C H A P T E R [III]

SPATIAL DISTRIBUTION OF MARKET CENTRES

C H A P T E R [III]

SPATIAL DISTRIBUTION OF MARKET CENTRES

3.0   Physical space being of prime concern to geographers, various aspects of location and distribution of market centres have been studied since 1931[1]. Several geographers have studied the distribution of market centres of various regions. The distribution of market centres in the Saryupur Plains in U.P. studied by V.K.Srivastava and H.O. Srivastava in 1979[2]. Dixit has studied the distribution of market centres from various aspects in U.P.[3] Kumbhar, Deshmukh (1984) have studied the distribution of periodic market centres of Sangli District.[4]

Market centres are the centres of distribution and collection of goods which required for the surrounding population. In India, rural market centres are fairly distributed in the agricultural areas, where urbanization has not making its effect, so the weekly market centres have got more importance from the view point of rural population.

In the present chapter, an attempt has been made to study the spatial distribution of market centres in the Sindhudurg district. The distribution of settlements and market centres, size distribution of market centres and various factors which affect on the distribution of market centres have been considered.

3.1   **THE DISTRIBUTION OF SETTLEMENTS AND MARKET CENTRES**

The talukawise distribution of settlements and market centres have been considered and it is observed that except

Sawantwadi taluka, there is some relationship between distribution of rural settlements and market centres. In the study region a market serves an average 14 rural settlements but Kudal, Malvan and Kankavli talukas have more number of market centres compared to other talukas, because these talukas are situated in the fertile zone of the study region, where the transport facilities have more developed and most of the market centres are situated on the road. The table No. III-I and figure No.3.1 gives clear idea about the talukawise distribution of settlements and market centres.

TABLE NO. III-I

SINDHUDURG DISTRICT

TALUKAWISE DISTRIBUTION OF SETTLEMENTS AND MARKET CENTRES

Sr. No.	Taluka	No.of Settle-ments.	No.of Market Centres
1.	Sawantwadi	140	08
2.	Vengurla	78	05
3.	Kudal	123	12
4.	Malvan	135	11
5.	Kankavli	105	08
6.	Devgad	97	06
7.	Vaibhavwadi	58	03
	Sindhudurg District	740	53

3.2   SIZE DISTRIBUTION OF MARKET CENTRES

Here, an attempt has been made to study the distribution of market centres according to their size groups, because the

A

SINDHUDURG DISTRICT

DISTRIBUTION OF SETTLEMENTS AND MARKET CENTRES-1991.
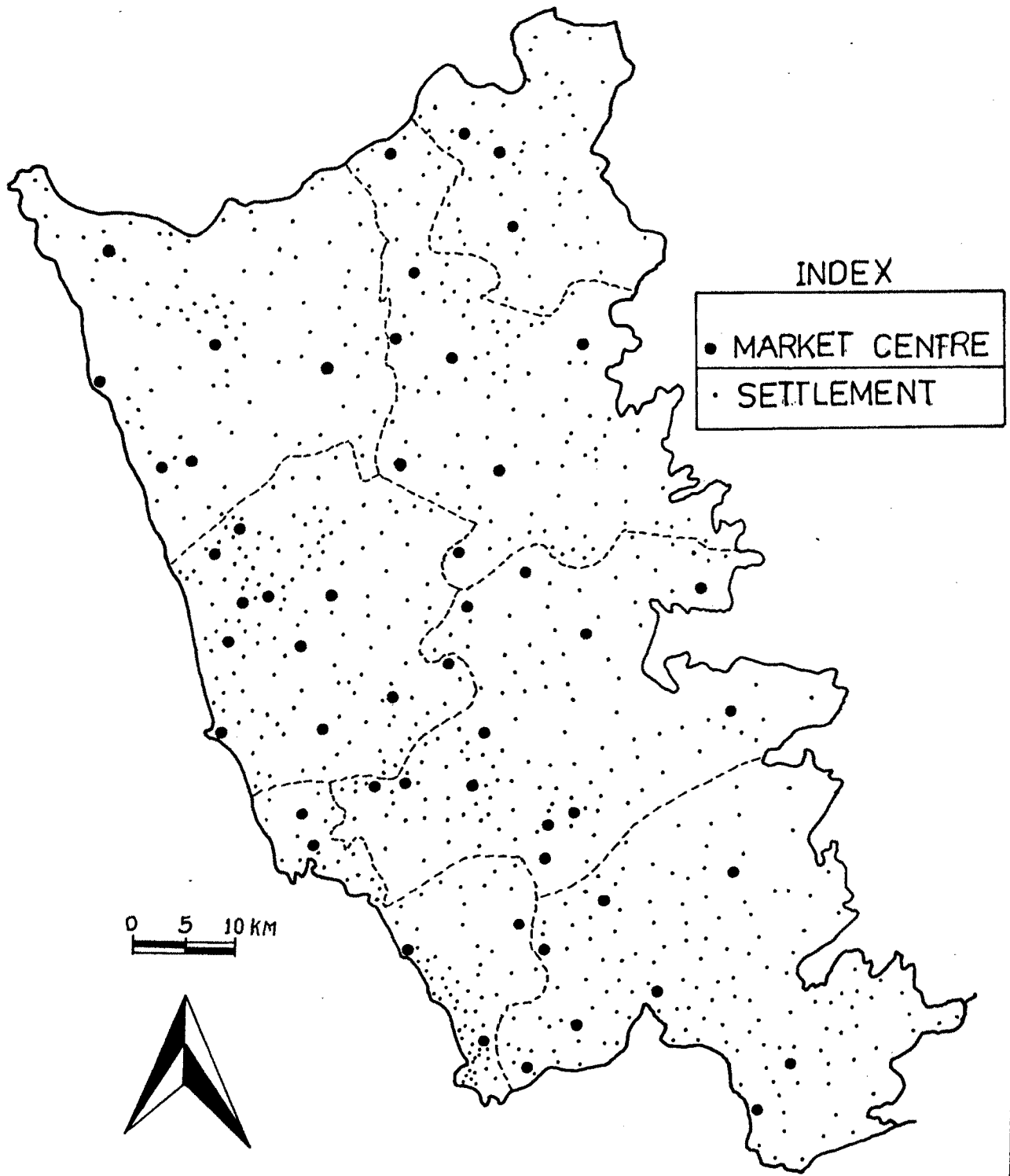

INDEX

• MARKET CENTRE
· SETTLEMENT

0 5 10 KM

FIG.~ 3.1

size of market centres is based on various factors. In the hilly areas the size of market centres found very small as compared to agriculturaly prosporous region. To study the size distribution of market centres the market centres are grouped into five categories based on their population. The table No.III-II-A, III-II-B and Figure No. 3.2.A, 3.2.B, 3.2.C gives the clear idea about talukawise size distribution of market centres.
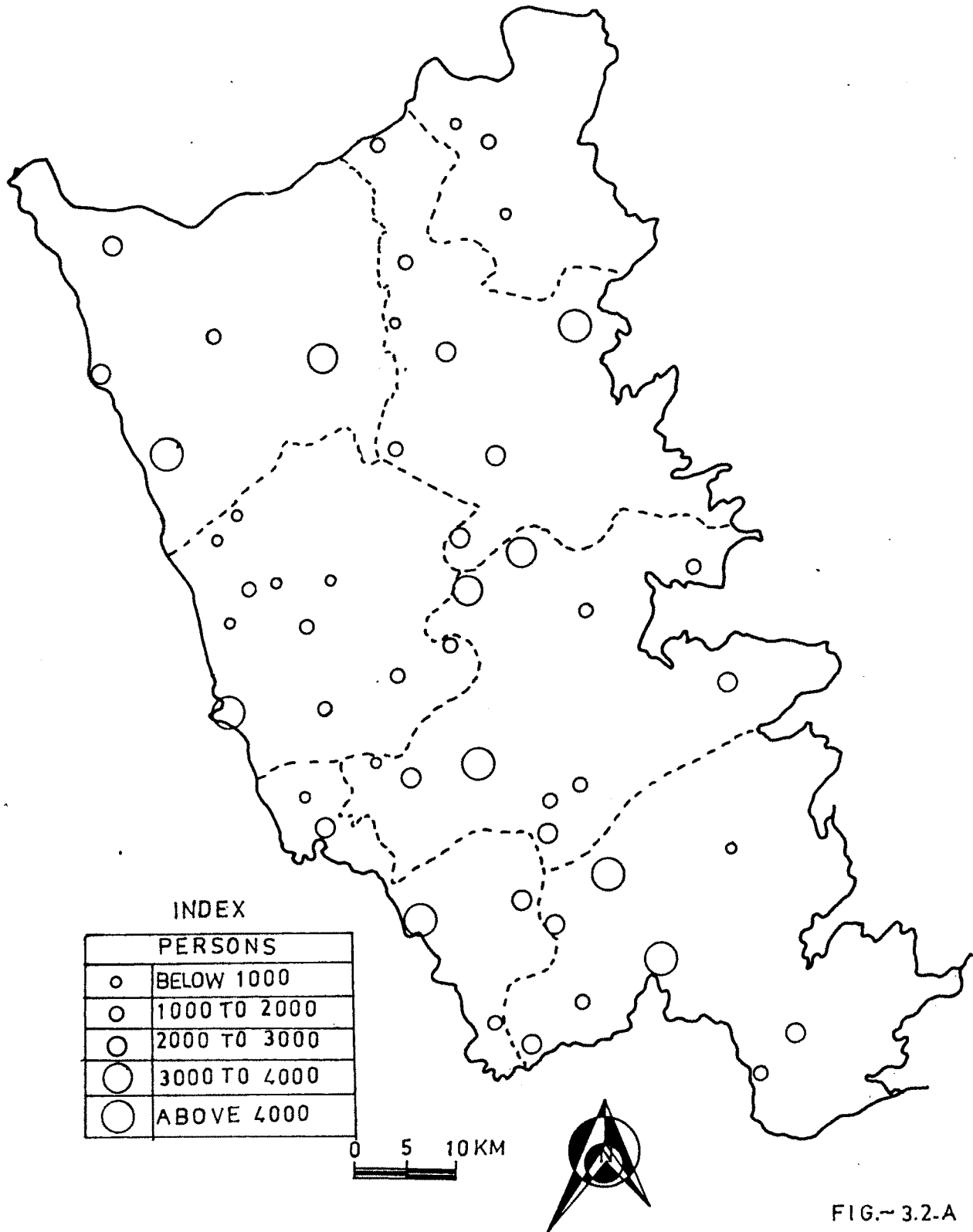
TABLE NO. III-II-A

SINDHUDURG DISTRICT

TALUKAWISE SIZE OF MARKET CENTRES BASED ON POPULATION 1981

Sr. No.	Taluka	< Size Group of Market Centres >					Total
		I Below 1000	II 1000 to 2000	III 2000 to 3000	IV 3000 to 4000	V Above 4000	
1.	Sawantwadi	1	2	3	–	2	8
2.	Vengurla	1	1	2	–	1	5
3.	Kudal	1	4	3	2	1	11
4.	Malvan	5	5	–	–	1	11
5.	Kankavli	1	3	3	–	1	8
6.	Devgad	–	1	2	1	1	5
7.	Vaibhavwadi	2	1	–	–	–	3
	Sindhudurg District	11	17	13	3	7	51

SINDHUDURG DISTRICT
TALUKAWISE SIZE OF MARKET CENTRES
BASED ON POPULATION - 1981

INDEX

	PERSONS
o	BELOW 1000
o	1000 TO 2000
o	2000 TO 3000
O	3000 TO 4000
O	ABOVE 4000

0   5   10 KM

FIG.- 3.2-A

SINDHUDURG DISTRICT
TALUKAWISE SIZE OF MARKET CENTRES
BASED ON POPULATION- 1991

INDEX

	PERSONS
○	BELOW 1000
○	1000 TO 2000
○	2000 TO 3000
○	3000 TO 4000
○	ABOVE 4000
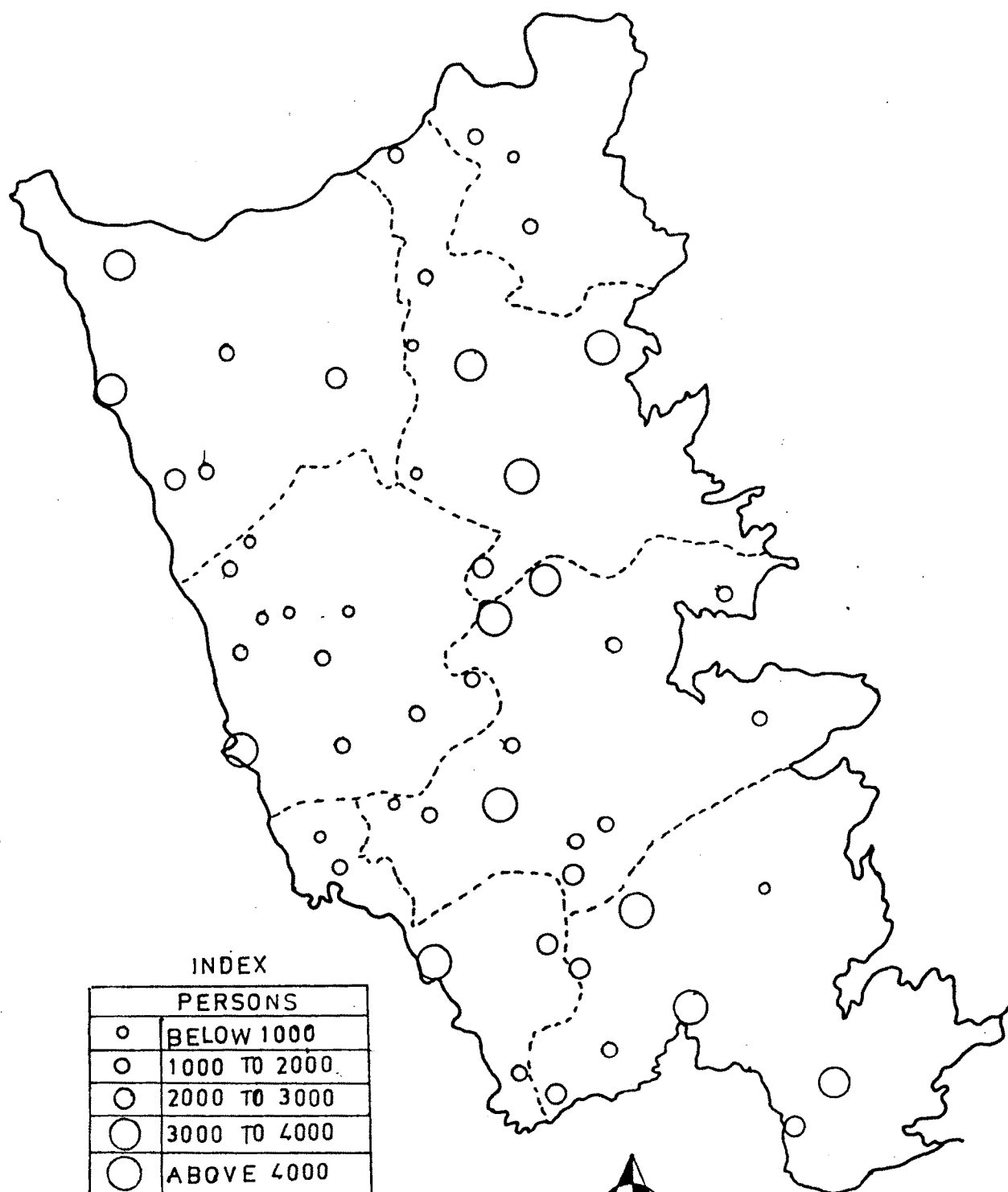
0 5 10 KM

FIG.~ 3.2-B

SINDHUDURG DISTRICT
GROWTH OF MARKET CENTRES
IN VARIOUS SIZE GROUPS
1981-1991
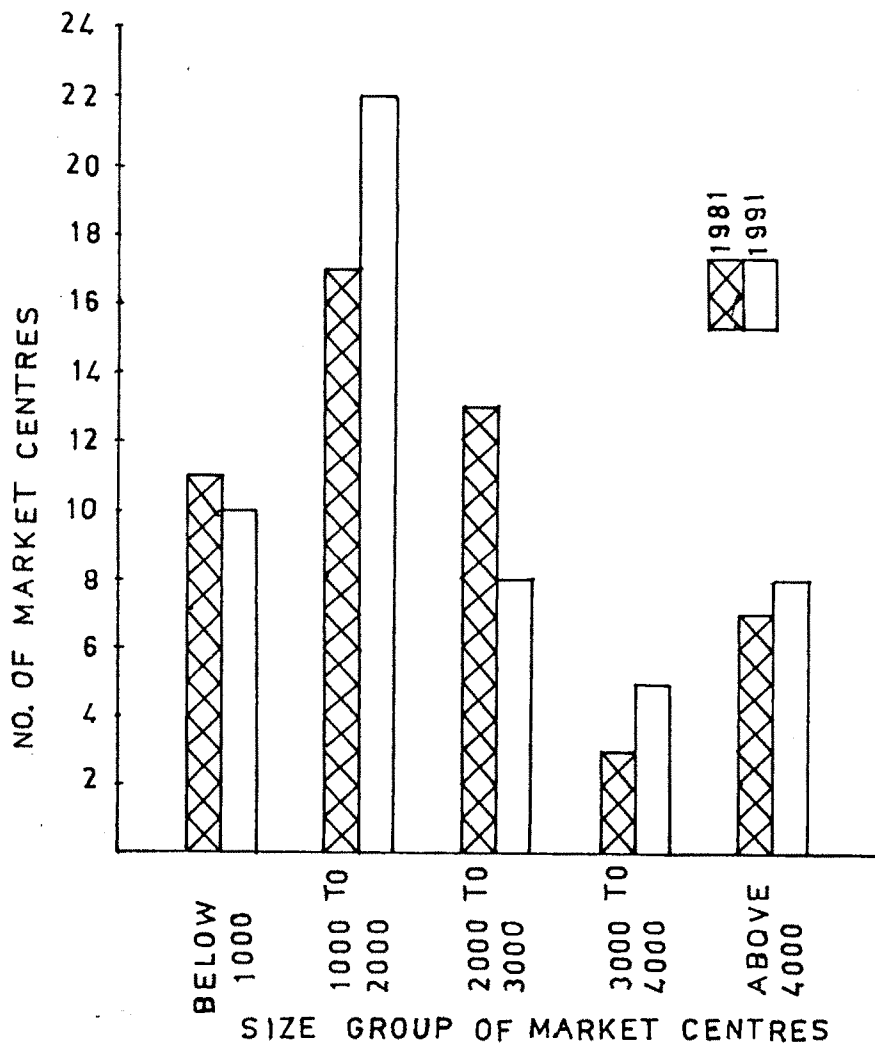

FIG.~ 3.2-C

TABLE NO.III-II-B

SINDHUDURG DISTRICT

TALUKAWISE SIZE OF MARKET CENTRES BASED ON POPULATION - 1991

| Sr. No. | Taluka | < Size Group of Market Centres > | | | | | Total |
		I Below 1000	II 1000 to 2000	III 2000 to 3000	IV 3000 to 4000	IV Above 4000	
1.	Sawantwadi	1	1	3	1	2	8
2.	Vengurla	1	2	1	-	1	5
3.	Kudal	1	7	1	1	2	12
4.	Malvan	4	6	-	-	1	11
5.	Kankavli	2	2	1	1	2	8
6.	Devgad	-	2	2	2	-	6
7.	Vaibhavwadi	1	2	-	-	-	3
	Sindhudurg District	10	22	8	5	8	53

It is observed that, in the year 1981 there are 11 markets in the first category,but the No.of market centres decreased by one market in the year 1991. In the second size group of market centres (i.e. 1000 to 2000 persons) there are 17 market centres in the year 1981, the market centres are increased by 5 market centres in the year 1991. In the third category of market centres (i.e. 2000 to 3000 persons) the number of market centres are 13 in the year 1981, which have decreased by 5 market centres in the year 1991. But in the next two categories it is observed that the number of market centres have increased by two and one respectively.

3.3.0   **FACTORS INFLUENCING ON THE DISTRIBUTION OF MARKET CENTRES :**

There are various factors which affect on the distribution of market centres, natural and socio-economic factor influence on the distribution of market centres, in which physiography, drainage, rainfall, agriculture, irrigation, transportation and communication are the important factors.

3.3.1   **PHYSIOGRAPHY :**

The physiography of the study region has been divided into following three categories.

1]   The Sahyadrian Hill Region (Height above 300 m)

2]   The Middle Belt Of The Hill Region or Valati (Height 100 m to 300 m)

3]   Coastal Belt Region or Khalati (Height Below 100 m)

1] <u>THE SAHYADRIAN HILL REGION (HEIGHT ABOVE 300 m)</u>

The eastern part of the study region, which is covered by Sahyadrian hill ranges. The height of this region is above 300 m from the Sea level, covers an area about 13 percent of the total and accounts for 3.8 percent of the total market centres. This is the part of Sahyadrian hill ranges covered by dense forest so the land under cultivation is very low, therefore, the density of population is also very low and hence there are less number of market centres (only 2) in this region.

2] THE MIDDLE BELT OF THE HILL REGION OR VALATI (HEIGHT 100 m to 300 m)

The foot hill region of the Sahyadri and scattered hill ranges in the central part of the study region, which covers an area about 37 percent of the total having height 100 m to 300 m above sea level, which accounts for 24.53 percent of the total market centres. In this region, land under agriculture is found more, transportation network have developed therefore the number of market centres are found more.

3] COASTAL BELT REGION OR KHALATI (HEIGHT BELOW 100m)

The western part of the study region and some part of the various river basins covered by coastal belt or Khalati. The height of this region is below 100 m from sea level, covers an area about 50 percent of the total and accounts for 71.70 percent of the total market centres. In this area the land under cultivation is found more, fertile soil, irrigation facilities and development of road network gives rise to more economic development as compared to other part of the study region, hence there are more number of market centres of big size.

It is observed that, the physiography and the distribution of the market centres in the study region have a positive co-relationship because the hilly region which covers less area and less number of market centres. The region which is extended along the coastal line covers more area and more number of market centres. It is found that the region which is found below 300 m covers nearly 87 percent of

the total area and accounts for 96.23 percent of the total market centres of the study region.

The table No.III-III and Figure No.3.3 gives clear idea about physiography and distribution of market centres in the study region.

TABLE NO. III-III

SINDHUDURG DISTRICT

HEIGHT FROM SEA LEVEL, AREA COVERED, NO.OF MARKET CENTRES

AND THEIR PERCENTAGE

Sr. No.	Height in mtrs.	Area covered in sq.km	Percentage to total	No.of market centres	Percentage to total
1.	Below 100	2543.75	50	38	71.70
2.	100 to 300	1882.37	37	13	24.53
3.	Above 300	661.38	13	02	3.77
	Sindhudurg District	5087.50	100	53	100.00

3.3.2   DRAINAGE DENSITY AND DISTRIBUTION OF MARKET CENTRES

Human settlements are always attracted by rivers and streams. In any region, where more number of rural settlements are found in these areas the drainage density is also found high. The size of rural settlements are found small in the areas of high drainage density region. To study the distribution of market centres in relation to drainage density for the study region, the study region has been divided into five categories of drainage density (Table No. III-IV).

SINDHUDURG DISTRICT
PHYSIOGRAPHY

RATNAGIRI DISTRICT

KOLHAPUR DISTRICT

ARABIAN SEA

VAIBHAVWADI

DEVGAD

KANKAVLI

OROS

MALVAN

KUDAL

SAVANT WADI

VENGURLA

GOA

KARNATAK

INDEX
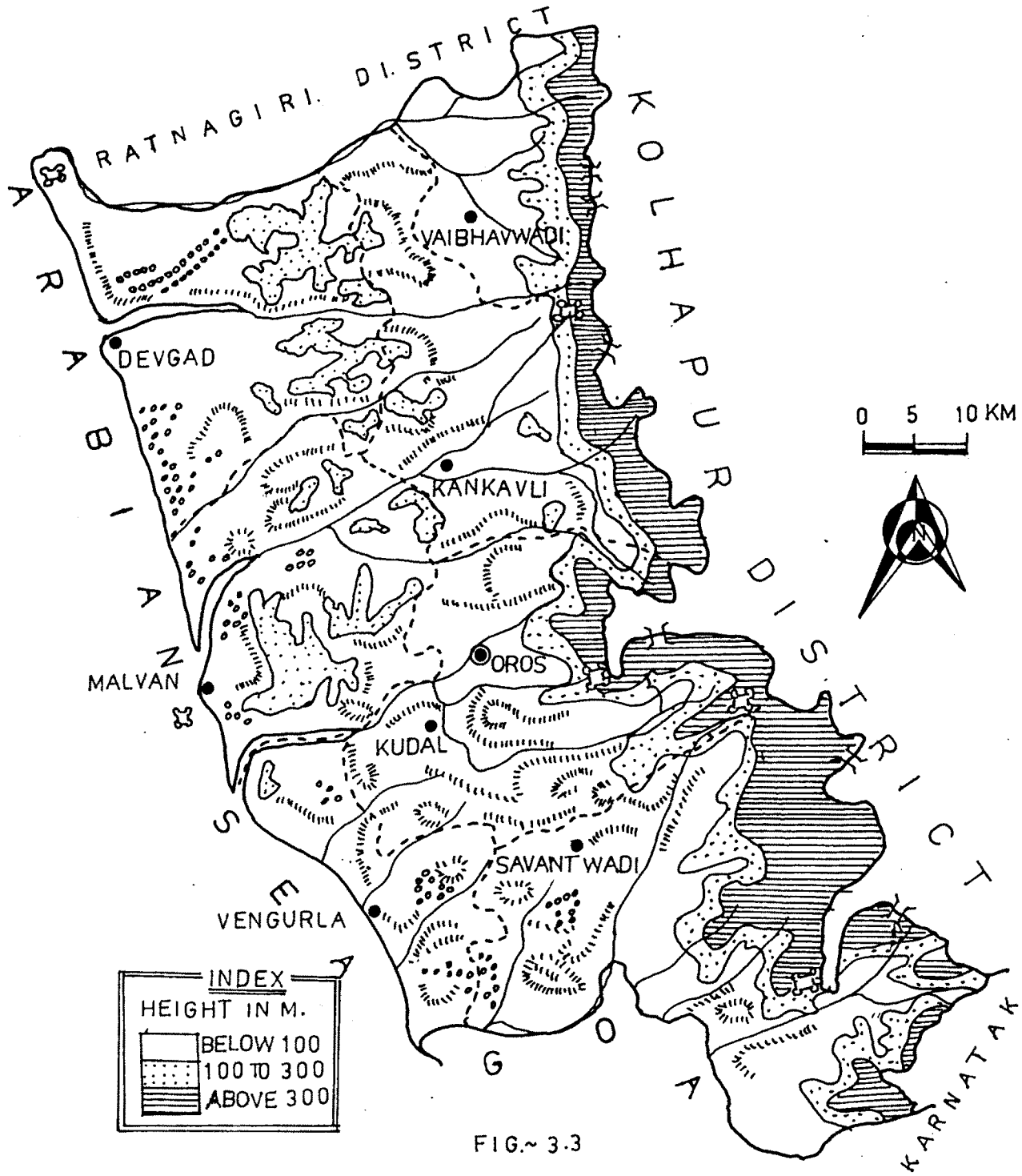HEIGHT IN M.
BELOW 100
100 TO 300
ABOVE 300

0   5   10 KM

FIG.~ 3.3

It is observed that, very few coastal part of Devgad and Malvan has found drainage density below 25 km per 100 sq.km, covers an area about 0.75 percent of the total and accounts for 3.8 percent of the total market centres. The western coastal part of Devgad, Malvan and Vengurla taluka and few southern part of Sawantwadi talukas have drainage density between 25 km to 50 km per 100 sq.km, covers an area about 3.2 percent of the total which accounts for 3.8 percent of the total market centres of the study region.

The south-central part and north-western part of the study region, where the drainage density is found between 50 to 75 km per 100 sq.km., covers an area about 42 percent of the total and accounts for 41.52 percent of the total market centres. The drainage density between 75 to 100 km per 100 sq.km observed in central and eastern part of the study region, which covers an area about 50 percent of the total and accounts for 47.17 percent of the total market centres. A very few part of the south-eastern part of the study region, where the drainage density is found above 100 km per 100 sq.km, covers an area about 4 percent of the total and accounts for 3.8 percent of the total market centres.

It is also obsreved that, where the drainage density is found between 50 to 100 km per 100 sq.km., covers an area about 92.05 percent of the total and accounts for 88.69 percent of the total market centres. The table No.III-IV and Figure No.3.4 gives clear idea about drainage density and distribution of market centres in the study region.

SINDHUDURG DISTRICT
DRAINAGE DENSITY
PER 100 SQ KM.

INDEX

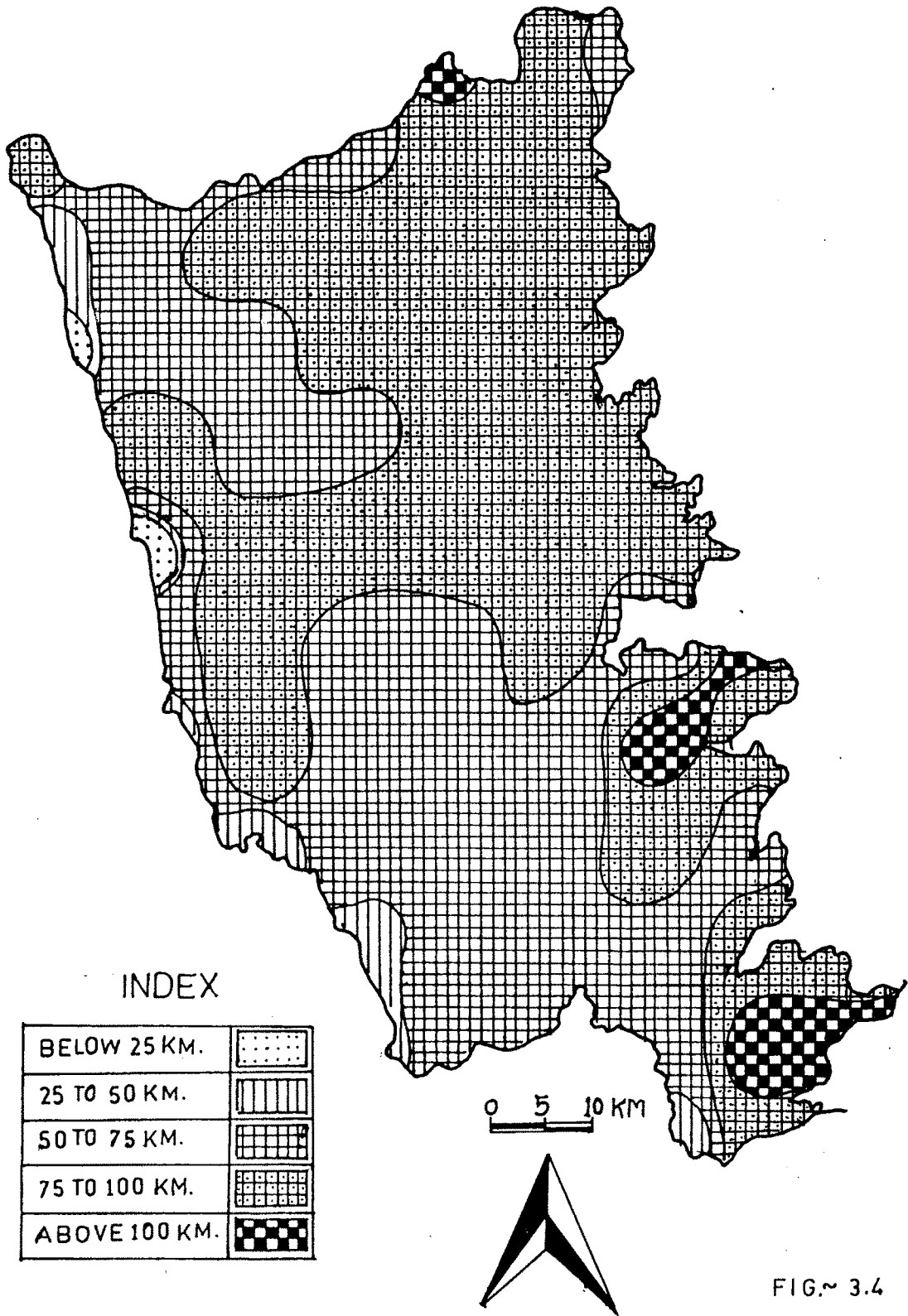|	
BELOW 25 KM.	
25 TO 50 KM.	
50 TO 75 KM.	
75 TO 100 KM.	
ABOVE 100 KM.	

0   5   10 KM

FIG.~ 3.4

TABLE NO.III-IV

SINDHUDURG DISTRICT

THE DRAINAGE DENSITY, AREA COVERED, NO.OF MARKET

CENTRES AND THEIR PERCENTAGE

Sr. No.	Drainage Density per 100 sq.km	Area covered in sq.km	Percentage to total	No.of market centres	Percentage to total
1.	Below 25 km	38.00	0.75	02	3.77
2.	25 to 50 km	162.00	3.18	02	3.77
3.	50 to 75 km	2136.00	41.99	22	41.52
4.	75 to 100 km	2546.50	50.06	25	47.17
5.	Above 100 km	205.00	4.02	02	3.77
	Sindhudurg District	5087.50	100.00	53	100.00

3.3.3   DISTRIBUTION OF RAINFALL AND MARKET CENTRES

In the study region, the rainfall increases from west to east, on the eastern side it is above 4500 mm, while on the western side it is less than 2000 mm. A very different type of relationship between rainfall distribution and market centres has been observed. The rainfall of the study region has been grouped into seven categories, and the isopleth map has been drawn for showing comparative picture of distribution of market centres and distribution of rainfall.

It is observed that in the western part of the study region, where the rainfall is found less than 3000 mm, covers an area about 17.94 percent of the total and accounts for 30.19 percent of the total market centres. This area is

is extended along the coast line in the north-south direction where more number of market centres are found. The central part and north-eastern part of the study region, where the rainfall is found between 3000 mm to 4000 mm, covers an area about 62.14 percent of the total and accounts for 56.6 percent of the total market centres of the study region.

The east-central part and south-east part of the study region, where the rainfall is observed above 4000 mm, covers an area about 19.92 percent of the total and accounts for 13.21 percent of the market centres of the total. It is observed that, where the rainfall is found high, the number of market centres are found less, while the rainfall which is observed below 3000 mm covers less area of the study region and more number of market centres.

The Table No.III-V and Figure No. 3.5 shows clear picture of the rainfall distribution and distribution of market centres in the study region.

SINDHUDURG DISTRICT
RAINFALL DISTRIBUTION
IN MM.

INDEX

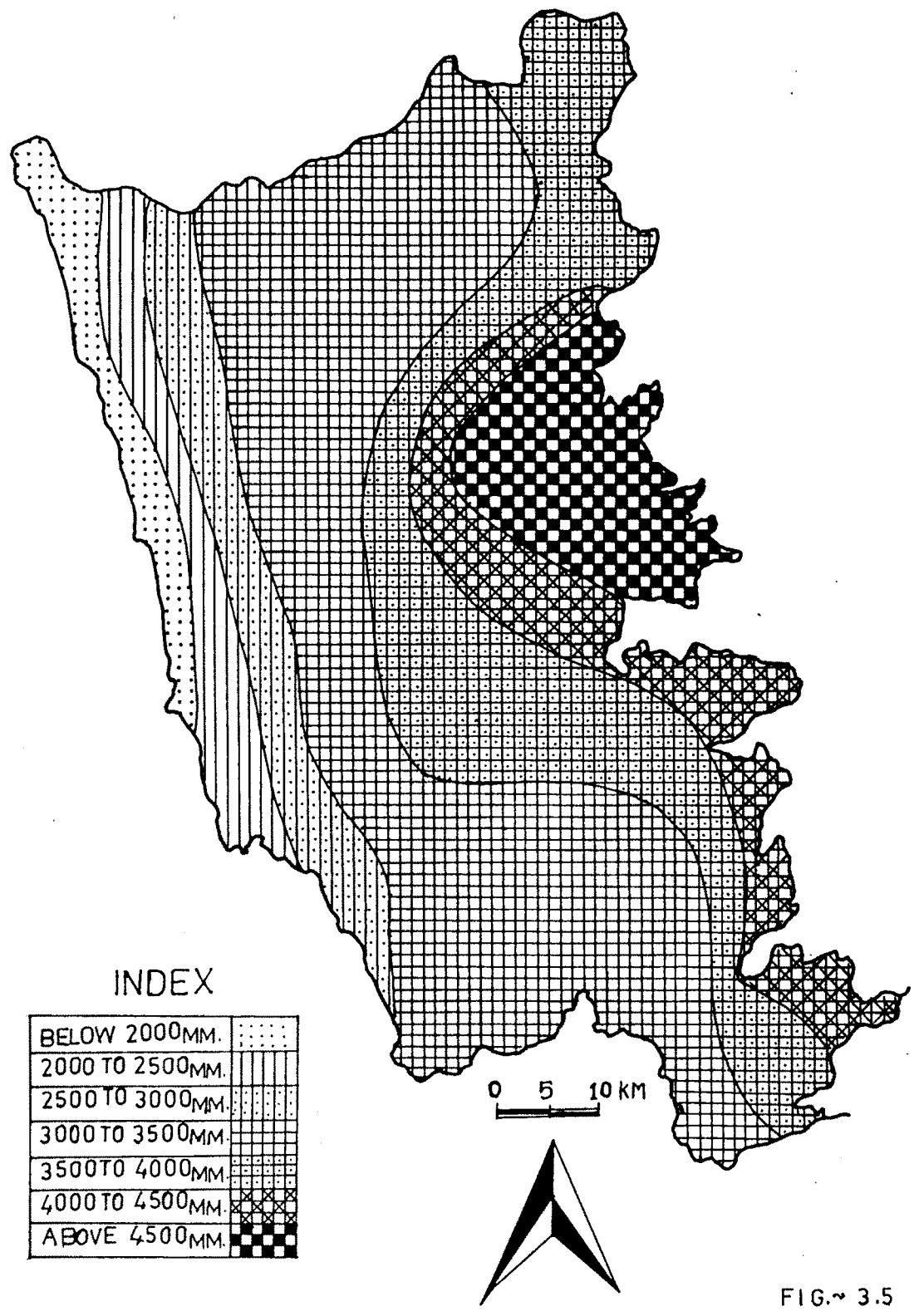|	
BELOW 2000 MM.	
2000 TO 2500 MM.	
2500 TO 3000 MM.	
3000 TO 3500 MM.	
3500 TO 4000 MM.	
4000 TO 4500 MM.	
ABOVE 4500 MM.	

0   5   10 KM

FIG.~ 3.5

TABLE NO.III-V

SINDHUDURG DISTRICT

RAINFALL DISTRIBUTION CATEGORIES, AREA COVERED

NO.OF MARKET CENTRES AND THEIR PERCENTAGE

Sr. No.	Category of Rainfall(mm)	Area covered in sq.km	Percentage to total	No.of market centres	Percentage to total
1.	Below 2000	205	4.03	03	5.66
2.	2000 to 2500	320	6.28	07	13.21
3.	2500 to 3000	388	7.63	06	11.32
4.	3000 to 3500	1978	38.89	23	43.39
5.	3500 to 4000	1183	23.25	07	13.21
6.	4000 to 4500	565	11.10	04	7.55
7.	Above 4500	448.5	8.82	03	5.66
	Sindhudurg District	5087.5	100.00	53	100.00

3.3.4   POPULATION DENSITY AND DISTRIBUTION OF MARKET CENTRES

The study of market centres in relation to density of population is very important because market centres provided the service and facilities to the population. In the study region the density of population has been calculated gridwise (10 x 10 km) and the isopleth map has been drawn. The density of population is grouped into five categories and the relationship with market centres has been studied (Table No. III-VI).

The eastern part, some central and northern part of the study region, where the density of population is found below 100 persons per sq.km, covers an area about 23.9

percent of the total and accounts for 11.33 percent of the total market centres. The central part, north-eastern part and south-central part of the study region, where the density of population is found between 100 to 200 persons per sq.km., covers an area about 52.18 percent of the total and accounts for 47.17 percent of the total market centres.

The south-western part and north-western part of the study region, where the density of population is found between 200 to 300 persons per sq.km., covers an area about 18.03 percent of the total and accounts for 28.3 percent of the total market centres. The central part and south-western part of the study region, where the density of population is found more than 300 persons per sq.km., covers an area about 5.9 percent of the total and accounts for 12.8 percent of market centres of the total.

It is observed that, where the density of population is found between   100 to 300 persons per sq.km., covers an area about 70.21 percent of the total and accounts for 75.47 percent of the market centres of the total. It means that, in this category of population density and region covered by it has observed positive co-relationship between density of population and distribution of market centres. It is also observed that, where the low population density has observed, covers more area and less number of market centres, which are mainly found in the eastern part of the study region.

The table No.III-VI and Figure No.3.6 gives clear idea about the population density & distribution of market centres of the study region.

SINDHUDURG DISTRICT
DENSITY OF POPULATION
PER SQ KM.

0   5   10 KM
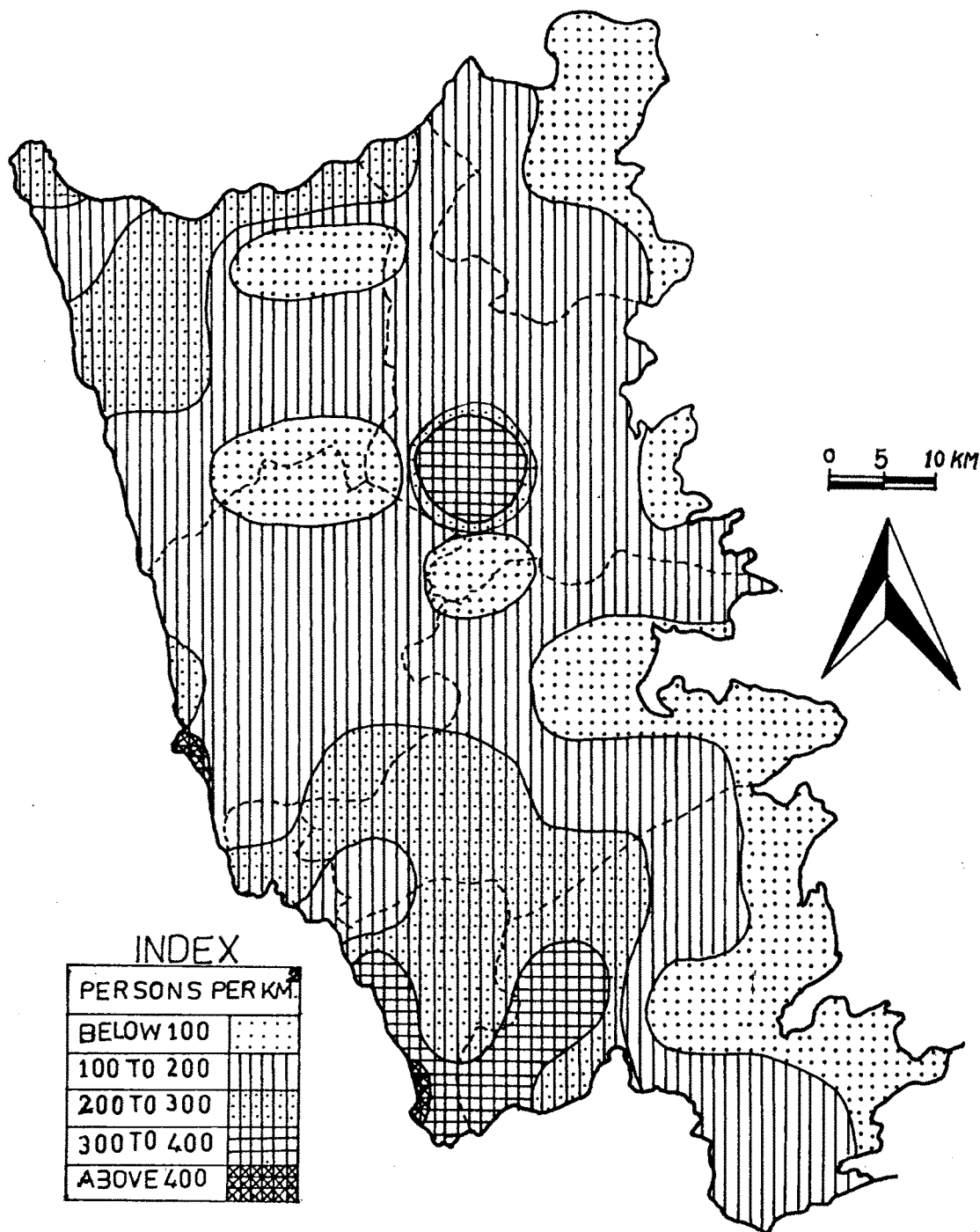
INDEX

PERSONS PER KM.	
BELOW 100	
100 TO 200	
200 TO 300	
300 TO 400	
ABOVE 400	

FIG.~ 3.6

TABLE NO.III-VI

SINDHUDURG DISTRICT

POPULATION DENSITY, AREA COVERED, NO.OF MARKET CENTRES

AND THEIR PERCENTAGE

Sr. No.	Population Density	Area covered in sq.km	Percentage to total	No.of market centres	Percentage to total
1.	Below 100	1216	23.90	06	11.33
2.	100 to 200	2654.5	52.18	25	47.17
3.	200 to 300	917	18.03	15	28.30
4.	300 to 400	280	5.50	05	9.43
5.	Above 400	20	0.39	02	3.37
	Sindhudurg District	5087.5	100.00	53	100.00

3.3.5   **THE LAND UNDER AGRICULTURE AND DISTRIBUTION OF MARKET CENTRES :**

Agriculture is the main stay of the people of the study region, because nearly 76 percent of the population directly engaged in agricultural activities. The agriculture activity is mainly influenced by physiography, climate, and soils of the study region. Rice is the main food crop and horticulture is the another important occupation of the people. Intensive type of agriculture is practiced extensively in this region. Agricultural practices are also affected on the distribution of market centres in the study region.

Here, an attempt has been made to show the relationship between land under agriculture and distribution of market centres. The percentage of land under agriculture has been calculated grid-wise (10 x 10 km) and grouped into six categories (Table No.III-VII).

The eastern part and few part of the north-western part of the study region, where the land under cultivation is less than 10 percent, covers an area about 15.84 percent of the total and accounts for 5.66 percent of the total market centres. This area is covered with dense forest, where rainfall is observed more and density of population is low, so the number of market centres are also found less in number. The eastern foot-hill zone and north-western part of the study region, where land under cultivation is found 10 to 20 percent, covers an area about 36.33 percent of the total and accounts for 16.98 percent of the total market centres. In this region, it is observed that, the foot-hill region of the Sahyadrian range has low density of population and small size settlements are also observed. The north-western part of the study region is covered with hard laterite rock, where land under agriculture is found less, so in both these regions the number of market centres are found less in number and their sizes are also small.

The central part, which is extended in the north-south direction, south-western part and north-western part of the study region, where the land under cultivation is found between 20 to 30 percent, covers an area about 28.95

percent of the total and accounts for 41.51 percent of the total market centres. In this region, the agriculture and road net-work has developed more, so the more number of market centres are found in this region.

The central part and south-central part of the study region, where the land under agriculture is found between 30 to 40 percent, covers an area about 11.30 percent of the total and accounts for 20.75 percent of the market centres of the total. The south-central part and few part of the west-central region, where the land under cultivation is found above 40 percent, covers an area about 7.58 percent of the total and accounts for 15.10 percent of the total market centres.

The percentage of land under cultivation and distribution of market centres shows negative co-relationship because where land under cultivation is more, covers less area and more number of market centres, because in this region intensive type of agriculture is more prosperous and road network has also developed, so large size market centres are developed in this area.

It is also observed that, where the percentage of land under cultivation is found between 20 to 40 percent, covers an area about 40.25 percent of the total and accounts for 62.26 percent of the total market centres. The percentage of land under cultivation is observed less than 20 percent, covers an area nearly 52.17 percent of the total and accounts for 22.64 percent of the total market centres. In this region the area under cultivation is found more where less number of

market centres are found.

The table No.III-VII and Figure No.3.7 gives clear idea about the percentage of land under cultivation and distribution of market centres.

TABLE NO.III-VII

SINDHUDURG DISTRICT

THE PERCENTAGE OF LAND UNDER CULTIVATION, AREA COVERED

NO.OF MARKET CENTRES AND THEIR PERCENTAGE

Sr. No.	Percentage of Land under cultivation	Area covered in sq.km	Percentage to total	No.of market centres	Percentage to total
1.	Below 10	806	15.84	03	5.66
2.	10 to 20	1848	36.33	09	16.98
3.	20 to 30	1473.5	28.95	22	41.51
4.	30 to 40	575	11.30	11	20.75
5.	40 to 50	265	5.22	06	11.33
6.	Above 50	120	2.36	02	3.77
	Sindhudurg District	5087.5	100.00	53	100.00

3.3.6   THE LAND UNDER IRRIGATION AND DISTRIBUTION OF MARKET CENTRES :

It is observed that in the study region the land under irrigation is found very less. Here, an attempt has been made to show the relationship between percentage of land under irrigation and the distribution of market centres. The percentage of land under irrigation has been calculated gridwise (10 x 10 km) and comparison of distribution of market centres has been done.

SINDHUDURG DISTRICT
LAND UNDER CULTIVATION
IN PERCENTAGE

INDEX

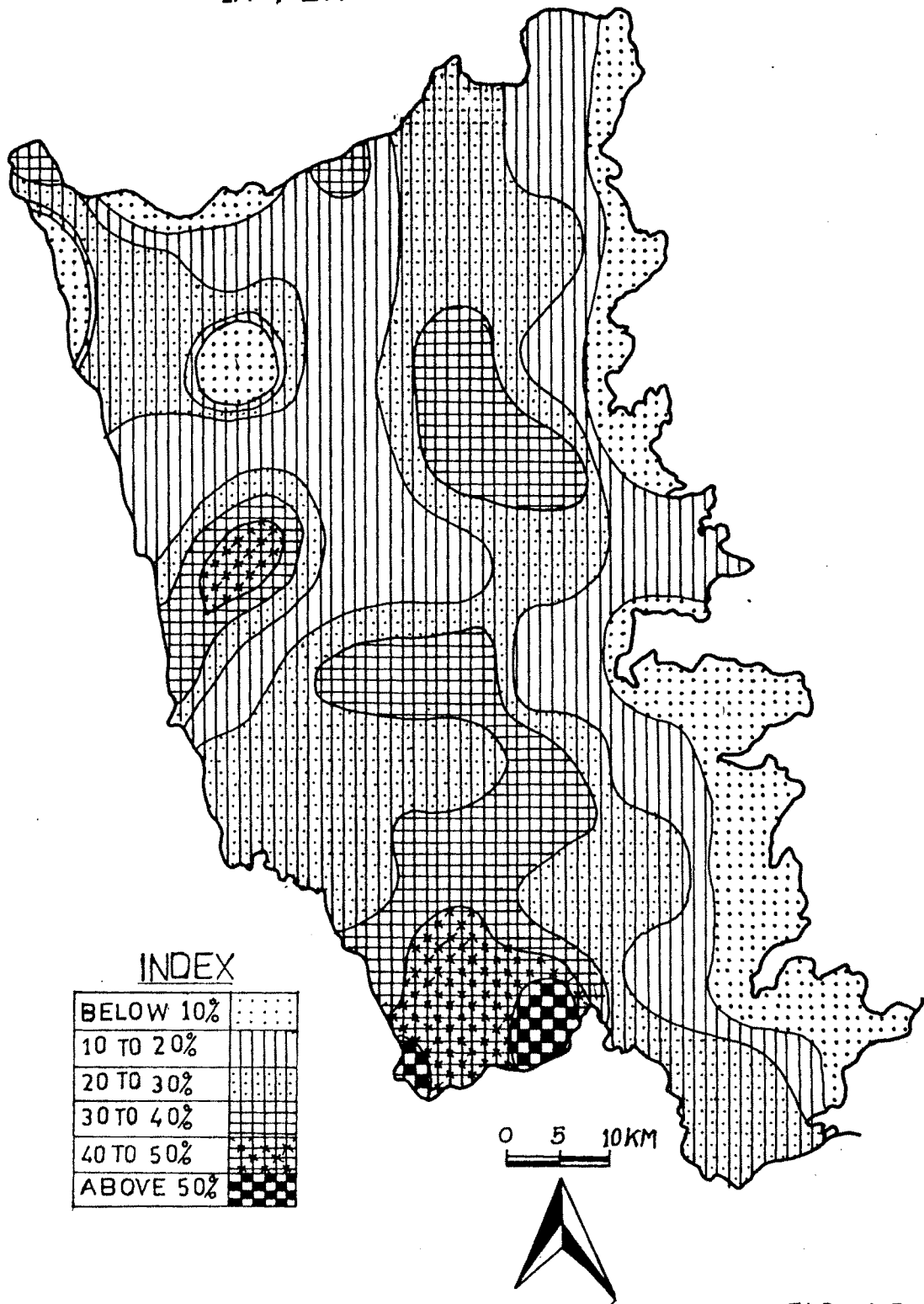|	
BELOW 10%	
10 TO 20%	
20 TO 30%	
30 TO 40%	
40 TO 50%	
ABOVE 50%	

0   5   10KM

FIG.~ 3.7

The study region is a part of Sahyadri hill-ranges, where the physiography of the region is very rugged and complex, due to steep slopes of the region, irrigation facilities are not developed. It is also observed that, the agriculture is mainly depend on the monsoonal rainfall only. (Table No.III-VIII).

The northern-part and south-eastern part of the study region, where the land under irrigation is found less than one percent, covers an area about 69.56 percent of the total and accounts for 54.72 percent of the total market centres. The west-central part, few eastern part and south-western part of the study region, where the land under irrigation is found between 1 to 2 percent covers an area about 15.3 percent of the total, accounts for 26.42 percent of the total market centres.

The south-western part and few east-central and western part of the study region where the land under irrigation is found between 2 to 3 percent, covers an area about 8.92 percent of the total and accounts for 9.43 percent of the total market centres. The south-western part of the study region, where the land under irrigation is found above 3 percent, covers an area about 6.19 percent of the total and accounts for 9.43 percent of the total market centres.

It is observed that, in the study region there is no effect of land under irrigation and the distribution of market centres, because this area has absence of irrigation facilities. In the study region, where the land under irrigation is found less than 2 percent, covers an area

about 84.89 percent of the total and accounts for 81.14 percent of the total market centres. The table No.III-VIII and Figure No.3.8 gives details about percentage of land under irrigation and distribution of market centres in the study region.

TABLE NO.III-VIII

SINDHUDURG DISTRICT

THE PERCENTAGE OF LAND UNDER IRRIGATION, AREA COVERED

NO.OF MARKET CENTRES AND THEIR PERCENTAGE

Sr. No.	Percentage of Land under irrigation	Area covered in sq.km	Percentage to total	No.of market centres	Percentage to total
1.	Less than 1	3539	69.56	29	54.72
2.	1 to 2	780	15.33	14	26.42
3.	2 to 3	453.5	8.92	05	9.43
4.	Above 3	315	6.19	05	9.43
	Sindhudurg District	5087.5	100.00	53	100.00

3.3.7   ROAD NETWORK AND DISTRIBUTION OF MARKET CENTRES :

The road transportation network plays an important role in the distribution and growth of market centres in developing country like India and particularly in the Konkan region. Transport routes are the arteries, they act as the links between the people and market centres. In the study region, it is observed that, more number of market centres are developed on the roads or on the nodal points.

SINDHUDURG DISTRICT
LAND UNDER IRRIGATION
IN PERCENTAGE
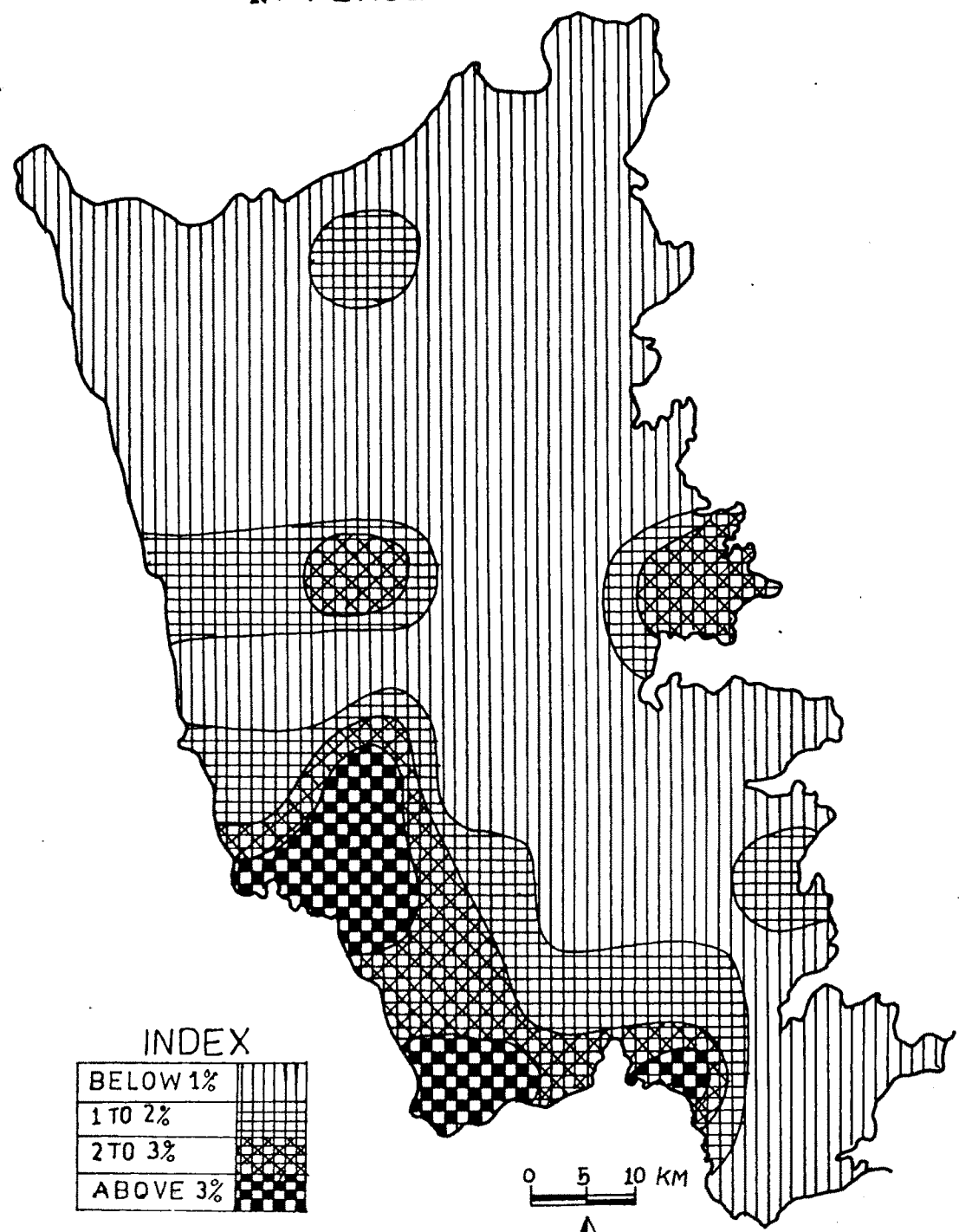
INDEX

BELOW 1%	
1 TO 2%	
2 TO 3%	
ABOVE 3%	

0   5   10 KM

FIG.~ 3·8

In the study region, it is observed that, where the density of road is found more, covers more area and more number of market centres, it means that, there is positive co-relationship between density of road and distribution of market centres in the study region. To analyse density of road and distribution of market centres in the study region, gridwise (10 x 10 km) density of road has been calculated and the isopleth map has been drawn. The density of road is classified into four categories and analysed in relation to market centres (Table No.III-IX).

The eastern part of the study region, where the density of road below 40 km per 100 sq.km. is observed, covers an area nearly 15.84 percent of the total and accounts for 1.88 percent of the total market centres. In this region due to Sahyadrian mountain ranges the road network is very poor, where only one market centre is observed. The eastern north-south extended region, few part of the north-eastern region and central-west part of the region, where the density of road is found between 40 to 60 km per 100 sq.km., covers an area about 20.04 percent of the total and accounts for 20.76 percent of the total market centres.

The central and southern part of the study region, where the density of road is found between 60 to 80 km per 100 sq.km, covers an area about 43.16 percent of the total and accounts for 43.39 percent of the total market centres. In this area there is complete positive co-relationship between area covered by road density and number of market

centres. The south-western part and few scattered northern part of the study region, where the density of road is observed above 80 km per 100 sq.km., covers an area about 20.96 percent of the total and accounts for 33.97 percent of the total market centres.

It is also observed that, where the density of road above 60 km per 100 sq.km., is found, covers an area about 64.12 percent of the total and accounts for 77.36 percent of the total market centres. It means that higher the road density higher the number of market centres. The table No.III-IX and Figure No.3.9 shows clear picture of density of road and distribution of market centres.

TABLE NO.III-IX

SINDHUDURG DISTRICT

DENSITY OF ROAD PER 100 SQ.KM., AREA COVERED

NO.OF MARKET CENTRES AND THEIR PERCENTAGE

Sr. No.	Density of of road per 100 sq.km.	Area covered in sq.km	Percentage to total	No.of market centres	Percentage to total
1.	Below 40 km	806	15.84	01	1.88
2.	40 to 60 km	1020	20.04	11	20.76
3.	60 to 80 km	2196.5	43.16	23	43.39
4.	Above 80 km	1065	20.96	18	33.97
	Sindhudurg District	5087.5	100.00	53	100.00

SINDHUDURG DISTRICT
DENSITY OF ROAD
PER 100 KM.^{2}
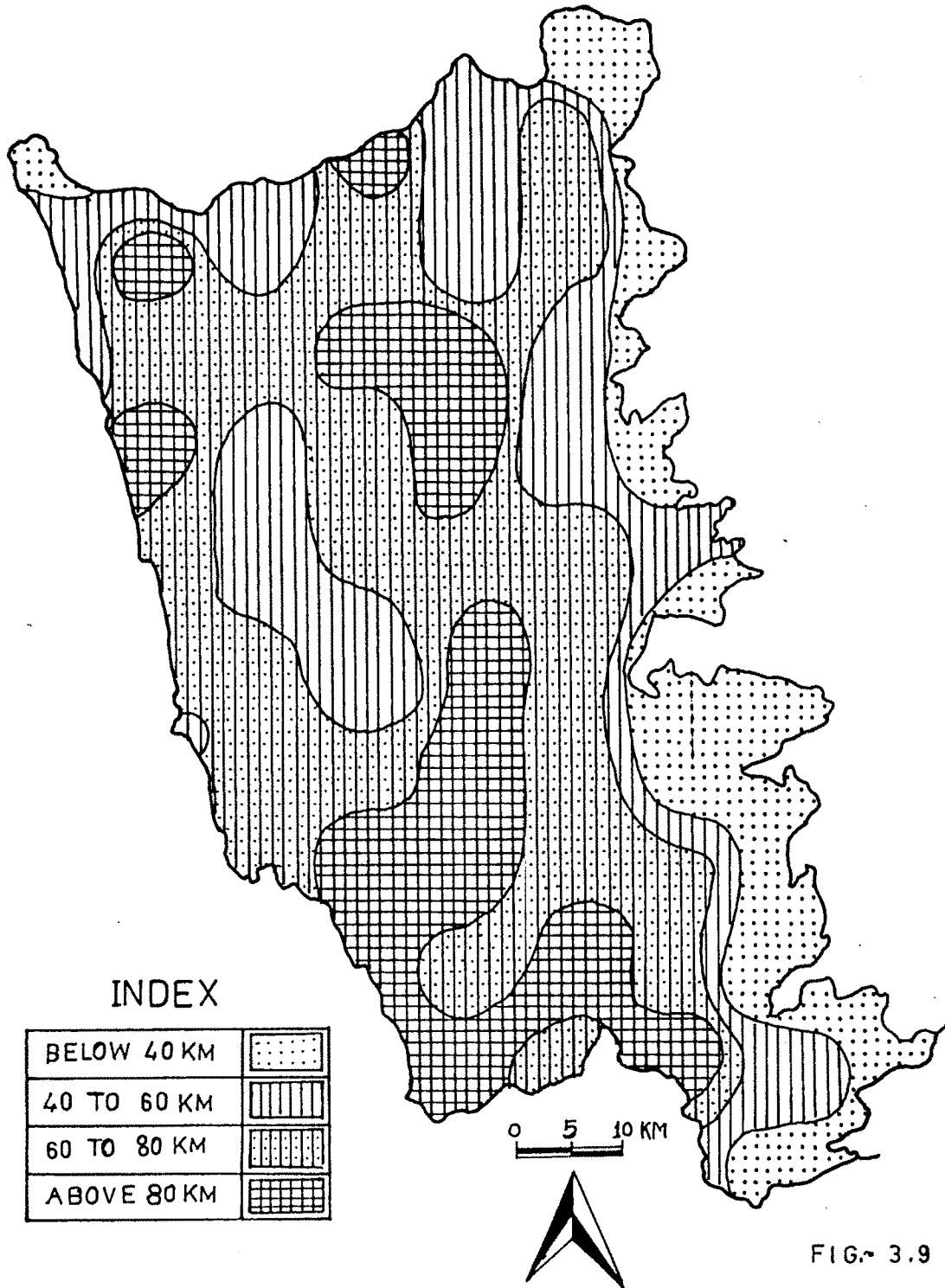
INDEX

BELOW 40 KM	
40 TO 60 KM	
60 TO 80 KM	
ABOVE 80 KM	

0   5   10 KM

FIG.- 3.9

3.3.8   THE SPATIAL DISTRIBUTION OF MARKET CENTRES

The various physical and cultural factors which influence on the distribution of market centres have been discussed above. The existing distributional pattern of market centres have been considered here. To study the spatial distribution of market centres of the study region the technique 'Nearest - Neighbour Analysis' has been applied. For this purpose the entire study region is divided into sizeable grids (10 x 10 km) and the 'Rn' values from the market centres have been calculated.

To find out the Rn values, the following formula has been used (Clark and Evans - 1954).

$$\overline{D} \text{ ran} = \frac{1}{2\sqrt{(N/A)}}$$

Where, N is the number of market centres

A is the area of the grid or spatial unit.

With the help of above formula the Rn values have been obtained for all the grids and these values have been grouped into five categories and the isopleth map has been drawn to show the spatial distribution of market centres in the study region. The table No.III-X and Figure No.3.10 gives the clear idea about the spatial distribution of market centres.

SINDHUDURG DISTRICT
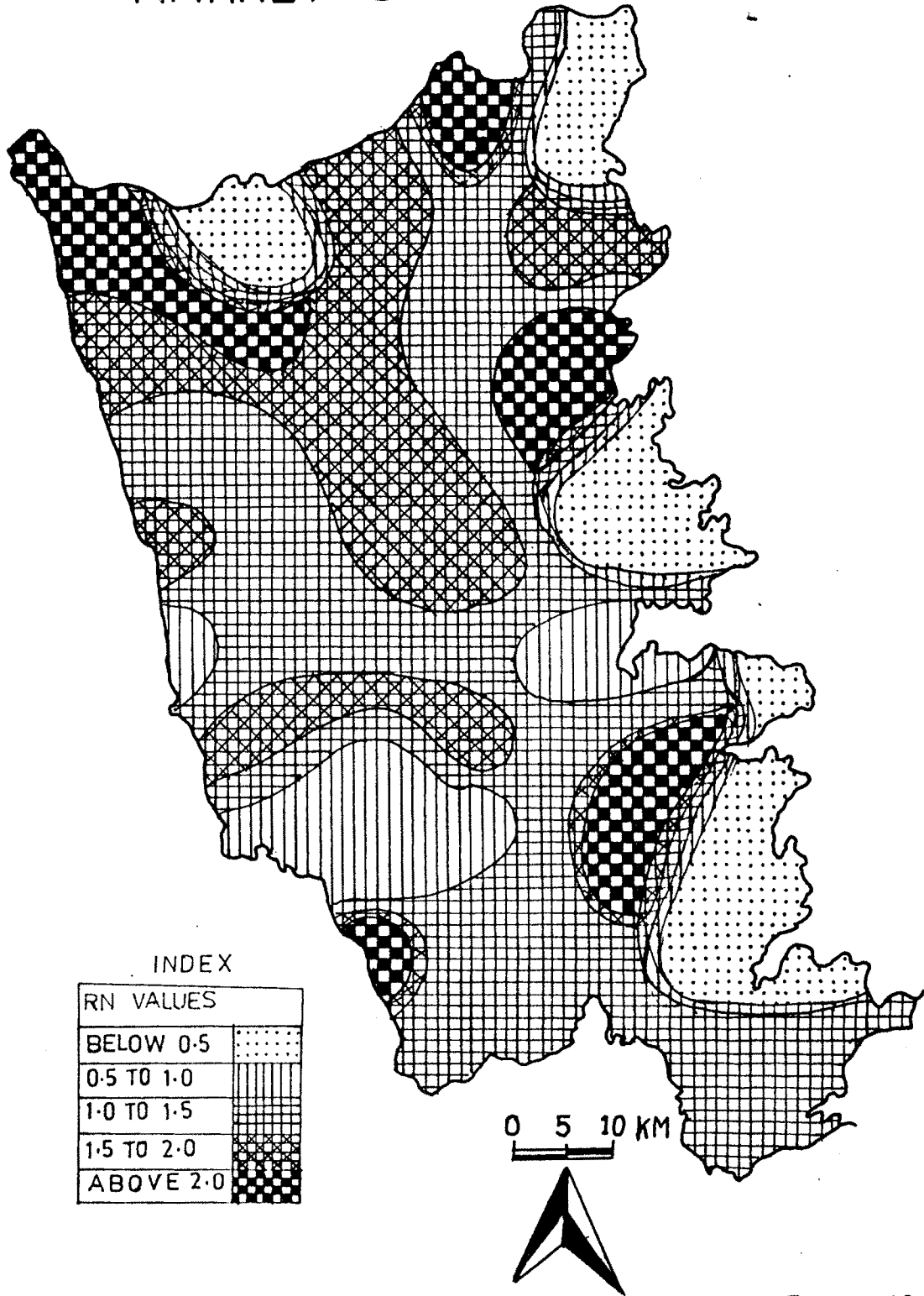SPATIAL DISTRIBUTION OF
MARKET CENTRES

INDEX

RN VALUES	
BELOW 0·5	
0·5 TO 1·0	
1·0 TO 1·5	
1·5 TO 2·0	
ABOVE 2·0	

0　5　10 KM

FIG.~ 3·10

TABLE NO.III- X

SINDHUDURG DISTRICT

THE Rn VALUE CLASS, AREA COVERED, NO.OF MARKET CENTRES

AND THEIR PERCENTAGE

Sr. No.	Rn value class	Area covered in sq.km	Percentage to total	No.of market centres	Percentage to total
1.	Below 0.5	875.5	17.21	01	1.87
2.	0.5 to 1.0	450.0	8.85	09	16.98
3.	1.0 to 1.5	2050.0	40.29	24	45.28
4.	1.5 to 2.0	1050.0	20.64	13	24.54
5.	Above 2.0	662.0	13.01	06	11.33
	Sindhudurg District	5087.5	100.00	53	100.00

The north-eastern part of the Vaibhavwadi taluka, northern part of Devgad taluka, south-east part of Kankavli and eastern part of Sawantwadi taluka, covers an area about 17.21 percent of the total and accounts for 1.87 percent of the total market centres , shows absolute clustering distributional pattern.

The east and west part of Kudal taluka, north Vengurla and few part of Malvan taluka,where the Rn values found between 0.5 to 1.0, covers an area about 8.85 percent of the total and accounts for 16.98 percent of the total market centres shows linear clustering distributional pattern.

The southern part of Sawantwadi and Vengurla talukas,

the Malvan taluka, the south Devgad taluka and the central part of Kankavli taluka, where the Rn values found between 1.0 to 1.5, covers an area about 40.29 percent of the total and accounts for 45.28 percent of the total market centres, shows complete random distributional pattern of market centres.

The south and eastern part of the Devgad taluka, east and south Malvan taluka, western part of Kankavli and Kudal talukas have Rn values between 1.5 to 2.0, covers an area about 20.64 percent of the total and accounts for 24.54 percent of the total market centres, indicates nearer to uniform distributional pattern of the market centres.

The north-west and central part of Devgad, north-western part of Vaibhavwadi, north-eastern part of Kankavli, south-east part of Kudal and few part of Vengurla and Sawantwadi talukas have Rn values above 2.0, covers an area about 13.01 percent of the total and accounts for 11.33 percent of the total market centres of the study region shows uniform distributional pattern of the market centres of the study region.
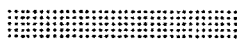
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