72.9	46.5	30	63.3	33.9
11	64.8	41.6	31	43.5	54.7
12	66.4	41.7	32	83.9	72.3
13	66.5	45.4	33	87.4	89.5
14	63.2	38.8	34	74.3	54.5
15	70.9	49.0	35	84.1	70.7
16	69.8	43.6	36	88.8	79.3
17	70.2	46.9	37	84.9	72.1
18	66.0	47.9	38	81.5	61.8
19	72.4	44.4	39	70.4	47.7
20	59.2	35.3	40	48.3	23.5

SOURCE : Compiled by the Author.

no.33 has topping the list in male as well female literacy and at the same time it is also worth mentioning that female literacy higher than male literacy.

8. OCCUPATIONAL STRUCTURE OF POPULATION :

The occupational structure of a city is always analysed with the consideration of labour force engaged in different economic activities. The dominant percent of employment share determines the type of the town which is functionally important. Towns and cities are more significant by the virtue of the services and the activities performed by them rather than their population size. Thus, the functional magnitude of a city is economically important than merely the population size.

While studying the occupational structure of Miraj city for the year 1971, it has been observed that the population of Miraj has subdivided into 26.8 percent of the workers and 73.2 percent of non-workers. The same trend of the occupational structure is maintained in the year 1981. However, there is clearcut indication that the percentage of population engaged in secondary and tertiary activity has increased.

The census authority had changed the subcategories of occupational structure in 1981. The newly formed categories includes the cultivators, agricultural labours, household manufacturing, servicing and repairing, other workers (which constitutes the former categories of construction, trade and commerce, transport and storage and other services), and marginal workers.

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OCCUPATIONAL STRUCTURE

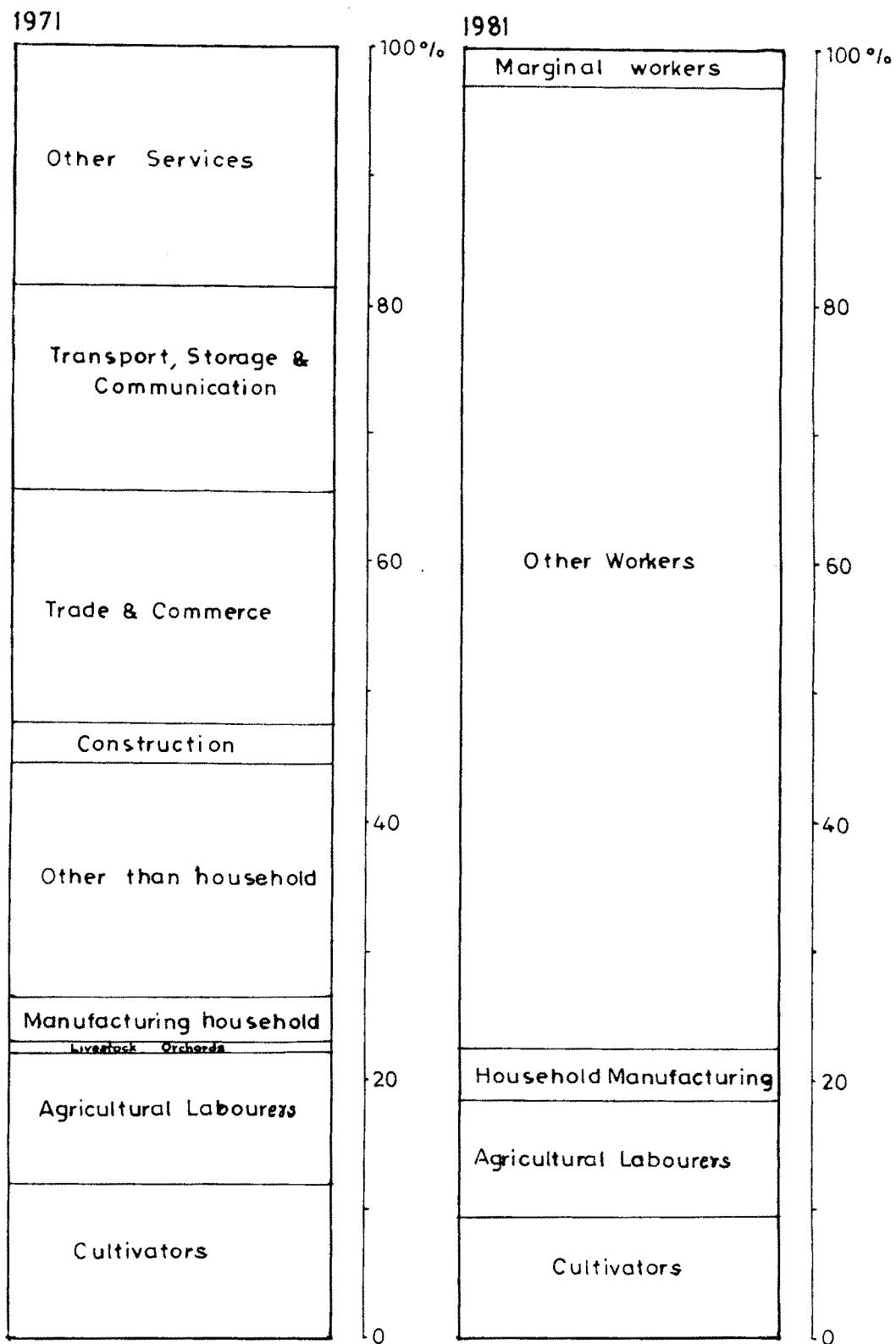


FIG. 2.9

According to 1981 census occupational structure of the city, the labour force engaged in agricultural pursuits is 5.1 percent, 1.2 percent in household, manufacturing etc. and 22.2 percent in other workers category. Out of the total working force nearly 0.9 percent is treated as a marginal workers. Broadly out of the total population only 30 percent is a working population and the remaining 70 percent is non-working population. This clearly indicates that the dependency ratio in the city is quite high. The comparative occupational structure has represented in Fig.2.9 for the years 1971 and 1981.

A closer examination of the occupational structure reveals that the tertiary sector is found to be increased to a great extent. The proportions of the workers in transport and communication, trade and commerce is increasing very rapidly. The main reason for such increase is opening of Kolhapur-Pune broadgauge railway line in 1971, which increase the transport facilities. Miraj has become an important transport and trade centre in Southern Maharashtra. It is well connected by roads and railways to all important market places in Maharashtra, Karnataka and Goa. The administrative office of South Central Railway at Miraj and other facilities of marketing, transport and communication have given impetus to the rise of trade and commerce and it become an economic base for Miraj city.

R E F E R E N C E S

1. Bhende, Asha, A. and Kanitkar, Tara (1985) : Principles of population studies. Himalaya Publishing House, Bombay.
2. Clark, Colin (1951) : Urban population densities. Quoted by M.G. Bradford and M.A. Kent in 'Human Geography : Theories and their applications', Oxford University press, 1977, p.77.
3. Clarke, J.I. (1972) : Population Geography. Pergamon press, Oxford.
4. Johnson, J.H. (1967) : Urban Geography - An Introductory Analysis. Oxford, London, p.58.
5. Malase, P.T. (1974) : Kolhapur - A study in Urban Geography. University of Poona, pp.20-31.