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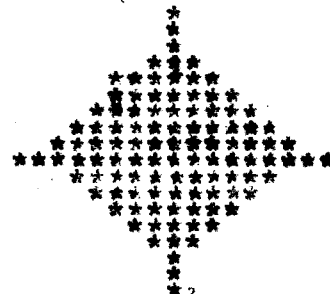
C H A P T E R - I

THE STUDY AREA :

SPATIAL DETERMINANTS

(1 - 33)

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1.1 INTRODUCTION :

The study area is a district i.e. SANGLI DISTRICT in Maharashtra State. Its selection identifies and recognises ' District ' as basis of the administrative system in India. A district is defined as a territory marked off for the special administrative purposes¹, and District Administration, defined by Khera, is the management of public affairs within a territory marked off such purposes². It is the most important of all the units in area administration. To-day, it is also the best area for geographical and functional aggregation of units and branches of administrations. Infact it bears logical relation to its area, resources and population.

Being the basis of ' an orderly arrangement of future ' or ' optimum planning ' it is a rational attitude to have some glimpses of some determinants that interplay in the locational dynamics of Sangli district. These have and continue to play a significant role in the past present and are bound to affect her destined future are based on her geographic realities.

1.2 EVOLUTION AND ADMINISTRATIVE MATURITY :

The evolution of the district is marked by unplanned evaluation ~~or~~ growth. History and geography have in their own way contributed to the making of present Sangli district, often towards its social well being and political maturity. In other words, administrative evaluation of this district is shown in Table 1.1

TABLE 1.1
SANGLI DISTRICT
STRUCTURAL AND TEMPORAL CHANGES

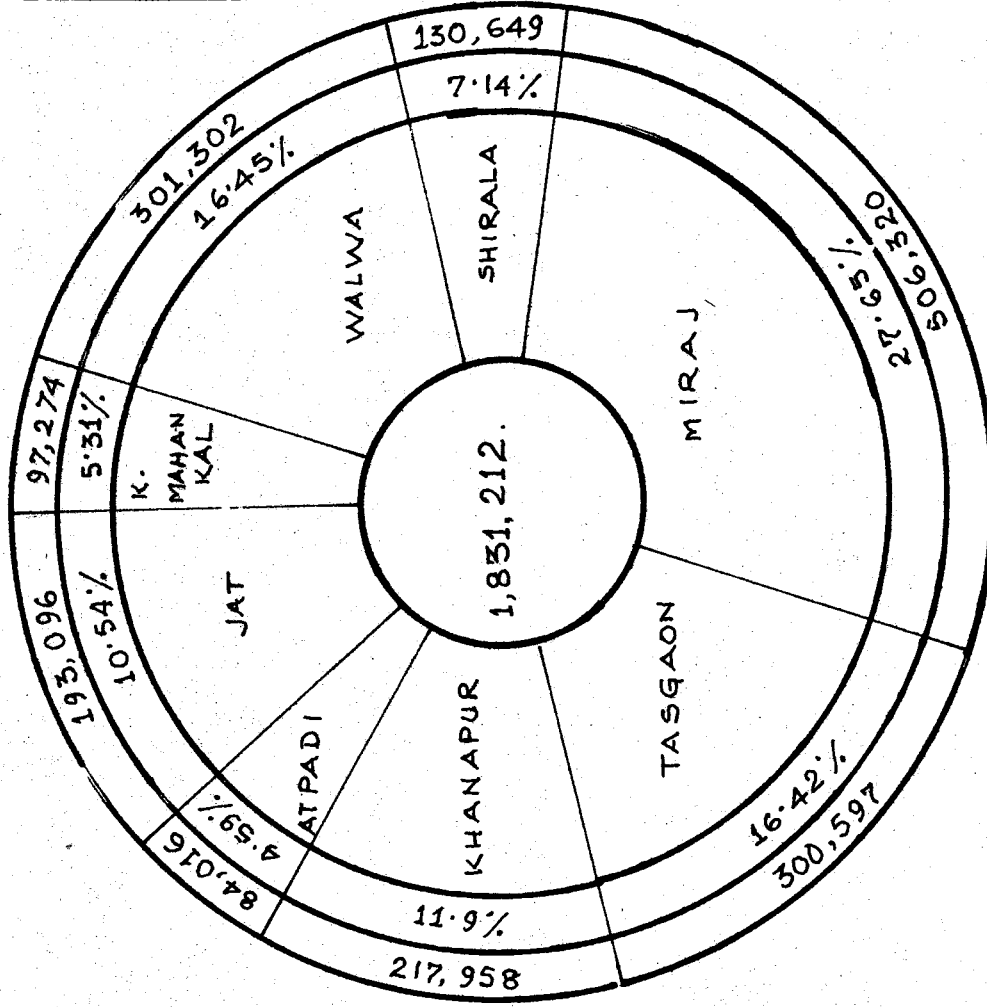
S.No.	Year	Change
1	Prior to 1948	Fragmented : Partly in Old Satara District with Tasgaon, Khanapur, Walwa and Shirala tahsils and partly in former states of Aundh, Jath, Sangli, Miraj (Sr.), Miraj (Jr.), Kurundwad and Wadi Estates.
2	1949	Hereafter it was made a separate district and given the name as 'South Satara District '. Two new tahsils of Miraj and Jath formed out of the erstwhile princely states. Thus number of tahsils became six.
3.	1951	Number of towns increased to 27 from 12 in 1941.
4.	1960	Was now designated as ' Sangli District ' after Sangli - its headquarter.
5.	1961	Declassification of towns reduced their number to 6 only and villages to 526.
6.	1964	Atpadi and Kawathe - Mahankal - two new tahsils were formed by splitting Khanapur and Miraj tahsils respectively. Thus total number of tahsils rose to 8.
7.	1971	Number of towns increased to 7 and villages to 539.
8.	1981	Had now 8 towns and 708 villages.

Table No. 1.2 and Figure nos. 1.1 and 1.2 are presented to show tahsil-wise differentiation in area, population and their break-up into rural and urban settlements.

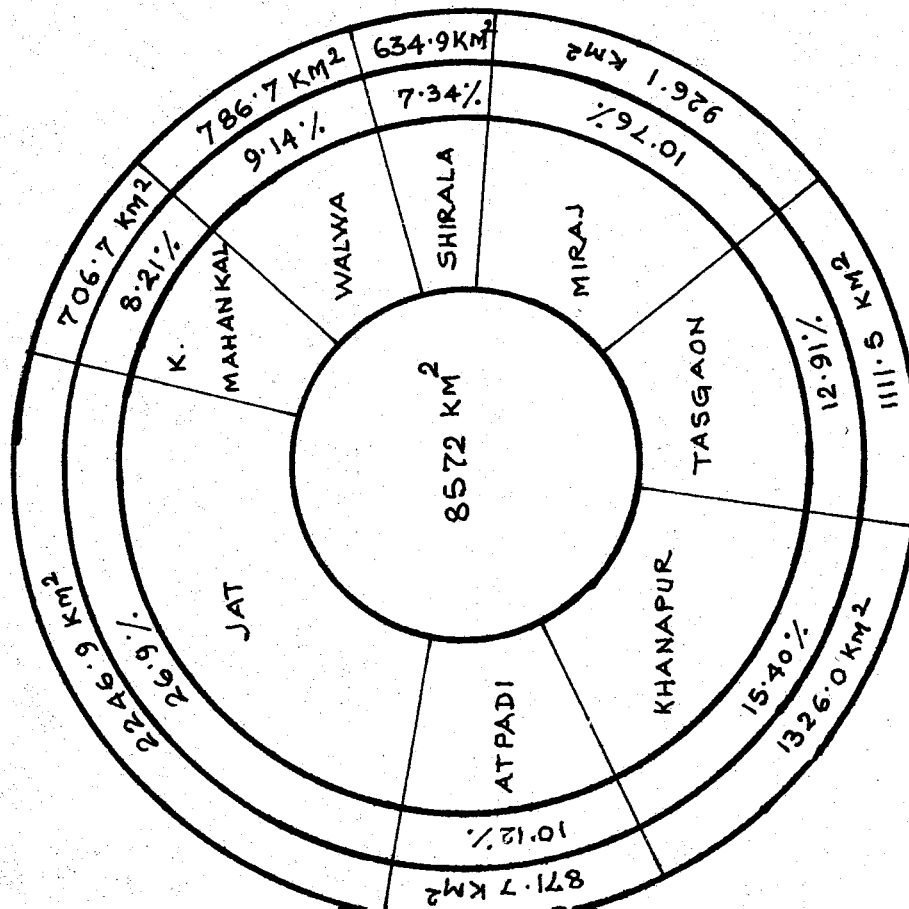
TABLE 1.2
SANGLI DISTRICT
TAHSIL-WISE AREA, POPULATION AND SETTLEMENTS, 1981

S.No.	Tahsil	Area in Sq.Km.	% of Area	Total Population	% of Population	No. of inhabited Villages	No. of Towns
1	2	3	4	5	6	7	8
1	Miraj	926.1	10.76	506,320	27.65	65	3
2	Tasgaon	1111.5	12.91	300,597	16.42	102	2
3	Khanapur	1326.0	15.40	217,958	11.90	117	1
4	Atpadi	871.7	10.12	84,016	4.59	60	-
5	Jat	2246.9	26.09	193,096	10.54	118	-
6	Kavathe Mahankal	706.7	8.21	97,274	5.31	53	-
7	Walwa	786.7	9.14	301,302	16.45	89	2
8	Shirala	634.9	7.34	130,649	7.14	104	-
	Sangli District	8572.0	100 %	1,831,212	100 %	708	8

SANGLI DISTRICT
1981



POPULATION



AREA

FIG 1.1

SANGLI DISTRICT

Distribution of Settlements 1981

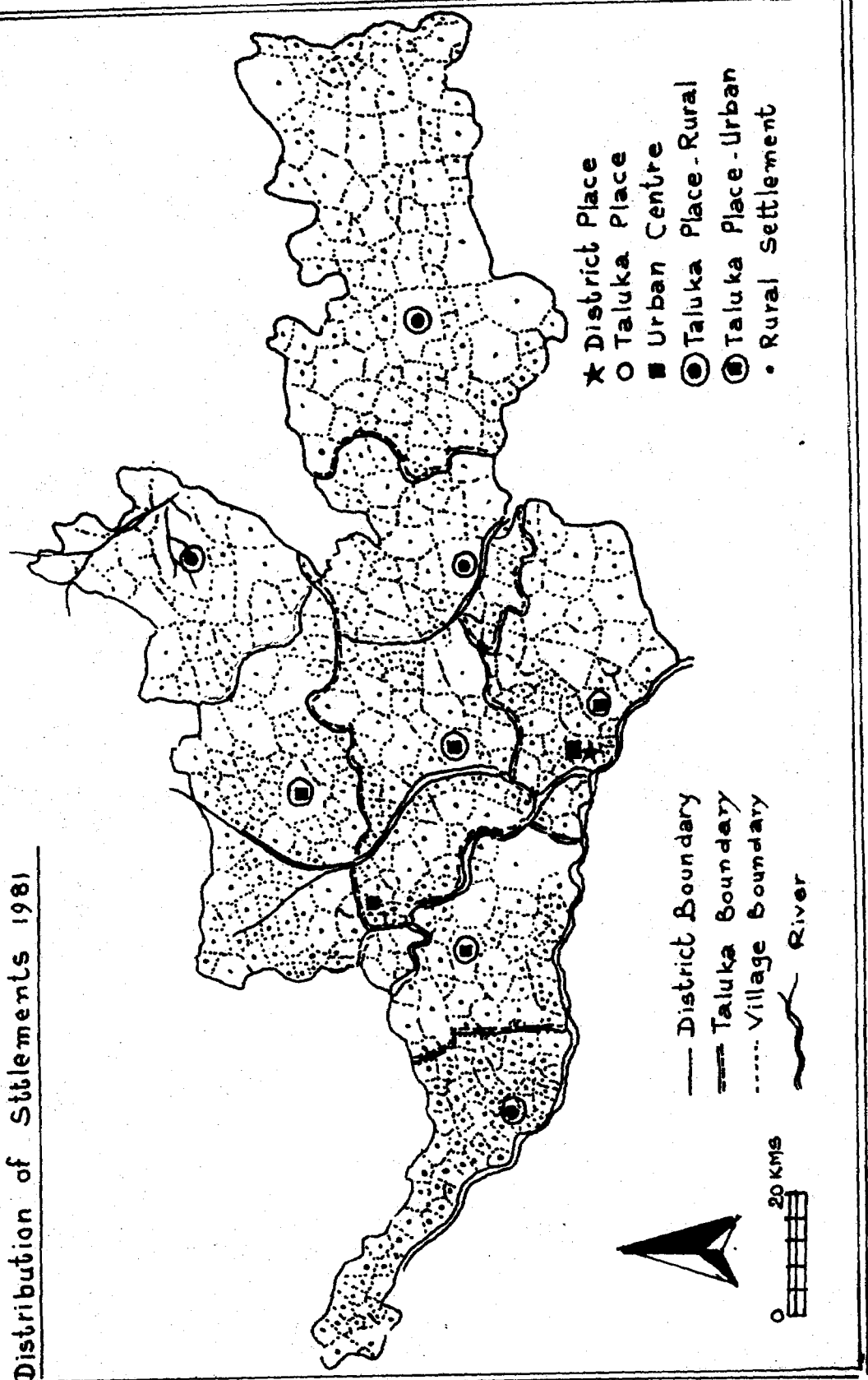


FIG.12

1.3 LOCATIONAL DYNAMICS :

The district of Sangli like Satara, Solapur and Kolhapur is a southern district of Maharashtra state. It lies between $16^{\circ}43'$ and $17^{\circ}38'$ north latitudes and $73^{\circ}41'$ and $75^{\circ}41'$ east longitudes³, and has an area of 8,572 Sq.Km. and population of 1,831,212 spread over in 708 inhabited villages and 8 urban centres⁴. Its area extends from eastern slopes of Sahyadri ranges in the east-west direction for about 205 km. in length.

The boundaries of the district are for the most part administrative and only in the western part coincide with western Ghat and Warana river. The district is bounded on the north by Satara and Solapur districts, on the west by Ratnagiri district, on the south by Warana river and Kolhapur district and in the South-~~east~~ has a common state boundary with the Karnataka state. (Fig. 1.3).

Sangli city-the district headquarter is situated 420 km. away from the state capital Bombay by road.

1.4 GEOGRAPHIC PERSONALITY⁵ :

Of the 30 districts in Maharashtra State, Sangli district occupies 27th rank in area and 18th in population . Hence it is smaller in area and medium sized in **population**. But its role in the political - economy of Maharashtra is clearly visible from the facts given below :-

i) It is almost an epitome of the Maharashtra State in terms of its geographical diversity, industrial and cultural,

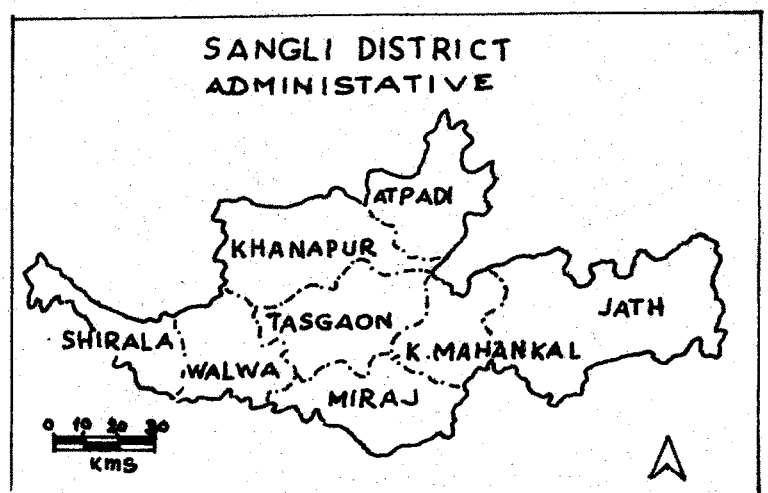
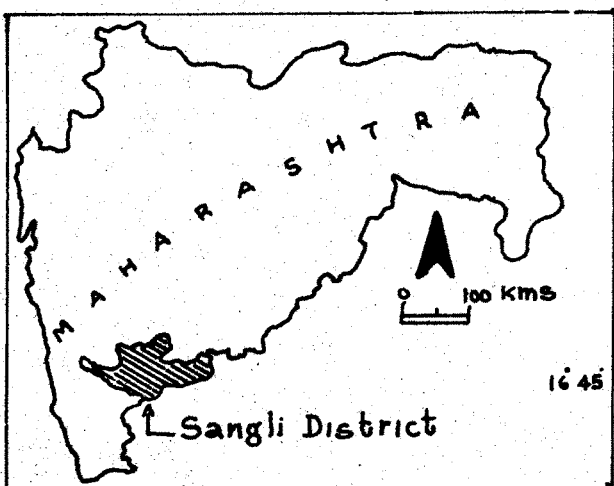
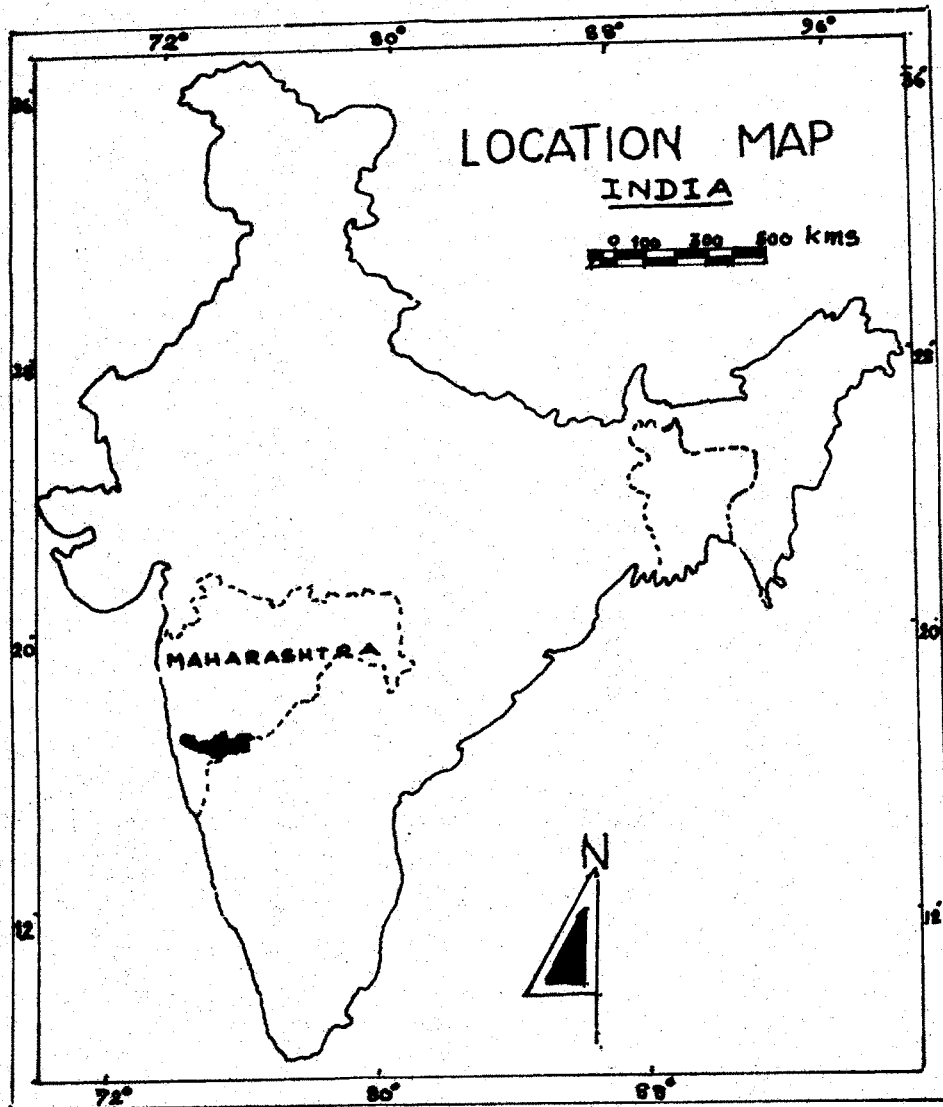


FIG:3

ii) In the field of rural development the district has witnessed outstanding leadership in national status responsible for building up a sound network of co-operatives and for initiating agro - industrial development⁶ ;

iii) The city Sangli is located on the world map as a prominent forward trading market in turmeric;

iv) The district is bestowed with remarkable resources in men, material and built - in capacity to fight the vagaries of nature and the constant adverse circumstances ;

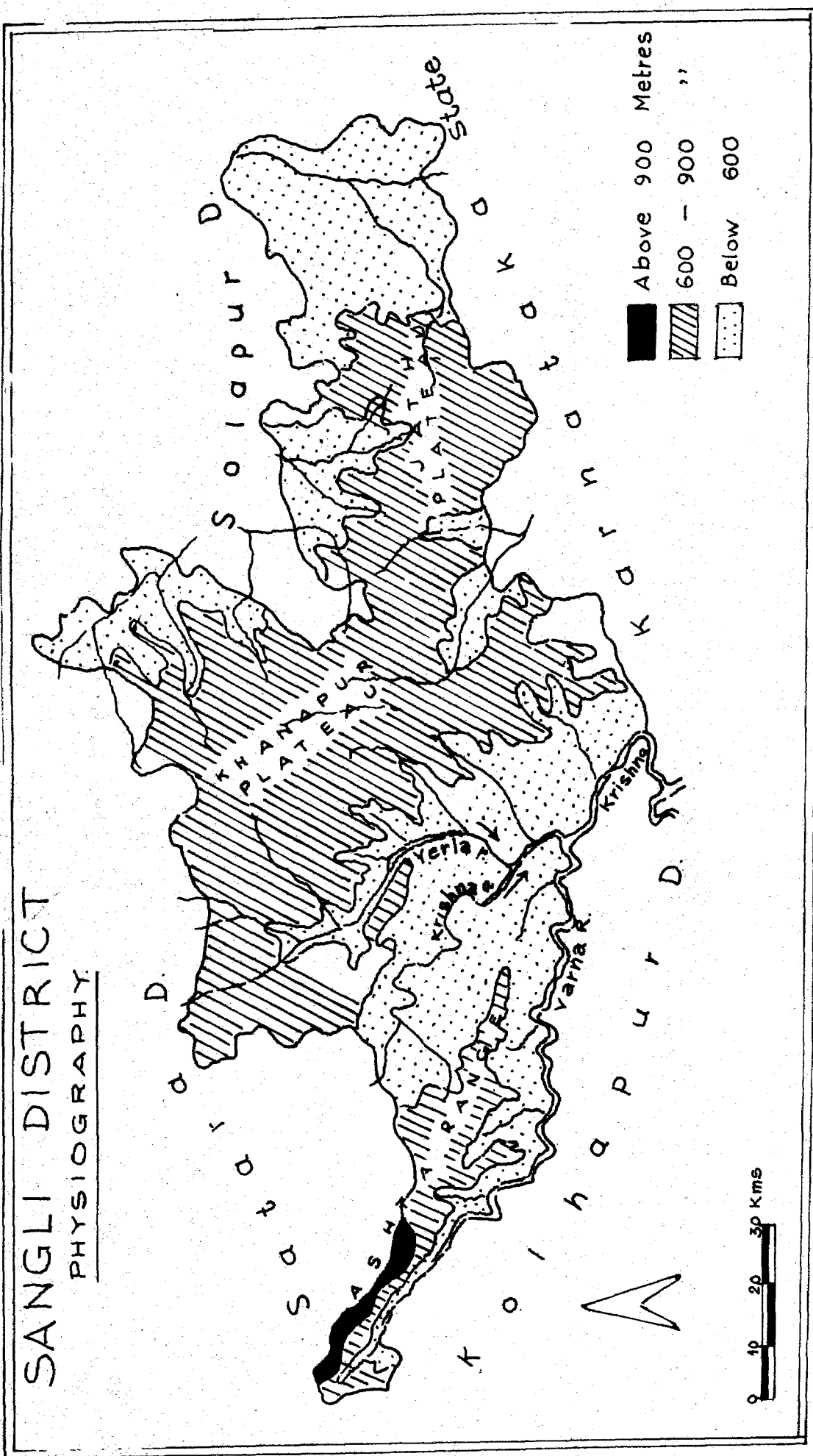
v) Behind these rather spectacular aspects lie many factors of the district's economy that present problems and challenges. The present study, therefore, concerns itself with one of her most important aspects namely the population.

1.5 GEOMORPHIC REALITIES :

Geomorphic features of Sangli district as elsewhere are a resultant of internal forces as well as external forces. Ipsofacto geographers like W.M. Davis recall ' Landscape is a function of structure, process and stage.' They provide a stage where in human drama has been and continues to be enacted.

The physical landscape of the region is marked by the hill ranges, river plains and undulating topography of small plateaus. Its western part lies on the leeward side of the side of the Western Ghats which is dominated by the main hill range and its eastward projecting off-shoots. The western border is well defined by the watershed of Western Ghats , With an attitude of 1000 meters . The Western hilly

SANGLI DISTRICT PHYSIOGRAPHY



Above 900 Metres
 600 - 900 "
 Below 600

FIG. 4.

region is covered with dense mixed deciduous monsoon forests with the scattered patches of agricultural land for rice and ragi crops. Eastwards from here, the river Warana is bordered by the hill ranges with a cultivable strip between them. These several off-shoots extend upto Walwa tahsil in the east. The Ashta range, stretches south-eastwards for ^a distance of 73 kms, forming the water divide between the Warana and Krishna rivers within the district. The central part has been covered by the broad alluvial tract of Krishna river extending south-eastwards. (Fig. 1.4).

The machhindragad - an off-shoot of Mahadeo hills and to which the district boundary approximates - is marked by rugged topography. It presents a series of spurs branching off eastwards; between them are the amphitheatres which are drained by small streams flowing into Yerala basin. Eastwards of the Yerala basin another flat topped off-shoot of Mahadeo range known as Panhala range borders the western edge of the Khanapur plateau. This is triangular in shape with steep escarpments on the east looking into the Bhima basin. The average height of the Khanapur plateau is 750 meters. The surface of the plateau is dotted with the scattered hills revealing intensive weathering. Khanapur plateau continuous southwards into ' Jath Plateau ' having a height of 700 meters.

Fig. No. 1.4 clearly points out the general slope from West-northwest to south. This is due to the flow of Krishna and Warana rivers. Secondly the slope from west to east in the extreme eastern part is governed by the undulating nature of hard basalt rocks. The average altitude of the region varies from 600 meters to 1000 meters.

Thus the region therefore can be conveniently placed into four major physiographic units.

- A) The Western Hilly Area,
- B) The Krishna Basin,
- C) The Yerala Basin,
- D) The Eastern Plateau Area.

A) The Western Hilly Area :-

This rugged hilly region forms a climatic barrier on account of its high relief (900 meters - 1100 meters above m.s.l.) It receives abundant rainfall during South-west monsoon season. The alternate ridges and valleys is a general feature of this zone. The steep topography presents the low density of population due to the effect of relief. The cultivable patches and concentration of population are confined to the banks of river and streams.

B) The Krishna Basin :

This zone lies to the east of above unit and is covered by alluvium of black soils. It has an average height of 600 meters above the mean sea level and slopes from north-west to south-east. It comprises the area of Walwa and Miraj tahsils.

This region is agriculturally prosperous and densely populated. The development of irrigation has encouraged the sugarcane cultivation forming the base of rural economy⁷.

C) The Yerala Basin :

This basin occupies the area of Khanapur and Tasgaon tahsils. In the north, the basin has a height of 300 meters above

the Krishna basin. The north-eastern part of the region is drained by the Man, a tributary of Bhima river. It covers an area of Atpadi and Jat tahsils. It is separated from the Yerela basin by plateaus. Moderately favourable conditions prevail the moderate density of population in this area.

D) The Eastern Plateau Area :

This table-land occupies the eastern part of Khanapur tahsil and western part of Atpadi tahsil. It is surrounded by flat-topped ridges both on the east and west. The plateau is very much dissected in topography and acts as a constraint on cultivation.

Jath plateau, on the other hand, situated to the south-east of Khanapur plateau with an average height of 700 meters. The dissected topography, scarcity conditions and poor soils have lead to low agricultural productivity and very sparse population density in this zone.

1.6 : DRAINAGE PATTERN :-

Over Sangli district, streams contribute not only the flow paths of the hydrogeological cycle, but are also the carriers of rock matter which ultimately seems to go to the Bay of Bengal. To-day, Krishna valley and its tributaries have made a nice geomorphic adjustment with each other!

The major part of the study area lies in Krishna basin; Shirala tahsil in the west comes under the Warana basin, whereas the eastern part belongs to the Bhima basin. (See fig. 1.5)

SANGLI DISTRICT

DRAINAGE PATTERN

- 1 KRISHNA
- 2 WARNA
- 3 YERALA
- 4 AGRANI
- 5 BOR
- 6 MAN

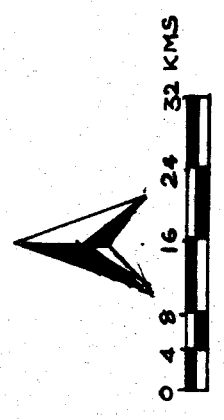
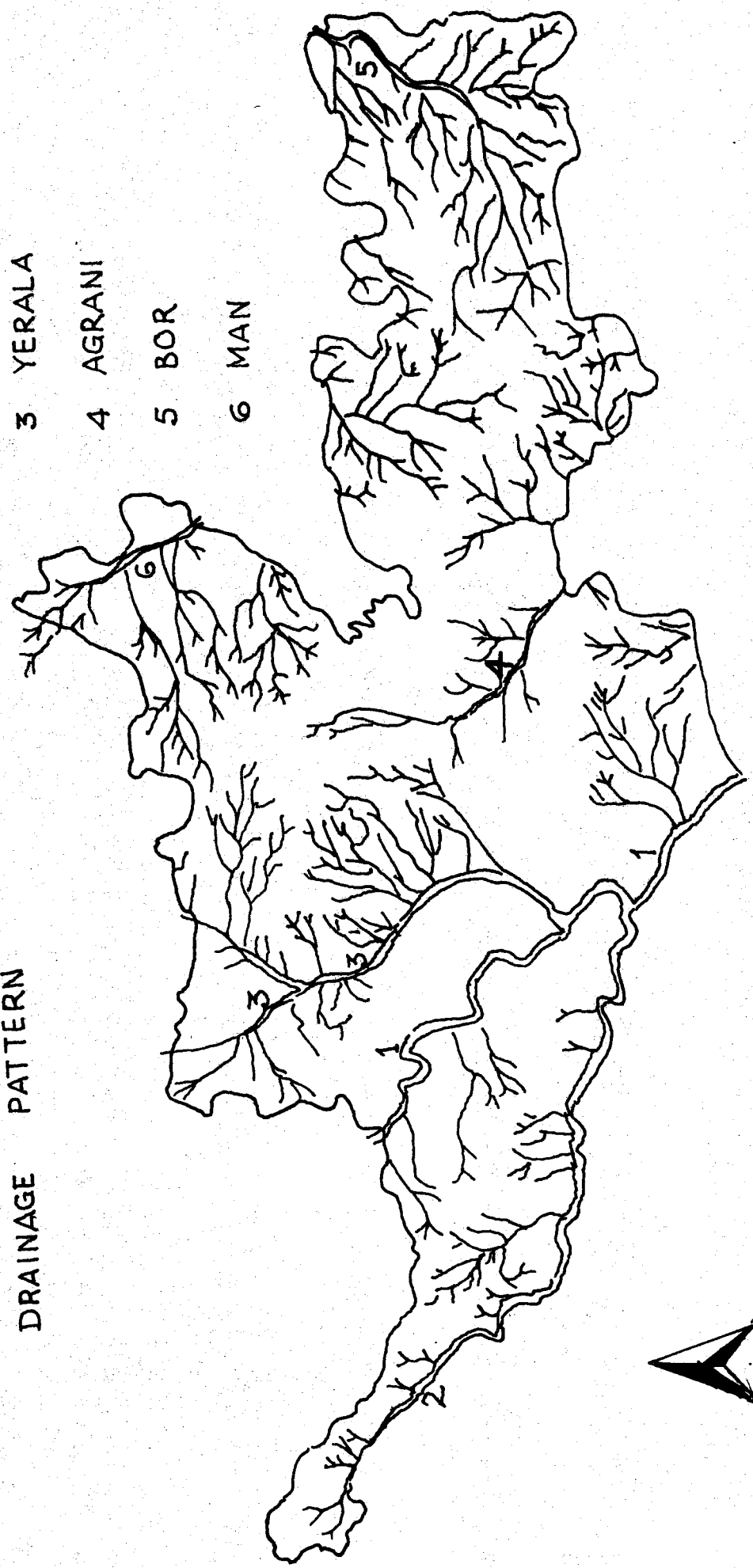


FIG.5

TABLE 1.3

CATCHMENT AREAS OF RIVERS FLOWING IN SANGLI DISTRICT :

S.No.	River	Catchment Area (approx.) in Sq.km.
<u>KRISHNA BASIN</u>		
1	Krishna	5285.5
2	Yerala	1645.5
3	Warana	990.0
<u>BHIMA BASIN</u>		
4	Man	850.0
5	Agrani	1045.5
6	Bor	2476.0

Source : Sangli - Miraj Regional planning Board,
Study Report - Land use Survey Final (1974).

The river system in the study area can be described,
in brief, as follows :-

A) Rivers in the Western Part :

The Krishna is the southernmost of the three eastflowing Deccan river systems of Maharashtra. It has its source at Mahabaleshwar (Satara Dist.) and takes a southern course in the Sangli district. The total length of this river from source to mouth is about 1,280 km. of which only 108 km. lie in the study area. It is in fact, the heartland of the study area curiously enough this river has gone a long way to forge the cultural and spiritual unity of Sangli district in particular and Maharashtra in general.

Many pilgrims occasionally come and visit her banks. A well-known Marathi feature film ' Santh Wahate Krishna Mai ' is named after this river. Its principal tributories and their catchment areas are shown in table 1.3 .

Warana flows from west to east along the southern boundaries of the study area and joins Krishna at Haripur village, near sangli city.

Yerala flows in general from northeast to southwest. It traverses the western part of Khanapur and Tasgaon tahsils and joins the Krishna near Brahmanal village.

All these three rivers are the life-lines of the western half of the study area. All these have a significant bearing on irrigation , irrigated areas and agricultural patterns etc. etc. They have and continue to make a significant impact on the lifestyle of the people in all historic times.

B) Rivers in the Eastern part :

Agrani, Man and Bor rivers belong to the Bhima basin. They form drainage system of the eastern part of the study area. Their water resources are very much limited owing to the seasonal nature of rainfall concentrated in three-four months of the year.

General Characteristics :

' Of far greater importance is the seasonal regime of all rivers in Maharashtra. This is the most important single factor which influences landscapes and lives of the people in the region⁸ '.

A study of river's profiles of the drainage system in the Maharashtra plateau brings out their general erosional and depositional characteristics as below :-

i) Vertical erosion is much more marked in the source regions.

ii) Lateral erosion is more prominent on the plateau region. This is due to the gentler gradients of the streams.

iii) The plateau has a broad swinging river with a much larger volume of water and less drastic seasonal flow. The flow is at its maximum in the month of August, soon after the full impact of monsoon and is at its minimum in the dry months of March and April.

iv) This periodicity produces heavy floods during the rainy season accompanied by a large scale erosion of the parched and loose soil surface.

v) The floods widen the villages and in many places build alluvial terraces with the recession of waters in the main beds after the recession of floods. Such terraces form very rich belts of farming. In the dry season, the water in the main beds moves sluggishly in many places remains stagnant.

The important impact of the seasonal water regime is seen on the general economy and life of the people. Copious water supply in one season and its almost complete absence in the other fundamentally influences the rhythm of life. Much of the monsoonal water goes waste into the sea and during the dry season not only crops but also animal and human life is equally

starved of water, Hence, irrigation of every type - well, tank, lift and canal - has become a cardinal feature in the policy of economic development of the region.

1.7 CLIMATE :

The study area experiences semiarid climate characterised by the mansoons following the hot summer season. According to Trewartha and Horn⁹ the study area falls in ' Bsh ' climatic type. The climate in **general** is cool and healthy in the western parts comprising the tahsils of Shirala, and is hotter and dry in the eastern part of the region. The rainy season (June to September) is marked by cool climate followed by sultry weather during the **past** monsoon period (October to December). Dry hot climate prevails in February and March, while hot climate lasts till the monsoon sets in June.

A) Temperature :

In fact, temperatures are modified in different season due to altitude particularly in the western hilly parts. The average summer maximum temperatures of 38.7° c and winter minimum of 13.9° c are recorded at Sangli station, which is the representative of region except the west. (table 1.4) It is important to note that maximum temperature of 41.5° c and minimum temperature ~~dropping to~~ 7° c has been recorded in the region.

TABLE 1.4

MAXIMUM AND MINIMUM TEMPERATURE IN °C AT SANGLI CENTRE :

Months	Max. Temperature	Min. Temperature
Jan.	31.4	14.4
Feb.	34.8	15.4
Mar.	37.0	17.4
Apr.	38.7	19.9
May	36.1	21.9
Jun.	32.1	21.9
Jul.	30.2	21.4
Aug.	28.6	21.1
Sep.	31.0	20.2
Oct.	33.6	19.8
Nov.	30.5	17.8
Dec.	31.0	13.9
Year	38.7	13.9

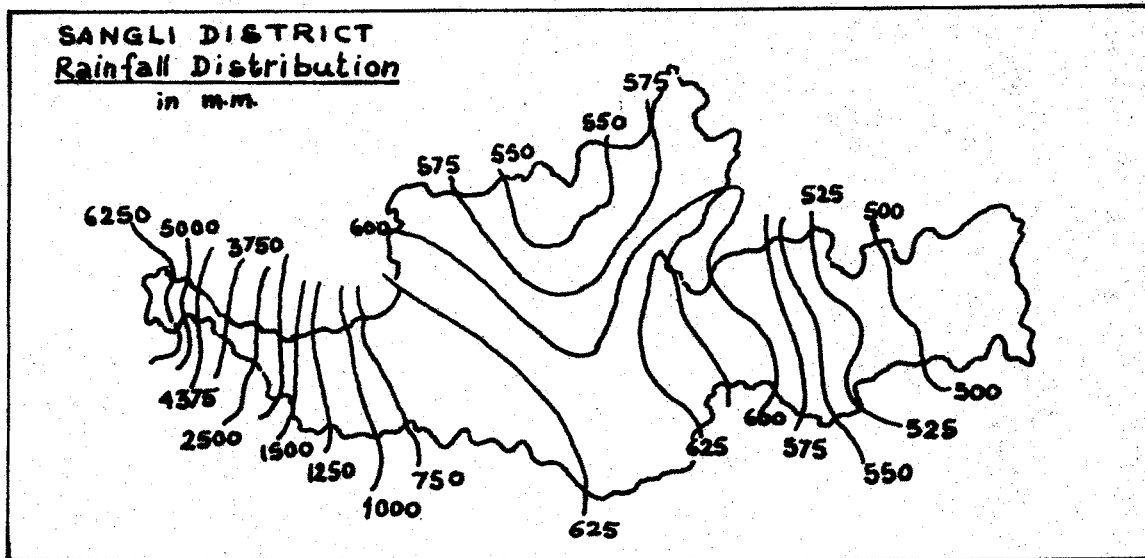
Source :- Regional Director, Regional Observatory,
Colaba, Bombay, Socio- Economic Abstract
and D.S.A. of Sangli Dist. 1982-85.

B) Rain fall :TABLE No. 1.5SANGLI DISTRICT : NORMAL RAINFALL IN mm.

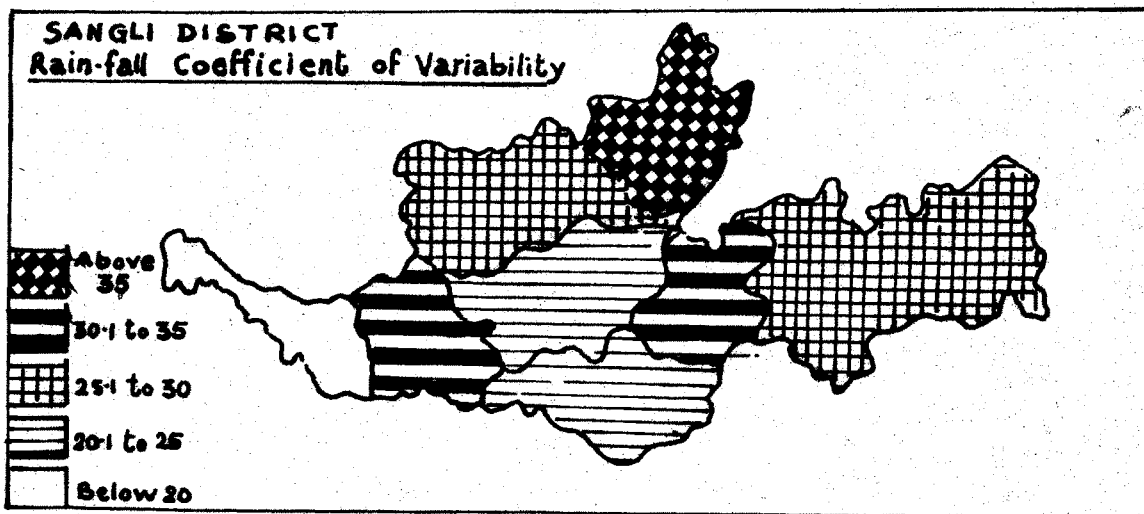
Months	Miraj	Tasgaon	Vita	Atpadi	Jat	K.M.	Islam- pur	Shirala
Jan.	4	6	5	2	2	-	4	4
Feb.	1	1	1	-	2	3	1	1
Mar.	4	4	3	3	5	2	4	6
Apr.	32	23	15	16	19	10	24	21
May	56	47	34	47	32	39	44	41
Jun.	70	87	77	50	69	76	89	124
Jul.	110	107	98	51	66	73	149	271
Aug.	111	78	69	91	63	80	83	149
Sep.	105	116	125	150	153	182	102	104
Oct.	96	88	78	128	77	107	94	97
Nov.	41	34	30	31	33	23	36	40
Dec.	5	7	7	14	8	15	9	5
Total	635	598	542	563	529	610	639	863

Source :- Chief statistician, Department of Agriculture, ,
Maharashtra state, Pune, S.E.R. and D.S.A. of Sangli
Dist. 1981-82.

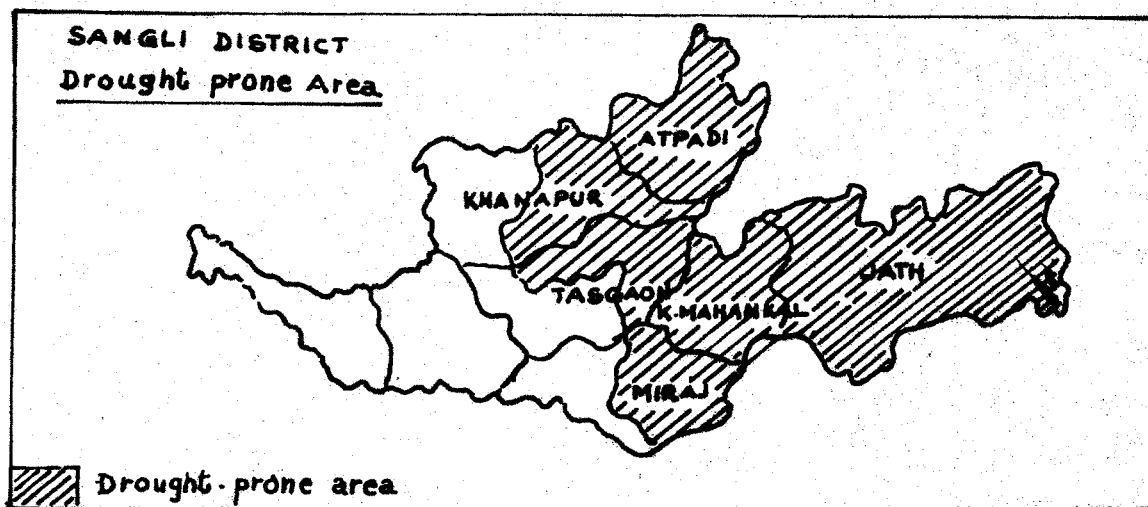
Distribution of rainfall over a region depends, apart
from the latitudinal location, on the nature of topography and
the distance from the sea. These features affect differantly
the seasonal rhythms of the air circulation and therefore also
the rainfall distribution¹⁰.



(a)



(b)



(c)

FIG. 6

The rainfall begins with an approach of South-West Monsoon from the middle of June and lasts up-to the end of September. Sometimes the rainfall receives from the Bay of Bengal Cyclones during October to November. The uneven distribution of rainfall is a remarkable characteristic of the region (fig. 1.6 (A)). The western hill tracts of Shirala tahsil on an average receives rainfall of over 2000 mm. in a year, whereas the Krishna basin, in the centre has about 750 mm. rainfall. The north-eastern and eastern parts receive the lowest rainfall in the region averaging about 500 mm.

The rainfall is heavy in Shirala tahsil area. Yearly average rainfall is 1250 mm. in the areas bordering Shirala tahsil on the east. As we go towards west of the region, the rainfall goes on increasing and in the extreme west the rainfall is about 6000 mm.

The tahsil of Walwa, Western part of Khanapur and Tasgaon and Western part of Miraj fall within the rainfall range of 600 to 1200 mm. The rainfall goes on decreasing as we go towards east from the western boundry of Walwa taluka. The rest of the region - Eastern parts of Khanapur, Tasgaon and Miraj, Kavathe Mahankal, Atpadi and Jat tahsils - receives scanty rainfall which is less than 600 mm.

The other peculiar characteristics of the rainfall are that the average number of rainy days are about 49. Nearly 68 % of the total rainfalls during June to September and 19 % during October and November. The region receives showers with thunder during the month of may.

C) Rainfall variability :

The rainfall statistics have important bearings on water resource management, adjusting cropping pattern, improving the technique for flood forecasting etc. It is an established fact that any departure from the normal rainfall for a definite period, will inevitably upset the characteristic water balance for that area leading to reduced yields or crop failure. A variability of rainfall in excess of 20 per cent of the normal implies a great risk in farming¹¹. Thus a study of coefficient of rainfall variability (CV) is essential. The coefficient (CV) is worked out in percentage (fig. 1.6 b) with the help of the following formula :-

$$C V = \frac{\text{Standard deviation}}{\text{mean}} \times 100$$

TABLE 1.6SANGLI DISTRICT : COEFFICIENT OF RAINFALL VARIABILITY

S.No.	Tahsil	CV(in %)	S.No.	Tahsil	CV (in %)
1	Miraj	22.1	5	Jat	30.0
2	Tasgaon	24.9	6	Kavathe Mahankal	34.5
3	Khanapur	29.9	7	Walwa	30.5
4	Atpadi	37.1	8	Shirala	17.5

D) Drought Prone Areas :

The term ' drought ' generally understood as a period of dryness due to lack of rain is interpreted variously, though not conflictingly. To the meteorologist, drought is a rainless

Situation for an extended period during which some precipitation should have been normally received depending upon the geographical location of the place and season of the year. The agriculturist considers drought as shortage of moisture for his crops, while the hydrologist views it as being responsible for depression of surface water levels or decrease of stream flow. To the economist drought means a water shortage adversely affecting the established economy of the region. Also the concept of drought varies from place to place depending on the normal climatic conditions, available water resources, agricultural practices and various other economic activities of the region. The onset of the effect of drought and recovery of the region from it may be immediate or delayed, depending on the particular circumstances and the characteristics of the area and activity affected. Thus it may be contented that drought refers to a relative rather than an absolute condition¹².

The eastern part of the region comprising area of Kavathe-Mahankal, Atpadi and Jat tahsils, and eastern part of Khanapur, Tasgaon and Miraj tahsils have uncertain and scanty rainfall creating drought conditions. The Fact Finding Committee for Survey of Scarcity areas appointed by the Government of Maharashtra, surveyed the area of Sangli district. The Committee identified and delineated the drought-prone zone of the district as shown in fig. 1.6 (C). This zone has an area of 5671.17 Sq.kms. (66 % of total area of the district¹³) and nearly 40 % of the total population of the district.

E) Climatic Regions :

Climatically this area can be grouped into three climatic regions, namely,

- i) The Western Region (Heavy Rainfall),
- ii) The Krishna Valley Region (Moderate Rainfall) and
- iii) The Eastern Drier Region (Low Rainfall).

1.8 SOILS :

An understanding of Soil Science or Pedology is fundamental or indispensable to the geographers. They constitute a major environmental or agro-climatic factor influencing the fertility and the soil which in form is related to the carrying capacity of the population.

Many persons think that soil is lifeless, a residual layer whereas the author was happy to note that people worship " Regur Soil " as " Kali Aai " . However a regional account of the soils occurring in the study area may be described as below and is shown on the map / fig. 1.7.

Sub-regionwise Soil Distribution :-

A) Shirala sub-region: The hill tops has shallow laterite soils, while the reddish-brown soil is observed on the slopes - a depth varying from 23 to 45 cms. Deep black soils is found on the river banks of Warana. The areas from Mandur to Natoli and Girjawade has Yellowish - Brown shallow soil.

B) Islampur and Ashta Region :- These two subregions comprise the part of Warana and Krishna basin and have medium to deep black cotton soils for major part of the areas, except some pockets around the foothills which exhibit gray-black soil.

**SANGLI DISTRICT
SOILS**

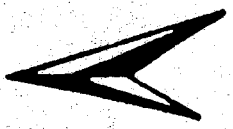
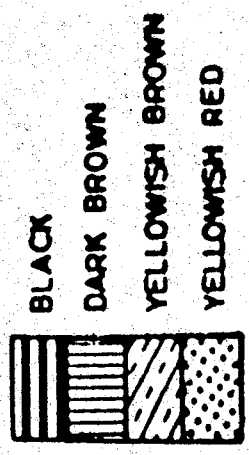
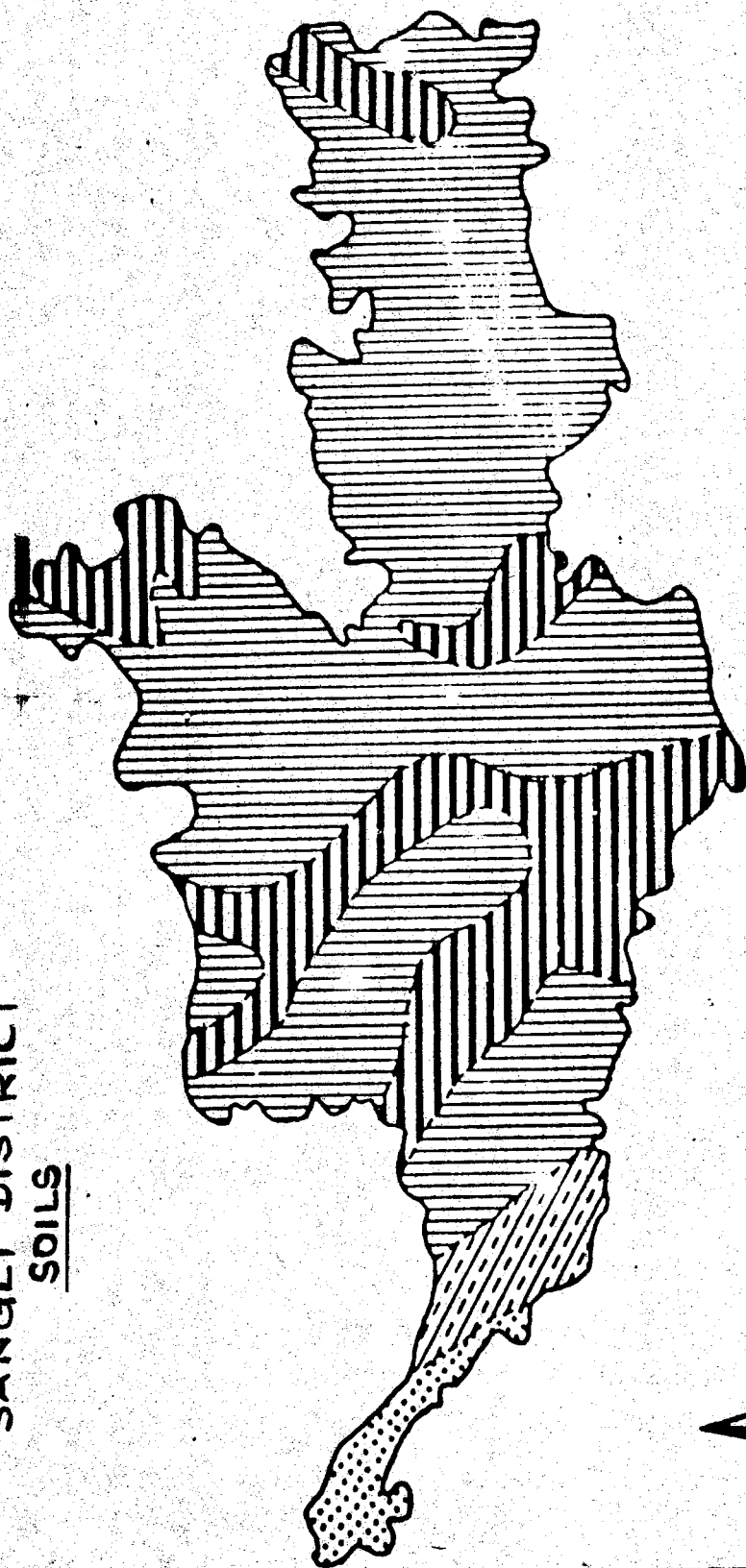


FIG.1.7

C) Sangli-Miraj Sub-region :- The three Kilometer wide belt along the Krishna and Warana banks has deep black/^{Soil}with more than 90 cms. depth. As one proceeds towards east, the soil goes on changing its colour from deep black to reddish brown.

D) Kirloskarwadi Sub-region :- The area in between Krishna and Yerala rivers lying to the south of Kundal consists of medium to deep black soil. The villages on the north of Kundal have, however, Yellowish - brown to dark soils with depths varying from 45 to 90 cms.

E) Tasgaon Sub-region :- Two kilometres wide belt along Yerala river and the Kapur Nala have deep black soil. In the rest of the eastern part of sub-region yellowish to reddish brown soil with depth ranging from 45 to 90 cms. is observed. The hill slopes have very shallow soils.

F) Vita Sub-region :- Approximately 1 km. wide belt along with the Yerala and Nandani rivers exhibits medium to deep black soils. The north-west part of this soils, with depths varying from 23 to 45 cms. The rest of the sub-region has soils of medium gray type with depth more than 45 cms.

G) Atpadi, Kavathe-Mahankal, Jath Sub-region :- Approximately 2 kms. belt along with the river Man, Agrani and Bor exhibits fertile soils. They vary from grayish to black colour and have a depth more than 23 cms. In the remaining part of these sub-region shallow yellowish brown soils are observed.

1.9 LAND-USE :-

' Land-use ' is any kind of permanent or cyclic human intervention on the environment to satisfy human needs, and the

TABLE: 1.7

SANGLI DISTRICT TALUKA-WISE LAND-USE (1980 - 81)

Name of Tahsil	Area Net Sown		Forest		Area not available for cultivation		Uncultivable area		Fallow Lands		Total area	
	Area (in Hect.) (00')	%	Area (in Hect.) (00')	%	Area (in Hect.) (00')	%	Area (in Hect.) (00')	%	Area (in Hect.) (00')	%	Area (in Hect.) (00')	%
1. Miraj	763	82.67	10	1.08	54	5.85	49	5.31	47	5.09	926	100
2. Tasgaon	877	78.87	50	4.50	91	8.18	36	3.24	58	5.22	1112	100
3. Khanapur	1071	80.78	112	8.45	95	7.16	28	2.11	19	1.43	1326	100
4. Atpadi	640	73.39	20	2.29	89	10.21	102	11.70	21	2.40	872	100
5. Jat	1343	59.77	113	5.03	152	6.76	88	3.92	551	24.52	2247	100
6. Kavathe Mahankal	460	65.06	6	0.85	98	13.86	27	3.82	116	16.41	707	100
7. Walwa	647	82.10	30	3.80	71	9.02	4	0.51	36	4.57	787	100
8. Shirala	442	69.61	131	20.63	37	5.83	21	3.30	4	0.63	635	100
District Total	6243	72.50	472	5.48	689	8.00	357	4.15	850	9.87	8611	100

Source : Socio-Economic Review and District Statistical Abstract, SANGLI District, 1986-87.

SANGI DISTRICT
Land Utilization 1981

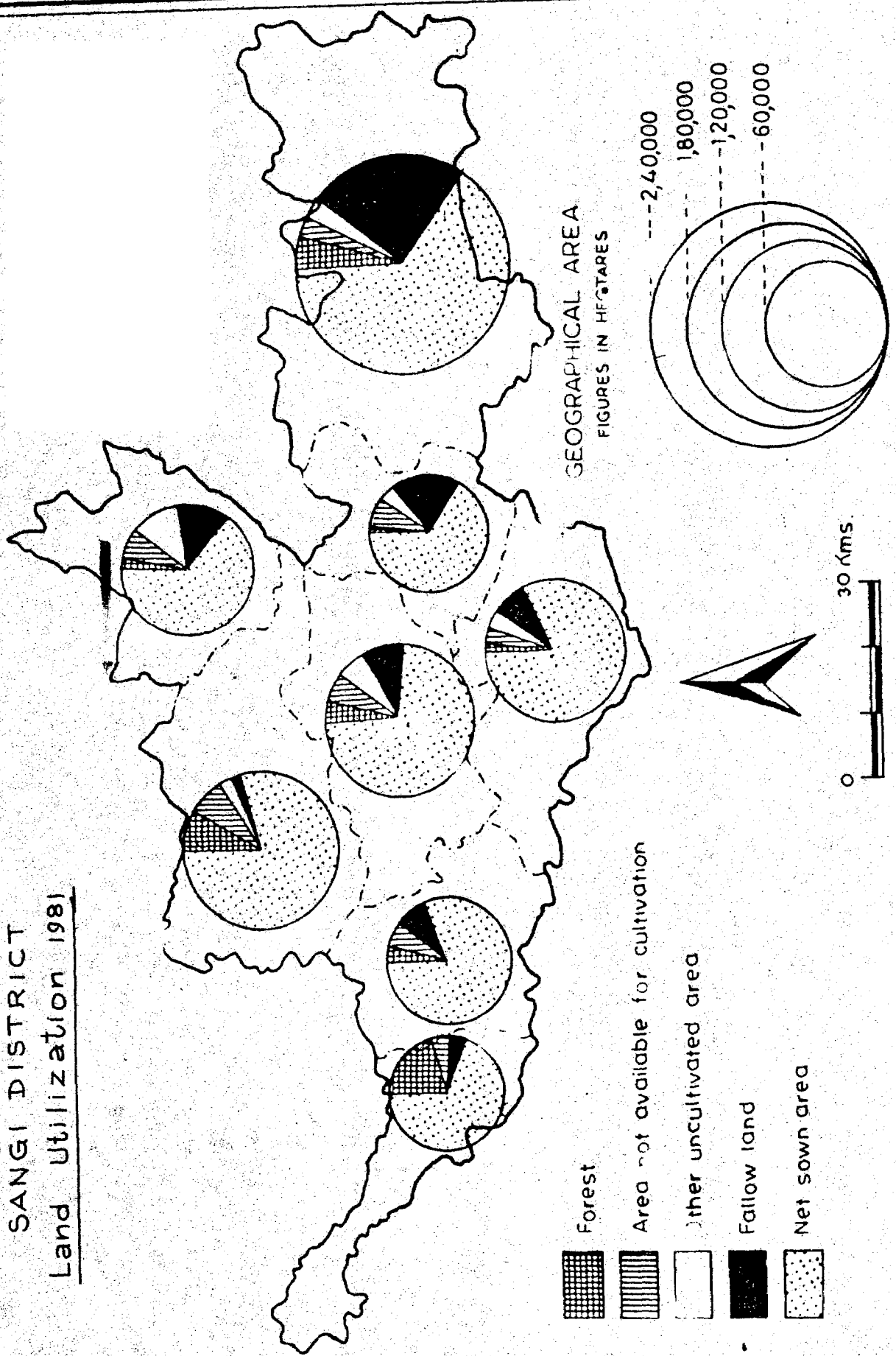


FIG 18

' land-use capability' or ' land suitability ' is the potential capacity of a given tract of land to support different types of land utilization under given cultural and Socio-economic conditions.¹⁴

The Government of India adopted a classification of land use in 1950 in line with the recommendation of the standing Advisory Committee on statistics, F.A.O. According to this classification, land in Sangli district may be classified under 9 categories, viz. 1) Forest, ii) barren and uncultivable lands, iii) lands put to non-agricultural uses, iv) cultivable waste lands, v) Permanent pastures and grazing lands, vi) land under miscellaneous tree crops and groves, vii) current fallows, viii) fallow lands other than current fallows and ix) net area sown.

A) Area Net Sown :

Among all the types of uses that the land is being put to the land utilized for agricultural activities by man commands supreme importance. Unlike in the past, it is becoming inevitable in the present and it would be so in future as well, to use the more or less limited land to meet the needs of increasing population.

The area under net sown in 1980-81 in the district was 624300 hectares, forming 72.50 % of the total area. The net sown area is also subgrouped in double cropped area, irrigated area, fodder crops etc. All types of food and non-food crops are cultivated over this cropped area. Miraj, Khanapur and Walwa tahsils have more than 80 % area is under net sown. Jat tahsil has very low percentage i.e. 59.77 % of net cropped area.

(See fig. No. 1.8).

B) Area Under Forest :

The total area covered under forest measures 472 hectares, constituting only 5.48 % of the total, Shirala tahsil is having highest area under forest i.e. 20.63 % of the total. The natural vegetation in the remaining tahsils is in isolated patches Kavathe-Mahankal tahsil has less than 1 % area under forest.

C) Uncultivated Lands :

The total surface area under this category constitutes very small i.e. 4.15 % of the total area. The water logged, Saline illdrained areas are included in this category. In Sangli district Miraj and Walwa subregions have maximum number of villages in this group with the technical know-how these problems like salinity, water loggedness can be solved.

D) Fallow Lands :

The lands have agricultural potentiality but due to many other reasons are not under cultivation and are included in this group. This constitutes 9.87 % of the total area. In Jat tahsil the area under this category is highest i.e. 24.52 % while in Khanapur, Atpadi, Walwa and Shirala tahsils it is below 5 %. The irrigation facilities can improve such type of fallow lands. Some of the fallow lands are kept for the extension or other development plans.

E) Area Not Available For Cultivation :

The total surface area under this category is 8 % only. This includes actual settlements covered areas, roads, industries, commercial, public and semi public land-use. Atpadi and Kavathe-Mahankal tahsils have more than

10 % , while in Miraj and Shirala tahsils it is less than 6 % of total area.

1.10 IRRIGATION :

The progressive depletion of forest cover and of underground water supplies in the recent part on the one hand, and the increasing pressure of population and the rising needs of domestic, agricultural and industrial users on the other render proper utilization of water resources a vital aspect in districts economic and social development. As we have seen earlier, there is too much water in the form of rains and floods during the short south-west monsoonal period and too little during the long dry summer. There is fluctuation in water supply due to variability of rains. The structure of underlying trap flows and the interbedded sedimentary and other older rocks do not allow the formation of underground water-table that is capable of yielding copious and dependable supplies to large areas. Apart from local wells and possibly some channels from tanks, Sangli district has no older irrigation works comparable to anicuts and tanks in southern India. The subsequent canal construction in the district was mainly an anti-famine measure. Table No.1.8 and fig. no. 1.9 show the tahsil-wise irrigated area by different sources of irrigation and the percentage of irrigated area to net san area.

SANGLI DISTRICT
PERCENTAGE OF IRRIGATION

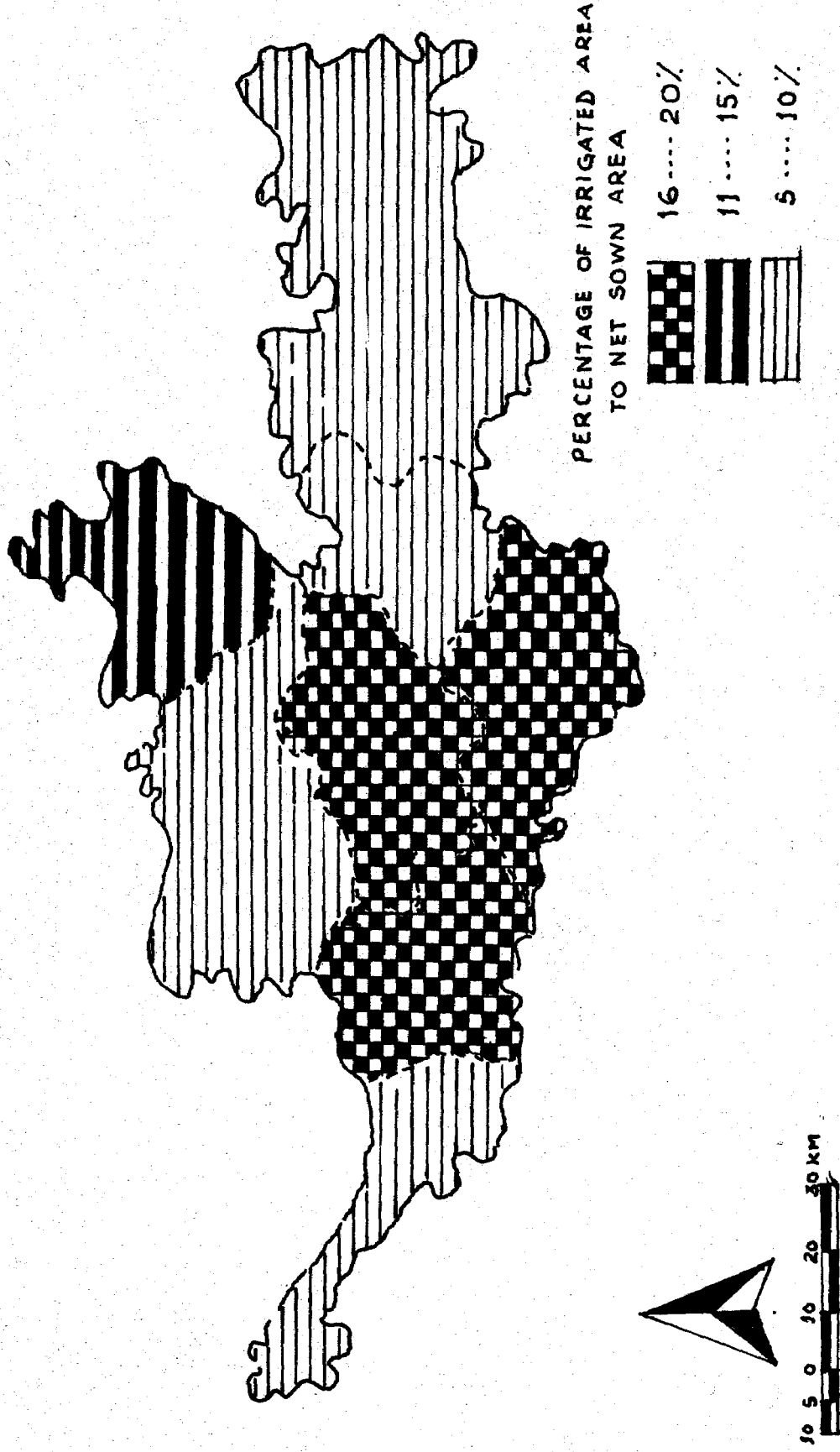


FIG 1-9 (a)

SANGLI DISTRICT
TOTAL IRRIGATED AREA AND SOURCES

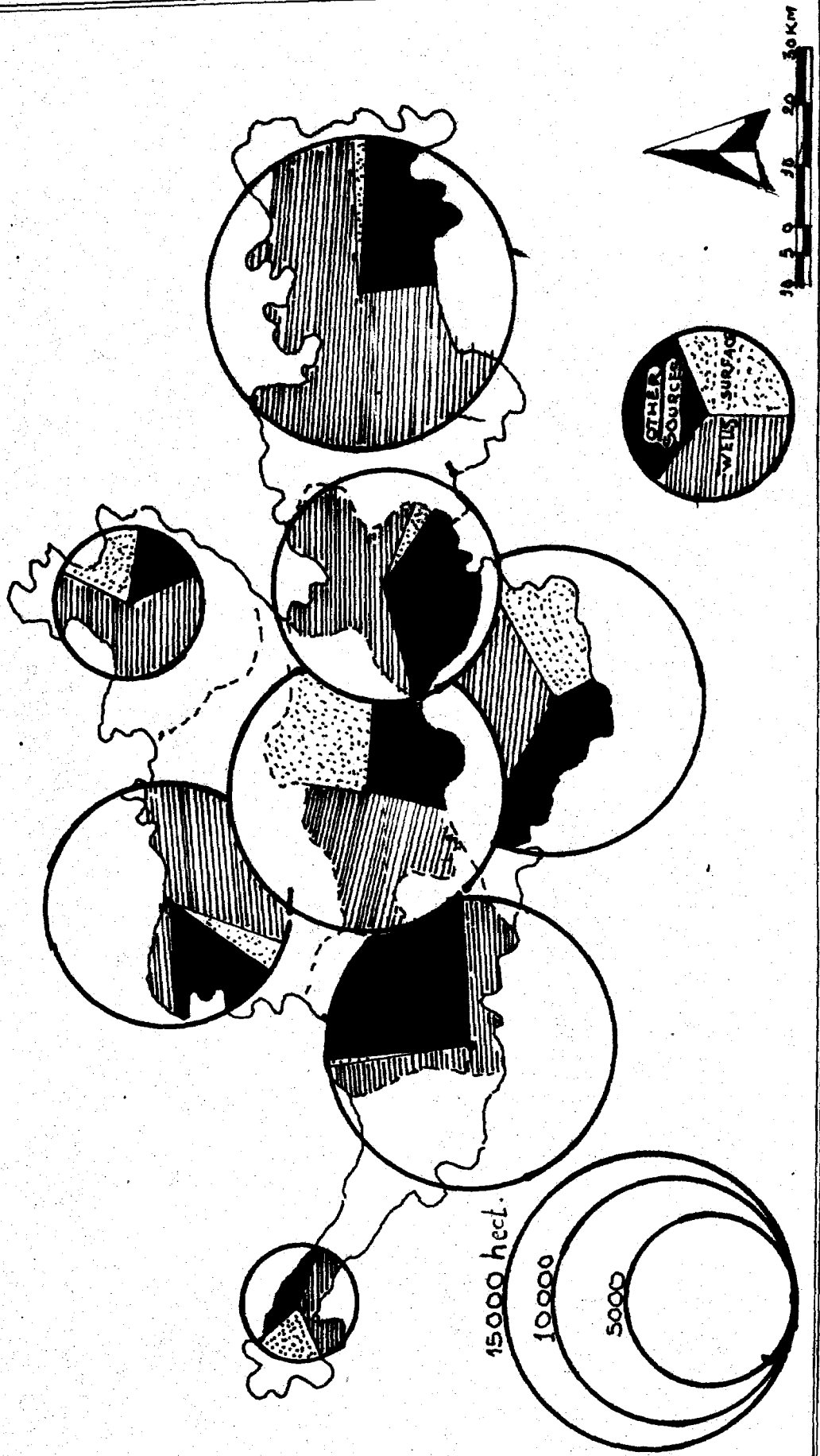


FIG 1-9 (b)

TABLE : 1.8

SANGLI DISTRICT : TAHASIL-WISE IRRIGATED AREA(1980- 81) in hectares

S.No.	Tahsil	Sources of Irrigation			Total	% of Irrigated area to Net sown area
		Surface	Well	Others		
1	Miraj	4300	5200	6477	15977	20.94
2	Tasgaon	4174	8041	4446	16631	18.96
3	Khanapur	460	8718	1568	10746	10.03
4	Atpadi	750	2470	623	3843	6.00
5	Jat	523	12800	3498	16821	12.52
6	Kavathe-Mahankal	318	5520	3288	9121	19.84
7	Walwa	6	11265	4020	15291	23.63
8	Shirala	100	832	1339	2271	5.14
Sangli District		10,631	54,846	25,229	90,706	14.53

Source : Department of Agriculture, Maharashtra State
Pune and S.E.R. and D.S.A. of Sangli
Dist. 1981-82.

Table No.1.8 gives a statistical record of different sources of irrigation and the irrigated area commanded by them. It presents, among other things, following four outstanding features.

i) The irrigated area ranges from maximum of 23.63 % in Walwa tahsil to a minimum of 5.14 % in Shirala tahsil; the average being 14.53 % .

ii) Surface irrigation has a dominance in miraj and Tasgaon tahsils;

iii) Well irrigation is more prominent in the plateau regions of the district.

iv) Other sources of irrigation are also more dominant in Miraj tahsil.

1.11 AGRICULTURE :

Sangli district has a pride in her agricultural economy. 62 % of her population depends directly on this traditional activity. The crop calender and agricultural pattern is the result of interaction between climate and relief. The agricultural year of the area is divided into two seasons, i.e. Kharif and Rabi¹⁵. The Kharif season begins in June with the onset of monsoon and lasts till October. The rabi season starts after the Kharif harvest, generally by late October and lasts till March or April.

A. Crop Association :-

Crops are the principle index of agricultural typology in a area. K.R.Dikshit¹⁶ has made five crop Regions of Maharashtra. The study area lies in the ' Mixed Farming Region ' of Maharashtra.

The crop culture is very intensive in this area. Kharif is the main harvest. Rabi has less importance in the cropping pattern. Slight changes were observed in net sown area. ' The Poor Man's Food ' - Jawar, Bajara and Ragi - rice, maize, cereals and other pulses are main kharif crops while cotton and wheat are rabi crops, Sugarcane, turmeric and tobacco are the main cash crops. Most of the irrigated land lies in fertile black cotton soil area of Krishna river basin. Jat, Atpadi and Kavathe Mahankal tahsils receive very small amount of rainfall and are

liable to drought after every third year. But the remaining part of the district practice developed agriculture. The double cropping is observed in only irrigated areas. The yield per hectare differs from place to place. The table 9 shows the average yields per hectare.

TABLE:1.9

SANGLI DISTRICT: AVERAGE YIELDS OF CROPS (1980 - 81)

S.No.	Crop	Yield per Hect.	S.No.	Crop	Yield Per Hect.
1	Rice	2069 kg.	7	Coreals	734 kg.
2	Wheat	697 ""	8	Turmeric	2861 ""
3	Jawar	850 ""	9	Sugarcane	10233 ""
4	Bajara	181 ""	10	Pulses	336 ""
5	Maize	2250 ""	11	Tobaco	564 ""
6	Ragi	941 ""	12	Cotton	219 bells.

Source : Socio - Economic Raview and D.S.A.of Sangli District, 1981-82 P.25.

B) Agricultural Efficiency :

Shri A.D.Patil⁷ has computed Agricultural Efficiency index for Sangli District for 1979-80, and the Tables are presented here to emphasize " areal differentiation " facilitating agricultural regionaliation. The later is of fundamental impartance in all geographical studies.

Table 1.10 gives Agricultural efficiency of all the 8 tahsils, and is followed by the four agricultural efficiency regions of the district.

SANGLI DISTRICT
AGRICULTURAL EFFICIENCY

1979 - 1980

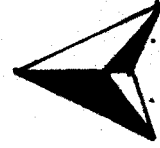
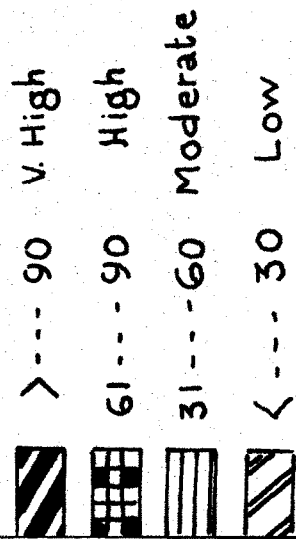
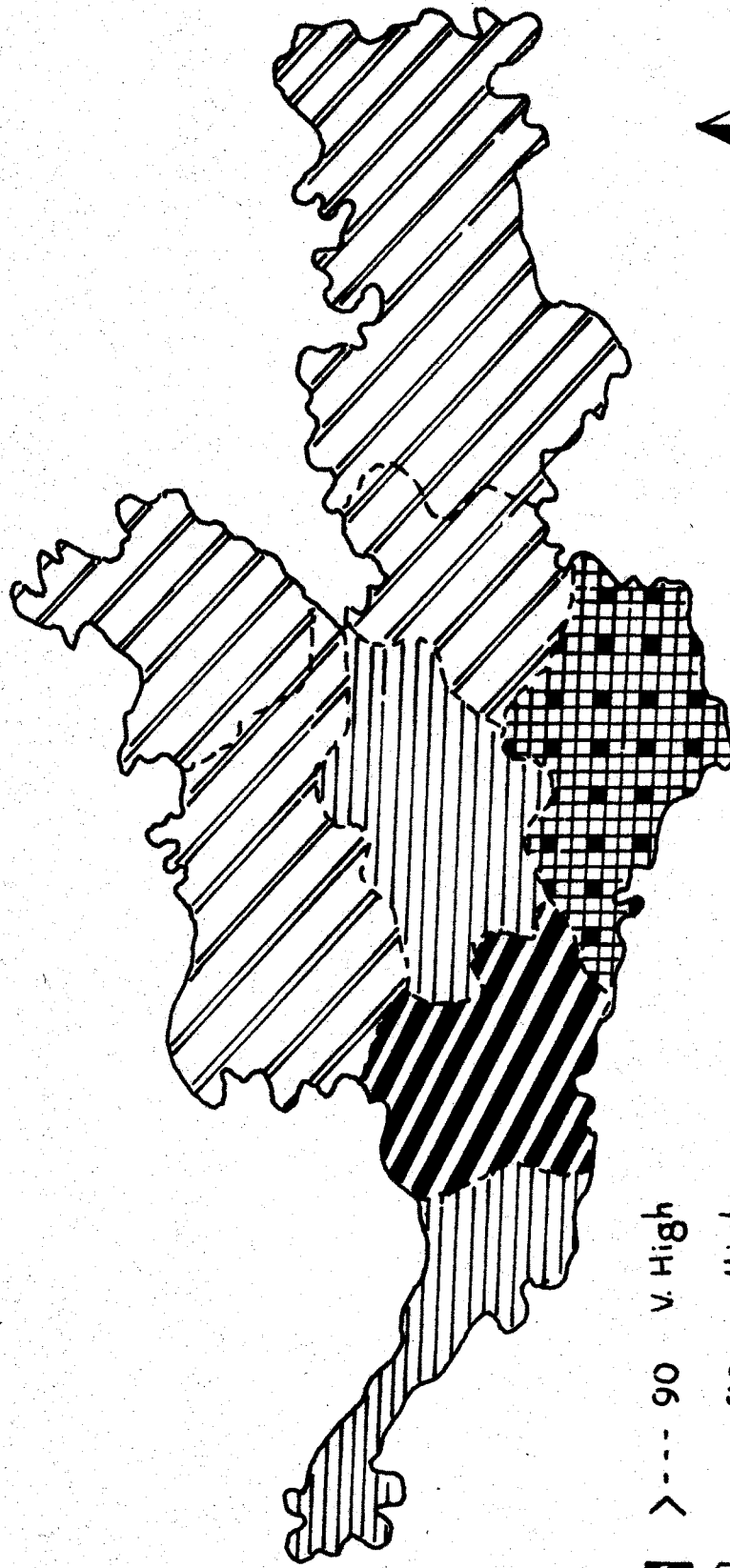


FIG.10

TABLE : 1.10

SANGLI DISTRICT : AGRICULTURAL EFFICIENCY (1979-80)

S.No.	Tahsil	Efficiency Index	S.No.	Tahsil	Efficiency Index
1	Miraj	74.26	5	Jat	1.58
2	Tasgaon	34.54	6	Kavathe Mahankal	6.48
3	Khanapur	5.05	7	Walwa	132.51
4	Atpadi	1.83	8	Shirala	39.82

Source : Agricultural Efficiency in Sangli District
(1965-75) by A.D.Patil, M.Phil.Thesis,
March 1984, PP. 75-83

AGRICULTURAL EFFICIENCY REGIONSi) Very High Efficiency :

Walwa tahsil with its 132.61 index value has attained very high efficiency of agriculture during 1979-80. Well developed irrigation facilities, substantial use of fertilizers, fertile soils have lead to higher yields per unit area. Sugarcane, as irrigated crop, receives relatively large amount of inputs and higher production. Thus irrigated parts have shown high yields per hectare . (fig. 1.10).

ii) High Efficiency :

This category includes Miraj tahsil with its 74.26 index of efficiency. As mentioned above the alluvial soils, irrigation facilities, substantial use of inputs the Western parts of Miraj tahsil show satisfactory yields per hectare. Eastern parts of this tahsil are, however, scarcity affected

resulting into low production. Here jawar and bajara are grown, but recently emergence of grape gardening has shown any upward trend in the increase of efficiency. Besides tobacco, a suitable for dry areas requiring limited use of water is also widely growth.

iii) Moderate Efficiency :

The tahsils of Tasgaon and Shirala are included in this zone with the index value of 39.82 and 34.64 respectively. Despite its rugged topography the valley basins possess alluvial tracts with irrigation facilities. Besides considerable amount of rainfall from N.W. monsoon is suitable for rice cultivation. The recent emergence of sugarcane cultivation in both tahsils has also led to increase in efficiency.

iv) Low Efficiency :

This category includes Khanapur (5.05), Atpadi (1.83) Kavathe-Mahankal (6.48) and Jat (1.58) tahsils. Owing to unfavourable conditions of physical factors the yields per hectare, are very poor and hence efficiency is very low.

1.12 : TRANSPORT AND COMMUNICATION FACILITIES :

The distribution of transport and communication facilities in the district are uneven. Maximum road and rail Kilometerage being the central parts (The Krishna basin) of the district. Table No. 1.11, 1.12 and 1.13 give a bird's eye view of Road, Railways and other communication facilities in the district.

TABLE: 1.11
ROADS IN THE SANGLI DISTRICT, 1981

S.No.	Type of Road	Length in Kms.
1	National Highways	29.57
2	State Highways	570.39
3	Major District Roads	1379.74
4	Other District Roads	1189.85
5	Village Roads	630.70
6	Others	3711.91
	Total	5712.16

Source :- B. and C. Road Project Division, Sangli

TABLE: 1.12
RAILWAYS IN THE SANGLI DISTRICT, 1981

S.No.	Type of Railway	Length in Kms
1	Broad guage	69.10
2	Meter guage	17.00
3	Narrow guage	87.60
	Total	173.70

Source : Socio- Economic Review and D.S.A. of
Sangli District, 1981-82

TABLE: 1.13
SANGLI DISTRICT: COMMUNICATION FACILITIES, 1981

S.No.	Type of Communication	Number
1	Post Office	406
2	Telegraph Office	95
3	Telephones	5318
4	Radio Station	1

Source : Divisional Engineer of Telegraphs, Sang
and Supdt. of Post Offices, Sangli.

TABLE 1.15

SANGLI DISTRICT : INDICES OF LEVELS OF DEVELOPMENT (1981)

(Figures in Percent)

S.No.	Indicators	T A H S I L S											Sangli Distri -Ct. 11
		Miraj 3	'Tasgaon' 4	'Khanapur' 5	'Atpadi' 6	Jat 7	'Kavathe' Mahankal 8	'Walwa' 9	'Shiral' 10	80.89			
1	Cultivable area to the total area	93.46	82.82	83.17	82.16	81.60	63.33	83.28	75.26	80.89			
2	Irrigated area to total cultivable area	17.48	13.95	05.69	08.96	07.56	11.29	21.21	04.17	10.57			
3	Urban population to total population	53.13	15.33	11.05	-	-	-	18.04	-	21.52			
4	Villages electrified	98.46	89.22	80.34	65.00	71.79	88.68	86.52	70.19	80.51			
5	Villages with High Education	38.46	27.45	28.21	18.33	14.41	15.09	32.58	13.46	23.31			
6	Villages with Postal facilities (P.O.+P.T.O.+ T.P.O.)	69.23	64.71	76.07	35.00	51.69	67.92	64.66	44.23	60.17			

SANGLI DISTRICT
LEVELS OF DEVELOPMENT 1981

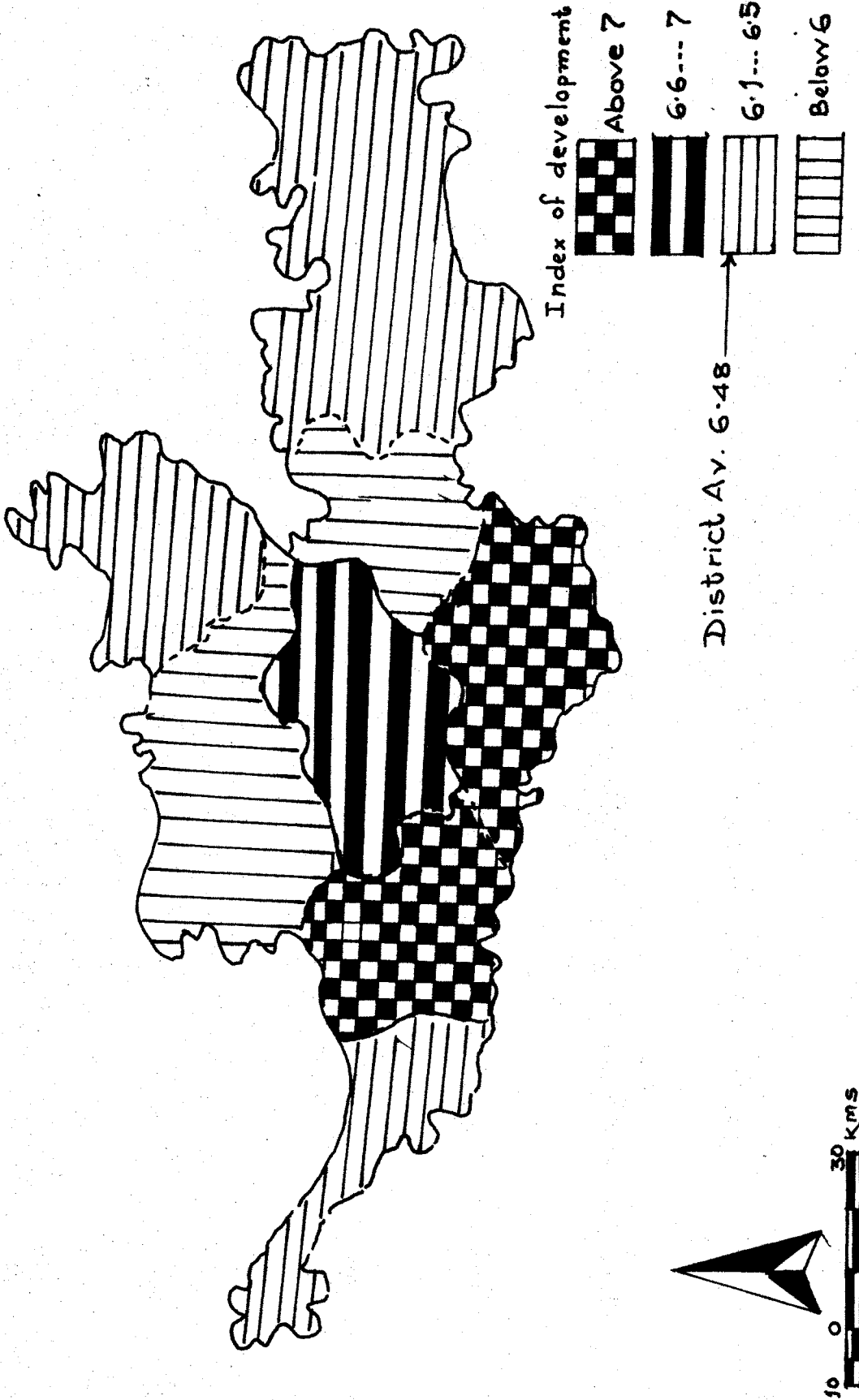


FIG 1:11

1.13 : LEVELS OF DEVELOPMENT :

Indices of development are used as aids or tools for measurement of area development in the context of academic and professional exercises, since the hoary past. The geographers find it very relevant in discovering patterns, problems and processes of development. With this intent in mind, the author have computed levels of Development of all the eight tahsils in Sangli District.

The formula used for Table No. 1.15 and Fig.No.1.11 is as follow :-

$$I. D. = \frac{X_1 + X_2 + X_3 + \dots}{n}$$

Where,

- i) I.D. is Index of Development
- ii) X_1, X_2, X_3 are the indicators of development. This are to be taken in aggregation
- iii) n is total number of indicators.

Note :-

- i) 11 indicators are used;
- ii) Tahsils have been ranked in accordance with the formula used;
- iii) It serves as a reliable and effective tool for Socio - economic regionalisation of the district; and
- iv) An insight, in this exercise would provide an instrument for the District Planning Board of Sangli District for uplift of the district.

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