CHAPTER – II

PHYSIO-SOCIO-ECONOMIC SETTING OF REGION

PHYSIO-SOCIO-ECONOMIC SETTING OF REGION

2.1 PHYSICAL LANDSCAPE

Nature in its different conditions such as relief, drainage, climate, soil and vegetation make influence on man. Physical determinants explain the variations in distribution of population. Hence efforts are made to describe the various physical elements in following lines.

2.1.1 Relief:

The relief of Maharashtra present an interesting phenomena. On the basis of relief, drainage and altitude the State is divided into four natural regions as below (Fig. 2.1).

1.   The Konkan coastal lowland and Sahyadri.

2.   The Tapi-Purna valley.

3.   Maharashtra plateau.

4.   Vidarbha region.

1.   The Konkan coastal lowland and Sahyadri:

The long and narrow stretch of low land that lies between the Arabian sea on the west and the Sahyadri range on the east is called "Konkan". From north to south it covers a distance of about 720 Km. It's area is about 30,394 sq. Km. Between the sea and Sahyadrian wall, this
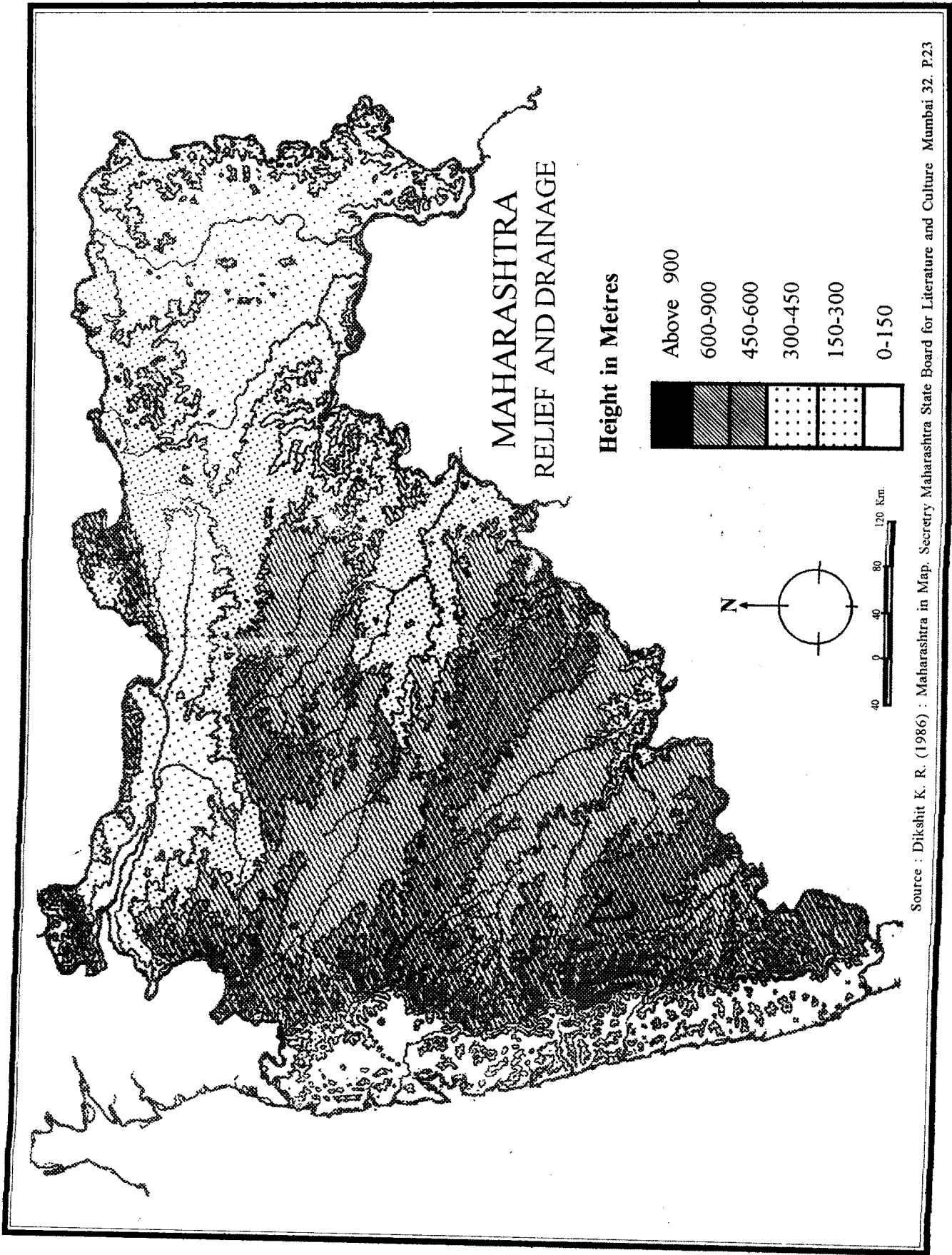
MAHARASHTRA
RELIEF AND DRAINAGE

Height in Metres

	Above 900
	600-900
	450-600
	300-450
	150-300
	0-150

N

40   0   40   80   120 Km.

Fig 2.1

littoral region varies from about 45 Km. to 100 Km. width (Deshpande, 1971). They are undulating lowlands but not plains. The proportion of lowlands is more in the north than the south.

On the whole, the Konkan strip rises about 15 metres above the sea level. The land rises in height towards the east. The height ranges between 15 to 250 metres. There are many streams flowing from the highlands towards the west coast, but they are short and swift. Numerous minor hills dominate the relief of these lowlands.

The coast is broadered by clifs. At some places, these cliffs are as high as 50 or 60 metres. The ridges, hills and undulating topography have more appeared in the south than the north (Shinde, 1980).

The Western Ghat or Sahyadri extends southward and run more or less parallel to the Arabian Sea. It stretches about 440 Km. in north-south direction in Maharashtra. It's average height is 1200 to 1300 metres. The range is without a break in its entire length, except for a few gaps or 'Ghats'. There are six important ghats in Sahyadri. They are Thal, Bhor, Kumharli, Amba, Phonda and Amboli. These 'Ghat' routes connect the Konkan with tableland.

The upper part of the escarpment in Western Ghats is very steep with vertical break suggesting a freshness which one may describe the phenomena of faulting are at some places (Dikshit, 1981).

The Ghat carry at these tops huge plateaus which are almost flat, the most important of them are Mahabaleshwar (1438 mts) and

Harishchandra ghat (1424 mts). A peak rising to higher elevations is 'Kalsubai' (1646 mts) near Igatpuri.

2. The Tapi-Purna valley region:

The Tapi-Purna valley stretching latitudinally across northern Maharashtra is located between Satpuda in the north and Satmala-Ajanta in the south. This rift valley slopes from east to west. The entire basin an alluvial lowland with the attitudinal range varies from 250 to 300 metres. Topographically the Tapi-Purna valley is broad and gently inclined through.

3. The Plateau region:

The plateau region or Desh region stretches to the east of Sahyadri. This plateau region occupies nearly 9/10th of area of the State. The average height of the plateau is about 450 metres. The height of the plateau however varies from 300 metres in the east and 600 metres in the west. The slope to eastward is rather gentle about a metre per kilometre. A number of spurs and ridges off shoot to the west and descend down to the sea.

The traverse spurs of Sahyadri's which run across the plateau region are Ajanta-Satmala in the north, Harishchandra-Balagat in the centre and Mahadeo range in the south. These ranges demarcate and separate river basins in plateau region. The plateau is deeply dissected by the eastward flowing Godavari, Bhima, Krishna and their tributaris. The northern area is drained by westward flowing Tapi and its tributaries.

4.   Vidarbha region:

The Vidarbha region covering about 87.90 lakh sq. km. area has varied relief features such as plateau, flood plain, dissected rolling lands and residual hills. The height varies from 150 to 600 metres. In Bhandara and Chandrapur districts a landscape of low and irregular hills is much in evidence. The Ramtek hill (400 mts) is representative through more prominent feature in this landscape (Deshpande, 1971).

2.1.2 Drainage:

The drainage system of Maharashtra consists of both west flowing rivers draining into Arabian Sea and east flowing draining into Bay of Bengal. The major rivers of the plateau are Godavari, Bhima, Krishna, Wainganga and Penganga (Fig. 2.1).

2.1.3 Climate:

The Western Ghats have a great influence on climate of Maharashtra. The climate of the State is hot and dry with moderate winter and it is classified as tropical monsoon type having three different seasons. The rainy season starts from June and last up to the end of October. It is followed by the winter from November to February and summer from March to May.

1.   Temperature:

March, April and May are the hotest months. Mean maximum temperature rises above 40^0C over much of the state. Mahabaleshwar

MAHARASHTRA
DISTRIBUTION OF RAINFALL

Rainfall in mm.

4000
3000
2000
1000
800
700
500
Less

120 Km.

N

40   0   40   80   120 Km.
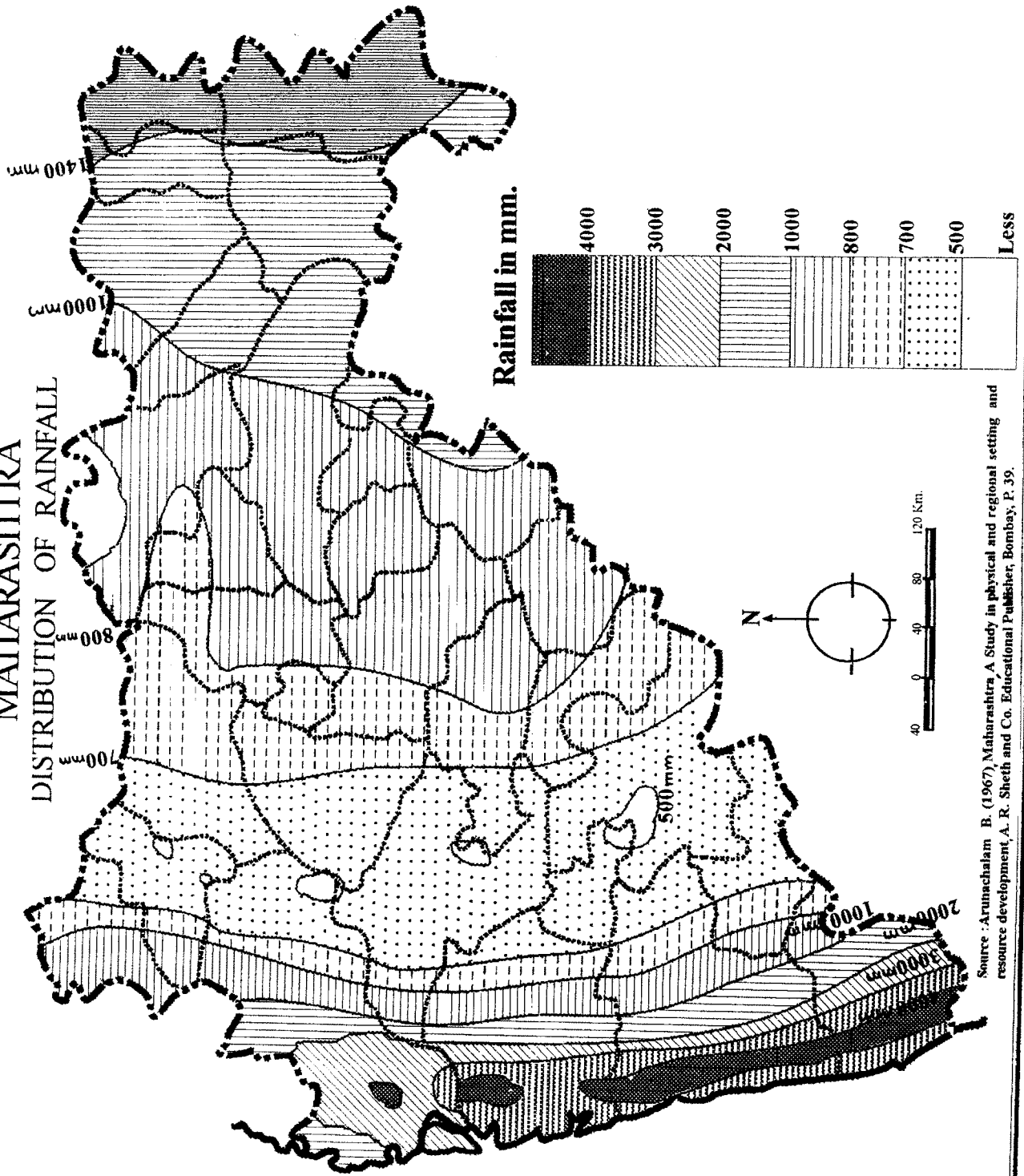
Source : Arunachalam B. (1967), Maharashtra A Study in physical and regional setting and
resource development, A. R. Sheth and Co. Educational Publisher, Bombay, P. 39.

1400 mm.
1000 mm.
800 mm.
700 mm.
500 mm.
1000 mm.
2000 mm.
3000 mm.

area in the Sahyadri range has the lowest normal annual temperature of below 21^{0}C.

December and January are the coldest months. The mean minimum temperature of coldest month on the coast varies between 16^{0}C to 20^{0}C. But on the plateau it varies from 15^{0}C to 18^{0}C.

2. Rainfall:

Greater contrasts are observed in the distribution of rainfall than of temperature in Maharashtra. The State is influenced by south-west and south-east monsoon. However most of annual rainfall is received through south-west monsoon which accounts for 25 percent of the total rainfall. The rainfall in the State varies from 450 mm in the driest part to over 6000 mm in hilly areas of Western Ghats (Fig. 2.2). The central part receives low rainfall ranging between 600 to 900 mm. The areas which lies in the rainshadow of Sahyadri's get average rainfall of 600 to 750 mm and some areas less than 500 mm. The eastern Maharashtra plateau gets average rainfall of 750 to 1250 mm. The eastern part of the State is influenced by the south-east monsoon.

2.1.4 Soils:

Soil is the greatest asset to the region. The soil of Maharashtra is greatly influenced by the geology and climatic conditions of various tracts. The Maharashtra have the following soil types.

MAHARASHTRA
SOIL TYPES

DEEP BLACK SOIL
COASTAL SALINE
MEDIUM BLACK SOIL
COASTAL ALLUIUM
REDDISH BROWN SOIL
LATERTIE SOIL
COARSE SHALLOW SOIL

SOURCE : Districtwise Agricultural statistical Information of Maharashtra Part II 1997-98, 98-99.
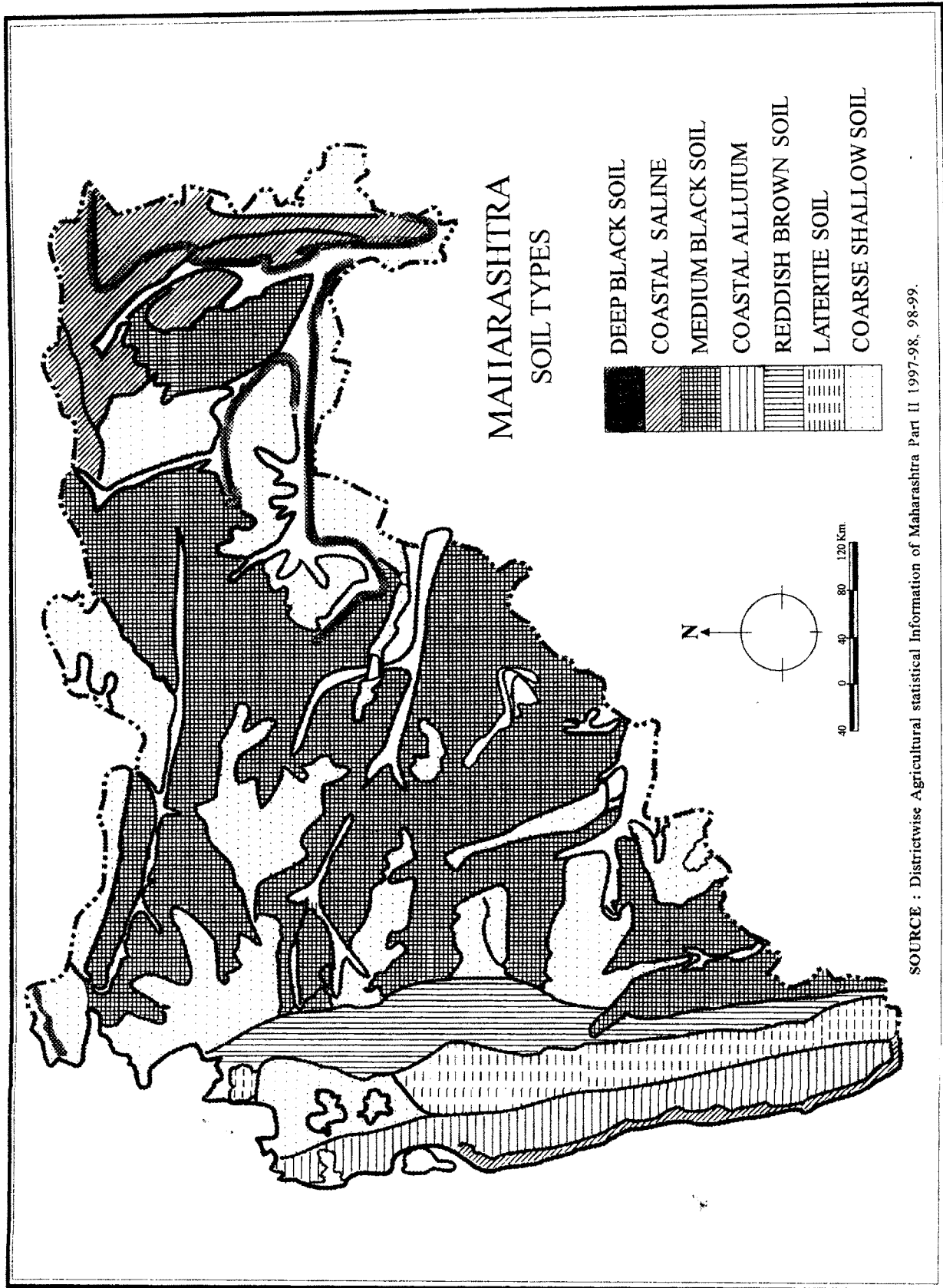
Fig. 2.3

Coastal saline and alluvium soils are mostly found in the Konkan belt. It occupies an area of about 2.33 lakh hectares. The depth of this soil group varies and fertility is rather poor.

Laterite group of soil has covered an area of about 9.15 lakh hectures and is found in the Western Ghats in the districts of Ratnagiri, Sindhudurg and western part of Kolhapur, Satara, Pune and Nasik (Fig. 2.3)

Reddish brown soils are found on hill slopes of pune,, Satara, Kolhapur and Nasik districts. It occupies an area of about 5.36 percent.
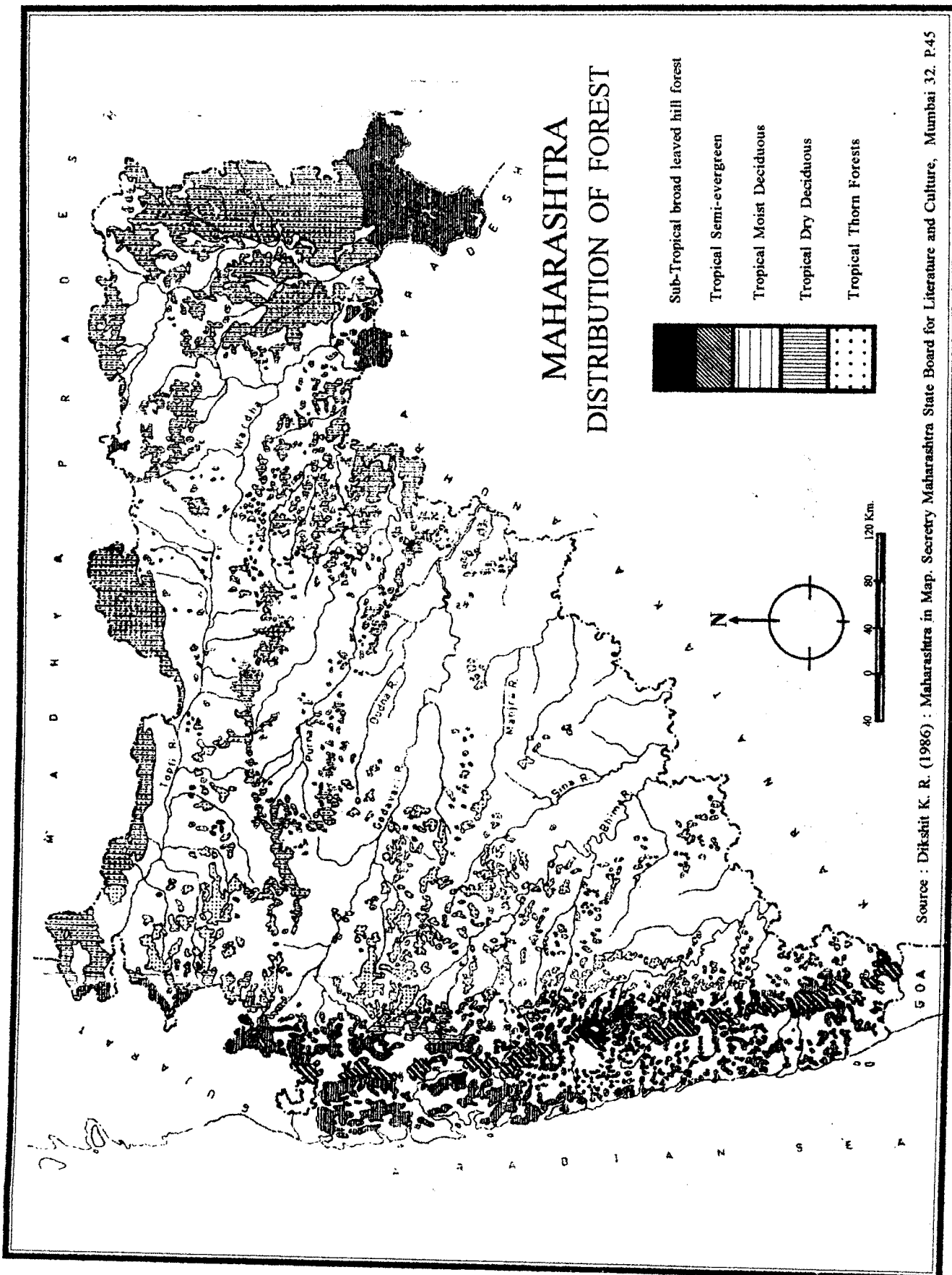
Coarse shallow soils are found in some part of Yavatmal, Ahmednagar, Dhule, Parbhani, Solapur, Nasik and Wardha districts. This soil group is poor in texture and structure.

The medium and deep black soils have covered the plateau and river vallies to the east of the Ghats. It occupies an area of 56.45 percent. This soil is popularly known as 'Black cotton soil' or 'Regur'. It is formed by weathering of lavas.

Yellow soil occur in the eastern part of Chandrapur, Bhandara, Gondiya and western part of Gadchiroli and north and central part of Nagpur. It has covered an area of 4.85 percent.

2.1.5 Forests:

The total forest area in Maharashtra state is 52,817 hundred hectares or 17.17 percent of land area. Forest area is relatively more in

MAHARASHTRA
DISTRIBUTION OF FOREST

Sub-Tropical broad leaved hill forest

Tropical Semi-evergreen

Tropical Moist Deciduous

Tropical Dry Deciduous

Tropical Thorn Forests

Source : Dikshit K. R. (1986) : Maharashtra in Map. Secretry Maharashtra State Board for Literature and Culture, Mumbai 32. P.45

the districts of Gadchiroli, Dhule, Thane, Chandrapur, Bhandara, Amarawati, Nasik, Yavatmal and Nagpur.

The humid type of vegetation is found in the rainy Konkan, Satpudas and hills of Chandrapur and Gadchiroli. Evergreen forests are mainly found in large tracts at the foot of the Ghats and also on the slopes of Mahabaleshwar, Amboli and Bhimashankar ranges (Fig. 2.4).

Semi evergreen forests occur in patches along the flanks of evergreen forests on the more windy section and the crests of the Ghats.

Tropical monsoon forests of moist deciduous type are found on the hills in eastern Chandrapur, the Gavilgad hills, north Konkan hills, the lee-side slopes of the Ghats and the western section of the Mahadeo, Harishchandra Ghat and Satmala ranges.

Tropical dry deciduous forests occur in low rainfall areas varing between 80 to 120 cms. These types of forests are found in Satpudas of Dhule and lower foothills of the Ghats on the Deccan plateau.

Thorn forests or scrub jungles are found in the areas with a rainfall less than 80 cm. The whole Deccan Plateau and the lee side of Western Ghats are covered with thron forests.

2.2   CULTURAL LANDSCAPE:

Cultural landscape of Maharashtra is basically described under the sub-heads of Landuse, irrigation, industry, transportation, urbanization and levels of socio-economic development. All these factors directly and

indirectly govern the distribution of population of any region. So they are described in brief in the following lines:-

2.2.1 Landuse:

Agriculture is the main stay of the people of the State. Landuse is the main element to understand the agricultural economy of the State. There are regional variations in the landuse patterns of the study area. The total geographical area of the State is divided into two major landuse classes viz. non arable and arable land. Table 2.1 shows the land utilization in Maharashtra State in 1998-99.

i)   Non arable land:

The non arable land includes the forest land and area not available for cultivation. The forest land records only 17.70 percent of the total geographical area of the State. Uncultivable including cultivable waste and barren land covers 8.55 percent of the total area (Table 2.1). Uncultivable land including land put to non agricultural uses such as permanent pastures, grazing and tree crops accounts for 9.21 percent of the total area of the State.

ii)   Arable land (Net sown area):

Arable land comparises the net sown area and fallow land. The netsown area covers 57.06 percent (17331 hectares) of the total geographical area of the state. The high proportion of net sown area is found in the central part of the State (Fig. 2.5). Generally the high proportion of net sown area is due to the level land. The area under

cultivation varies depending on topography, soil and climate. The low proportion of net sown area is observed in the districts of Thane, Raigarh, Ratnagiri, Sindhudurg, Bhandara, Gondiya and Gadchiroli (Fig. 2.5). The total fallow land accounts for 7.47 percent (2,271 hectares). Out of this 3.75 percent is other fallow and 3.72 is current fallow. The spatial pattern of net sown area is represented in Fig. 2.5.

Agriculture in Maharashtra is both cereal farming and cash crop farming. Varieties of crops are cultivated in the state. In the cultivation of crops, food crops are dominant while cash crops such as cotton, sugar-cane, oil seeds, tobacco are not more significant. In the Konkan region of the State mainly rice, ragi, millets are cultivated. In Marathwada and Vidarbha jowar and pulses are the major food grain crops.

MAHARASHTRA
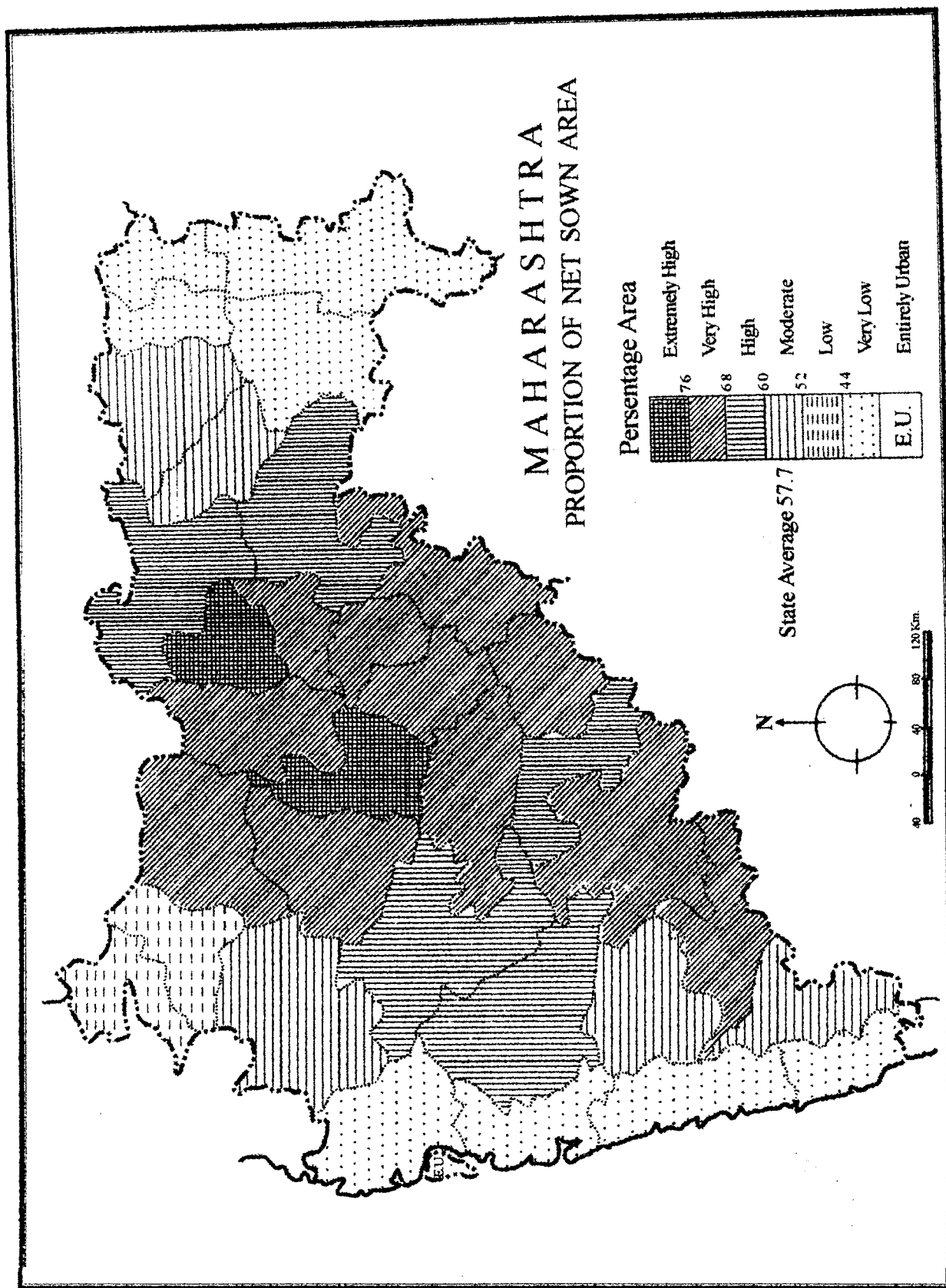PROPORTION OF NET SOWN AREA

Persentage Area

	Extremely High
76	Very High
68	High
60	Moderate
52	Low
44	Very Low
E.U.	Entirely Urban

State Average 57.7

N

40   0   40   80   120 Km.

Fig. 2.5

Table 2.1
General land Utilization, 1998-99

Sr. No.	Item of Landuse	Area in '000' hectares	Percentage
I	**Land not available for cultivation**		
	a) Area under forest	5366	17.70
	b) Area under non agricultural use	1239	4.07
	c) Barren and unculturable land	1711	5.63
	Total	8316	27.40
II	**Other cultivated land excluding fallow land**		
	a) Permanent pastures	1341	4.41
	b) Land under miscellaneous tree crops	222	0.73
	c) Culturable waste	888	2.92
III	**Other fallows**	1139	3.75
IV	**Current fallows**	1132	3.72
V	**Net sown area**	17331	57.06
	Total geographical area	30369	100.00

Source: 1) Government of Maharashtra Directorates of Economics and Statistics, Mumbai, Handbook of basic statistics of Maharashtra state, 1999, Table 3.2 p. 49,
2) Compiled by the author.

2.2.2 Irrigation:

Irrigation is one of the important inputs of agriculture. A highly developed system of irrigation raises the population supporting capacity of the region. In Maharashtra 17.41 percent of the total cultivated land is under irrigation. Bhandara district has the highest percentage of irrigation land (21.19%) followed by

MAHARASHTRA

PROPORTION OF IRRIGATION

PERSENTAGE AREA

20		Extremely High
16		Very High
12		High
8		Moderate
4		Low
		Very Low
EU		Entirely Urban

N

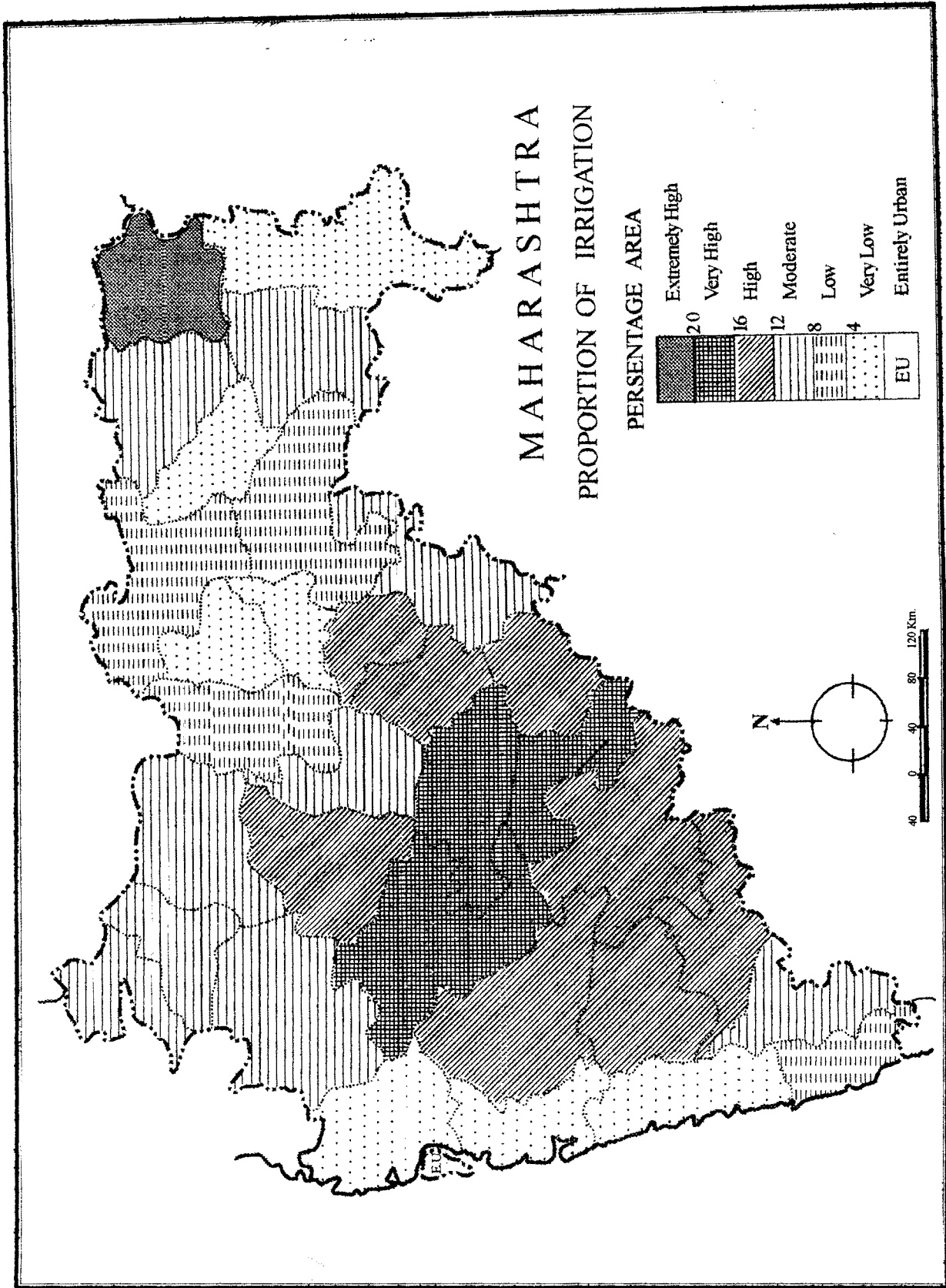40   0   40   80   120 Km.

Fig. 2.6

Osmanabad (19.57%), Beed (18.74%), Ahmednagar (18.20%), Satara (15.07%), Parbhani (13.2%), Latur (12.84%), Sangli (12.68%), Kolhapur (10.37%), Jalgaon (10.86%) and Jalna (10.15%) districts, while in remaining districts irrigated area is very low (Fig. 2.6).

Well irrigation sharing 54 percent of the total agricultural area is dominant source in upland districts of plateau region. It is followed by canal irrigation which shares about 23 percent of the total irrigated area. In the State it is confined to the lower parts of river basins. Tank irrigation shares 15 percent of irrigated area and ranks third. Its concentration is found only in eastern part of Maharashtra.

2.2.3 Minerals:

The distribution of economic minerals is closely related to the underlying geological formation in several parts of the State (Deshpande, 1971). The state of Maharashtra is rarely well endowed with industrial and fuel minerals like iron ore, manganese, coal, bauxite and limestone. Fairly rich deposits of chromite, ilmenite, dolomite and industrial clays occur in different parts of the state. The State is also immensely rich in building stones and road-metals like basalt and literite. Numerous other minerals like silica, mica, wolframite, quartz and others occur in small quantities (Arunachalam, 1967).

The minerals of the State are mainly concentrated in two zones namely eastern Vidarbha or Wardha – Wainganga basin in the district of
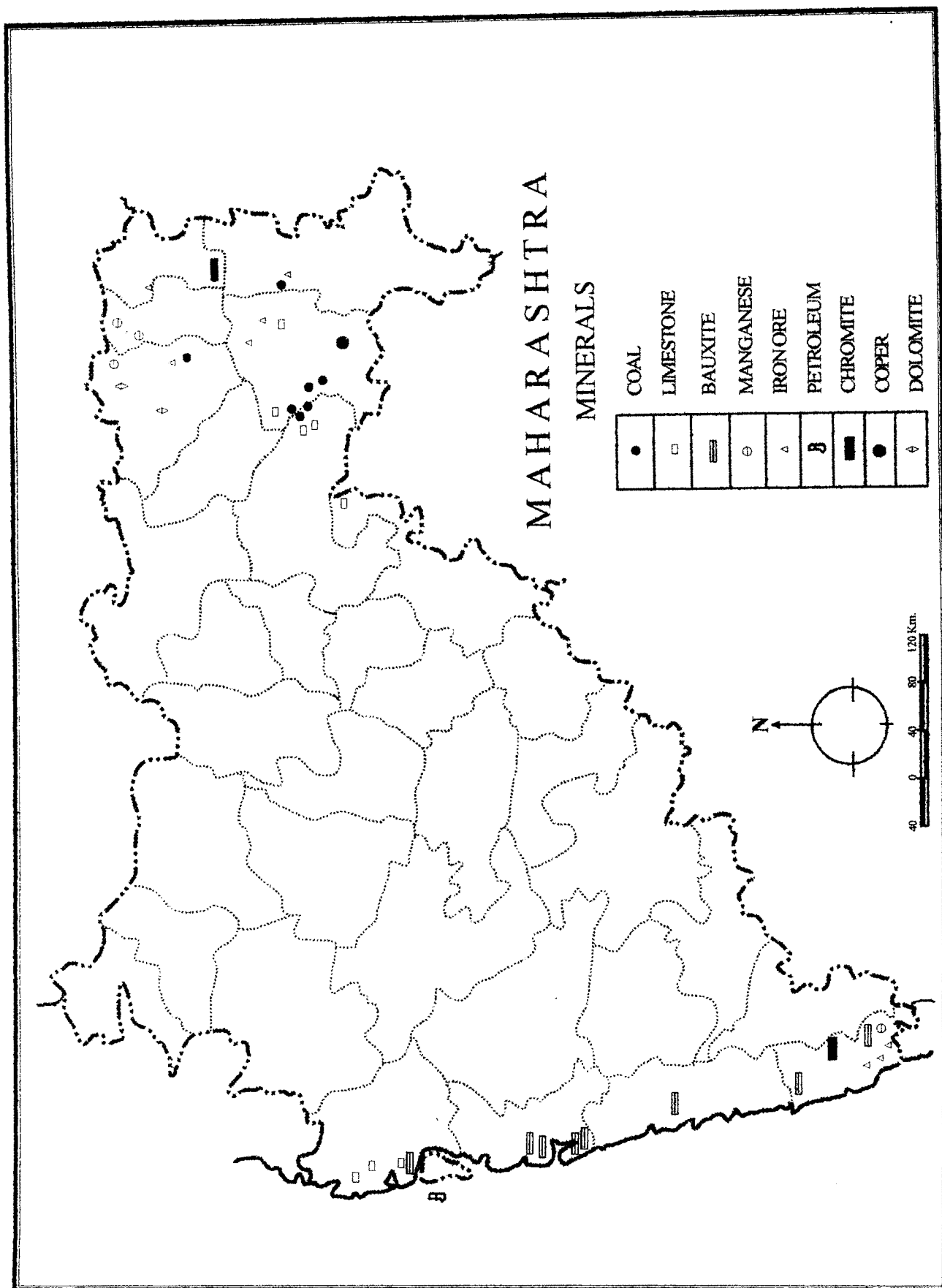
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MINERALS

COAL	●
LIMESTONE	▫
BAUXITE	▭
MANGANESE	⊖
IRON ORE	◁
PETROLEUM	ℬ
CHROMITE	▮
COPER	●
DOLOMITE	◈

N

120 Km.

Fig.2.7

Chandrapur, Bhandara and Nagpur and in south western part of the State in Ratnagiri, Sindhudurg and Kolhapur districts (Fig. 2.7).

The coal reserves occur in Nagpur, Chandrapur and Yavatmal districts. Iron ore is found in Ratnagiri Sindhudurg, Chandrapur and Bhandara districts. Manganese is found in Nagpur, Bhandara, Ratnagiri and Satara districts. Limestone and dolomite reserves occur in Chandrapur and Yavatmal districts. Mineral deposits are also found in Nagpur, Nanded, Sangli, Ratnagiri and Satara districts. Bauxite from which aluminium is derived occurs extensively in districts of Kolhapur, Raigad, Ratnagiri, Sindhudurg and Thane. Chromite deposits occur in Bhandara and Chandrapur districts. And petroleum deposits are found in Bombay high of Arabian sea.

2.2.4 Industry:

Maharashtra is one of the industrially leading states of the country. It has 25,995 working factories which provide employment to 12,25,009 people. The leading groups of industries are textiles, transport, equipment, machinery, electrical machinery, foods and beverage chemical products, metal products, non metallic products, printing, publishing and allied industries, tobacco products and sugar.

The whole State is industrially developed but there is a great disparity at district level. Mumbai, Thane, Pune and Solapur districts have more industries. Mumbai consists 27.92 percent industries of the State and 34.16 percent of the State's total factory workers. While Pune
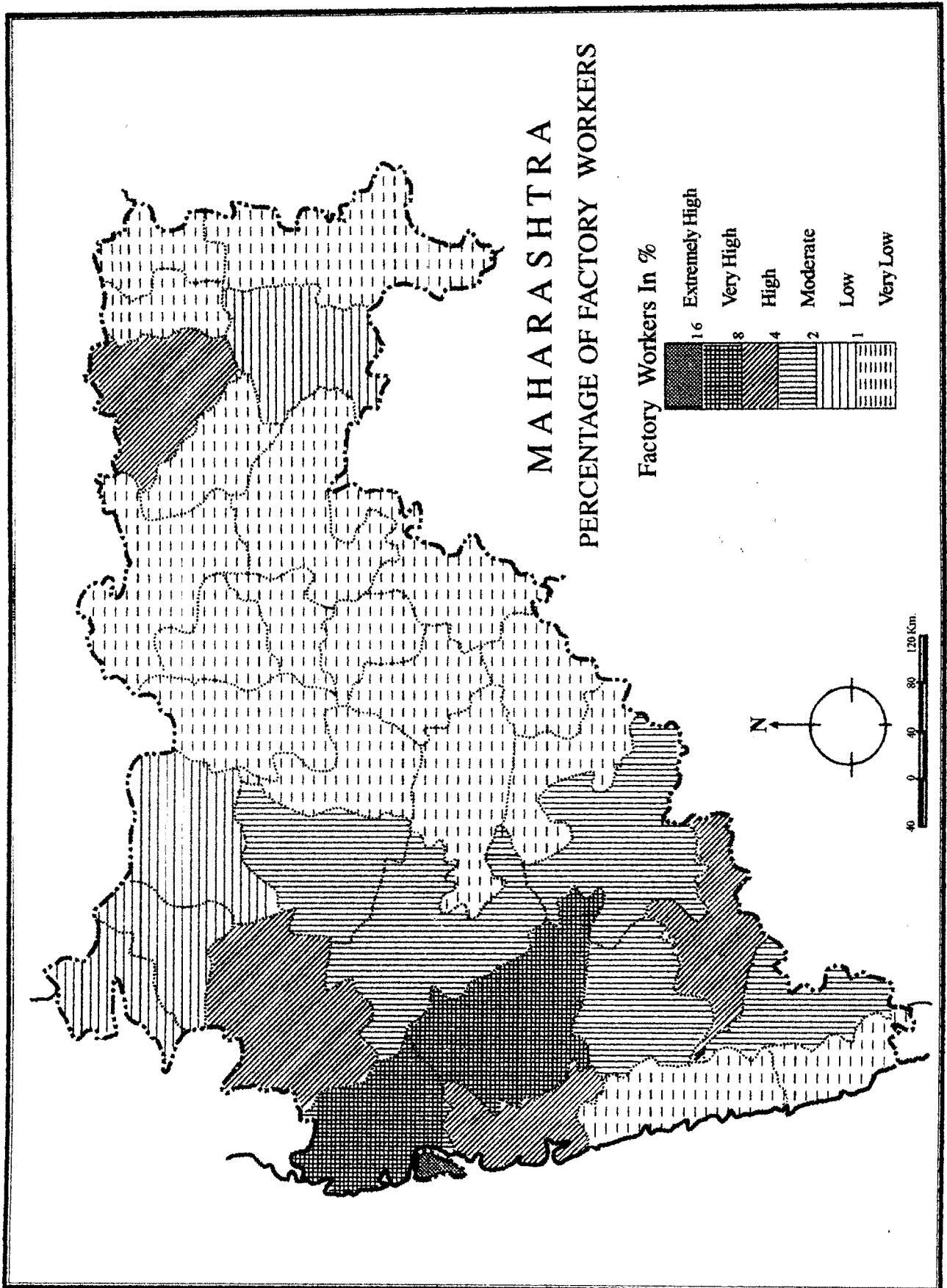
MAHARASHTRA

PERCENTAGE OF FACTORY WORKERS

Factory Workers In %

16		Extremely High
8		Very High
4		High
2		Moderate
1		Low
		Very Low

N

0 40 80 120 Km.

Fig. 2.8

district has 9.91 percent of the State's total factories and 13.50 percent workers. (Fig. 2.8)

2.2.5 Transport:

A well developed transport plays a great role in economic development of an area in the country. It also helps people to move about and find better jobs and opportunities. The State has relatively good network of transport which includes roads, railways, waterways and airways.

The total road length of the State is 1,87,090 km. Out of which 63,479 km. are cement concrete and black topped, 89,501 km. water bound mecademand, 34,110 km. are unsurfaced roads. Fig. 2.7 shows the road density in Maharashtra. The road length per 100 sq.km. of area in Maharashtra is 59.83 km. There are four important National highways in the State, having length of 2,959 km., which contribute about 8.70 percent of the total highway network of the country. The State highways having the length of 30,975 km. contributes 24.39 percent of the country.

In terms of area distribution, the south-central part of the State is well connected with criss-cross pattern of roads. In contrast, central, eastern and north-eastern parts of the State have poor road network.

Besides this, State has 5,401 km. of total rail length and air transport facilities connect the State to all major parts of the country. Mumbai, the capital of the state, is well connected to all major parts of the world.
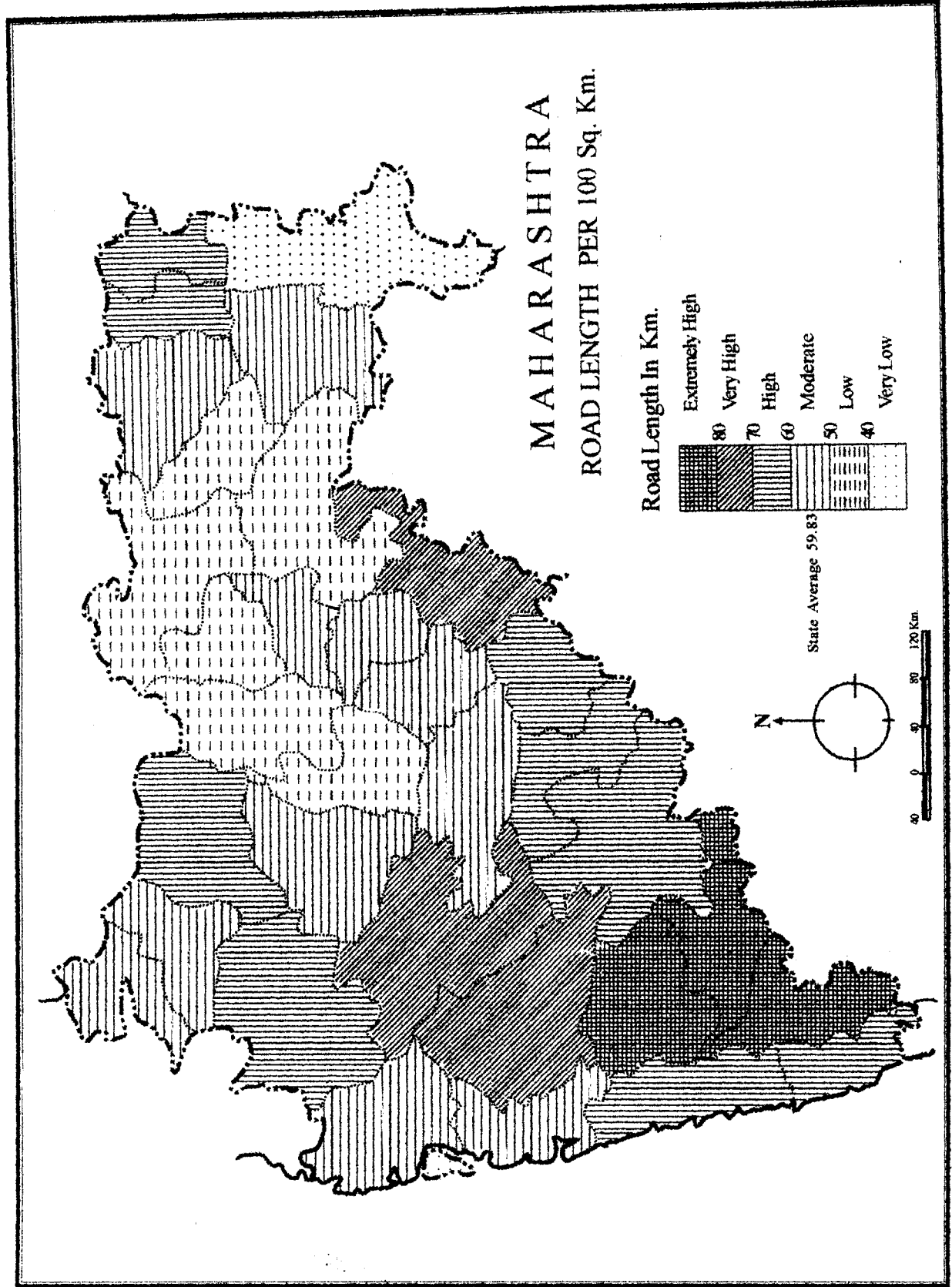
MAHARASHTRA

ROAD LENGTH PER 100 Sq. Km.

Road Length In Km.

Extremely High
Very High
High
Moderate
Low
Very Low

80
70
60
50
40

State Average 59.83

N

0   40   80   120 Km.

Fig. 2.9

2.2.6 Urbanization:

In total population of Maharashtra 57.68 percent population is rural and 42.32 percent population is urban. Table 2.2 shows the no. of towns in each class and their percentage of population. The details of same are given in chapter III, Page no. 41-58.

Table 2.2

No. of town units in each size class and percentage of urban population in Maharashtra, 2001

Size class	No. of towns	% of urban population
Class I	40	79.70
Class II	44	6.65
Class III	134	9.42
Class IV	102	3.31
Class V	50	0.83
Class VI	08	0.07

Source: 1) Census of India 2001, Maharashtra Provisional Population totals statement 55, series 28, p. 10
2) Compiled by author.

2.2.7 Levels of Socio-Economic Development:

Maharashtra is always a leading state in socio-economic development in India. But the development is not even throughout the State. Levels of socio-economic development are measured with a number of economic, social and demographic indicators. All the selected

MAHARASHTRA

LEVELS OF SOCIO-ECONOMIC
DEVELOPMENT

Composite Index Value

Above 15 High

-15 to 15 Moderate

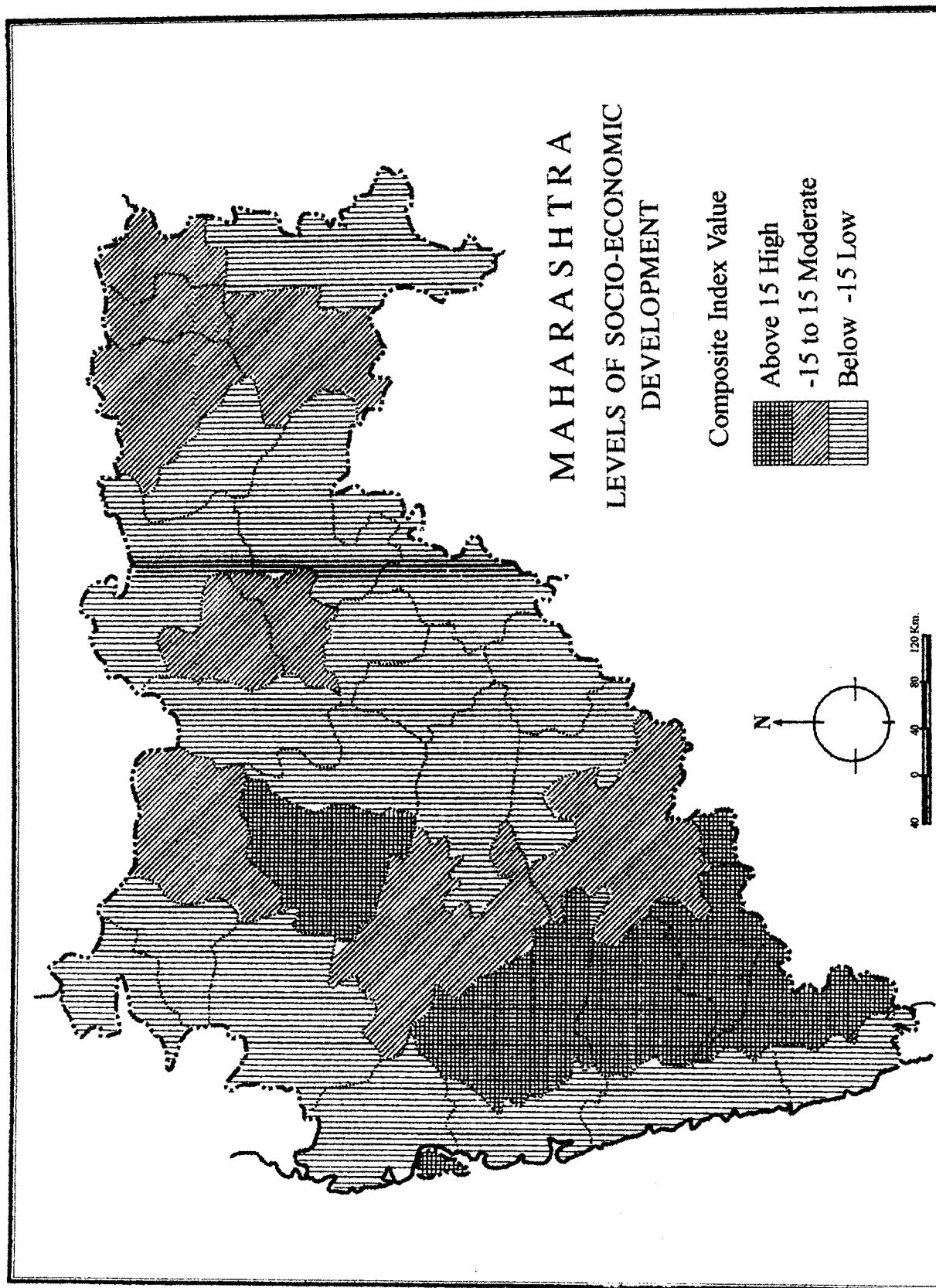Below -15 Low

N

40   0   40   80   120 Km.

Fig. 2.10

indicators have been grouped into three categories and they have been converted into comparable units by standardizing with the help of 'z' score formula. Standardized data of all indicators have been analyzed by using the methods of weighted composite index. On the basis of composite index value the region under study is divided into three categories viz. high, moderate and low level of socio-economic development (Fig. 2.10).

There are regional variations in the levels of socio-economic development in Maharashtra. Mumbai, Mumbai suburb, Pune, Satara, Sangli, Kolhapur and Aurangabad have high level of socio-economic development. High urbanization, better infrastructural facilities, industrial development and agricultural prosperity are mainly responsible for this high level of socio-economic development.

The low level of socio-economic development i.e. composite index value less than 15 is observed in Thane, Ratnagiri, Nasik, Dhule, Nandurbar, Jalna, Parbhani, Hingoli, Beed, Nanded, Osmanabad, Latur, Buldhana, Amarawati, Yavatmal, Wardha and Gadchiroli districts (Fig. 2.10). All these districts are semi arid, less urbanized, economically and industrially less developed.

The remaining districts of Maharashtra are observed the moderate level of socio-economic development viz. - 15 to 15 composite index value. Eleven districts namely Raigarh, Sindhudurg, Jalgaon, Ahmednagar, Solapur, Akola, Washim, Nagpur, Bhandara, Gondiya and Chandrapur districts have better position in some indicators and poor in others.

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