

THE JHARKHAND REGION : A GEOGRAPHICAL ANALYSIS

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Chapter I
I N T R O D U C T I O N

The present study attempts to deal with the regional characteristics in a broader aspect. The main two aspects such as physical and economic have been taken to analyse and evaluate the regional homogeneity as well as disparities. Regional study of Jharkhand here includes a number of variables which forms the basis of the study that helps to know and identify the basic problems of the region. Regional disparities tends to develop the regional imbalances. Jharkhand is a good example of this where such condition exists which hampers the development of the region. Apart from geographical studies, this has to analyse in its historical perspective which elaborate the genesis of Jharkhand movement and voice of adivasis for the possession of their own land.

1.1 CONCEPT OF REGION

Region may be considered in different point of views. The present study deals the region as a geographical unit. Gopal¹ has defined the region in a different manner and stressed its economic frame-work. He writes, region as, operationally the most convenient

1. M.H. Gopal, "Region as a Development Concept," The Indian Economic Journal, Vol. 19, No. 1, July-September 1971, p. 5.

and economically the most gainful spatial, sectoral and or temporal unit for resource-allocation taking as merely a process growth as the economic result and welfare as the ultimate goal. Getis² has applied his view that it brings order to the infinite heterogeneity of earth surface. In fact the term 'region' is widely used in recent years with reference to a great variety of problems. It is an area, homogeneous in respect of a set of conditions determined by the purpose for which it is delineated. Again, region from a strictly economic point of view, is a consolidated area within which the resources (human, natural and artificial) on which the population must depend - in absence of outside aid - result in a pattern of factoral rewards which sets it off from adjacent areas.³ The region may be different types as formal region, functional region or nodal region.

1.2 PLACE OF THE REGION IN GEOGRAPHICAL STUDIES

Regional approaches in the field of geography and planning studies is the post-war expansion as 'new discipline of regional planning'. The regional concept

2. Arthur Getis, Geography, New York, 1981, pp.429-31.

3. J.M. Mattila, "The Measurement of the Economic Base of the Metropolitan Area," Land Economics, Vol.31, No.3, August 1975, pp.215-88.

has been both refined and broadened. According to Belj⁴ a region is a section of the earth's surface marked by an overriding sameness or homogeneity. Area outside of such region are substantially different. It may itself be other region. Actually the geographical studies of such a geographical unit and within the different framework of social economic and political aspect, have developed as a behavioural study in recent times. A lot of works by the western as well as oriental geographers and planners in this field also support the relevance of such study. Hertschorn⁵ writes, "Geography attempts to see the diverse phenomena in their varying distribution and complex inter-relation with a view to offer an accurate, orderly and rational description and interpretation of the variable character of the earth's surface." He describes to the study of region with its spatial distribution of geographical phenomena. Regional differentiation is also found in the level of micro study of the region. Thus the regional study has the core place in the geographical study in modern times.

1.3 A CASE STUDY OF JHARKHAND

Jharkhand may be considered as a homogeneous region in many ways i.e., geographically, economically,

4. H.J. de Belj, Geography Regions and Concepts, New York 1971, pp. 1-8.

5. Richard Hertschorn, Perspective on the Nature of Geography, Pennsylvania, 1960, pp. 120-27.

ethnographically and culturally. This is the main reason behind the claim of separate 'Jharkhand state'. It is a unit of east central hilly region whose different types of land form are continuous in the geomorphic processes. Chotanagpur comprises a big land surface of the South Bihar. Some portion of eastern Madhya Pradesh and northern Orissa highland are also included in this region. Its southern boundary touches the bay of Bengal and also comparatively low land formed by the Ganga. Climate also support its homogeneity and regional contiguity. Growth of natural vegetation and ecology is another factor of sameness to the landscape.

1.4 STATEMENT OF THE PROBLEM

Jharkhand has been selected for this study. This region has received backwardness over a long period. Although, it is endowed highly with mineral resources as well as natural resources in India. It produces more than 60 per cent of minerals to the total minerals produced in India. Twenty five important minerals are exploited today. Production of coal, iron ore, manganese, mica and bauxite is highest in India. But all are in vain to the relevance of its local population. The region is covered by more than 30 per cent forests to total geographical area and only 33 per cent area of the region is devoted for cultivation, dominated by rice as

a food grain. More than 82 per cent population is engaged in primary sector and 6.46 per cent in secondary sector. Percentage of scheduled tribe is more than 50 per cent in some districts like Ranchi, Singhbhum, Surguja, Sundergarh and Mayurbhanj. Both the scheduled castes and scheduled tribes constitute more than 40 per cent of the total population.

Apart from these, more than 20 per cent tribal population is dependent upon forest products. Their share in primary sector is more than 80 per cent still today. In tertiary sector they occupy only 3 to 5 per cent. Same is the situation of scheduled caste population in the region. Literacy ratio is also in its critical level in the scheduled caste and scheduled tribe population. Overall literacy is also very low which is 23.14 per cent in the total and only 19.84 per cent in the rural areas. Migration of outsiders increased during 1950 to 60 and this migrated population have spread all over the region and dominate over the region.

However during the colonial period, Britishers suck this region by exploiting the natural resources. Britishers also canvassed their christianity during early twenty century. Most vigorous situation comes after fifties when government took it's forest resources in it's own hand and began to fell down those trees on which

tribal population were dependent for their livelihood. During forties by some of the conscious tribals, put the demand for separate state. The Jharkhand Mukti-Morcha played important roll of growing consciousness among the tribal people for their rights. But it was declined through the 'take, join, and be peaceful' policy by the contemporary Nehru administration. Before and after the seventies the government exploited the region at a very high degree. Today when Jharkhand movement has gone to moribund, the exploitation has taken place another path. Even the caste, culture, language and sex exploitation has arisen to its height.

The bourgeois claims for several tribal welfare plan for the development of tribal people. Some plans were introduced by the government but its profit has not percolated down to the down troden people and become futile. Today the poverty over a large area in this region has increased more than in any other parts of the country. The situation has diverted towards the huge migration of tribal population to various parts of the country for employment. Two classes within the society may be seen in some modern industrial centres.

In this situation when regional imbalances have taken place within the region, an investigating study of a such region has become necessary. Main problem of the region is economic subsistence and life adjustment.

A large population still now is inhabited in the forest and are dependent upon forest products. On the other hand most of the people have elminated from those areas where mines and industries began to be established in recent years. Exploitative class did not take proper interest to establishment of the habitation. Such problems have led to the study of the region in order to know the different factors that have contributed to the regional imbalances.

1.5 DATA BASE

Data for the present study have been collected from different sources viz:

- | | | |
|---|---|---|
| 1. Ain-i-Akbary, Vol.II | - | For the analysis of Mughal occupation over the region |
| 2. Climatological Tables of Observatories in India | - | For the study of climatic phenomena. |
| 3. Census of India 1961, Volume I, Census of India 1971, Series 1, Census of India 1981, Series 1 (provisional population totals) | - | For Demographic Study |
| 4. Statistical Profile of Rural India 1971, Census of India 1971, Series 1 | - | To examine the occupational structure as well as rural and urban settlement study |
| 5. Indian Agricultural Statistics, Vol.II, Districtwise 1975 | - | to analysis the place of agriculture in economy of the region and landuse pattern of the region |

6. Mineral Statistics of India, Vol. 14, 1982, Statistics of Coal Mines in India, Vol. I, Coal, Vol. II and Non-Coal, 1977-79. - For the analysis of mineral production and roll of minerals in the economic development of the region.
7. Selected Plan Statistics, Bihar, 1976, Bihar Statistical Handbook, 1978, Statistical Abstract of Orissa, 1979. Industrial Statistics, 1973, Madhya Pradesh Statistical Abstract of West Bengal 1977-78 (combined) - To find our the industrial production, industries and worker's situation.

Other sources also have been consulted for analysis of industrial as well as minerals productions like Indian Minerals Year Book 1979, Journal of Industry and Trade 1976, etc.

1.6 METHODOLOGY

A number of statistical techniques have been used for different types of analysis of variables and attributes. Some important statistical methods are as follows:

$$1. \text{ Growth rate of population} = \frac{PA-PE}{PE} \times 100$$

$$2. \text{ Density of population} = \frac{\text{Total population}}{\text{Total area}}$$

$$3. \text{ Sex ratio} = \frac{\text{Total number of female population}}{\text{Total number of male population}} \times 1000$$

$$4. \text{ Literacy rate} = \frac{\text{Total number of literate population}}{\text{Total population}} \times 100$$

5. Dependency Ratio = $\frac{\text{Total number of non-workers}}{\text{Total number of workers}}$

6. Correlation Matrix = $\begin{matrix} 1 & r_{12} & r_{1k} \\ r_{21} & 1 & r_{2k} \\ r_{k1} & r_{k2} & 1 \end{matrix}$ where correlation $r_{ij} = \frac{X_i X_j}{(X_i^2)(X_j^2)}$

7. Nearest neighbour analysis = 'R' = $\frac{\bar{r}_a}{\bar{r}_e}$

where \bar{r}_a = mean of observed distance in a given region

$\bar{r}_e = \frac{1}{2\sqrt{p}}$; p = density of settlements

8. Chi square test = $\frac{E(O-E)^2}{E}$

9. Gini's co-efficient G = $\frac{1}{100 \times 100}$

$\sum_{i=1}^n X_i Y_i + 1 - (X_i + 1Y_i)$

10. Average size of household = $\frac{\text{Total population of the region}}{\text{Total number of household}}$

11. Average size of village = $\frac{\text{Total rural population of the region}}{\text{Total number of inhabited villages}}$

12. Functional classification of towns and crop combination region = $\frac{\sum (X_i - \bar{Y})^2}{N}$

Besides these statistical techniques, various cartographic methods also have been used for the presentation of computed values on the map, like choropleths, Isopleths and diagrams.

1.7 HYPOTHESES

The following hypothesis will be tested:

- (i) Growth of rural population is higher than the urban population, it supported also the literacy in the region. It means higher the rural population lower the literacy rate. Urban population has relatively high literacy rate.
- (ii) Literacy rate in the population of scheduled castes and scheduled tribes will be low in the region and sex ratio will be high. Share of scheduled castes and scheduled tribes in urban areas will be very low.
- (iii) Percentage of scheduled castes and scheduled tribes will be dependent on primary sector but very less in secondary and tertiary sectors. Literacy rate will be supported by the tertiary activities.
- (iv) Percentage of literate population will be higher in those areas where urbanization will be high. In those areas workers in tertiary sector also will be relatively higher as compared to other areas.
- (v) Dependency ratio will be higher in rural areas. Average size of household also will be large in rural areas than the urban areas.
- (vi) Thus economy of the region will be backward and poverty line will be high. Thus regional imbalances will be created.

1.8 PLAN OF THE STUDY

There are seven chapters in the present study. The first chapter introduces the present study. In the second chapter the historical evolution have been analysed in different period of time. It also depicts how the Jharkhand region became a backward region and the roll of 'dikus' towards it. Third chapter deals with the different geographical phenomena. Characteristics of the region is attached by the several geographical factors. Attempts have been made to demarcate the different geographical units according to its local landscape. Chapter four includes ethnographic and demographic characteristics and analysis of occupational structure of the region. Ethnography describe the cultural and ethnic aspects of the different tribes inhabited in the region, while demography reveals the present situation of population in this aspect.

The study of rural as well as urban settlements, distribution, typos, size and functional characteristic of the settlements have been analysed in the fifth chapter. It concerns directly with the demographic and occupational aspects. Functional classification of towns has been also analysed in this chapter. Chapter six examines the economic situation of the region. It explains all the aspects of the economy like landuse, agriculture, minerals, natural resources and industrialisation. Seventh and last chapter summarises the whole study and gives the conclusion.

Chapter II

EVOLUTION OF JHARKHAND

Jharkhand is supposed to have obtained its name originally from its being largely a region of forests since the name simply means 'forest' land. From the fact that Gondwana was distinguished from it (though the visible geographical aspects were similar), would appear that its limit took into account a political factor also.¹ Jharkhand which earlier was corrupted as 'Chaharkhand means, bushland (Chahar-bush, Khand-land or area) area of hills and valleys densely clothed with forest from which it received to name Jharkhand. The name first time described by Mohammadan historians² as a tract between Orissa and the Deccan.

2.1 ANCIENT PERIOD

In the ancient period except some historical references and geographical feature, there is no proper literature which deals with regional boundary of Jharkhand. This region was basically "no man's land" until Aryans migrated to this area. Besides Atavi (forest tract) the whole Chotanagpur*

1. Irfan Habib, An Atlas of Mughal Empire, New Delhi, 1982, p.12.

2. Balmukund Virottom, The Nangbanshis and the Cheros, New Delhi, 1969, p.8.

*The Chotanagpur is the corruption of Chutia Nagpur has taken from the Nag Banshi Chief who ruled the country over a long period. Chutia was the small capital territory on the outskirts of Ranchi. After beginning of the present century the Chutia has changed into Chota. It still can be seen five kilometers south-west to the present Ranchi city as the ruins of oldfort.

was called Jharkhand by the Aryans.³ During this period India was divided into sixteen Janapadas (Subah). Jharkhand was the part of Magadha, Suhama, Arga and Mexala. This dense forest clad and rugged terrain being known during the later stage of civilization when the region was inhabited by the Proto-Austroloid⁴ race now known as non-Aryans or aboriginals (Adivasis). There are grounds to believe that the tribals which now inhabit in the region also had migrated during this early period, probably through the Ganges, the Son and Palamau. In the process they displaced earlier races of which little traces are left. There are some reasons to believe that in the more remote places the Oraons took a different direction in their wandering from the Mundas. After penetrating into western India south of the Narmada they turned northwards and then eastwards to the Son valley and ultimately reached to Jharkhand. During this time the Chotanagpur and Santhal Pergana region of Bihar are said to have been known as Jharkhand.

According to late S.C. Roy⁵ who from the findings of historical evidences, has described that Chotanagpur

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3. N. Kumar, Bihar District Gazetteers - Ranchi, Patna, 1970, pp. 42-43.
 4. S. L. Kayastha and S. N. Mishra, "Growth of Tribal Economy and Impact of Modern Economic Development on Tribal Economy and Society in Sonar Region," N.G.J.I., Varanasi, Vol. 14, 1964, p. 198.
 5. S. C. Roy Chaudhary, The Munda and Their Country, Calcutta, 1970, pp. 11-16.

belongs to the same age of culture as that of the Indus valley. He further justified that home land of tribals like Mundas was in the south-east Uttar Pradesh. And even to this day may be found in the hills and jungles to the east and south of the Azamgarh⁶ district a scattered population of Cheros, Seoris, Kols and Kharwars. A few families of Korwas too are met with the jungle in the southern parts of the Mirzapur district.⁷ Rajbhars and Suris were the former occupants of the soil. Gradually they were pushed eastward by the advancing tide of Aryan conquest, the Mundas appear to have come up as far as, the present district of Azamgarh. For it is Azimgarh* that forms the starting point of their historical traditions. The most exhaustive of these traditions being with their ancient residence in Azamgarh.

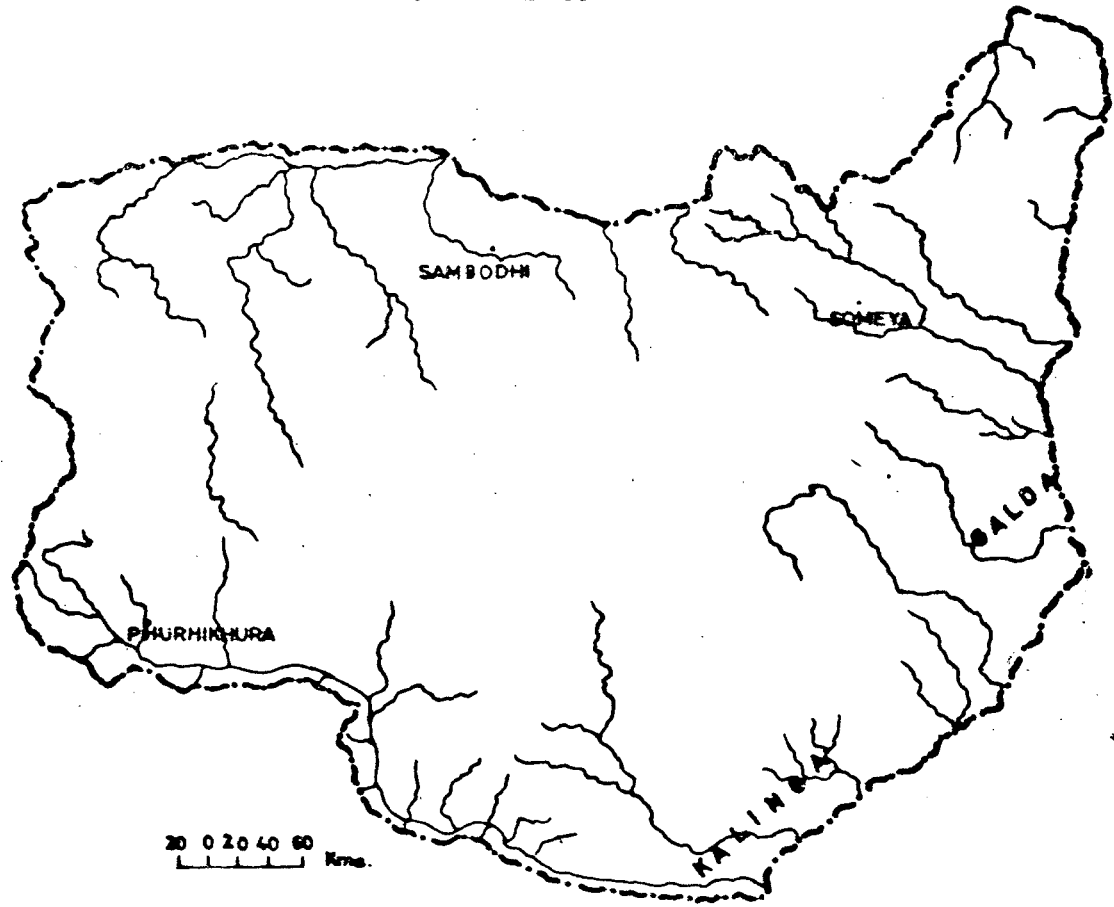
Indigenous text on geography, foreign accounts, and inscriptions and coins have been some sources about the geographical knowledge of spatial distribution of towns and cities as well as rural places. Buddhist text

6. Ibid., p.24.

7. Ibid.

*Azimgarh is the corruption of Azamgarh, a district Headquarters in Eastern Uttar Pradesh. During British period its name was Azimgarh, became Azumgarh and now it is Azamgarh. This corrupted name also found in "Settlement Report, District Azamgarh in Uttar Pradesh" in Journal of the Asiatic Research Society of Bengal, Vol.VIII, p.777.

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20 0 20 40 60
Kms.

Fig. 21

have been described 'the five fold division' of India during Ashoka empires⁸ (fig.2.1) of the earliest Aryan settlers we known little. The general accepted theory is that there was not in the early days of Magadha's rise to power, any large scale of immigration of Aryans into this part of the world. It is started during the reign of Ashoka. The Atavi too acknowledged Magadha supermacy and this may justify the conclusion that Chotanagpur was included in the Mauryan Empire at least during his reign. Intervention on Kalinga in Orissa further justified to this.⁹ A strange finding was made many years ago near Bamanghat in Mayurbhanj district near the southern boundary of Singhbhum district. The finding was coin, among which were coins of the Roman Empire. It is believed that the site of the finding was on a trade route from Tamruk, the ancient part of the Tamralipti, towards north.¹⁰ Several inscriptions and places justify the influence of Jains and Bhuddhist in this region.

8. Parmenand Gupta, Geography in Ancient Indian Inspiration (upto 650 A.D.), Delhi, 1973, pp. 8-12.

9. R.R. Diwaker (ed.), Bihar Through the Ages, Calcutta, 1959, pp. 164-65.

10. Ibid., pp. 167-70.

2.2 MEDIEVAL PERIOD

Early in the twelfth century the Jharkhand was covered a vast area. About its regional boundary R.R. Diwakar writes, "Entire area from Birbhum and Panchet to Ratanpur in Central India and from Rohtas to the frontiers of Orissa, was collectively known as Jharkhand or jungle land." He further says: "It is difficult to establish the exact relation of Chotanagpur to Bihar in the early period in the absence of survey records. The area was wild and jungle clad."¹¹

But there are some grounds shown that some area in the region formed part of Bihar. Colonel Dalton, in his "Notes on Chotanagpur Area" (published in Hunter's Statistical Accounts) says that in the 14th century Malik Ibrahim Bayu, Maliks in the province, conquered Chai-Champs which, according to Ain-i-Akbari, was a Pargana belonging to Bihar, and was assessed at 620,000 dams or Rs. 15,000. It now forms a Pargana in the Hazaribagh district. The state of Panchet is definitely mentioned as part of Bihar, in the Badshahnama, the official history of Shah Jahan's reign. Name of Bihar state came to be known for the first time during the reign of Bakhtiyar Khalji, a Muslim Chief when he reduced the 'Hisar-e-Bihar.' At that time the word 'Bihar' applied strictly to southern

11. Ibid., p. 172.

portion of present Bihar.¹² The actual boundary of the different occupied areas of Jharkhand were not mentioned in the contemporary works. There is some epigraphic and numismatic evidences, which helps as to form some idea of the respective boundaries. We have epigraphic evidences to establish the comparatively uninterrupted hold of the Muslims over South Bihar (with its headquarters at Bihar Sharif).

2.2.1 Jharkhand During Akbar Period

During the reign of Akbar whole land of Chotanagpur was called Kokrah. But according to Virottam¹³ this name was founded by Nagbanshi rulers. With the passage of time Kokrah became synonyms with the name of Nagbanshi Kingdom itself and the Muhammadans during the medieval period of Indian history have invariably reported to it as 'Kokra', 'Khankrah', 'Khokhara', 'Kokrah', or even as 'Kukra-des'. About the Jharkhand Ambasthya¹⁴ has mentioned that this upland which comprised the subdivisions of Palamau, Ramgarh and Chotanagpur was bounded on the west by the Subah of Allahabad, on the south by the subah of

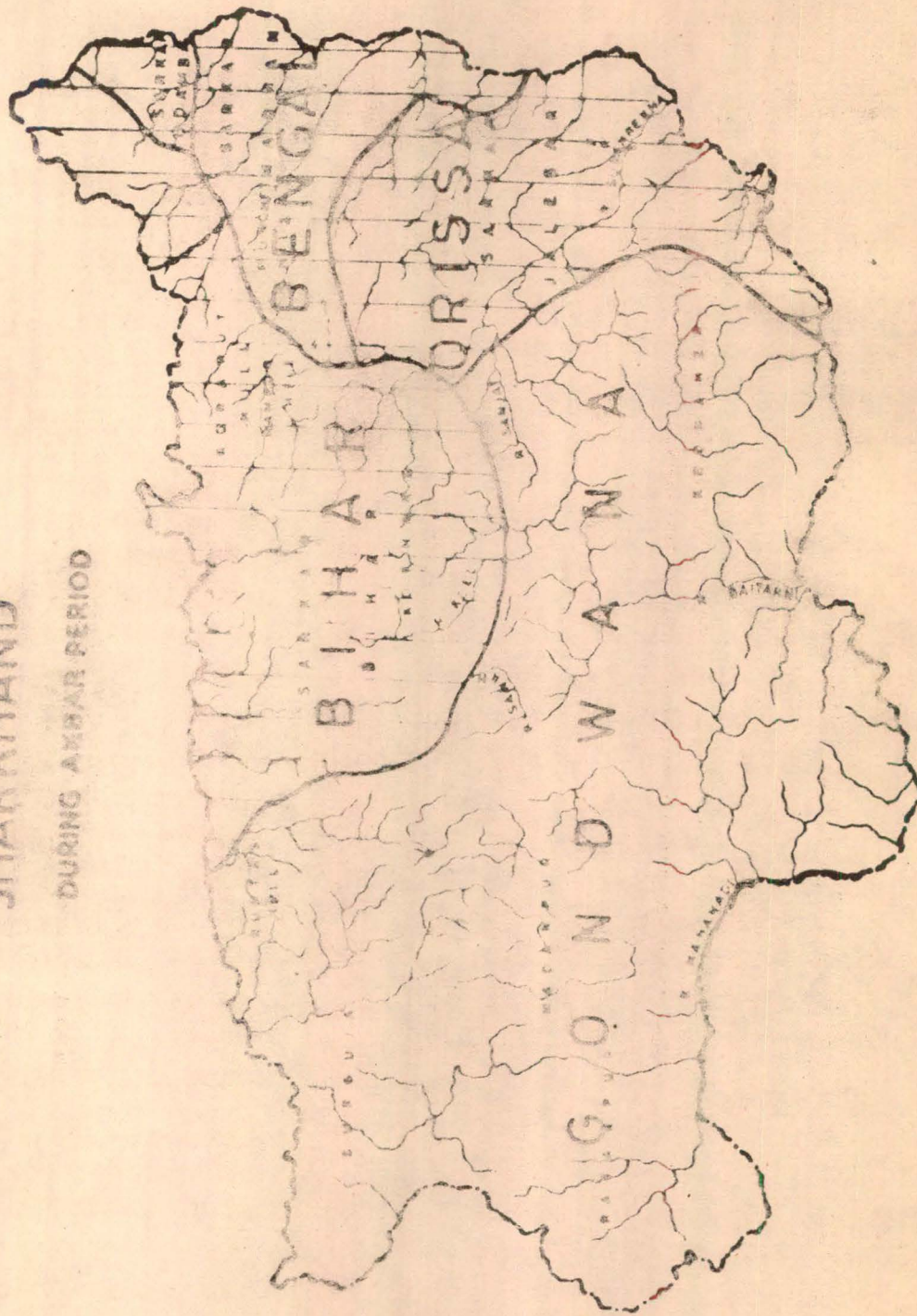
12. Ibid., pp. 173-75.

13. Balmukund Virottam, op.cit., p. 1.

14. B. I. Ambastithya, "Beams" contribution to the Political Geography of Jubah, Patna, 1976, pp. 43-44.

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0 20 40 60 km

Orissa and on the east by the subah of Bengal. He further points out that Chotanagpur is also known by the appellation of Kokarah, more commonly called Nagpur, a name derived from the diamond mine of the region, which gave to its prime importance (fig. 2.2).

(It has been mentioned earlier that Jharkhand was a jungle tract between Orissa and the Deccan (Central India) to connect different places with each other. Some Afghan opponents of Akbar had been using this area for their operation against the Mughals. After the battle of Tarkoi (3rd March 1575 A.D.) Junaid (an Afghan Chief) tried to enter Bihar through Jharkhand.¹⁵ During the reign of Akbar, Kalapahar passed through Jharkhand with twelve thousand cavalry. Sultan Firuz Shah Tuglaq after his second campaign against Bengal, marched against the Raja of Jajnapur (Orissa) and after making peace with him, returned through Jharkhand. In 1592 Madhu Singh of Kokrah participated in Mughal expedition against Qutluh Khan, Afghan of Orissa and marched down to Midnapur.¹⁶ It is also said that Sher Shah passed through Jharkhand, a jungle tract while returning from his second attack on

15. Abulfazal Allami, The Ain-i-Akbari, translated from the original Persian by H. Blochmann, Calcutta, Vol. III, 1949, pp. 170-71.

16. Journal of Asiatic Society of Bengal, 1885, pt. I, No. II, pp. 135-37.

Bengal (Gaur) in 1538 A.D. In the second decade of sixteen century Chaitanya¹⁷ the Great Vaishnav reformer of Nadia, passed through Jharkhand on his way to Mathura.

2.2.2 Strategic Places

All the Mughal and Afghan intervention and invasion over the tribal and territory states occurred through the Jharkhand. Imperialist forces occupied a wide area to rule and establish their suitable places over the hill side and made several forts over there (fig. 2.3). Table 2.1 gives an idea of its location of strategic places and their amount of revenue.

The table also shows that Jharkhand was a very important region for Akbar from the strategic point of view. Orissa was in the centre between Bengal and Bihar and most of the forts were set up therewith huge amount of revenue, cavalry and infantry also. Map also shows that most of the strategic places were in the border areas where they could communicate and control freely both the hilly and plain areas. South-east area of the Jharkhand was very near to those areas where most of the agitation led by Afghan and Muslim Chief during Akbar period. Important routes were another factor which facilitated to establish army headquarters in these areas. Midnapur was connected

17. P.C. Roy Chaudhary, Bihar Districts Gazetteers - Hazaribagh, Patna, 1957, pp.66-70.

Table 2.1

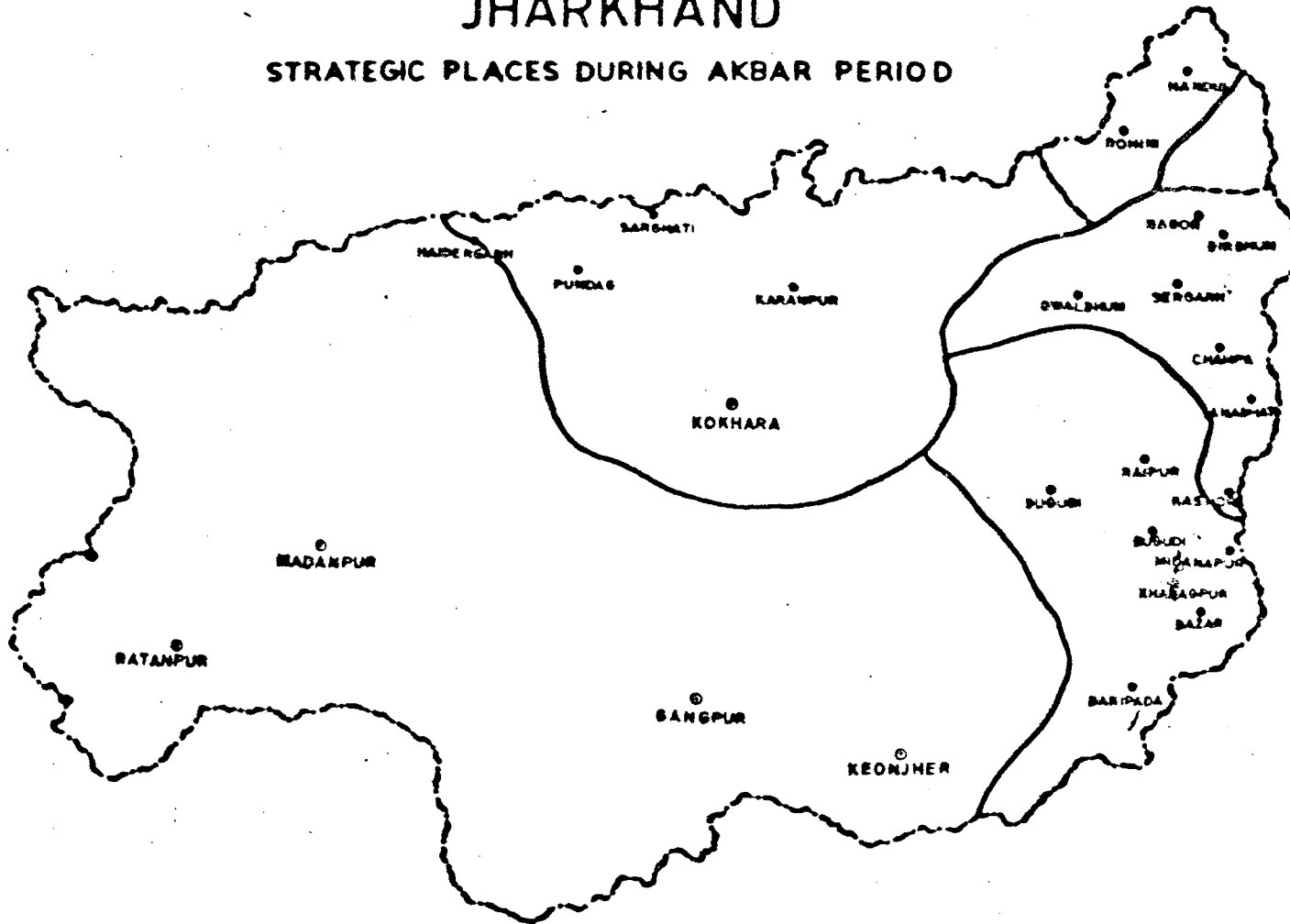
STRATEGIC PLACES IN JHARKHAND DURING AEBAR PERIOD

Sl. No.	Subah	Sarkar	Nahel	Revenue (dam)	Cavalry	Infantry	Fort
1.	Bihar	Monghyr	1. Rohni	95,360	-	-	-
			2. Handol	108,003	-	-	-
	Bihar		1. Rampur	363,820	-	-	1
			2. Karanpur	36,820	-	-	-
			3. Funda	227,640	300	200	-
			4. Sharghati	207,900	-	500	1
	Ruhtas	1. Ratanpur	783,425	-	-	-	
2.	Bengal	Bhadrak	1. Bhadrak	9,542,760	200	3500	-
			Madren	1. Birbhum	541,245	-	-
			2. Gwalbhum	495,220	-	-	-
			3. Shargarh	915,237	-	-	-
			4. Nagor	4,025,620	-	-	1
			5. Chanpangar	412,250	-	-	-
			6. Anabhati	122,655	-	-	-
3.	Orissa	Jalesar	1. Raipur	986,970	200	100	1
			2. Kharagpur	825,570	-	500	1
			3. Midnapur	1,019,930	60	500	2
			4. Barabmanbhum	114,208	20	400	-
			5. Bazar	125,720	-	-	-
			6. Bugudi	497,140	100	2200	1
			7. Kasnora	893,160	200	3500	-

Source: The Ain-i-Akbari. II

JHARKHAND

STRATEGIC PLACES DURING AKBAR PERIOD



20 0 20 40 80 Miles

Fig 20

to other important places like Bagudi Barahmanbhum, Gwalbhum and Rampur.

2.2.3 Attraction of Diamond and Golden Pieces to Immigrated People

Diamond and Gold were the main precious metals which attracted the several kings, pilgrims and traders for invasion and possession on this land. The Mohamadan were attracted to this country by its reputation for diamond and occasionally raided the district and carried off plunder and small tribute in the shape of a few diamonds which were found at that time in the river.¹⁸ In 1558 Akbar sent on expedition which resulted in the Raja agreeing to pay some form of tribute and after that there were several expeditions into Jharkhand; the object being usually to get hold of diamonds. Jahangir had become more informed about the availability¹⁹ of diamonds in this area. He successfully reducing the ruler of 'Kukra desh' and capturing diamonds 'weighing 32 misqals as paskus'. In the tenth year of Jahangir reign (1615), Ibrahim Khan was ordered to invade Kokrah and take it out of the possession of that unknown and insignificant ^u divided Durjansal. Ibrahim's men took from them all the diamonds they had in their possession.

18. J.Reid, Survey and Settlement Report of Ranchi (1902-10), Ranchi, p. 14.

19. Sir John Houlton, Bihar: The Heart of India, Calcutta, 1949, pp. 131-38.



8
TH-1340

2.2.4 Areas of Diamond and Gold Deposits

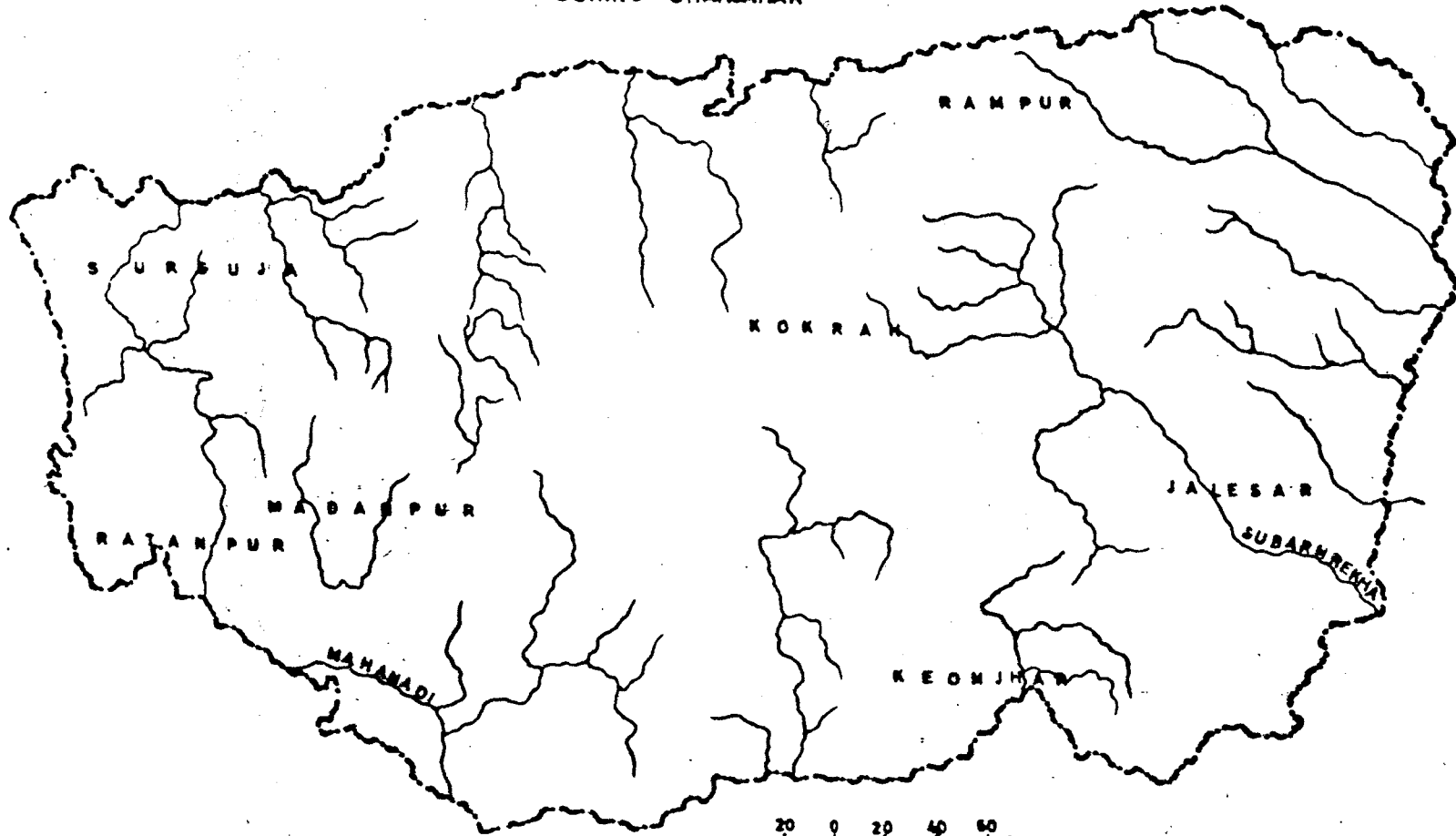
There were several strong evidences for four diamond regions. V. Ball²⁰ identified 'Soumelpur' with a site in the Palamau district, about 81 miles south of Rohtas and the river Goel with north Koel which flows through Palamau. This area was occurred on the banks of the Koel and latitude 23° 35", longitude 84° 21". Oldham²¹ and Tavenier has supported the statement of V. Ball. Travenier saw, 5000 people employed in dinging up parts of the river and searching the gravel of diamonds. Second area as described by Travenier, is south Koel flows through southern part of Ranchi district. The third and important area was Sankh and Ib river near Jasapur south west of the Ranchi district. Fourth and last area was Kokrah under the Nagbanshis rulers in Ranchi district. Kokrah was famous for its diamond reputation during that period. It is noted that Muslim Chiefs opened a line of interaction to this area from another part of Indian territory.

The earliest evidences that of Ptolemy's map, Akbarnama, and also in the Turuk-i-Jahangir has some references about the availability of diamonds during that time. The richest field, sonapet or 'the mother of gold;'

20. Jean Baptiste Travenier, Travels in India, Vol. II, 1936, pp. 82-88.

21. Journal of Bengal and Orissa Research Society, Vol. XIII and XIV, 1927, pp. 214-20.

JHARKHAND
DURING SHAHJAHAN



20 0 20 40 60 Kms.

FIG 24

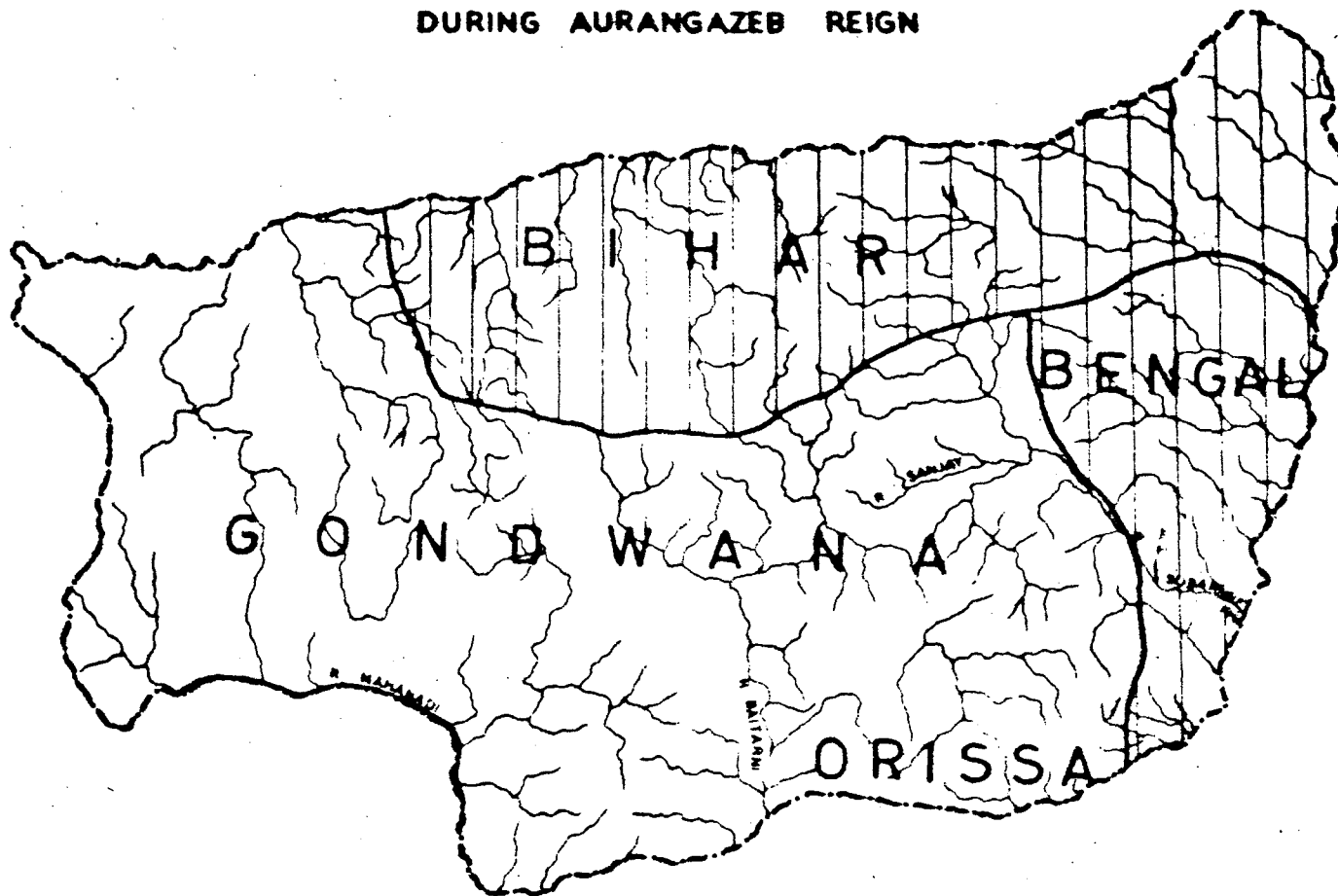
is the valley of the Sonai river, below the plateau opening on the Pharsawan east. The sandy deposits of the numerous feeders of this river are washed and a man who works regularly may expect to get on the average three-forthings, or half an annas worth of gold a day. A yield of two or three annas (3d. to 4.5d.) is a rare occurrence. This region was famous for gold and sand in ancient and medieval period and today also can be seen in near the course of river. Many evidences can prove that a large number of people were engaged in this work. When we search detail about this findings, is four gold washed areas. Subernrekha has obtained its name from 'Golden Line' (Subernrekha).

2.2.5 Shahjahan and Jharkhand

From the beginning of Shahjahan's reign, history of Jharkhand gets a definite chronological and historical authenticity. During this period most of the parts of the region was inhabited by tribal people. Kokrah was the capital of Nagbanshi Kings who were distributed mostly in Ranchi district. Changes in the boundary of Jharkhand we know little about it. Boundries of Subsh, Sarkar, and Mehal was the same as it was during Akbar period (fig.2.4). Till the end of second quarters of the sixteen century, Mughals attacked several times over the Jharkhand i.e. in Palamau and Ranchi district. On October 5, 1643 A.D.,

JHARKHAND

DURING AURANGZEB REIGN



0 20 40 60
Miles

Fig. 24

Zabardast Khan was handed over Deogan fort by Nagbanshi Chief Dariya Rai.²² Economic condition of the region was basically forest based.

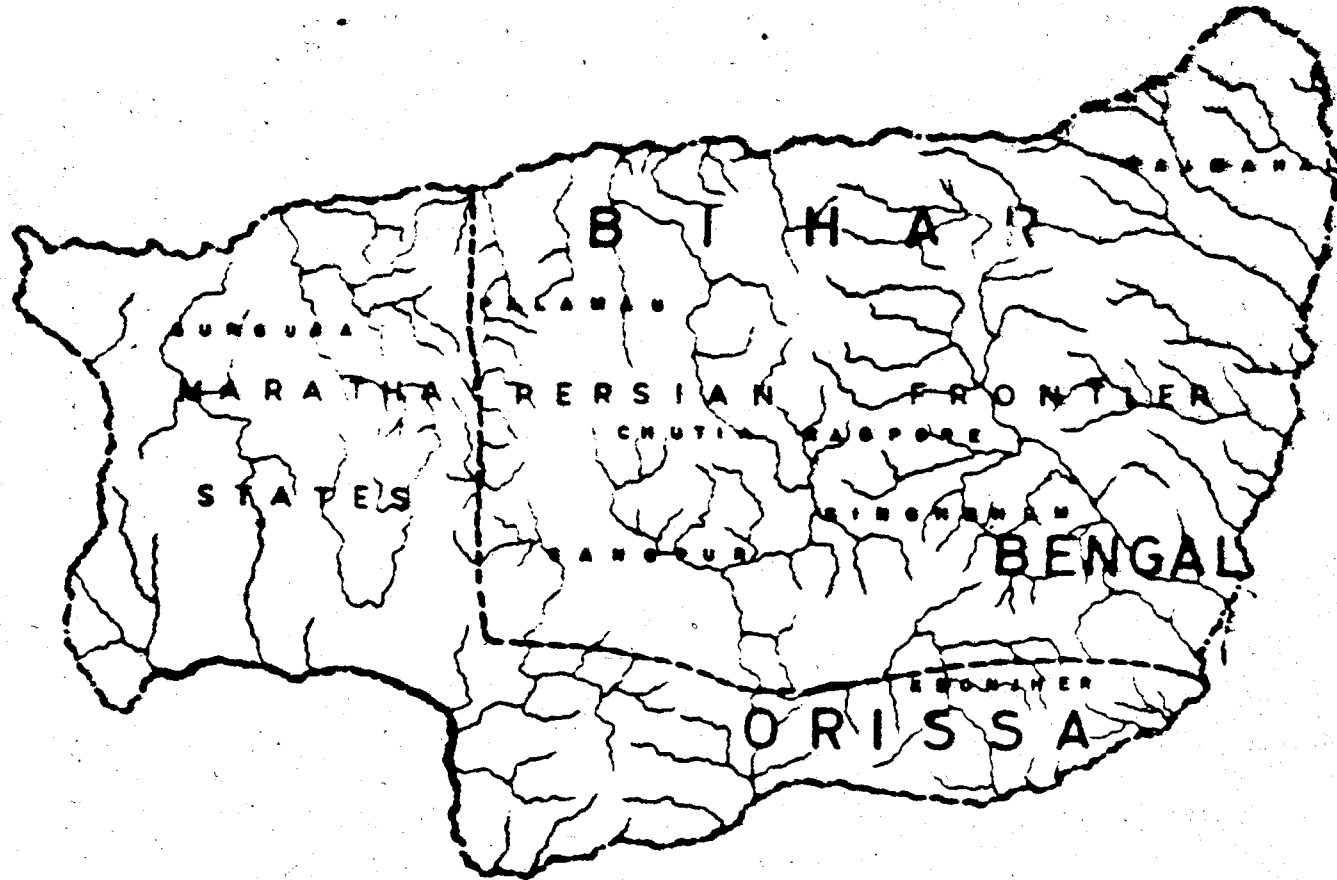
2.2.6 Maratha's Expansion Over Jharkhand

During the reign of Aurangzeb, Bihar and Bengal had the status of an independent administrative unit of the empire. Actual boundaries about Jharkhand had been changed. However, Aurangzeb empire was spread over all India but it is doubtful that Jharkhand was included in his empire. From Akbar to Aurangzeb, most of the part of the Jharkhand was known as Gondwana not only for its physical structure and geological formation (fig. 2.5) but for habitation of the Gond tribe. It may be said that all the tributary state used to pay some fixed money to the empire. South west part of Orissa was included in Bengal after 1700 A.D. by Aurangzeb. The death of the Mughal emperor Aurangzeb, gave a golden opportunity to the Marathas for expansion over the south-west part of Jharkhand. Surguja, Ratanpur and Medanpur had ^{been} taken under Maratha state (fig.2.6). A good deal of historical evidences have come to light concerning the causes, course and nature of the Marathas invansion of Bengal during the period from 1742 to 1715 A.D.

22. Balmukund Virottam, op.cit., p.34.

JHARKHAND

DURING MARATHA'S EXPANSION



Little, however, is known about the Maratha inroads in Chotanagpur during the same period. Scarcely has it been realized that the Maratha passed several times through the Nagbanshi territory of Chotanagpur on their way to and from Bengal.

2.2.7 British Penetration into Jharkhand

The English penetration in Chotanagpur was started since the early 18th century, however they became an organised force after battle of Plassey. The causes of British entry into Palamau and Chotanagpur were numerous. 1765 A.D. has added the new chapter in the history of Jharkhand. On August 12, 1765 A.D. the Mughal Emperor Shah Alam II assigned the Diwani or revenue administration of Bengal, Bihar and Orissa to 'The English Company'. Diwan of the Mughal empire held portfolio of the finance, and was responsible for the revenue administration of the province and also occasionally administered civil justice.²³ With the grant of the Diwani of Bengal, Bihar and Orissa, the East India Company got the right to tribute of Raigarh, the land revenue of Kharagdiha, and Kendi and services of Kunda. Chotanagpur also passed to the British.

According to grant of Diwani Santhal Pargana was included in Bhagalpur division. Chotanagpur was consisted

23. Shree Govind Mishra, History of Bihar: 1740-1742, New Delhi, 1970, pp.120-26.

of Hazaribagh, Lohardage, Manbhum and Singhbhum. Orissa granted in Diwani as far as the Subernrekha river i.e. part of Midnapur district.

2.2.8 Revolt Against Oppression

(With the introduction of Diwani, the British authorised to free exploitation and oppression of tribal people in the region. They introduced a new social system as well as English language and demolished the traditional tribal culture and forest based economy. The Zamindari, Mahalwari, Ryotwari and the Begari system also had been introduced by this time. Jamindar and fuedal lord forced the tribal people to accept their system. All these reasons compelled the tribal people to raise their voice against English officers and Jamindars from time to time. A long period of 100 years (1832 to 1932) has a number of unrest in the history of Jharkhand. In 1832-33 Bhumij Revolt,²⁴ in 1855-57 the Santhal Insurrection,²⁵ 'The Birsa Munda Movement'²⁶ in 1894-1901 and the 'Kol Insurrection'²⁷ of Chotanagpur in 1931-32 are some examples.

24. Jagdish Chand Jha, The Bhumij Revolt (1832-33) - Ganga Narayan's Hangama or Turmoil, New Delhi, 1967, pp. 106-25.

25. Kalinkar Dutta, Santhal Insurrection of 1855-57, Calcutta, 1940, pp. 11-27.

26. Kumar Suresh Singh, Birsa Munda and His Movement, New Delhi, 1979, pp. 103-35.

27. Jagdish Chand Jha, Kol Insurrection of Chotanagpur, Calcutta, 1964, pp. 61-75.

Bhumij revolt was the first warning to English people to end their oppression. Ganga Narayan was the hero of this movement. In 1855 the second movement against Jamindars was initiated by Santhal people in Santhal Pargana. Santhals participated in this movement not only for the possession on their own land but also they were actively involved in the first Indian War of liberation. It is noticeable that many thousand Santhals were gun down by Britishers. Birsa Munda movement started in 1894 under the leadership of Birsa for also the re-possession of alienated lands. The Kol uprising in 1931 was primarily against the Muslim Jamindars, English officers and Sikh who were outsiders. Hero of this movement were the Dhangar and Larke Kols.

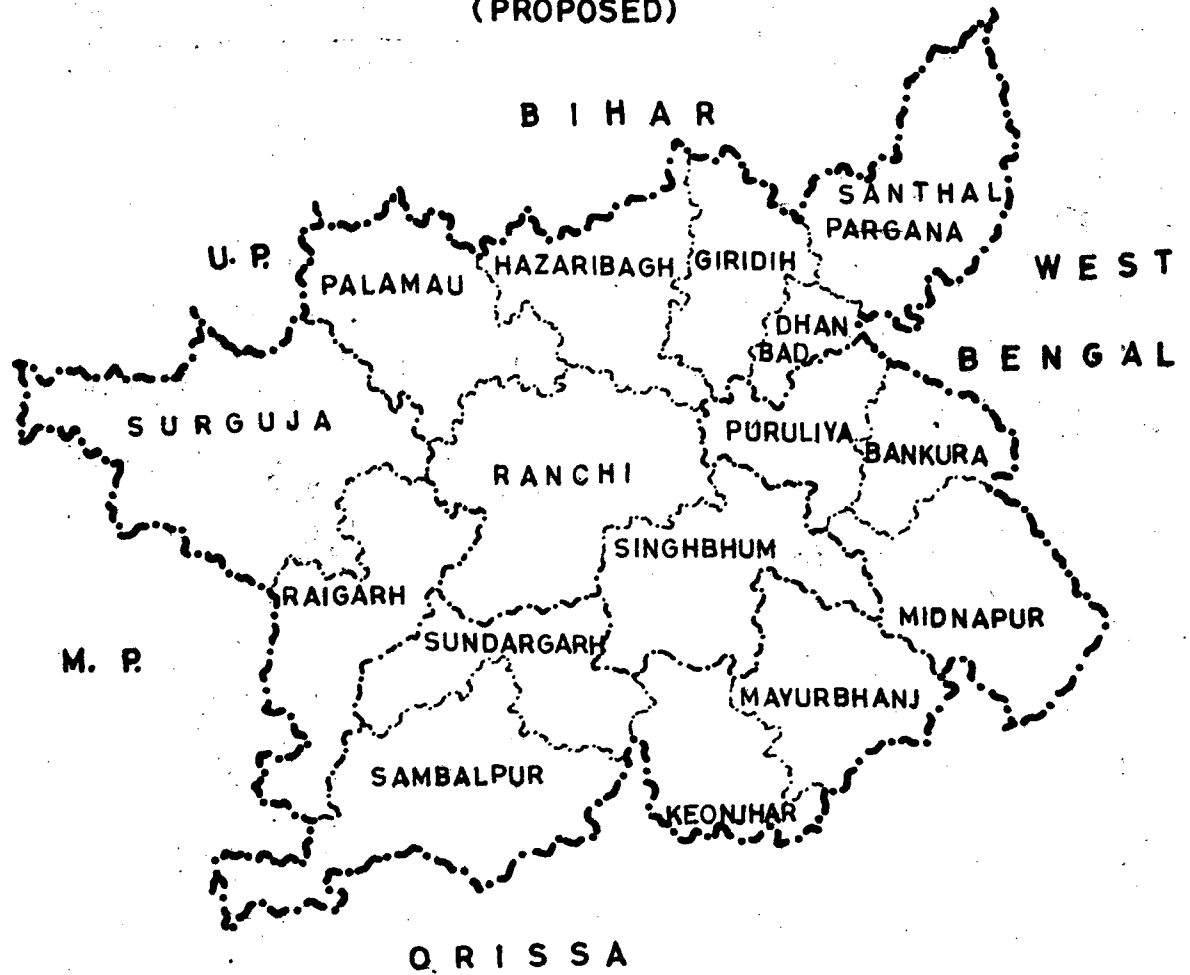
2.3 MODERN PERIOD

Continuance of oppression on the name of so called process of integration, modernization and industrialization, the British did not show any sign of tolerance to the exploited class of the Jharkhand region. All the above exploitative groups were called 'Diku'* by the Adivasis of Jharkhand. After the Diwani in 1904 they passed the 'Chotanagpur Tenancy Act' which prohibited




*Diku means outsiders who came in Jharkhand territory. They include three groups of exploitators as: Lota, Mota, and Jhota - Lota means northern Bihari, Mota means Marwari and Gujarati and Jhota means Punjabi.

JHARKHAND

(PROPOSED)



BOUNDARIES

-  PROPOSED JHARKHAND
-  STATE
-  DISTRICT

50 0 50 100 150 Kms.

Fig-27

further alienation of Munda ancestral lands.²⁸ Christian Missionaries which still take an exploitative role through the process of Christian adaptation, began its operation in 1845. In 1857 a German Evangelical Lutheran Mission established its centre in Ranchi.

2.3.1 Demand for Separate Jharkhand State

The demand for a separate Jharkhand state was first raised in 1928 when the Simon Commission visited India. The delegation which submitted the memorandum to the commission was led by educated Munda and Oraon Christians and included persons like Raisaheb Handi Ram Oraon, Juel Lakara, Theodore Hurad and Anand Masi Topno. This demand was immediately opposed by Chotanagpur Landlords Association headed by Thakur Mahendra Nath Shah Devo of Jhariaghat state.⁽²⁹⁾ Before this demand, the adivasis of Chotanagpur thought the need for a well-defined region/sub-regional self-identity, became acute in the twentieth century when the multi-community organisations like Chotanagpur Ummati Samaj (1915) was formed and later Adivasi Mahasabha⁽³⁰⁾ in 1938. The demand for a separate state (fig. 2.7) was again made in 1954 and a memorandum to this effect was

28. Ghanshyam Pardeshi, "Origin of the Movement," Mainstream, July 1980, pp.132-34.

29. Ibid.

30. Kirmal Sengupta, Fourth World Dynamics: Jharkhand, Delhi, 1982, pp.5-12.

submitted to State Reorganisation Committee by Jharkhand Party but it was rejected by the Congress Party under pressure from the Bihar Congress leaders.

The main factor for their claim for a separate region were geographical contiguity and ethnic homogeneity. So far as language and local dialects are concerned, all the tribals come under two broad categories. That is Mundari and Sadari. Ethnically these people are later generation of proto-austroloid and Dravida group of races. Religion as well as social system were greatly influenced when 'diku' penetrated in this region. They were compelled to adopt their religion customs and language. Many of them began speaking Bhojpuri, Bengali, and Maithily like local dialects and a major portion of the people adopted Christianity. In spite of this cultural changes all tribes were accustomed to Adivasi culture. Physical characteristic of the proposed Jharkhand region continues to be a prime factor. The whole region except south west Bengal is characterised by plateau and highlands with forest cover. Economy of the tribals is considered to be the main factor which determined their social and political life throughout the Jharkhand movement. Their economy was wholly dependent upon the land. Forestry was the main source of livelihood and some were engaged in farming. These are some of the reasons which compelled them to

demand a separate state as well as the right to ownership on their land and this lead to raise their voice against the 'dikus'.

1971 census gives some introductory information about proposed Jharkhand.

Total Area - 18733950 square kilometers of Santhal Pargana, Palamau, Giridih, Hazaribagh, Ranchi, Dhanbad and Singhbhum districts from Bihar; Surguja and Raigarh districts from Madhya Pradesh; Sambalpur, Sundergarh, Keonjhar and Mayurbhanj districts from Orissa; Bankura, Midnapure and Puruliya districts from West Bengal.

Total population	25984748
Tribal population	9239769
Scheduled caste population	5165206
Non-scheduled population	12978673
Density of population	- 165 per square kilometer
Percentage growth rate of population	24.04
Sex ratio	913
Percentage of literacy	23.14
Percentage of urbanization	12.02
Percentage of workers	31.28

Chapter III

PHYSICAL SETTING

3.1 LOCATION

Jharkhand region is located between $20^{\circ} 43'N$ to $25^{\circ} 18'N$ and $81^{\circ} 35'E$ to $88^{\circ} 11'E$. Major part of the region is a hilly dominated by dissected plateau and dense forest. The region is quite undulating. In the north it is bounded by low lands and in the east lies the fertile land of lower Ganga plain which has produced an intensive agricultural land to support the densely populated areas of Bihar and West Bengal. In the West and South, lie Baghelkhand plateau, Maikal range and Orissa highland respectively. Ganga river makes its northern boundary upto the upper Rajmahal hills in Santhal Pargana. Sea coast of the Bay of Bengal is only 30 kilometers away from the eastern boundary of Mayurbhanj district. In the hilly area of Chotanagpur, the well marked Damodar valley runs eastward through the north eastern plateau region. Mahanadi cuts its southern boundary in the Rajgarh and Sambalpur district (over 500 meters) and ultimately falls in the Bay of Bengal. Heights of the two plateau (1000-2000 meters) namely Hazaribagh and Ranchi in the middle of the region forms almost a flat shape.

LOCATION OF JHARKHAND

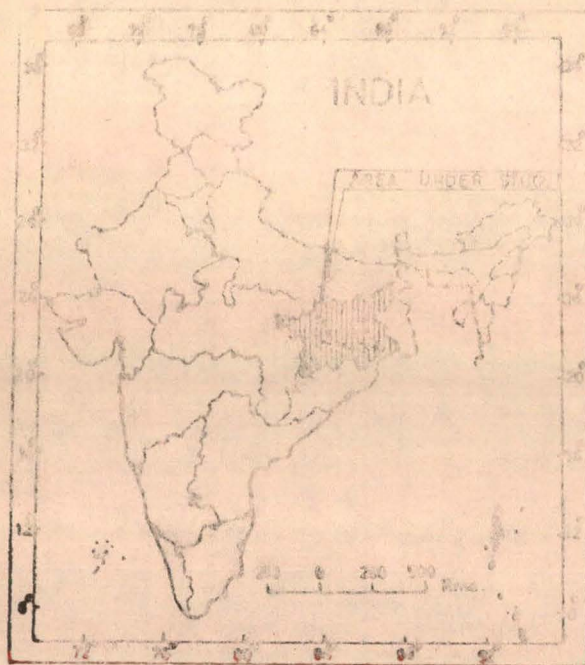


Fig. 31

Jharkhand comprises of sixteen districts viz., Santhal Pargana,* Palamau,* Hazaribagh, Giridih, Dhanbad, Ranchi* and Singhbhum of Bihar; Surguja and Raigarh of Madhya Pradesh; Sambalpur, Sundargarh, Keonjhar and Mayurbhanj of Orissa and Midnapur, Bankura and Puruliya of the West Bengal (fig. 3.1). Chotanagpur region in South Bihar is the largest physiographic division of the region where tribal people dominated the cultural scene. Total area of 18733950 square kilometers comes under north eastern central tribal belt which is traditionally the homeland of the Adivasis. North Orissa is bounded with Mayurbhanj highland. Surguja and Raigarh is an adjacent part of the Bilaspur division. Bankura and Midnapur a plain area is administratively attached with Howrah division.

3.2 PHYSIOGRAPHIC DIVISIONS

Physiographically the region consists of high plateaus of different levels of elevation. Physiography of the region can be marked by the relative relief or local relief as the difference in heights between the

*According to order announced by Bihar Government in July 1983 Santhal Parganas will be divided into four districts. These are Santhal Pargana, Godda, Shahibganj and Deoghar. Ranchi will be divided into two districts Ranchi and Roherdaga and Palamau into two districts namely Palamau and Gumala.

JHARKHAND

ALTITUDINAL ZONES

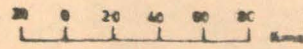
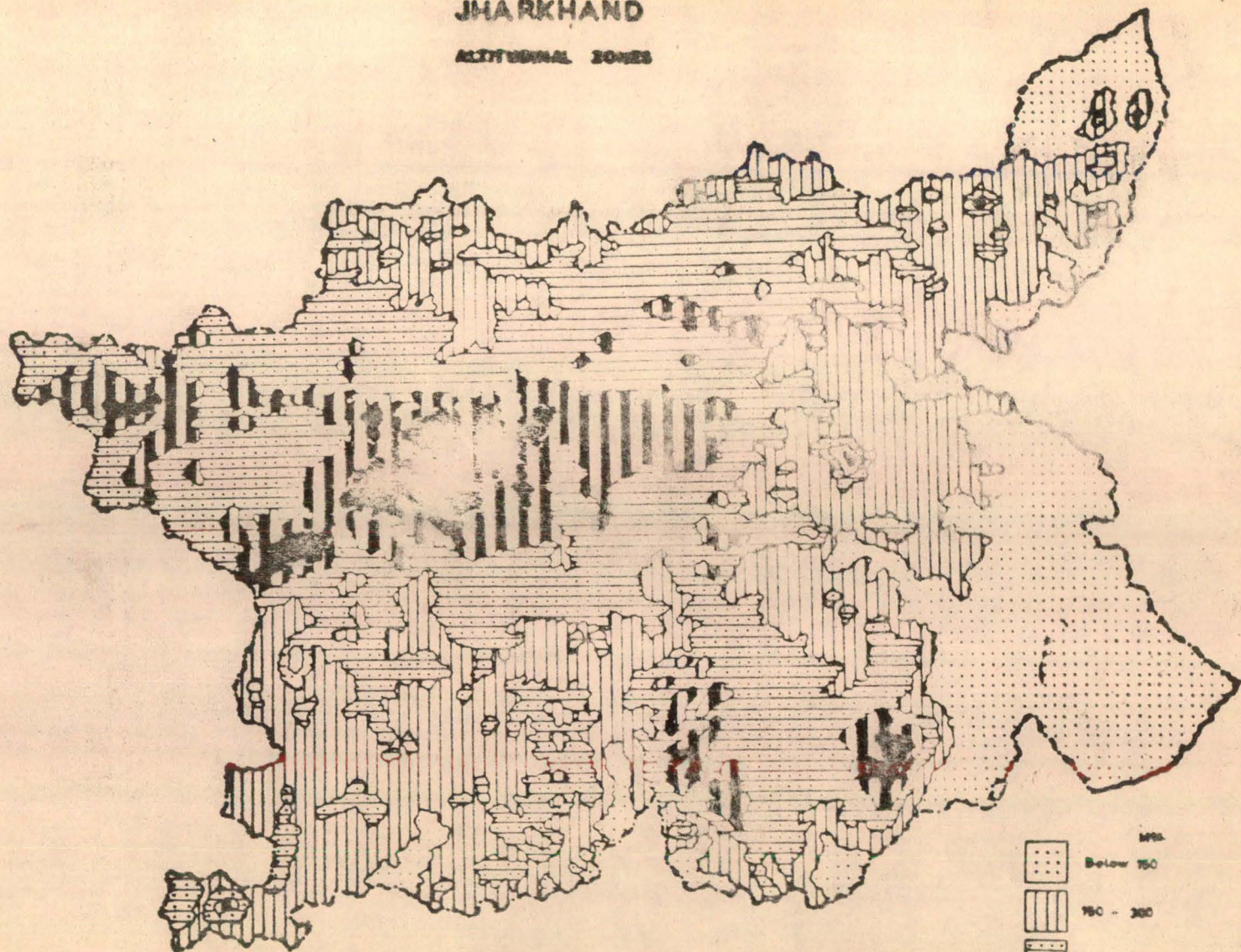
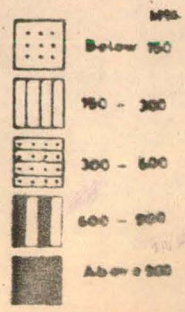


Fig. 32



highest and lowest points in a unit area¹ (fig. 3.2).

Thus the region can be divided in the following physiographic divisions (fig. 3.3).

1. Chotanagpur Plateau
2. Lower Ganga Plain
3. Mayurbhanj Highland
4. Sambalpur Plain
5. Raigerh Highland
6. Baghelkhand Plateau
7. Rajmahal Highland

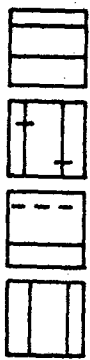
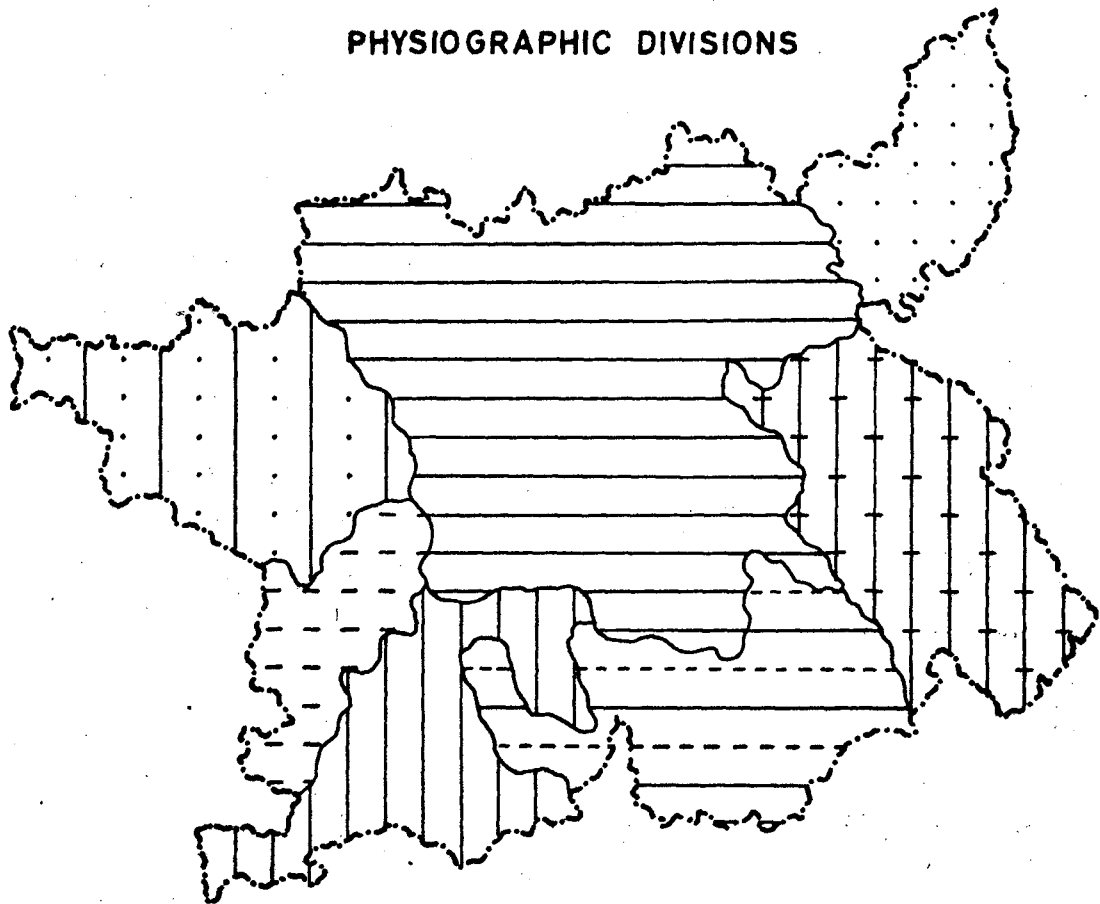
3.2.1 Chotanagpur Plateau

Topography of Chotanagpur region has been evolved through various geomorphological processes which resulted in the formation of several dissected plateaus and undulating land like western Ranchi plateau, Hazaribagh plateau, Singhbhum plain and southern dissected highland or Ranchi. The old surface was removed almost completely except in the area covered by the western Ranchi plateau where it was left to form small flat topped plateaus west of Lohardaga.² Around this plateau general elevation

-
1. Savindra Singh, "A Quantitative Study of Relative Relief of Sample Drainage Basin, Ranchi Plateau," National Geographer, Vol. XV, No. 2, December 1980, p. 137.
 2. Satya Narayan Sharma, "Origin of the Singhbhum Plain", Geographical Outlook, Ranchi, Vol. IX, 1972-73, pp. 37-54.

JHARKHAND

PHYSIOGRAPHIC DIVISIONS

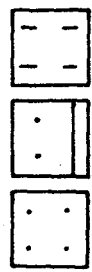


CHOTANAGPUR PLATEAU

LOWER GANGA PLAIN

MAYURBHANJ HIGHLAND

SAMBALPUR PLAIN



RAIGARH HIGHLAND

BAGHELKHAND PLATEAU

RAJMAHAL HIGHLAND

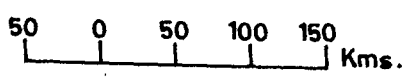


Fig. 33

descends in all directions and merges gradually with the lower Ganga plain. Formation of the peneplain has taken place in tertiary period. But a number of different opinions about this upliftment as well as character has been presented. S.P. Chatterjee³ has described four upliftment while Dunn⁴ writes three successive upliftment regarding central Ranchi plateau.

According to Dunn the peneplain has been formed due to erosion performed by extensive river system of the region. Pat region⁵ (1000 meters) uplifted above the preexisting peneplain in early tertiary times while the central Ranchi plateau was block lifted towards the late tertiary period. Singhbhum plain (500 meters) is the third peneplain. It has been taken place through tilting process during mid-tertiary upliftment so that there is no any steep scarp on the outer edge of Chotanagpur.⁶ The

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3. S.P. Chatterjee, "Gneissic Topography of the Ranchi Plateau," Calcutta Geographical Review, Vol. , No. 1, 1940, pp. 80-81.
 4. J.A. Dunn, "The Economic Geology and Minerals Resources of Bihar Province," Memoirs, Geological Survey of India, Vol. 78, 1942, pp. 12-15.
 5. Dunn, "Past Mesozoic Movements in the Northern Part of the Peninsula," Memoirs Geological Survey of India, Vol. 73, 1944, pp. 14-18.
 6. E. Ahmed, "Geographic Outline of Chotanagpur," Geographical Outlook, Vol. II, pp. 14-23.

Hazaribagh plateau; on the northern side of the Damodar trough has essentially the same features of elevation. It also has two distinct surfaces. The upper Hazaribagh plateau at 600 meters stands engirdled by the lower Kodarma plateau (300 meters) which is bordered by steep scarps in the north but slopes gradually to the east. Palamau highland forms a similar relief as southern dissected portion of Ranchi plateau.

3.2.2 Lower Ganga Plain

Midnapur, Bankura, eastern Mayurbhanj and eastern Puruliya have plain topography formed by Ganga, Damodar, Dwarakeshwar, Rupnarayan, Kesai, Kalighat and Subernvanna rivers. The general slope along with Midnapur coast is 3 to 4 meters above sea level. It is upgraded in the north west direction where the highest landform is in the form of sanddunes.

3.2.3. Mayurbhanj Highland

Mayurbhanj, Keonjhar and eastern Sundargarh are included in this topography. There is a long gap between the Mayurbhanj and Keonjhar hills where plain area can be marked. Meghasani in the Mayurbhanj and Malayagir on the district boundary of Mayurbhanj are the highest peak with 1166 and 1167 meters respectively. In Mayurbhanj, where lower Gangetic plain ends and hilly area starts; a number of gradual topographic features have developed.

Durababalang, Salandi, Baitarni, Kharkai, Mandita and Brahmani rivers flow over this highland and at last merges in the Bay of Bengal.

3.2.4. Sambalpur Plain

Sambalpur plain is a part of the above highland but is comprised generally of low land. The general elevation of the South Raigarh and Sambalpur is 800 meters. The highest peak in the region is 782 meters near Deogarh. Mahanadi divides this plain into two parts and flows north east to south east. Except some flat land there is no typical topography in the region.

3.2.5. Raigarh Highland

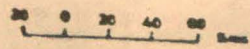
Raigarh highland is a part of Hazaribagh range where Ranigula and Rotwar are the highest peak with 1033 and 1027 meters respectively. General slopes descends southwards and near Sakti, it completely disappears. A number of typical topography has developed over this highland like scarp, spur and flat topped land. Sankh, Rohar, Mond and Kanhar are the main rivers, flows over 300 meters; and forms different types of drainage pattern. This highland also uplifted many times and resulted antecedent pattern.

3.2.6. Baghelkhand Plateau

Whole of Surguja district covers the Baghelkhand plateau, except some area of central part. Hosodo river

JHARKHAND

DRAINAGE PATTERN



flows through this low land and mark a steep valley near Mahendragarh. Behar runs opposite to it and ultimately meets with Son river in Mirzapur. Mailan (1026 meters) and Deograph (1225 meters) are the highest peaks of the plateau. Some minor topography forms are the knolls, hills, ridges and spurs.

3.2.7. Rajmahal Highland

Santhal Pargana which comes within Rajmahal highland brings a number of residual hills above the wide plateau of the south. Santhal Pargana, are engirdled with the generalised 500 feet contour though some of them rise above 200 feet. Northern part of the trap is relatively low surface and catchment of river Ganga.⁷ Topography break in the east also where all the small rivers cross the upper Rajmahal plateau. Generally the hills and plateaus have an elevation between 200 and 500 meters.

3.3 DRAINAGE PATTERN

The well dissected terrain of Jharkhand has been evolved due to its extensive drainage basins in different direction (fig. 3.4). Numerous rivers and streams of Chotanagpur plateau has given birth to several landforms

7. R.P. Singh, "Geomorphological Evolution of Highlands of Rajmahal," N.G.J.I., Varanasi, Vol. VI, Part I, March 1960, pp. 7-10.

such as gorge waterfalls, narrow valleys etc. Interruption due to its rejuvenation of plateaus, many rivers changed their course but at later stage again took the original course as is found presently.

The study of erosional surfaces signifies a number of these surfaces at a many places. Damodar, South Koel, North Koel, Subernrekha, Barakar and Mahanadi drains over the rock of varying characters and forms different drainage pattern. Ajai, the mor the Brahmani, the Gumani drain over Rajmahal highlands but tributed to parentral rivers in the West Bengal plain. Mahanadi claims a big water collector of its all tributary rivers and streams and finally carries it to the Bay of Bengal. In the west side of the region, the Rihand river flows over Surguja highland and discharges in Son, which has been affected by Himalayan orogeny recently.

Other few tributaries have been carried out in the relatively salt rocks formations and passes through narrow gorge where the harder bedrocks are encountered.⁸ Hosodo derives its water from Korea and Maikal hills and descending southwards, at last disappears in Mahanadi basin.

The general dendritic plan of distribution is locally disturbed by the rectangular pattern near Mirzapur and Sidhi. Mahanadi divides Sambalpur district into two

8. R.L. Singh, India - A Regional Geography, Varanasi, 1971, p. 672.

parts and forms a rectangular drainage system over Orissa highland. Subernrekha, Kasai, Gilai, Dwarkeshwar and Rupnarayan also represent the same pattern in the south-eastern Chotanagpur drainage system and get down slowly in the West Bengal plain.

There are several local variations depicting different types of drainage patterns. Some are fault guided rivers e.g. Damodar have remarkable straight course.⁹ Trellis pattern is made by Damodar river where parallel faults have resulted in different directions of drainage. The Sankh has formed a barbed drainage pattern where its tributaries join it in "boathooks bends" pointing stream,¹⁰ Radial pattern can be marked over the plateau top in part region, in Ranchi and Hazaribagh plateau.

3.4 GEOLOGICAL STRUCTURE

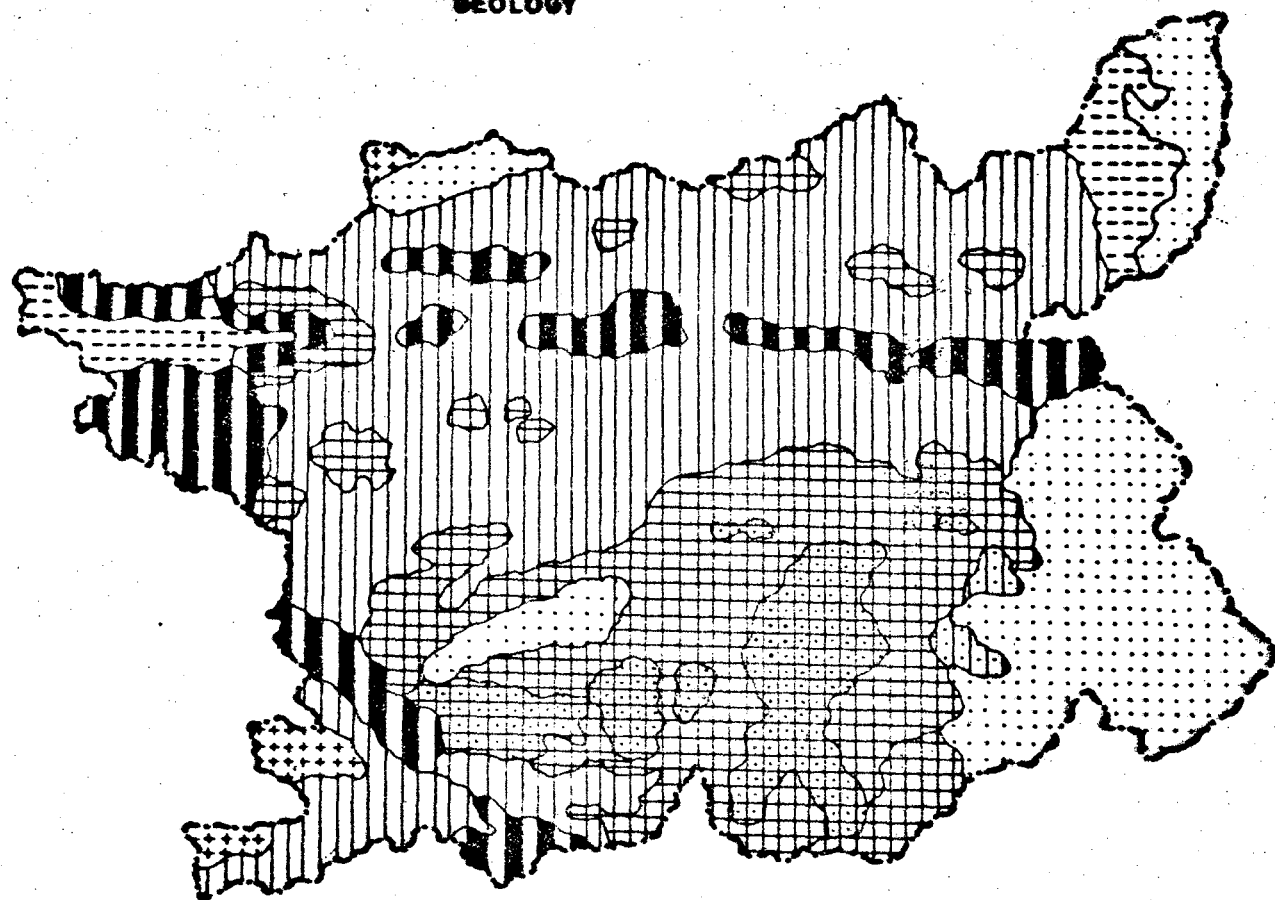
Geological structure of Jharkhand is highly folded, faulted and in some areas it reveals the existence of volcanic movement also. Due to tectonic disturbance most part of the region uplifted several times and resulted in a new geological structure which is basically made by granite and gneiss rock with patches of metamorphic rocks (phyllite, mica, schists etc.) and other magnetic rock

9. Ibid., p.673.

10. Ibid., pp.674-676.

JHARKHAND

GEOLOGY



20 0 20 40 60 80 Kms.



PLEISTOCENE



TERTIARY



UPPER GONDWANA



LOWER GONDWANA



CUDDAPAN



DHARWARIAN



ARCHAEAN



CHANOCKITES & UNCLASSIFIED

Fig. 35

during Archaean and Pleistocene age.¹¹ The deposition of iron ore in Singhbhum district, coal fields in Dhanbad and Giridih and minerals like mica, asbestos, bauxite, copper, manganese, gypsum in Chotanagpur and in Orissa highland characterise its unique lithological structure during Gondwana formation. The formation of Gorge, waterfall and steep river basin by its rivers during different upliftment signifies also its lithological characters. A series of geological evolution during different stages are as follows (fig. 3.5).

3.4.1 Pleistocene and Recent Formation

Midnapur, Bankura, Northeast and Southeast part of Puruliya and Mayurbhanj has been made by recent deposition. Great plains is also a part of this latest formation. The geological history of this formation is still a matter of discussion. It is dark in colour and rich in nodules and concretions of calcareous matter. Laterite is a kind of vesicular clayey rock composed essentially of a mixture of the hydrated oxide of aluminium and iron ore with often a small percentage of other oxides which are manganese and titanium oxide spread over north-east and central part of Midnapur.

11. D.N. Wadia, Geology of India, London, 1970, pp.68-72.

3.4.2 Tertiary Deposit

The tertiary age is the most important period in India's geological history as it was during this period that the Himalayas came into existence. Tertiary deposits forms a small part of tertiary outcrops, mixed over the south-east Mayurbhanj and north west Midnapur within the width of 15 to 25 kms.

3.4.3 Upper Gondwana System

Upper Gondwana which formed during cretaceous and Jurassic period is an important geological formation.¹² It spreads over a number of distant places in the region. Rajmahal, Trap, Panchet and Jabalpur series are isolated outcrops with each other. Lithologically this group is composed of the usual massive sandstone and shales closely resembling of the Middle Gondwana, but is distinguished from the latter by the presence of some coal seams and layers of limestone as its outcrops.¹³

3.4.4 Lower Gondwana System

This system appeared during Triassic and Permo-Carboniferous period, has been distinguished in the geology of India as the Gondwana system or Gondwanas. Economic importance of this system signifies the presence of coal and iron ore. Particularly the Barakar and Raniganj

12. Ibid., p. 205.

13. Ibid., pp. 208-215.

stages of the Damunda series contain most of India's coal reserves in about 3050 metres of sandstone and shales outcrop.

One more outcrop of the Damunda group is seen in Rewah region, in south-west of Surguja which at one or two places has workable long coal seams e.g. Umaria coal-field. Hingir beds towards Mahanadi valley in Raigarh and Sambalpur is another outcrop of Damunda group.

3.4.5 Cuddapah System

Cuddapah system is a part of Vindhyan and Himalayan formation composed of much indurated and compacted shales, slates, quartzites and limestones. It has been formed in south-west Sambalpur in the width of 5 kilometres south-west of Raigarh with 35 kilometres width and north-west of Palamu within 5 kilometres. These rocks also contain iron ore, manganese, copper, cobalt and nickel.

3.4.6 Dharwarian System

The rock of this system possesses the most diverse lithological characters, brings a complex of all kinds of rocksclastic, sediments, chemically precipitated rocks volcanic and plutonic rock. Important area of this development is in Ranchi, Singhbhum and Raigarh District. Keonjhar and Sundergarh also have deposits with this formation. In Ranchi it covers the 'Fat Region' with Daccan trap which is converted into laterite and bauxite

due to weathering. This group contain highly metamorphosed rocks of both igneous and sedimentary origin. The various schists like mica-schists, talk-schist, chlorites-schists, ferruginous and quartzites are important rock with sedimentary origin.¹⁴ The well known mica fields of Northern India has been covered by this group.

3.4.7 Archaean Deposites

The Archaean system including granites, gneisses and schists occupy the large areas of the Singhbhum, Mayurbhanj and Keonjhar districts of the region. Gneiss is the most common, has been spread over many thousand square kilometers. The mineral composition may vary from granite to gabbro, but which possesses a constant, more or less foliated or banded structure, designated as gneiss.

3.4.8 Charnockites and Unclassified Crystallines

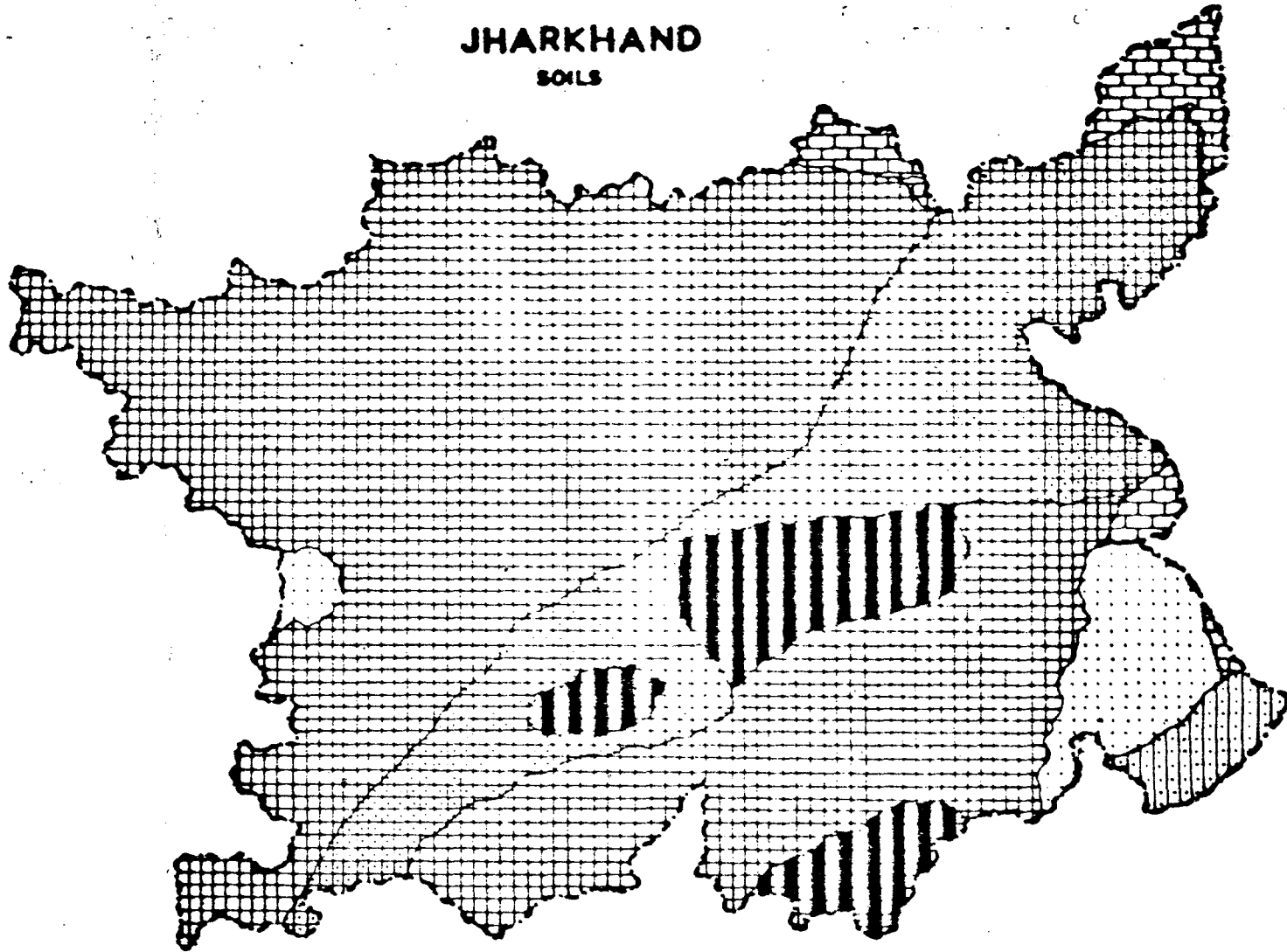
This is the oldest rocks of the earth's crust have been found at the bottom of the stratified deposits, in all countries of the world, exhibited similar character regarding their structure as well as their composition.¹⁵ But some geologists categorises it of the Archaean deposits because most of its character is similar to hardest rock like granite.

14. Ibid.

15. Ibid., pp. 325-327.

JHARKHAND

SOILS










- | | | | |
|---|----------------|---|---------------------|
|  | RED LOAMY |  | MIXED RED AND BLACK |
|  | RED SANDY |  | DELTAIC ALLUVIUM |
|  | LATERITE |  | ALLUVIUM |
|  | RED AND YELLOW | | |

Fig. 34

It occupies wide areas of Chotanagpur in which Ranchi, Palamau, Hazaribagh, Giridih, Dhanbad and Puruliya are the main. North-east and south-east of Surguja, northern Raigarh and a part of Sambalpur also comes in this group.

3.5 SOILS

Soils of Jharkhand is of very complex nature due to its regional and local variation in texture, structure, reaction, fertility and colour. They have developed through different process of laterization and podzolization. On the other hand climate also has played its important role in the formation. Geological structure presents a hard surface of Granite and gneiss which is prime factor for formation of the soils. Human settlements, in this region have a continuous affect in changing it as fertile land.

A consideration of all the factors in identifying the zones on macro-level will certainly be an impractical if not an impossible task. The climate and lithology together therefore, have been taken into process of denudation and their dominance, such as in coastal regions, have not been ignored.¹⁶ The following soils are found in the region (fig.3.6).

16. R.L. Singh, op.cit., p.58.

3.5.1 Red Soils

Soils over the igneous rock like granite and gneiss is deep red but it varies in colour and composition from place to place. At some places it is mixed with black soil. This soil covers a vast area of Chotanagpur plateau. All the red soil i.e. Red Loamy, Red Sandy and Red Yellow, lack in fertility and contain potash and lime while nitrogen phosphoric acid and humus is relatively less. It is predominantly rice and millets growing area. Black fertile soil covers the area of Ranchi plateau and some part of Singhbhum district. These are loamy to sandy loam in texture but varies from coarse sandy to loamy and clayey.

3.5.2 Laterite Soil

Laterite soil are found in south-east of Mayurbhanj within a small area in the Subarnrekha basin. Another area having this soil is in Midnapur, covering an area of 5888 square kilometers which is in Subarnrekha valley. It descends with wide spread area towards coastal region of Midnapur plain and ends with deltaic soil. This soil characterise the well drained process of rivers over recent geological formation. Laterites soil is acidic in character and deficient in organic matter. Water retaining capacity of the soil is very low and grows usually sal forests.

3.5.3 Deltaic Soil

Deltaic soil covers the low land of Midnapur district where it separates the laterite depression from sea coast. The soil is saline and alkaline and contains deposits rich in calcium, magnesium and half decomposed organic matters.

3.5.4 Alluvial Soil

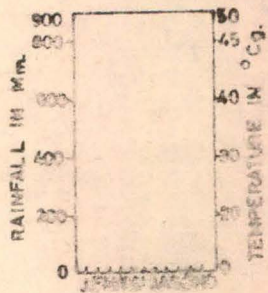
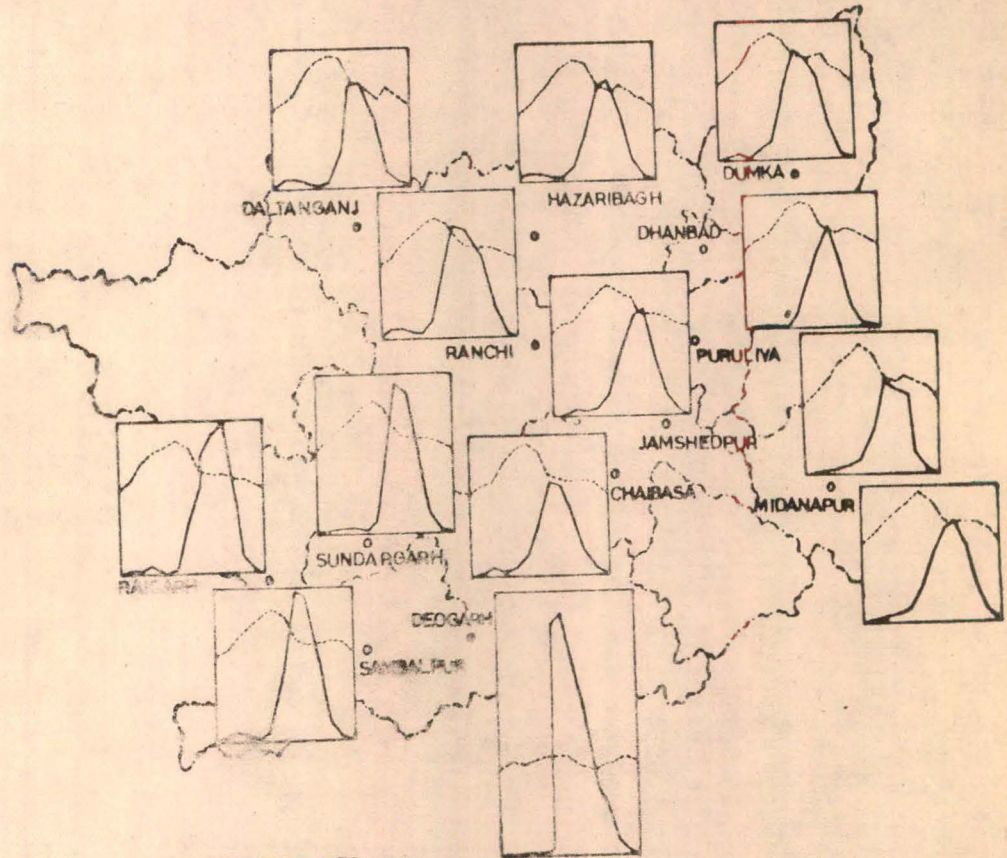
Alluvial soil is found in Rajmahal highland. It contains basaltic siliceous, kaolin and potash as well as magnesia and iron oxides which had emerged on a large scale. Alluvial soil also covers the northern part of Hazaribagh plateau.

3.6 CLIMATE

Like the climate of the Indian sub-continent, Jharkhand too enjoys monsoon type of climate and bears all the characteristics with which monsoon climate is laden. Monsoon affects a wide area through its direction and velocity of winds. Atmospheric pressure, temperature and rainfall, all the climatic indicators depend upon the occurrence of monsoon. Beside these, climate of the region is governed by the physical features. Due to this, regional variation and sharp contrast in weather condition occurs.

JHARKHAND

AVERAGE MONTHLY RAINFALL AND TEMPERATURE



— RAINFALL
--- TEMPERATURE

0 50 100 150 Km.

Fig. 3.7

A vast area of Jharkhand lies near the coast of Orissa and West Bengal. The coastal plain, influenced by the cool sea breeze, enjoys equable and moderate climate. This uniformity within warm and moderate climate of coastal region of Midnapur and Mayurbhanj and Balasore districts are described as tropical rainy or tropical maritime. Tropical climate causes rain in and around the plateau region of Chotanagpur. Coastal plain gets wet by heavy rain and storm after every fifth to six days in rainy season particularly July and August. Rainfall decreases from south to north westward and affects the local weather. The region receives an annual average rainfall of 100 to 175 cms. The climate here is marked by slight variations in the seasonal as well as diurnal change of temperature.

Appendix I gives the mean monthly and annual temperature and rainfall of some meteorological stations of Jharkhand region (fig. 3.7).

The year can be divided into four climatic seasons in Jharkhand. These are:

1. The cold weather season (December-February)
2. The summer season (March-May)
3. The Rainy season (June-September)
4. The retreating south-west monsoon season (October-November)

3.6.1 The Cold weather Season

Generally the cold weather season takes action against low temperature by mid November in the region. January and February are the coldest months. The mean daily temperature ranges from 26.9° centigrade lowest to 36.1° centigrade during these months. The night temperature goes down but the day are warm. Atmospheric pressure in this season increases toward north-west from coastal region. The westerly and north-westerly winds blow with a velocity of 3 to 5 kilometres per hour but the topography of region checks from penetrating inside. Rainfall received in this season is generally very small and varies from 50 to 55 millimetres.

3.6.2 The Summer Season

Summer season starts in March and records it's maximum in May. Generally temperature rises by middle of March and reaches its peak in May as the hottest month. The maximum temperature of 40.2° centigrade is recorded at Raigarh and the lowest of 33.7° centigrade at Deogarh in the March, In the month of May also the same place i.e. Raigarh and Deogarh shows maximum (45.7° centigrade) and lowest (34.40° centigrade) temperature. In the hilly region summer season is very pleasant because

of its low variation in day and night temperature. Plain region receives more heat than the hills. The heat of the day is however, generally reduced by the locally formed dust storm. Loo (hot wind) is the striking feature of this season.

Low atmospheric pressure develops a trough over Chotanagpur. Pressure decreases as one goes towards north-west and increases downward i.e. towards Bay of Bengal. Midnapur and Deogarh receives highest rainfall of 34.3 millimeters and lowest of 0.6 millimetre respectively in the month of March. In May also Midnapur has highest rainfall of 109.4 millimetres. Daltangang receives the lowest amount of rainfall in this season in the whole of the region.

3.6.3 The Rainy Season

June begins with striking feature when monsoon brings rain over the region. During May-June high pressure develops in the Arabian Sea. The direction of wind is generally south west and more forward north-west. These monsoon comes with rain, bearing clouds and gives ample rain to the region. The physical feature and associated temperature conditions during this part of the year is also responsible for bulk of the rains. July is the month of maximum rainfall recorded as 834.8 millimetres at Deogarh but in August it recorded only 498 millimetres.

The month of September is the end of this season when both temperature and rainfall goes down considerably.

There is large variations in the distribution of rainfall in the region during this season. Some districts of Chotanagpur receives much less rainfall than some of the districts of the plains. Midnapur situated in the coastal plain gets less rainfall because there is no major topographic features to check the monsoon while Deogarh has highest rainfall situated over plateau. Other characteristics of this season is moisture laden wind, thunder lightening, and over caste sky. Due to continuous rain in this season, a large variety of vegetation grows throughout the year.

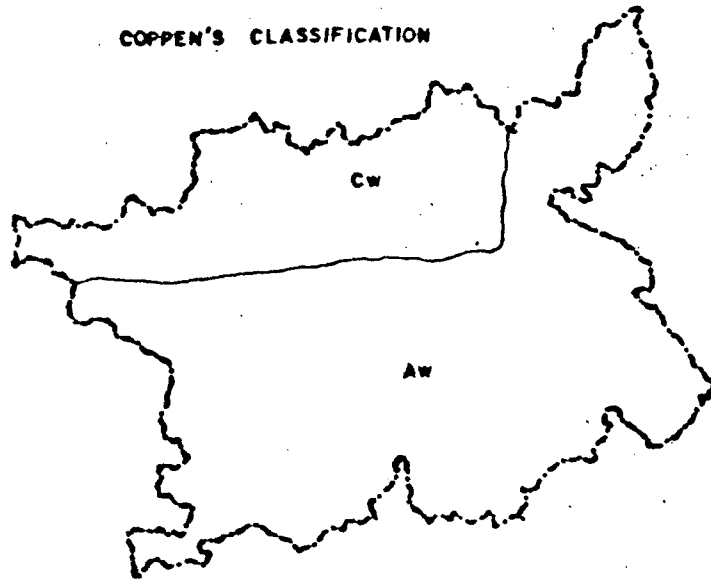
3.6.4 The Retreating South-West Monsoon Season

This is the season of retreating monsoon when rainfall intensity during the end of September goes down. It gradually retreats from north-east to south-east. In the coastal region monsoon retreats by mid October. November is the last month of this season when the lowest rainfall is recorded as 0.7 millimeter at Raigarh. With the rainfall temperature also decreases during this period. Bay of Bengal create a cyclonic depression belt through which some rainfall occurs in this season. Temperature in this season increases during day time but during night it becomes very pleasant.

JHARKHAND

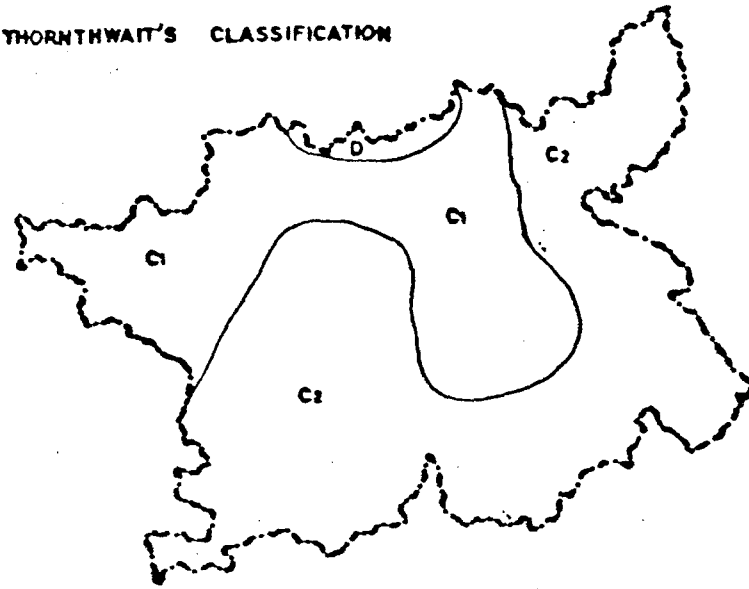
CLIMATIC DIVISION

COPPEN'S CLASSIFICATION



- CW** TROPICAL SAWANA TYPE
- AW** WARM WITH DRY WINTER

THORNTHWAIT'S CLASSIFICATION



- C1** DRY SUB HUMID
- C2** MOIST SUB HUMID
- D** SEMI ARID

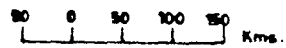


Fig. 38

3.7 CLIMATIC ZONE

India is a monsoon country but the regional variation in the distribution of rainfall and temperature prevails over micro homogeneity due to which climatic sub-types of season are identified. Climatic zones are affected by other climatic factors such as height from the sea level, distance from sea coast, and latitudinal extension.

3.8 KOPPEN'S CLASSIFICATION¹⁷

Koppen's classification is based upon annual and monthly mean of temperature and precipitation. It appears wild or natural vegetation as the best expression of the totality of a climate, so that many of the climatic boundaries are selected with vegetation limits. Koppen recognizes that the effectiveness of precipitation in plant development and growth depends not only upon amount of precipitation but also upon the intensity of evaporation and transpiration, by which processes water is lost from the soils and plants. According to his classification region may be divided into two broad climatic regions (fig.3.8).

1. Tropical Savanna type (Aw)
2. Warm with Dry Winter type (Monsoon + Upland Savanna) (Cw)

17. G.T. Triwartha, "An Introduction of Climate", New York 1954, pp.398-99.

3.8.1 Tropical Savanna Type

This sub-climatic zone is second part of 'Tropical Rainy Climates' given by Koppen which is very similar to Ar type. Three temperature period prevails in this humid climate. The cool dry season at the time of low sun, the hot dry season just preceding the rains, and the hot wet season during rain. Annual rainfall ranges 150 to 160 centimetre.

3.8.2 Warm With Dry Winter Type

A sub type of 'Sub Tropical Climate' with dry winter and maximum rainfall in wettest month of summer. Annual rainfall (120 to 130 centimetres) is low with comparison of Aw of tropical climate. This type of climate generally covers the plain areas (low and than Aw) of the region.

3.9 THORNTHWAITE'S CLASSIFICATION¹⁸

Thorntwait classified the region according to water balance and natural vegetation. Jharkhand has been divided into three climatic zones by his scheme of classification.

1. Moist Sub-Humid (C2)
2. Dry Sub-Humid (C1)
3. Semi Arid (D)

18. C.W. Thornthwaite, "The Climates of the Earth", Geographical Review, Vol.23, 1933, pp.400-33.

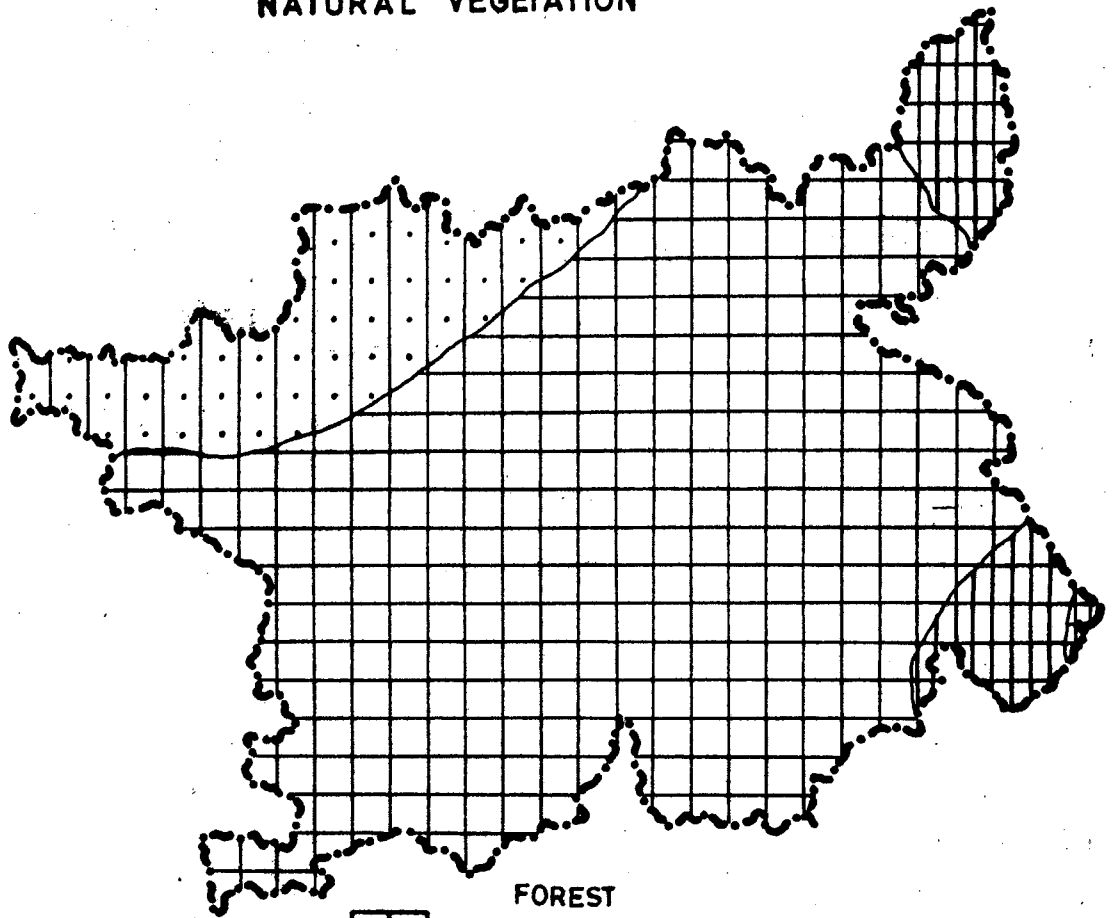
Santhal Pargana, northern part of Giridih, Dhanbad and Puruliya are included in C2 type of climate. The demarcating line going south and move westwards through the Orissa boundary. It further moves upward and cut the Ranchi city and reach towards west. Thus except for some part of Ranchi, Dhanbad and Firidih, the whole region falls under C2 type of climate. It covers a vast area where land surface has more capacity to moisture. C1 type of climate covers the whole Chotanagpur except those areas, which have been included under C2 type of climate. This region receives relatively low rainfall in comparison to C2 climate. Northern Part of Palamau and Hazaribagh districts comes under third sub-type of climate,

3.10 FLORA

Jharkhand region is very rich in forest resources. A number of useful vegetation growth has developed according to climatic differentiation. Rainfall and temperature are the main factors which determines the growth of a plant in a particular place. A place where rainfall is very less and temperature is relatively high, the small and thorny bushes are seen. Evergreen forests are generally found in those areas where rainfall is received over 200 centimetre. Besides physiography, soil is also an important factor which affects the growth of species in different

JHARKHAND

NATURAL VEGETATION



FOREST



TROPICAL DECIDUOUS DRY



TROPICAL DECIDUOUS MOIST



TROPICAL DECIDUOUS SEMI EVERGREEN



TIDAL

50 0 50 100 150 Kms.

Fig. 3.9

season. According to above consideration the region may be divided into four types of forests as (fig. 3.9).

1. Tropical Deciduous Dry Forest
2. Tropical Deciduous Moist Forest
3. Tropical Semi-Evergreen Forests
4. Tidal Forest

3.10.1 Tropical Deciduous Dry Forest

These type of forest are developed in less rainier parts of the region. It frequently grows within 100 to 200 centimetres rainfall. Northern portion of the region is covered with this type of forest where rainfall ranges from 100 to 175 centimetres. Babul, thorny shrubs, wild palm, and grasses are main vegetation of the dry forest where it is less than 70 centimetres rainfall. The open grasslands in the region are used for the purpose of grazing where a large number of sheeps are domesticated. Such grasslands disappears during summer season.

3.10.2 Tropical Deciduous Moist Forest

It covers a vast area where rainfall is moderate (100-200) centimetres. Except northern portion of Surguja, Palamu and Hazaribagh, East Santhal Pargana and South Midnapur whole of Jharkhand falls under this category. This forest is also known as 'Monsoon Forest' because most of the species of this forest grow during monsoon.

Teak is the most important wood which occupies Chotanagpur plateau. Sal is economically the second important tree. Other trees like Shisam, bamboo and mahua are other commercial trees. Conservation and plantation of teak in Chotanagpur was started by Bihar government recently. It is notable that many thousands of teak trees were cut down by tribals during Jharkhand movement. Characteristically the trees shed their leaves for about six to eight weeks in summer. Each species having its own time. The forest as a whole are, therefore, not absolutely bare in any part of the year. The undergrowth is generally very dense and climbers and bamboos are common.

3.10.3 Tropical Semi-Evergreen Forests

Evergreen forests need more than 200 centimetre rainfall and altitudes ranging from 300 to 1500 metres. South Midnapur and small part of the East Keonjhar has been covered with the semi-ever green forest is also found in the plain area of the Chotanagpur plateau. Jamun, bamboo and palms are important among such species.

3.10.4 Tidal Forests

Small part of the coastal region of Midnapur district comes under this type. Characteristic of these forests are similar to Sunderban forest of West Bengal. It may come under the category of evergreen forest.

3.11 FAUNA

Climate, forest and human needs determines the growth, distribution, and economic importance of animals. Jharkhand is a region of microclimatic factors and natural vegetation has played an important role in the distribution of wild life. Lion, tiger, elephant, rhino, gaur, crocodils and crane are the important wild animals found in the region. Preservation of wild life has been encouraged by government in the region. National Zoological Park Hazaribagh, Project Tiger and Betwa Park in Palamau are the new efforts in this direction. Except these a number of other animals, birds and bees species are found in dense forest of Jharkhand.

Chapter IV

ETHNOGRAPHIC, DEMOGRAPHIC AND OCCUPATIONAL STRUCTURE

A. ETHNOGRAPHIC STRUCTURE

4.1 ORIGIN OF THE TRIBALS IN THE JHARKHAND

The study of origin of tribals and non-tribals requires to go into the root of the history of mankind. Development processes of man deals with a complex and scattered nature of human society, relation and interaction with each other. Ethnologically Jharkhand has a different chronological and prehistoric skeletal remains, evidence of which determine the origination and immigration of people who now inhabited the region. Anthropological reserches reveal that Jharkhand has four racial stocks i.e. Proto-Austroloid, Dravidian, Mangoloid and Aryan and Oriental races. Through different sources it appears that fifth racial stock originated at Chotanagpur, called 'Amura'¹ according to contemporary poets and historians. Perhaps they are the original races of India.

The Proto-Austroloids is the oldest race, according to anthropologists which largely inhabited the region. The Mundas, Kharias, Korwas, Birhors, Bhumijas,

1. S.C. Roy, Munda and Their Country, Bombay 1970, pp. 334-36.

INDIA

ORIGIN OF TRIBES

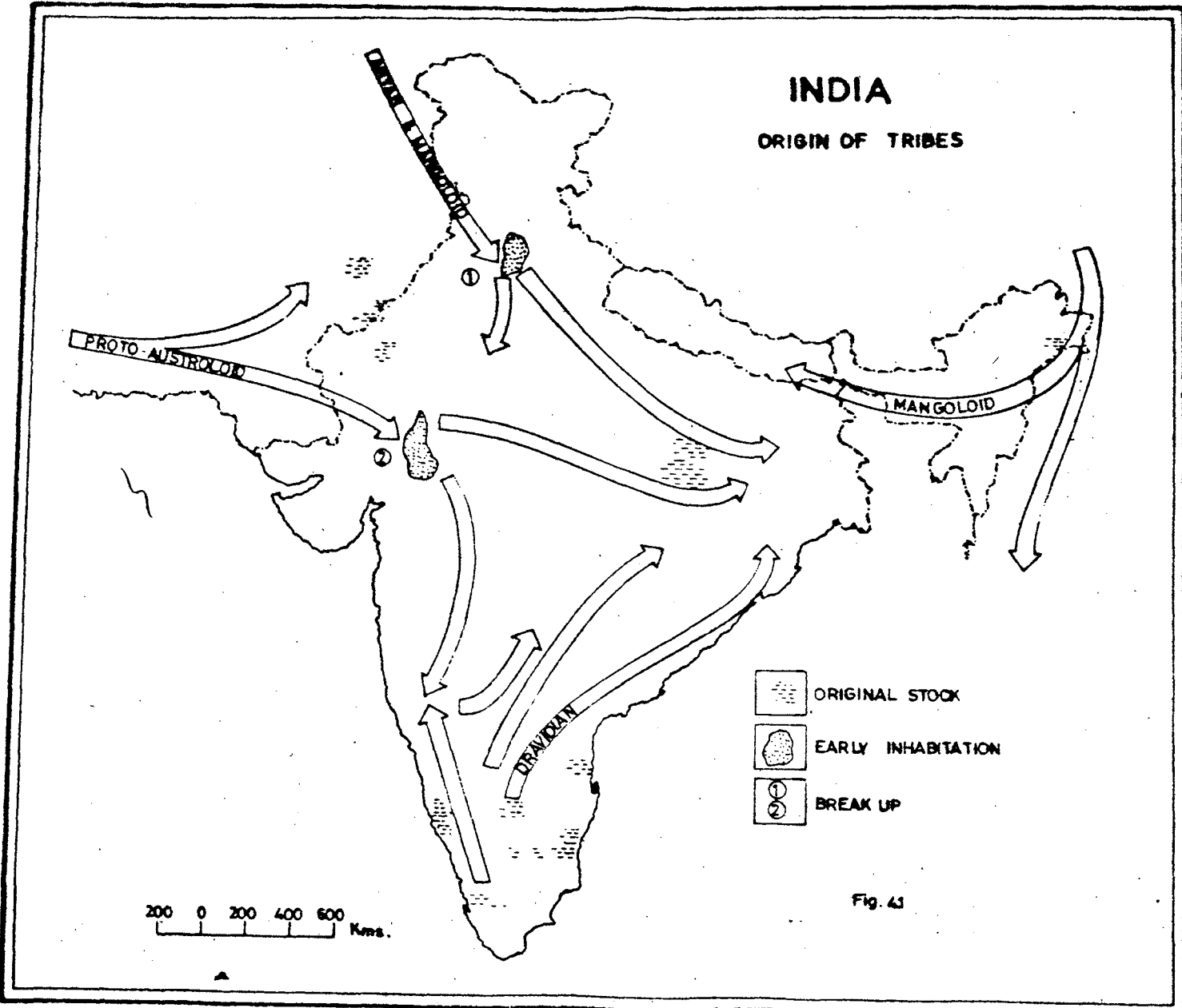


Fig. 41

Kherwars, Santhals, Hos and Mal Pharias belong to this group of people. This race immigrated from Central Asia in the early of the civilization. Some anthropologists claims that penetration of Austroloid people through the Punjab while another from East Africa² through coastal region of Sindh and settled around the foothills of Arawali range and then migrated in central province of India (fig. 4.1).

Mangoloid type of race basically have settled in Assam, Burma and Bhutan. But some people of this group migrated in North Bengal, Bihar and also in Nepal. The many extraordinary consciousness in languages in numerals, pronunciation and common words between Kol races, the Kasia, that the Mon-Anam (Mongoloid group) arose in the Gangetic basin. That they were the result of a mixture of two distinct races, i.e. of eastern Tibetans or western Chinese, who came across the Himalayas and intermixed with the Austrolo-Dravidians.³

Dravidian race is an ancient Indian racial stock who earlier inhabited in the Karnataka, Tamil Nadu and in Andhra Pradesh. Some Austrolo people immigrated through hill and river vallies in this region. After intermixity

2. Ibid., p.38.

3. S.C. Peal, "On Some Traces of the Kol-Mon-Anam in The Eastern Nagathills," Journal of the Asiatic Society of Bengal, Vol. LXV, Part III, Anthropology and Cognate Subjects, No.1, 1886.

with Austroloid, Dravidian race moved towards northeast. Due to the breaking near Orissa highland these people further moved eastward and entered in Bengal.

Aryans are categorised as a fourth race in the region. This region was unknown place in the knowledge of Aryans till the later stage of civilization. Mughals and West Europeans are as the oriental races who came in this region after 1500 A.D. They inhabited only at the peripheral areas like South West Bengal and Gangetic valley of north low land. According to Munda tradition, when the Munda came, the Asuras had been inhabitants of this area.⁴ The Asuras may be included in original stock.

4.2 LINGUISTIC AFFINITIES

The language of the Santhals, the Munda and the Kharias of Chotanagpur, the Bhumij of Manbhum, the Hos of Singhbhum is Kolarian or Mundarian and though there are some slight dialectic differences, these tribes have no difficulty in understanding each other.⁵ Dravidian dialects is usually spoken in Rajmahal and in some places of Chotanagpur. Except these two main languages there are many other local dialects which has changed from its

4. Basant Kumar Mehta, "Historical and Cultural Basis of Jharkhand Nationality." In Fourth World Dynamics (ed.) by Nirmal Sengupta, Delhi, 1982, p.92.

5. Edward Tuite Dalton, Descriptive Ethenography of Bengal, Calcutta, 1872, p.154.

original dialects. According to dialects the Jharkhand has been categorised into two main groups. Table 4.1 gives the basic information about it.

At present the principle home of the Mundari languages is Chotanagpur, the plateau and adjoining areas. It is believed that the Mundari language once occupied a larger part of the north eastern India and that tribes also which basically didnot belong to the Munda, adapted this language.⁶

The Dravidian speaking tribes of the Chotanagpur plateau is that of the Oraons or Kurukh who as their tradition maintain, came long ago from Karnataka. According to their legends they once held a large portion of the South Bihar, but when driven out by the Muslims they had to find themselves a new home. They split into two groups; one following the Ganges, went to the Rajmahal jungle, the other much larger group went up the Son and occupied the north west corner of the Chotanagpur. The main portion of the tribe now settled in this area covering the district of Ranchi and Palamu.⁷

4.3 PHYSICAL APPEARANCE

Physical feature of these races still differ from one another. This is clear from the physical traits of these following major tribes.

6. Ibid., p.159

7. S.C. Roy, Op.cit., p.46.

Table 4.1JHARKHAND: PRINCIPAL DIALECTS

<u>Sl. No.</u>	<u>Tribes</u>	<u>Places</u>	<u>Dialects</u>
1.	Asuras	Northeastern Palamau and Hazaribagh	Mundari
2.	Pentia	Sambalpur, Sundergarh and Keonjhar	Mundari
3.	Dhokrakamar	Mayurbhanj, Keonjhar	Mundari
4.	Juang	East Keonjhar	Mundari
5.	Korwas	Surguja, Raigarh and Palamau	Mundari
6.	Mal Paharies	Lower Rajmahal	Dravidian
7.	KKoras	South Palamau	Dravidian
8.	Brijas	South Palamau	Dravidian
9.	Kol	Northeast Palamau, north Surguja	Mundari
10.	Ho	Singhbhum	Mundari
11.	Munda	Western Ranchi and Singhbhum	Mundari
12.	Bhumij	North Singhbhum and Puruliya	Mundari
13.	Maler	Upper Rajmahal	Dravidian
14.	Cheros	Palamau	Mundari
15.	Kharias	East Mayurbhanj, West Midnapur	Mundari
16.	Bhuiyas	Singhbhum, Keonjhar and Midnapur	Mundari
17.	Santhal	Santhal Pargana, Giridih and Dhanbad	Mundari
18.	Mahali	Ranchi, Puruliya and Hazaribagh	Mundari
19.	Majhwars	Ranchi, Puruliya and Hazaribagh	Mundari
20.	Oraon	Giridih, Hazaribagh, Palamau and Ranchi	Dravidian

Source: Descriptive Ethnology of Bengal by E.T. Dalton.

4.3.1 Munda

They are black-brown in colour, the nose is thick broad and deep rooted. They have thick lips, facial angle comparatively low, the face wide and fleshy, the limb sturdy and well formed.⁸ They have strong muscles, a good chest, powerful jaws and stomach and strong white teeth.

4.3.2 Santhal

Physically they are very primitive traits, short-broad flat nose with a Junken root, thick and protruding lips, a dark complexion and wavy sometimes curly hair.

4.3.3 Oraon

Physically dark, short statured, broad nose with depressed rooted, dark complexion, narrow heads, projective jaws, more hair.

4.3.4 Ho

Skin colour is dark short stature and dark complexion short broad and dark eyes, wavy to curly hair, scanty beared hair, a narrow chin, medium sized lips and small finally developed ears.

8. N.C. Chaudhary, Munda Social Structure, Calcutta, 1977, p.26.

4.3.5 Korwas

They are dark in skin colour, heavy flat noses depressed at the root, thick lips, heavy jaws.

4.3.6 The Dress

Most of the tribal people wear very simple scanty dress. Male members generally wear léin cloth called Dotai.⁹ On festival occasions, young men and boys wear a longer botai, two end of which called bondals. So far as the female dress is concerned they wear a long piece of cloth called 'paria' round the waist allowing a portion of it to pass diagonally over the upper part of the body so as to cover the breast. They use very simple ornaments made by china clay and hard wood.

In the cold weather, the Mundas generally use a blanket as a wrapper over his body. Poor people who cannot afford to buy blankets, use only barkhi. The head, like the feet is usually uncovered but the wooden shoes called 'Katsu' are often used in rainy season. During the journey they wear pagris called Mundari bened.¹⁰

9. Ibid., p.27

10. Ibid., p.30

4.4 CLAN

Tribal people in the region generally has been grouped into two types of clan in the village. One is Totemistic and the other is Exogamy. Totemic clans are named after some animal, plants or object. But apart from observing some taboos, the people do not have any mark of respect or reverence for the totem. The taboos appear in the form of mild sanction against certain kind of action. A person may not kill or harm his totem or eat it.

Family intimate relationship is a considerable factor among the exogamistic clan. Marrying within a clan is the greatest offence. It does not amount to the incestuous union between brother and sister. Such a relationship is referred to by a special Mundari term 'mago'.

4.5 FAMILY AND KINSHIP

Tribals are adapted to live in composite family. Structurally, this composite family is extended into joint or residual variety.¹¹ Now among the most of the people, nuclear family consists of a very limited members. Generally father becomes head of the family. The extended family) is an extension of the parental family through the

11. Ibid., p.31.

father son tie. Economic stability and inheritance rules contribute to the durability of this extended family. In each and every family cooperation and interrelationship among family members vary considerably.

There are about forty kinship terms which might be used to refer to all the relations within one's four generations, two above and two below. All kins through marriage are kupal and all kin who belong to the same lineage or clan are hags. Some examples of these relations are given below in a tabular form.

Table 4.2

JHARKHAND: PRINCIPAL KINSHIP AMONG TRIBAL PEOPLE

Relationship	Kinship
Father's father Mother's father	Tatang
Father's mother Mother's mother	Jiang
Father	Apu
Mother	Enga
Husband	Ainga horo, Gomke
Wife	Ainga, Kuri
Father-in-law	Honjar
Mother-in-law	Hener

The main criteria that forms the basis for these relations are generation, age, sex, affinity and polarity.

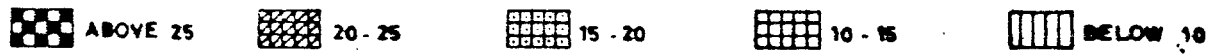
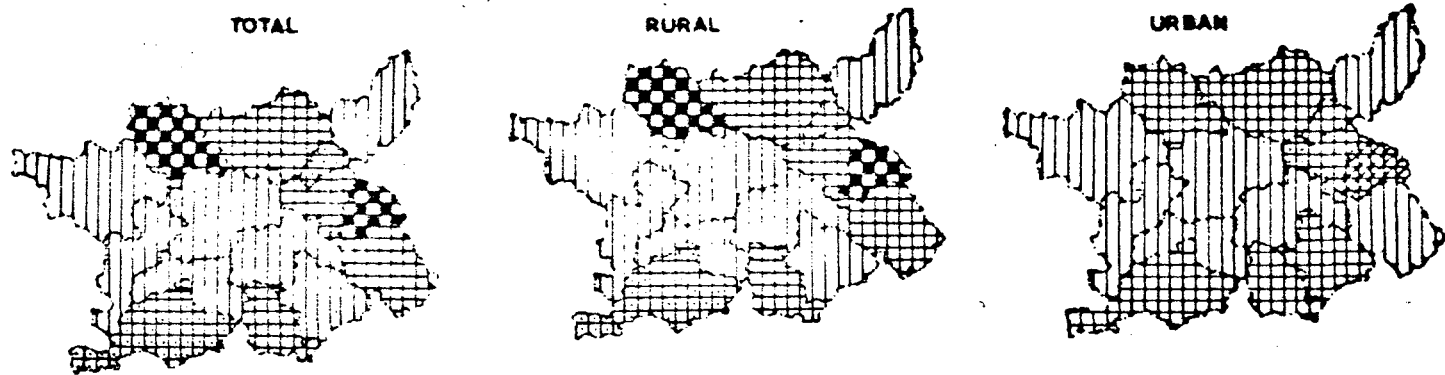
4.6 SCHEDULED CASTES AND SCHEDULED TRIBES POPULATION

Scheduled castes and scheduled tribes population are the main factor behind the demand for the separate Jharkhand state by the Jharkhandi adivasis. In 1971 scheduled castes and scheduled tribes population were 3.73 and 9.21 million respectively. Percentage of both the population accounts for 41.33 per cent which is about half of the total population in the region. The scheduled tribe population is two times greater than the scheduled castes. Appendix II shows the percentage of scheduled castes and scheduled tribes to total population in the region. The appendix shows that there is much variations in the distribution of scheduled castes and scheduled tribes population.

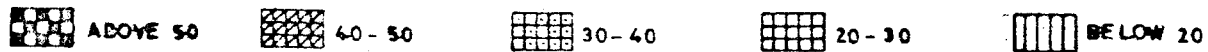
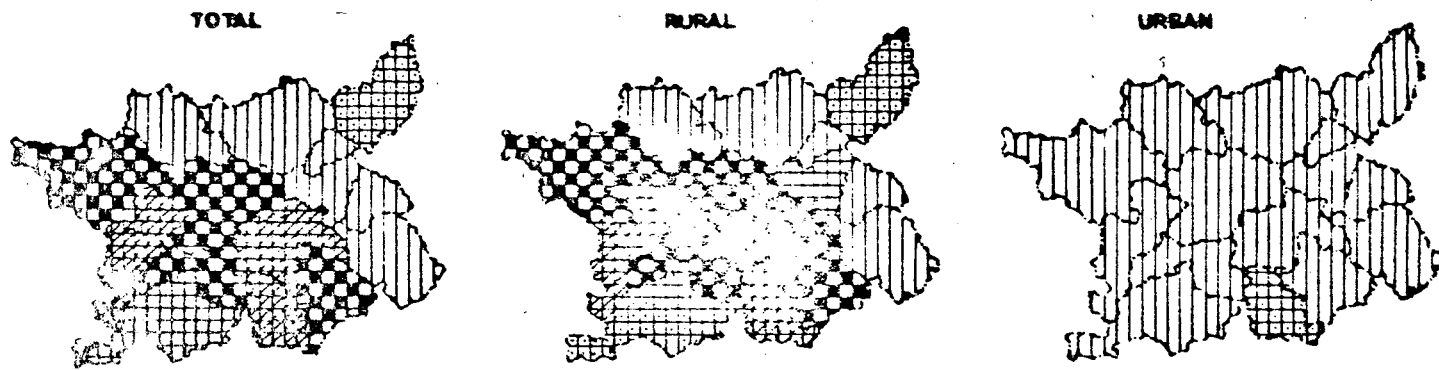
It is interesting to note that districts which have less percentage of scheduled castes population, have highest percentage of scheduled tribes population and the district which have highest percentage of scheduled castes population have low percentage of scheduled tribes population. For example, Ranchi, Singhbhum, Bursu, Raigarh, Sundergarh, Keonjhar and Mayurbhanj have less than 10 per cent scheduled castes population to total population but more than 40 per cent tribal population to the total population. On the other hand Palamau, Hazaribagh, Dhanbad,

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PERCENTAGE OF SCHEDULED CASTE POPULATION 1971



PERCENTAGE OF SCHEDULED TRIBE POPULATION 1971



100 0 100 200 300 Kms

Fig. 4.2

Bankura and Midnapur have more scheduled castes population than scheduled tribes population (Appendix II).

In rural urban distribution, there are sharp variations in both the population stream. In 1971 the scheduled castes population were 3.38 and 0.35 million in rural and urban stream respectively and the scheduled tribes population were 3.92 million in rural and 0.29 million in urban areas. Apart from this, high variations in district-wise urban population also may be seen. In some districts urban percentage is higher than its rural percentage among scheduled castes population. On the other hand urban percentage of scheduled tribes population is very low.

Variation also exist in male and female composition of the population among scheduled castes and scheduled tribes. Female percentage is higher than the male percentage to total, rural and urban population in maximum number of districts. Only two districts i.e., Santhal Pargana and Sambalpur scheduled castes male population is very high but in total population it is just contrary.

B. DEMOGRAPHIC STRUCTURE

Determination of human habitation is a geographical phenomena which confines its rural and urban areas according to physical as well as economic characteristic of the land-scape. Human resources in Jharkhand has developed

through a long process of human occupation. Population-wise Jharkhand may be categorised into two parts tribals and non-tribals. According to 1961 census the population of Jharkhand was 25.26 million. It increased at the growth rate of 24.04 per cent during 1961-71 and reached at 31.34 million persons. The net increase in population during 1961-71 decade was 60,75,310 persons. In 1981 census the decade variation was recorded as 65,56,006 persons with a growth rate of 20.91 per cent. The total population in 1981 census is recorded 37.89 million. The increasing population in urban areas during both decades i.e. 1961-71 and 1971-81 is relatively very large in comparison to rural areas.

4.7 DISTRIBUTION

Spatial distribution of population in Jharkhand is very irregular because of its physiography and industrial development. These are the two main factors which are responsible for uneven distribution of population. Even in Chotanagpur plateau some areas like north Giridih, Hazaribagh and north east Palamu are relatively sparsely populated. North west Surguja and south Raigarh are also thinly populated. Northern highland of Orissa where the interaction is slightly increasing, population distribution is somewhat dense in industrial belts.

In 1961-71, 20.7 per cent growth was experienced in rural areas. These rural population is confined to valleys and lower slopes of the hills and mountains. In this part of the region agricultural support is much effective which has contributed to the concentration of population. In plains where extensive areas are available for cultivation, the population concentration is high. In the river valleys like Damodar, Subernrekha, Mahanadi, the population distribution is dense. Growth of rural population in 1971-81 is 16.86 per cent which is concentrated mainly in the above river valleys and plain areas of Midnapur, Bankura and Puruliya of West Bengal and lower Rajmahal area of Santhal Pargana of Bihar.

Fast industrialization supports the rapid population accumulation in small urban centres in Hazaribagh, Dhenbad, Ranchi and in Singhbhum districts where new mining centres and projects have started recently.

4.7.1 District-wise Distribution of Population

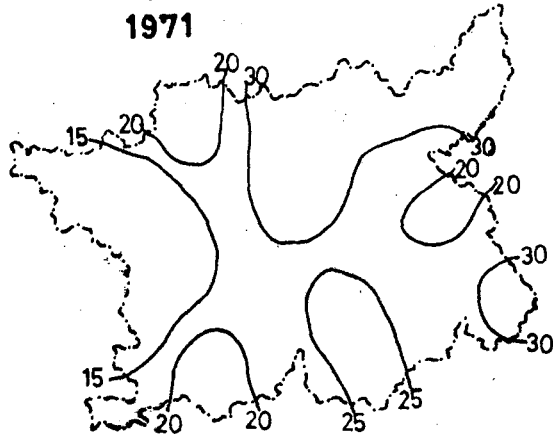
Jharkhand may be divided into five categories by population strength i.e. very high, high, medium, low and very low (fig. 4.3). Analysis of distributional pattern is based on these categories of both 1971 and 1981 census data. However, district-wise distribution does not give the accurate picture of spatial distribution because of

JHARKHAND

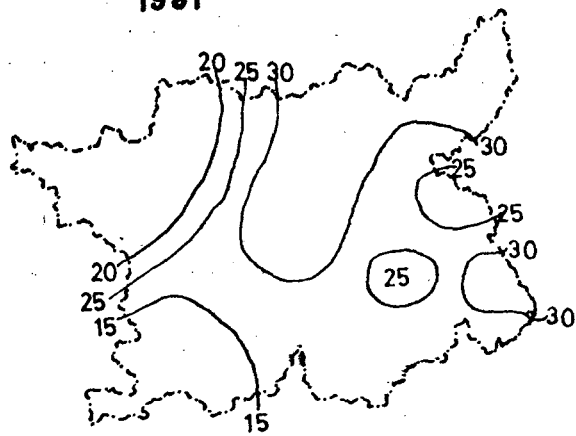
DISTRIBUTION OF POPULATION

(IN LAKH)

1971



1981



100 0 100 200 300 Kms.

Fig. 4.3

non-availability of data at tahsil level of each and every district of the region in 1981 census inspite of these an attempt has been made to study and analyse the pattern of distribution of population.

4.7.2 Most Populous Districts

According to 1971 census Santhal Pargana, Hazaribagh and Midnapur comes in the category of very high population. In 1981 Ranchi joined the very high category from high category in 1971. Lower limit of this category is 30 lakh while Midnapur district has registered 6723860 population in 1981 census. By area these districts are larger in the region. But density of population in these districts are relatively low. Total population in this category comprised of 11716369 persons which is 37.38 per cent of the total population of the region in 1971. And has increased to 17416595 persons i.e. 45.95 per cent of total population in this category in 1981. These districts cover the rich mineral belt of Damodar valley where minerals are extracted for industries, located around the mines.

Even in these districts some areas are sparsely distributed like south Santhal Pargana, south east Hazaribagh north Ranchi and western part of the Midnapur district, is thickly populated areas in comparison with other part of respective districts. Due to intensive

agriculture the lower Rajmahal and east Midnapur are densely populated especially in rural areas.

4.7.3 High Populous Districts

Ranchi and Singhbhum comes under the category of high populous districts in 1971 and 1981 respectively. Population of Singhbhum district has rapidly increased due to its industrial development and categorised as high populous district in 1981. This category covers 8.33 per cent in 1981 census. This category ranges from 25 lakhs to 30 lakhs population.

4.7.4 Medium Populous Districts

Population above 200 million and below the 2.5 million has ^{been} categorised as third category. Singhbhum and Bankura districts were the medium populated districts in 1971. In 1981 this category included three districts and accounts for 17.81 per cent to total population of the region. These districts are Dhanbad, Sambalpur and Bankura. Density of population in these districts are very high. Dhanbad is the highly populous district where the density of population is 702 persons per square kilometre. All the districts are highly industrialised regions. Basin of the Damodar river which has made the north eastern boundary of the Dhanbad and Bankura

districts is densely populated. Subernrekha and Kharkai river in the Singhbhum district has developed a parallel industrial belt.

4.7.5 Low Populous Districts

Palamau, Sambalpur and Puruliya in 1971 and Palamau, Surguja, Mayurbhanj and Puruliya in 1981 may be counted as low populous districts. It ranges from below the 2 million to above the 1.50 million and covers 15.8 and 18.41 per cent population to total population in 1971 and 1981 respectively. But these districts account for 19.04 per cent area to total area of the region.

4.7.6 Least Populous Districts

The fifth and last category of this distribution is least populous, ranges below the 1.50 million population. Dhanbad, Surguja, Raigarh, Sundargarh, Keonjhar and Mayurbhanj comes under this category. It accounted for 23.90 per cent of the total population and 34.73 per cent of the total area in 1971. According to 1981 census this category has only 10.26 per cent of the total of the region because there are only three districts namely Raigarh, Sundargarh and Keonjhar. All the above districts are hilly and forested and hence the population distribution is highly uneven.

4.8 DENSITY OF POPULATION

Nature of the density pattern in Jharkhand is very uneven where most of the districts fall below the average density of the region in 1971. According to Table 4.3, in 1981 census, the number of districts has increased where density is below the average of Jharkhand but some districts like Dhanbad, Bankura and Midnapur show very high density. Density of population in the region in 1971 was 165 persons per square kilometre which has increased to 216 persons per square kilometre because of heavy immigration of the population from adjoining areas.

The Chotanagpur is rich in raw materials which provides the sound industrial base to the region as well as the people of north Bihar, south West Bengal and eastern Uttar Pradesh. Tertiary activities are also highly developed due to its industrial output. Rural density is very low in comparison to urban density. However, density as a whole has increased during 1971-81 decade but urban density has increased at a faster rate during this period. It is clear from the table that concentration in urban places is very high than the rural areas. But average urban population in the region is recorded only 15.22 per cent in 1981 which is 3.20 per cent higher than the 1971 census.

Table 4.3JHARKHAND : DENSITY PATTERN 1971-81

Sl. No.	Districts	Persons Per Square Kilometre			
		1971		1981	
		Total	Rural	Urban	Total
1.	Santhal Pargana	226	214	1873	261
2.	Palamau	119	114	1173	150
3.	Giridih	-	-	-	250
4.	Hazaribagh	167	149	941	197
5.	Ranchi	142	124	1695	167
6.	Dhanbad	490	322	1502	702
7.	Singhbhum	181	137	2130	213
8.	Surguja	59	56	2044	73
9.	Raigarh	99	93	2167	112
10.	Sambalpur	105	94	864	130
11.	Jundargarh	107	84	1158	138
12.	Keonjhar	116	109	720	134
13.	Mayurbhanj	138	134	1780	151
14.	Bankura	295	279	2274	345
15.	Midnapur	401	376	2104	478
16.	Puruliya	256	237	2406	296
	Jharkhand	165	158	1565	216

Sources: 1. Census of India 1971, General Population Tables.
2. Census of India 1981, Provisional Population Totals.

JHARKHAND

DENSITY OF POPULATION

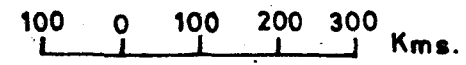
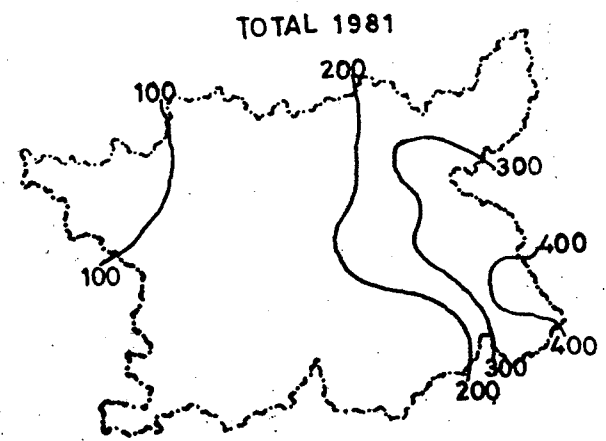
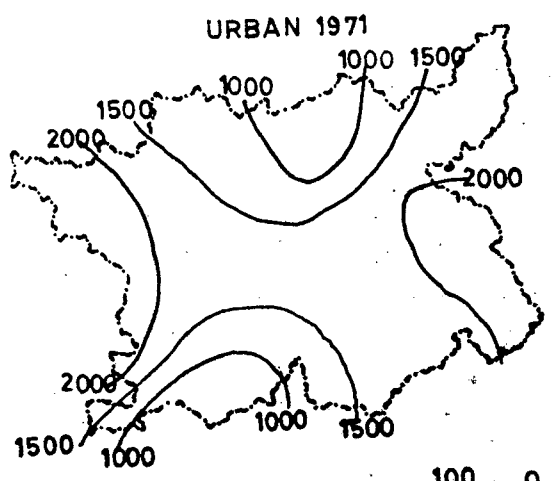
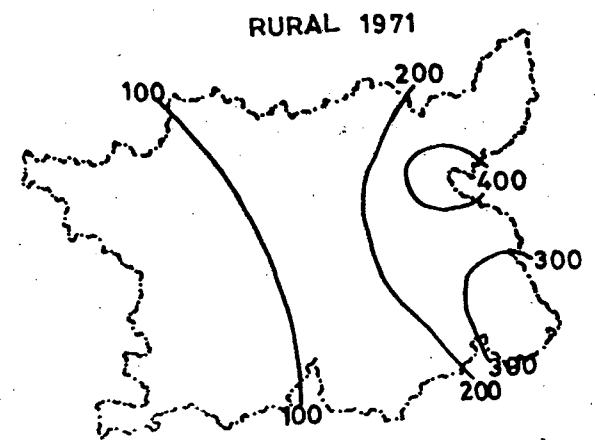
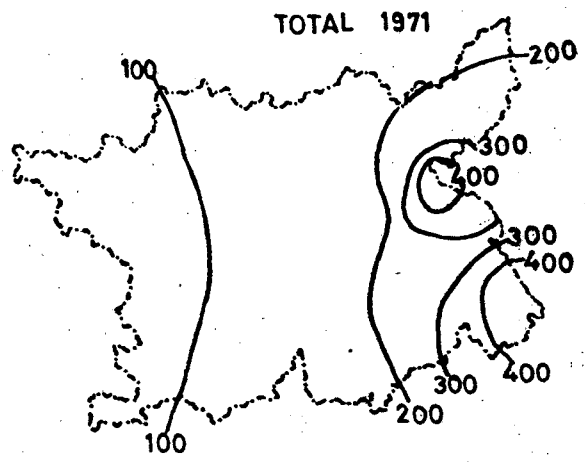


Fig. 46

4.8.1 General Density

General density pattern has been classified into five categories that is very high, high, medium, low and very low (fig. 4.4). Very high density is above 450 persons per square kilometre in both census years. Dhanbad is the only district which had 490 persons per square kilometre in 1971. This is mainly due to its large industrial capacity which is mentioned earlier. Ancillary and allied industries are the main sources to give employment to local population and also the people who comes from the outside. During 1971-81 Dhanbad and Midnapur accounted for 702 and 428 persons per square kilometre in this category. High density category ranges from 350 to 450 persons per square kilometre but is comprised of only one district in both the censuses. Midnapur with 401 persons per square kilometre was under this category in 1971 and Bankura joined this group in 1981. Both the districts of West Bengal are highly developed in industries and agriculture.

The third category is the category having medium density of 250 to 350 persons per square kilometre. Bankura and Puruliya were the two districts of West Bengal in this category. In 1981 Puruliya remained in this category while two new districts such as Santhal Pargana and Giridih have

also joined. South Santhal Pargana is industrially developed area which is a part of Damodar valley industrial belt. Minerals like coal in south of Santhal Parganas, Mica in Giridia are the main raw materials for industries.

Santhal Pargana, Hazaribagh and Singhbhum were the three districts in low density category ranging from 250 to 150 persons per square kilometre in 1971. In 1981 three more districts such as Mayurbhanj, Palamau and Ranchi joined this category. These districts comprise of predominantly rural population. Urban population are increasing in small and medium size of towns. People immigrated from north Bihar and eastern Uttar Pradesh are also engaged in industries and mines. A large part of these districts has very low density of population particularly in Hazaribagh, Palamau and Mayurbhanj districts because hilly and interior places are not suitable for human settlement.

The districts in Jharkhand having very low density of less than 150 persons per square kilometre are Palamau, Ranchi, Surguja, Raigarh, Sambalpur, Sundergarh and Keonjhar in 1971 and 1981 respectively. Palamau, Ranchi and Mayurbhanj have shifted in the low category in 1981.

4.8.2 Rural-Urban Density Pattern 1971

Jharkhand is a region with rural based economy. There is conspicuous differences in rural-urban density of population in the region. The rural density is very low while urban density is very high. This is simply because some of the pockets in the region are highly industrialised.

The districts which are less industrialized have very high density of population in comparison to highly industrialized districts. For example, less industrialized districts like Santhal Pargana, Palamau, Bankura and Puruliya accounts for more than 1,500 persons per square kilometre while on the other hand industrialized districts like Hazaribagh, Ranchi, Dhanbad, Singhbhum, Sambalpur and Mayurbhanj have relatively low density.

4.8.3 Rural Density

Rural density pattern have been divided into five categories, i.e. very high, high, medium, low and very low. Midnapur district comes in the first category of very high density having 376 persons per square kilometre. Dhanbad and Bankura districts, though arcwise very small but are highly industrialized districts in the region. They fall in the second category. It is remarkable that

total geographical area of the Dhanbad district is covered with mineral ore and industries and transport network around the small towns and urban places. Therefore much differences between rural and urban areas do not exist (fig. 4.4).

Santhal Pargana and Puruliya are in the third category and ranges from 150 to 250 persons per square kilometre. Palamau, Hazaribagh, Ranchi, Singhbhum, Keonjhar and Mayurbhanj are the six districts which come under low (fourth) category. Hazaribagh with 149 persons per kilometre is the most densely populated in this category. Surguja, Raigarh, Sambalpur and Sundargarh have less than 100 persons per square kilometre.

4.8.4 Urban Density

It is obvious from the Table 4.3 that there is a high variation in density within the district. Puruliya has 2406 persons per square kilometre which is the highest and Keonjhar is lowest with 720 persons per square kilometre in the region. The urban density pattern is divided into four categories such as high, medium, low and very low. Singhbhum, Surguja, Raigarh, Bankura, Midnapur and Puruliya are the six districts in the first category. Except Singhbhum other districts are relatively less

developed but has vast rural areas. Santhal Pargana, Ranchi, Dhanbad and Mayurbhanj comes in the second category. Dhanbad and Ranchi have 43.51 and 13.67 per cent of urban population to total population of the districts respectively. But Santhal Pargana and Mayurbhanj account for only 5.76 and 2.80 per cent urban population of the district.

Palamu and Sundergarh are classified as low density district ranging from 1500 to 1000 persons per square kilometre. Sundergarh shares 23.30 per cent of urban population. It seems that vast area of this district has been covered by several urban centres. Hazaribagh, Sambalpur and Keonjhar comes in the last category below the 1,000 persons per square kilometre.

4.9 GROWTH OF POPULATION

The total population of Jharkhand in 1961 was 25.26 million consisting of 12.56 million males and 12.40 million females while rural and urban population was computed as 22.96 million and 2.29 million respectively during the same period. The total figure has changed in 1971 census year. Total population in this year was registered as 31.34 million in which 16.03 million population was male and 15.30 million female. Table 4.4 presents variation of population and rural-urban growth rate as well as rural urban ratio.

Table 4.4

JHARKHAND : POPULATION, VARIATION, GROWTH RATE AND RURAL-URBAN RATIO
1961-71 - 1971-81

Sl. No.	Population, Variation and Rural Urban Ratio	Total	1961-71			1971-81		
			Persons	Male	Female	Persons	Male	Female
1.	Total population	T	31,340,808	16,032,988	15,307,820	37,896,814	19,401,074	18,495,740
		R	27,575,188	13,921,032	13,654,156	32,168,472	16,273,986	15,894,986
		U	3,765,620	2,111,956	1,653,664	5,728,342	3,127,588	2,600,754
2.	Decade variation	T	6,075,310	3,176,888	2,898,422	6,556,006	3,368,086	3,187,920
		R	4,607,148	2,349,953	2,257,195	4,593,284	2,352,954	2,240,830
		U	1,468,162	808,301	659,861	1,962,722	1,015,632	947,090
3.	Percentage growth rate of population	T	24.04	24.32	17.59	20.91	21.38	26.74
		R	20.07	20.30	19.36	16.86	16.90	16.84
		U	63.90	62.00	66.39	52.12	48.08	57.27
4.	Rural urban ratio	T	100.00	51.15	48.84	100.00	51.19	48.80
		R	87.98	50.48	49.51	84.88	50.58	49.41
		U	12.02	56.08	43.91	15.22	54.59	45.40

Source: 1. Census of India 1971, General Population Tables.
2. Census of India 1981, Provisional Population Totals.

The table shows that the growth of population till 1971 registered upward trend. In 1981 it shows slightly downward. During 1961-71 migration was relatively more because of job opportunity for skilled and unskilled workers in the region. A large number of workers got employment in mines who came from north Bihar, eastern Uttar Pradesh, Orissa and West Bengal. Many projects and plants were set up during this period in Dhanbad, Singhbhum, Ranchi and in Hazaribagh districts of Chotanagpur region. Multi-purpose projects like Hirakund, Damodar valley corporation and Mandiva project were also started during the same period in Sambalpur, Hazaribagh-Giridih, Dhanbad-Puruliya and Singhbhum respectively. (During the decade 1981 more local population (tribal people) were provided with job as a result of the policy of the government. Jharkhand movement was an important factor that checked migration of population and their penetration in the region.)

Growth rate in 1961-71 decade was 24.04 per cent which is 3.18 per cent more than the growth rate of 1971-81 decade. Growth of rural and urban population of the region was 20.07 and 63.90 per cent respectively in 1971 but in 1981 it accounts for only 16.86 and 52.12 per cent in rural and urban stream. Male participation in the growth of population is also accompanied by the nature of

rural-urban growth pattern 1981. Female growth rate is 26.74 which is more than 1961-71 because of more job-opportunity in urban areas in 1981. Infrastructural facilities and direct productive activities like transport communication irrigation education, marketing etc. has assisted to better living condition of middle class family in the region.

4.9.1 Districtwise Growth of Population

The data given in appendix III reveals the district-wise growth rate of urban and rural population as well as male and female population both in 1961-71 and 1971-81 decades in the region. Three following characteristics of growth rate was observed in the region. The increase in population in both the decades has been either very fast or very slow in urban areas. Generally male growth rate is higher than female except in Surguja and Sundargarh districts where female growth rate is higher than males during 1971. In 1981, Hazaribagh, Singhbhum, Koonjhar, Mayurbhanj, Bankura and Midnapur are the several districts where female growth rate is higher than male. It is notable that all the above districts are industrially highly developed. The reasons are the settlement of the workers and their family in urban centres. Availability of facilities of modern living mainly in urban centres

have played a very important role in attracting more and more population from surrounding rural areas.

There has been steady growth of population in every respect i.e. rural and urban, as well as male and female. Dhanbad district is the only exception where rural population is recorded minus growth i.e. -4.64 per cent in 1971. In the case of male and female growth, in this year, the minus growth of males is higher than females. This was due to large influx of workers from rural areas to urban industrial places. Very high rate of urban stream both in male and female population shows a sign of development. In rural population, growth rate of males is higher than the females except in Hazaribagh, Dhanbad, Surguja and Sundargarh districts where female growth rate is recorded higher than the males in 1971. In 1981 Palamau, Hazaribagh, Ranchi, Dhanbad, Raigarh, Keonjhar, Mayurbhanj, Bankura and Midnapur are nine districts where female growth rate is slightly higher than males. In urban areas of Dhanbad, Surguja and Keonjhar districts, the growth rate is more than 100 per cent. Bankura district of West Bengal is the only district where growth rate is less than 25 per cent as recorded in 1971. Mayurbhanj records an increase of 126.5 per cent growth rate in 1981.

4.10 RURAL URBAN RATIO

Rural-urban ratio of population indicate the proportion of population in different streams in a given time. It also shows the percentage growth of population in rural as well as urban areas in both male and female stream. Through the table 4.4, it is clear that in 1971 the ratio between male and female stream has a difference of only 2.31 per cent. In 1981 also it has same pattern except an increase of only 0.08 per cent in comparison to last census year.

In the case of rural urban distribution there are more differences. Data shows that urban population in Jharkhand was only 12.02 per cent and rest 87.98 per cent population were living in rural areas in 1971. In 1981 this proportion has increased and 6.30 per cent extra population were added in this year. Now 15.22 per cent urbanization has been recorded in this year.

4.11 SEX COMPOSITION

The sex ratio of Jharkhand was recorded 913 females per thousand male in 1971 as against the national average of 930 and it increased to 950 in 1981. It seems that living conditions has improved. It also indicate the partially negative improvement in female marital rate. The disparity between the rural urban sex ratio is more.

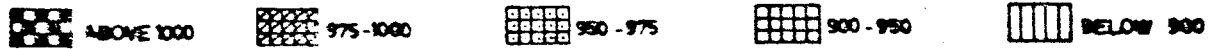
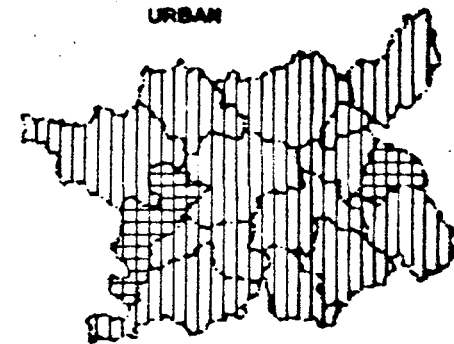
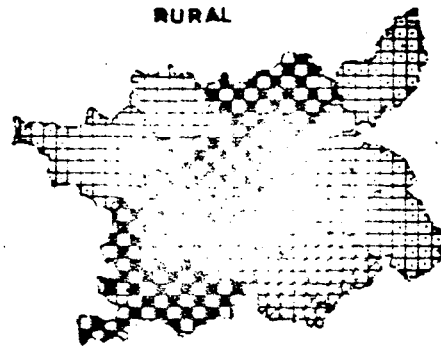
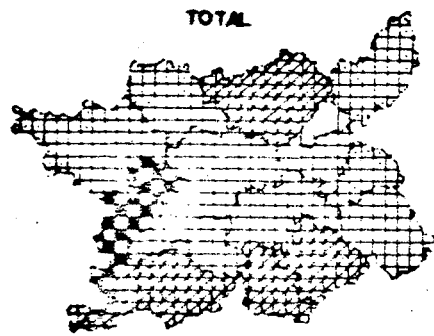
Despite, of under-counting of females in the census, not much difference in sex ratio is observed at birth. Most significant factor that explains the widening paucity of females is a long period of our existing social system which neglects the equal status of women in the society.

4.11.1 General Sex-Ration 1971

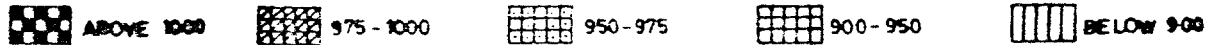
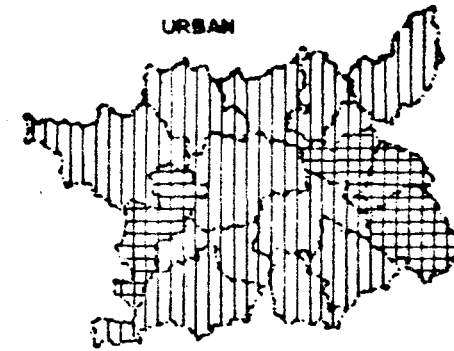
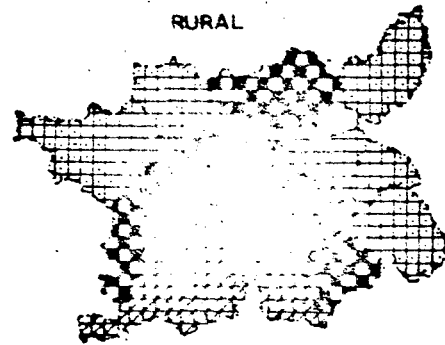
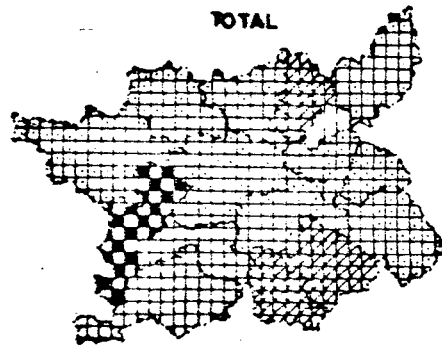
In Jharkhand, irregularities in sex ratio has been noticed due to uneven development of human resources and rural urban distribution of male and female population. Topography, stages of industrial development, size of towns and social system in existing society, are some of the main factors which affects the sex-ratio. Jharkhand is not an exception of these factors. In 1971 Dhanbad district of Bihar was at the bottom in the series of sixteen districts. Raigarh with 1008 females per thousand males shows the highest sex ratio. On the other hand Dhanbad has 792 females per thousand males in 1971 because concentration of male population in Dhanbad district was mainly due to its industrialisation in take-off stage during this period. Growth rate of population in rural areas in the district during corresponding period shows the minus growth rate which has been described earlier. Rapid growth of male workers and labourers in the urban areas participating in industrial production complexes,

JHARKHAND

SEX RATIO 1971



SEX RATIO 1981



100 0 100 200 300 Kms

Fig. 46

shows a significant industrial development in 1961-71 decade. Ultimately it is found that minus growth of population of Dhanbad, was due to migration of male worker from rural areas to urban industrial centres.

Hazaribagh, Sambalpur, Keonjhar and Mayurbhanj comes in the high category of sex ratio. It is notable that all the above districts are basically tribal dominated areas where they share more than 50 per cent of the total population. The sex ratio is generally high among different tribal groups. The third category ranges from 950 to 975 females per thousand males. Santhal Pargana, Palamau, Ranchi, Surguja, Bankura and Puruliya fell within this category. Singhbhum, Sundargarh and Midnapur have been grouped in fourth category which ranges from 900 to 950 females per thousand of males (fig.4.5).

4.11.2 Rural Sex Ratio 1971

Rural sex ratio is high in every district than the average sex ratio of Jharkhand. Hazaribagh, Ranchi and Raigarh may be included in the first category i.e. above 1000 females per thousand males. While five are in the second category of 975 to 1000 females. Earlier it is mentioned that all these districts are developed and tribal dominated districts which may be the major contributing factor. Santhal Pargana, Palamau, Surguja,

Bankura, Midnapur and Puruliya are grouped in medium category. Again Dhanbad has very low (893) sex ratio under the last and fourth category.

4.11.3 Urban Sex Ratio 1971

Urban sex ratio is very low in all the districts so it cannot range from first to fourth category. Raigarh and Bankura comes under the low category. Remaining fourteen districts are in very low category having sex ratio below 900 females per thousand males.

4.11.4 General Sex Ratio 1981

There is no significant change in sex ratio in 1981 census year. It has been recorded an average sex ratio of 950, which is above the national average (935). It is clear from Table 4.5 that the distribution of these ratios are very uneven.

Santhal Pargana, Palamau, Hazaribagh, Ranchi, Surguja, Raigarh, Sambalpur, Sundargarh and Puruliya have been steadily declined from 1971. On the other hand Dhanbad, Singhbhum, Keonjhar, Mayurbhanj, Bankura and Midnapur are only six districts which show the increasing pattern of this ratio. Raigarh at the top in the series has declined to 1006 from 1008 in 1971. Giridih, Keonjhar and Mayurbhanj come in the second group and range from

Table 4.5

JHARKHAND : PATTERN OF SEX RATIO 1971-81

Sl. No.	Districts	1971			1981		
		Females Per Thousand Males			Females Per Thousand Males		
		Total	Rural	Urban	Total	Rural	Urban
1.	Santhal Pargana	959	967	829	958	967	848
2.	Palamau	963	970	842	958	965	837
3.	Giridih	-	-	-	977	1003	834
4.	Hazaribagh	979	1009	799	961	1000	768
5.	Ranchi	973	1001	815	966	1003	838
6.	Dhanbad	792	893	875	815	894	744
7.	Singhbhum	942	998	802	944	993	847
8.	Surguja	965	974	847	964	974	862
9.	Raigarh	1008	1015	901	1006	1016	901
10.	Sambalpur	977	995	849	976	991	879
11.	Sundargarh	942	993	790	933	989	815
12.	Keonjhar	977	988	839	984	999	869
13.	Mayurbhanj	987	991	840	990	1000	850
14.	Bankura	958	961	920	959	957	900
15.	Midnapur	945	952	865	965	967	943
16.	Puruliya	963	970	890	957	962	901
	Jharkhand	913	977	783	950	975	977

Source: 1. Census of India 1971, General Population Tables.

2. Census of India 1981, Provisional Population Totals.

975 to 1000. The third and medium category ranges from 950 to 975 having maximum number of districts. Santhal Pargana, Palamau, Hazaribagh, Ranchi, Surguja, Sambalpur, Bankura, Puruliya and Midnapur are the nine districts representing to this group. Only two districts Singhbhum and Sundergarh have 944 and 933 females per 1000 males respectively and, therefore, have been included in the fourth category. Dhanbad again occupies very low position.

4.11.5 Rural Sex Ratio 1981

Among the districts in rural areas the sex ratio is high in upper three categories i.e. very high, high and medium. Quite a few districts come in the remaining two categories. Except Dhanbad all other districts have high position (Table 4.5). Giridih, a new district which was not in existence in 1971 census, has 1003 females per thousand males. Districts in second category are Hazaribagh Ranchi, Raigarh, Mayurbhanj, Singhbhum, Sundergarh, Sambalpur and Keonjhar.

4.11.6 Urban Sex Ratio 1981

It has been described earlier that sex ratio of the region is just opposite of its rural sex ratio. All the three higher categories i.e. very high, high and medium do not have any district. Lower category has four

and lowest has twelve districts. Highest sex ratio in the whole series is 943 recorded by Midnapur. Dhanbad (744) again occupies the lowest position.

4.12 LITERACY

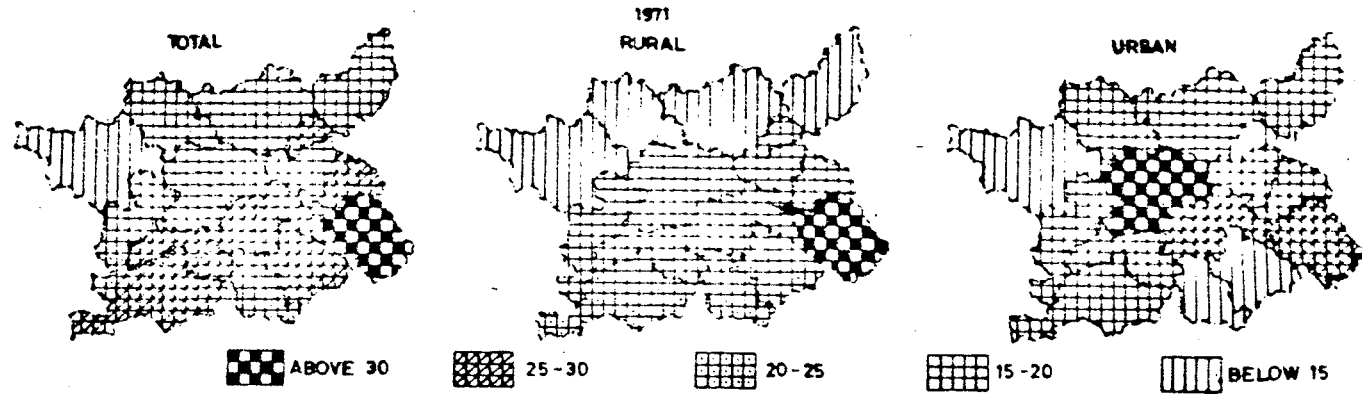
Educational development in Jharkhand is very low. Only in some industrial pockets it is satisfactory due to educational facilities available in these places. In 1981 Jharkhand accounts for only 31.08 per cent of population as literate, which is lower than the national average of 36.12 per cent. Apart from this there are large variations within the region in the distribution of literacy from district to district (Appendix IV).

4.12.1 Literacy Rate 1971

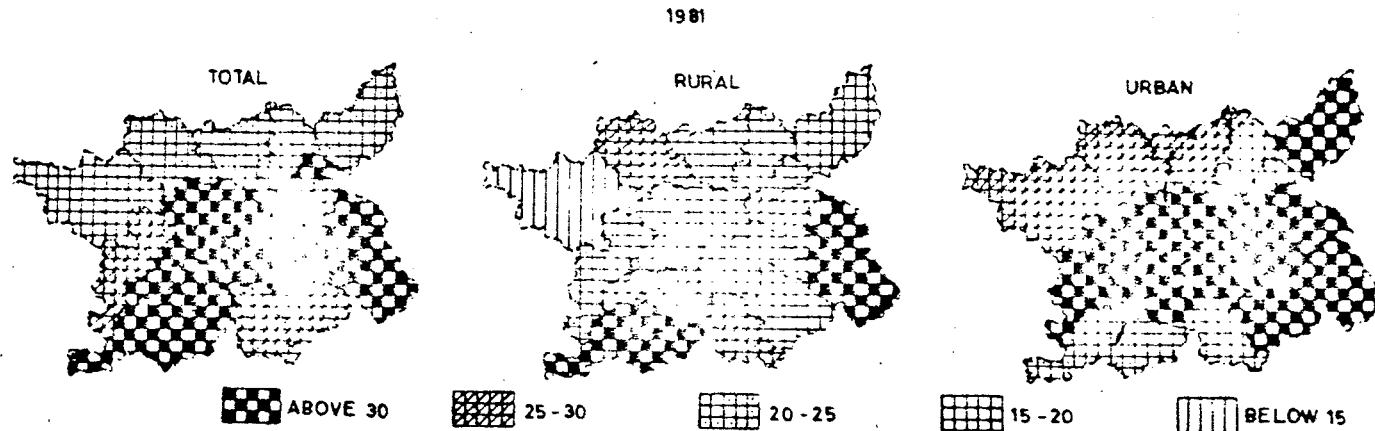
The variation of literacy rate among districts may be obvious from the Appendix IV. Highest literacy rate (32.87 per cent) is recorded by Midnapur district of West Bengal and comes under first category, while Gurguja district of Madhya Pradesh comes in the last category having literacy rate of 12.78 per cent. Santhal Pargana, Palamau and Hazaribagh of Chotanagpur are in the fourth category. These three districts have the literacy rate below 20 per cent. Dhanbad, Singhbhum, Sambalpur, Sundargarh, Mayurbhanj and Bankura come in the second category, having more than 25 per cent literacy. The

JHARKHAND

PERCENTAGE OF LITERATE POPULATION



PERCENTAGE OF LITERATE POPULATION



100 0 100 200 300 Kms.

Fig 4.6

third category which ranges from the 20 to 25 per cent constitutes four districts i.e., Ranchi, Raigarh, Keonjhar and Puruliya (fig. 4.6).

4.12.2 Rural Literacy Rate 1971

Midnapur again holds the first position in rural literacy percentage. From the appendix IV it is clear that there is much difference between total literacy and rural literacy in the respective districts. But in case of Midnapur district there is a slight variation. Second category i.e., 30 to 25 per cent does not have any district in it. Dhanbad, Sambalpur, Keonjhar and Mayurbhanj and Bankura falls under the third category. The maximum number of districts are in the fourth category in which Ranchi, Singhbhum, Raigarh, Sundargarh and Puruliya Surguja form the fifth category.

4.12.3 Urban Literacy Rate 1971

Pattern of urban literacy is almost reverse in comparison with rural literacy. Ranchi which was earlier in fourth category has shifted to first position which indicates the development of educational facilities in urban areas. In fact, Ranchi is considered to be the cultural capital of the Jharkhand region. Two universities and a number of educational as well as administrative institutions are located here. Percentage of tribal

literacy is also high in this district. Singhbhum and Midnapur come in the second group where the urban literate population is high. Maximum number of districts come under the third category of above 45 per cent. Santhal Pargana, Palamau, Raigarh, Sundargarh, Mayurbhanj and Puruliya come under this. Hazaribagh and Bankura are the two districts in the fourth category. Fifth and the final category has four districts namely Dhanbad, Surguja, Sambalpur and Keonjhar.

4.12.4 Literacy Rate 1981

After a decade (1971-81) there has been a significant change in the pattern of literacy rate in the region. The maximum number of districts have occupied first position in the series. In 1971 only two districts were placed in this category but in 1981 there are seven districts, namely, Dhanbad, Singhbhum, Sambalpur, Sundargarh, Bankura and Midnapur. In this category Bankura (42.82 per cent) has second highest percentage followed by Midnapur (36.52 per cent). These two districts were occupying first place in 1971. Surguja was at the bottom in 1971 but has increased considerably (16.22 per cent) and comes in the fourth category. There are not a single district in the fifth category in 1981. Second and third category has equal number of districts.

Midnapur (55.32) occupied the top position in male literacy rate in 1981 also. Dhanbad (52.26) has second position followed by Bankura (49.40) in the third position. Lowest male literacy is found in Surguja (24.57 per cent). Palamau comes second in this category. Female literacy rate also has changed in almost all districts during this period. But it does not follow the same pattern as it was experienced in case of total literacy rate. Bankura with 29.73 per cent is on the top followed by Sambalpur (24.19 per cent) and Dhanbad (23.28 per cent). Midnapur comes at the fourth position. Surguja (7.56 per cent) ranks lowest followed by Palamau (7.42 per cent).

4.12.5 Rural Literacy 1981

Sambalpur, Bankura and Midnapur come under the first category and range above 30 per cent. In 1971 Sambalpur and Bankura were in the third category. Second category recorded nil in 1971. In 1981, four new districts emerged, having more than 30 per cent literate population. The third category (20 to 25 per cent) has maximum number of districts viz., Giridih, Ranchi, Dhanbad, Singhbhum, Raigarh and Mayurbhanj. Santhal Pargana and Hazaribagh have been placed at fourth place. Surguja secured last position.

4.12.6 Urban Literacy 1981

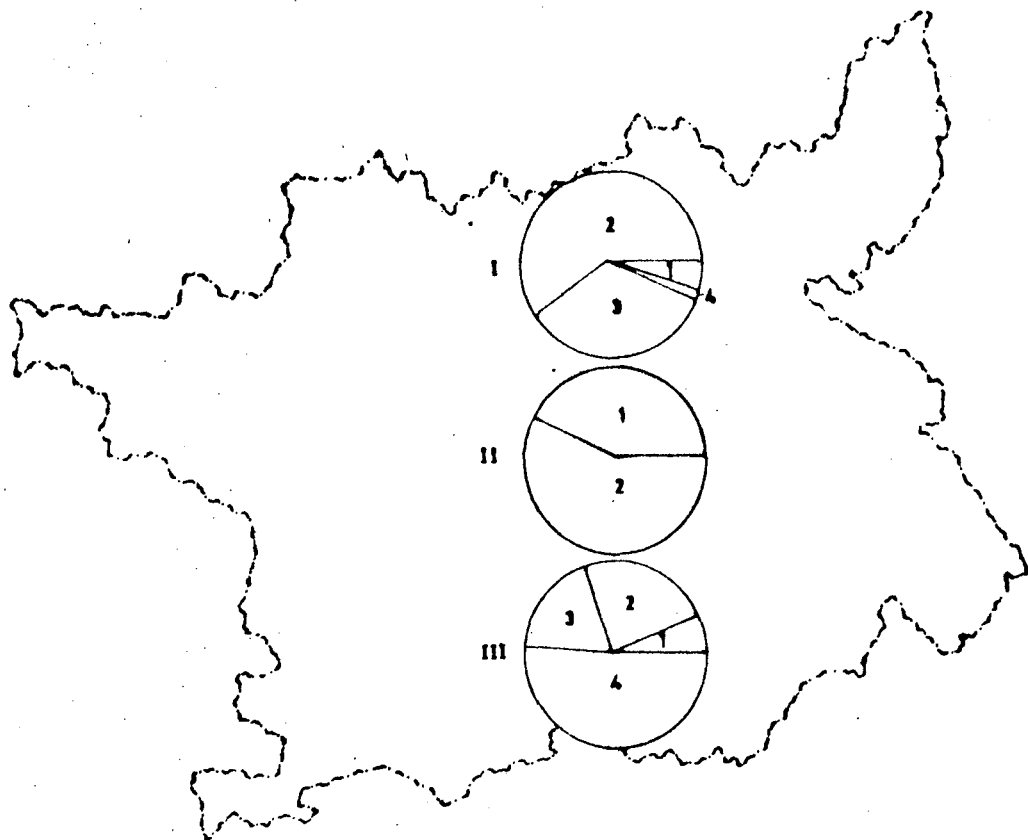
The maximum change has been recorded in comparison to 1971 urban literacy rate. Significant changes may be seen in the first and last category. In 1971 only Ranchi district was in this category but in 1981 maximum number of districts have joined this group. These are Santhal Pargana, Ranchi, Singhbhum, Raigarh, Sundargarh, Mayurbhanj, Bankura, Midnapur and Puruliya. Dhanbad, Surguja, Sambalpur and Keonjhar were in the last category in 1971. Second category includes Palamau, Hazaribagh, Dhanbad and Sambalpur districts with more than 50 per cent literacy rate. In the end it may be concluded that there has been overall increase in the proportion of literate persons particularly in urban areas.

C. OCCUPATIONAL STRUCTURE

In this section an attempt has been made to find out the economic activities of working population. Jharkhand is a region with rich natural resources and highly industrialized where several industrially clustered landscapes of Chotanagpur have national importance. In 1970 total working capacity of the region was 31.28 per cent to total population. The Appendix V shows that 68.72 per cent of population is dependent upon 9804600 persons as non-productive population. The working population invest its maximum working power in primary sector,

JHARKHAND

OCCUPATIONAL STRUCTURE 1971



I PRIMARY SECTOR

- 1 CULTIVATION
- 2 AGRICULTURAL LABOURERS
- 3 LIVESTOCK FORESTRY etc.
- 4 MINING AND QUARRYING

II SECONDARY SECTOR

- MANUFACTURING
- 1 HOUSEHOLD INDUSTRY
 - 2 OTHER THAN HOUSEHOLD INDUSTRY

III TERTIARY SECTOR

- 1 CONSTRUCTION
- 2 TRADE AND COMMERCE
- 3 TRANSPORT STORAGE etc.
- 4 OTHER SERVICES



Fig. 43

i.e., 82.81 per cent of total workforce. Tertiary activities are shared by 11.21 per cent of workers while secondary sector has only 6.48 per cent workers to total workers in the region (fig. 4.7).

The workers of the region have been divided into three broad categories as mentioned above. Every sector constitutes several activities in itself. Those activities are as follows:

4.13 PRIMARY SECTOR

In the primary sector agriculture is the main source of livelihood where more than 49.60 per cent of workers are engaged in it. As per Table 4.6 Sarguja shares 65.39 per cent of workers and Dhanbad only 23.22

Table 4.6

JHARKHAND: WORKERS IN PRIMARY SECTOR 1971

S.No.	Occupations	Total Workers (in '00)	% of primary sector workers to total workers	% of workers in different occupation to total workers engaged in primary sector
1.	Cultivation	48640	40.60	60.20
2.	Agricultural labourers	27476	28.02	34.12
3.	Livestock, forestry, fishing, hunting, plantation orchards and allied activities	1443	1.47	1.78
4.	Mining and quarrying	3150	3.21	3.90
	Total	80709	82.31	100.00

Source: Statistical Profile of Rural India 1971.

per cent workers to total workers of the districts in primary sector. Singhbhum also constitutes 40.91 per cent of workers in agriculture. Occupation as 'agricultural labourers' Dhanbad has only 11.86 per cent workers which is lowest in the region. 'Livestock, forestry and fishing' is the activity of rural tribal people but has the lowest percentage (1.47) of the occupational structure of the region. This activity has been much affected by the government's defforestation policy during 1961-71. Mayurbhanj is the only district where 2.38 per cent workers are engaged in this occupation. Mining and quarrying is the main occupation in some selected areas of some districts like Dhanbad (29.5 per cent), Hazaribagh (8.46 per cent) and Keonjhar (7.38 per cent) but it has low percentage (3.21) in occupational structure of the region and 3.90 per cent in the primary sector.

4.14 SECONDARY SECTOR

Participation in secondary sector is very low in the occupation^{ai} system of the Jharkhand. In some areas where the manufacturing activities as a secondary occupation is the chief source of livelihood of the people, they are either in household industries or in other than household industries. From Table 4.7 it is clear that the region has very little percentage (6.46) in the

secondary sector. With a small difference, household industries have 57.06 percentage of workers to total workers in the secondary sector.

Table 4.7

JHARKHAND: WORKERS IN SECONDARY SECTOR 1971

S.No.	Occupations	Total workers ('00)	% of secondary sector workers to total workers	% of workers in different occupation to total workers engaged in secondary sector
1.	Manufacturing, processing, servicing and repairing	2724	2.77	42.94
	(a) Household industry	2724	2.77	42.94
	(b) Other than household industry	3620	3.69	57.06
	Total	6344	6.46	100.00

Source: Statistical Profile of Rural India, 1971.

Sambalpur and Mayurbhanj both are the chief suppliers of workers in household industries which have 5.63 and 4.72 per cent workers to total workers in the districts respectively. In non-household industries Singhbhum and Dhanbad are the main districts which have serially 11.65 and 8.94 per cent workers to total workers.

4.15 TERTIARY SECTOR

In 1971 there were 1099300 workers engaged in different activities of tertiary sector. From Table 4.8

Table 4.8**JHARKHAND: WORKERS IN TERTIARY SECTOR 1971**

S.No.	Occupations	Total workers ('00)	% of tertiary sector workers to total workers	% of workers in different occupation to total workers engaged in tertiary sector
1.	Construction	685	0.68	6.22
2.	Trade and commerce	2615	2.65	23.78
3.	Transport, storage and communication	2007	2.49	18.25
4.	Other services	5686	5.39	51.75
	Total	10993	11.21	100.00

Source: Statistical Profile of Rural India, 1971.

it appears that 'trade and commerce' and 'other services' are the chief occupation in which workers have been engaged. These activities in tertiary sector have been largely developed in urban areas and centres. Other services includes a number of different services like education, administrative services, bank, postal services etc. These activities shared 51.75 per cent workers to total workers in tertiary sector. Activity like communication is negligible. Dhanbad has engaged its maximum working population in the all tertiary activities. Sundergarh (4.47 per cent) in trade and commerce, Singhbhum (3.12 per cent) in transport, storage and communication, Midnapur and Keonjhar (7.78 and 7.35 per cent respectively)

JHARKHAND

DEPENDENCY RATIO 1971

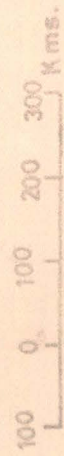
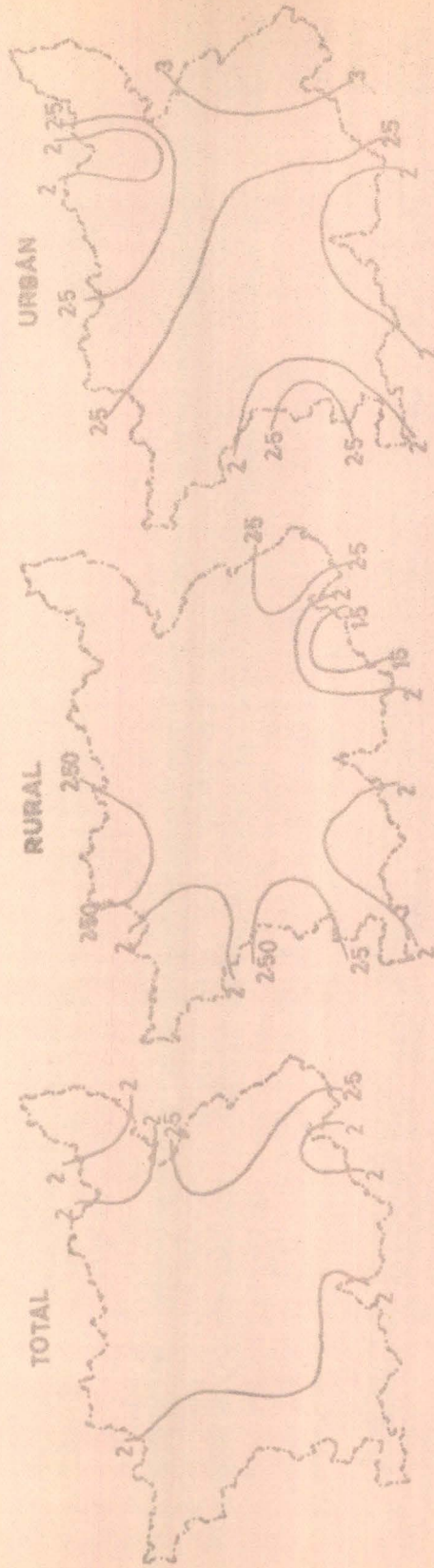


Fig. 4-6

are the districts where workers in other services are highest in tertiary sector.

4.16 DEPENDENCY RATIO

Dependency ratio is the proportion of non-productive population and productive population. Table 4.9 reveals that in 1971 nearly 2.20 persons were dependent on each worker. This figure in rural and urban areas were 2.28 and 1.95 respectively. The table also shows the districtwise variation in the total rural and urban dependency ratio. Only in Palamau district the dependency ratio shows an increasing trend from total to rural and urban respectively.

In some districts like Hazaribagh, Ranchi, Surguja, Sambalpur, Mayurbhanj, Bankura, Midnapur and Puruliya, the rural dependency ratio is less than its total as well as urban. On the other hand Dhanbad, Singhbhum, Raigarh, Sundargarh and Keonjhar have the high ratio in rural areas than the other. Dhanbad, Raigarh and Keonjhar have less than 2 ratio while Bankura and Puruliya have the highest more than 3 ratio in the urban areas (fig.4.8).

4.17 CORRELATION ANALYSIS

Correlation analysis is necessary to see the relationship of each variable to the other. It has been

Table 4.9JHARKHAND : DEPENDENCY RATIO 1971

Sl. No.	Districts	Total	Rural	Urban
1.	Santhal Pargana	2.05	2.02	2.82
2.	Palamau	2.10	2.64	2.76
3.	Hazaribagh	2.36	2.35	2.46
4.	Ranchi	2.14	2.06	2.74
5.	Dhanbad	1.96	2.15	1.74
6.	Singhbhum	2.01	2.61	2.44
7.	Gurguja	1.77	1.74	2.28
8.	Raigarh	1.67	2.58	1.04
9.	Sambalpur	1.83	1.78	2.17
10.	Sundargarh	2.18	2.22	2.02
11.	Keonjhar	2.26	2.29	1.86
12.	Mayurbhanj	1.99	1.98	2.67
13.	Bankura	2.53	2.49	3.05
14.	Midnapur	2.74	2.72	3.02
15.	Puruliya	2.68	2.16	2.90
	Jharkhand	2.20	2.28	1.95

Source: Statistical Profile of Rural India, 1971.

found that density of population is very highly correlated with percentage of literacy and workers engaged in secondary and tertiary sectors (Table 4.10). This explains that non-primary activities have given rise to high density of population.

Dependency ratio is very highly negatively correlated (at one per cent level of significant) with the percentage of literacy. It also is negatively correlated with workers engaged in primary, secondary and tertiary sector, but it is positively correlated with percentage of scheduled castes and scheduled tribes and with sex ratio. Percentage of scheduled caste is negatively correlated with percentage of literacy. It means percentage of literacy is very low in scheduled caste population. Same relationship is found with scheduled tribes population also. These variables are also negatively correlated with percentage of workers engaged in secondary and tertiary sectors.

Sex ratio is positively correlated with workers engaged in primary, secondary and tertiary sectors and negatively correlated with percentage of literate population. Percentage of literate population to total population is highly correlated with percentage of workers engaged in tertiary sector, but negatively correlated with

Table 4.10

JHARKHAND : CORRELATION MATRIX-DEMOGRAPHIC AND OCCUPATIONAL CHARACTERISTICS
1971

Variables	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉
X ₁ Density of population	1.00	0.22	-0.23	0.58 ⁿ	0.13	0.81 ⁿ	0.38 ⁿ	0.76 ⁿ	0.81 ⁿ
X ₂ Dependency ratio		1.00	0.12	0.62 ^o	0.26	-0.74 ⁿ	-0.74 ⁿ	-0.49	-0.45
X ₃ Percentage of scheduled caste to total population			1.00	0.09	0.07	0.04	0.62	-0.02	-0.03
X ₄ Percentage of scheduled tribes to total population				1.00	0.86	-0.08	0.68	-0.32	-0.23
X ₅ Sex ratio					1.00	-0.9 ⁿ	0.43 ⁿ	0.89 ⁿ	0.65 ⁿ
X ₆ Percentage of literate population to total population						1.00	-0.21	0.48	0.58
X ₇ Percentage of workers engaged in primary sector							1.00	0.86	0.87
X ₈ Percentage of workers engaged in secondary sector								1.00	0.53
X ₉ Percentage of workers engaged in tertiary sector									1.00
	<u>Value</u>	<u>Rate</u>	<u>Sign</u>						
Significant at 1 per cent level	2.75	0.448	"						
Significant at 2 per cent level	2.43	0.339	o						
Significant at 5 per cent level	2.01	0.248	+						
Significant at 10 per cent level	1.70	0.372	o						

the primary sector workers. This explains that wherever the concentration of primary sector workers are more the literacy is very low. However, in those areas, where the concentration of workers engaged in secondary and tertiary sector is more, the literacy is also high.

Percentage of workers engaged in primary sector is more in only those areas, where the density of population is high, dependency ratio is high and literacy is low. Again it has been observed that the workers dependent upon secondary and tertiary sector, is more in those areas where the density is very high but size of dependency ratio is small, literacy and concentration of scheduled castes are high. In those areas where the percentage of secondary workers is high, the percentage of tertiary workers also is high.

Chapter V

SETTLEMENT STRUCTURE

SIZE, TYPE, DISTRIBUTION, DENSITY AND FUNCTIONAL PATTERN

Home is the primary need of man and settlement is a broader aspect of home where anybody can establish permanent abode or way of life. "The term 'settlement' as the geographer uses it, appear to mean an establishment and an abode with an established way of life that has ceased to wander and stay for sometime with fixity and certainty in respect of time and people".¹ The settlement may be qualified with some human adjective to know the specific regional occupance.

Traces of palaeolithic and neolithic ages found in the region, are the sign of presence of pre-historic settlements dominated by tribal people like Mundas and orsons. A large number of "quartzite axes and spearheads have been discovered in the Jharia coalfields and a number of chert-flakes and knives have been found at Chaibasa and Chakradharpur. Stone implements and stone cells also have been found in various parts of the plateau particularly in the districts of Ranchi, Palamau, Singhbhum

1. Ayodhya Prasad, Chotanagpur: Geography of Rural Settlement, Ranchi, 1973, p.173.

and Dhanbad".² All these evidences also prove that the above dwelt in the region. Development of a settlement needs a long process of human occupance. Morphology, climate, economic condition and socio-political behaviour are some of the factors which has governed the development of settlement in the region.

An attempt has been made in this chapter to analyse the size, type, spatial pattern, density and functional characteristic of settlement in the region. This has been divided into two sections: rural settlement and urban settlement.

5.1 RURAL SETTLEMENT

5.1.1 Village

Village as the smallest wholistic unit of settlement has been used to analyse the rural settlement. In most of the rural areas it is known as 'gram' in terms of administrative unit. It is quite different from the revenue village which is conceived as a group of settlement unit allied with revenue collection. Sociologically village is defined as, "a territorially separate collection of homesteads which is regarded as district unit, and of size that its inhabitants can all be personally

2. M.G. Hallet, Bihar District Gazetteer - Ranchi, 1977, Patna, p.20.

acquainted."³ As a general rule, a village in India consists of a collection in one place of a number of houses occupied by persons living under a common constitution and sharing the lands attached to the village, which moreover are clearly demarcated from lands pertaining to other communities in the neighbourhoods.⁴

5.1.2 Size and Number of Rural Settlement

Rural settlements have been divided into seven categories according to size of population. Smallest size of rural settlement is less than 200 persons whereas 10 thousand is the maximum (Appendix VI). There were 61231 villages in Jharkhand in 1971. Maximum number of villages fall in the second category. Nearly 36.60 per cent of villages to total number of villages falls in this category which is the highest as compared to other size of villages. The last category has only two villages in two districts i.e., Santhal Pargana and Hazaribagh each having one village and accounts for 0.002 per cent villages to total number of villages.

3. Notes and Queries on Anthropology, London, 1960, p.64.

4. Asok Mitra, Report on House Type and Village Settlement Patterns in India, Census of India, 1961, Vol. I, Part (iii), p.83.

Midnapur and Santhal Pargana have maximum number of villages which is clear from Appendix VI. The 4991 villages account for 49.29 per cent of the total villages of the district in the first category in Santhal Pargana. Midnapur dominates all categories except the first, Dhanbad also has almost similar distribution of villages but ranks highest in the fourth category. Looking at the distribution of villages it can be said that Jharkhand is largely composed of small size of villages. The villeges having 500 persons accounted for about 70.0 per cent of the total villeges. Remaining 80 per cent of villeges are inhabited by 500 to 10000 persons.

5.1.3 Types of Rural Settlement

The types of settlement in Jharkhand ranges from perfect compact villeges to thoroughly dispersed habitations. Between these two extremes are a number of intermediary, types which represent numerous combinations of the tendencies of agglomeration and dispersal in varying proportion.⁵ These settlements within the small area of 30 to 60 square kilometers is likely to reorganize three or four sub-types of settlements. Different types of factors operate within these small areas and change the nature of terrain ultimately.

5. Ayodhya Prasad, op.cit., p.314.

TYPE OF RURAL SETTLEMENT

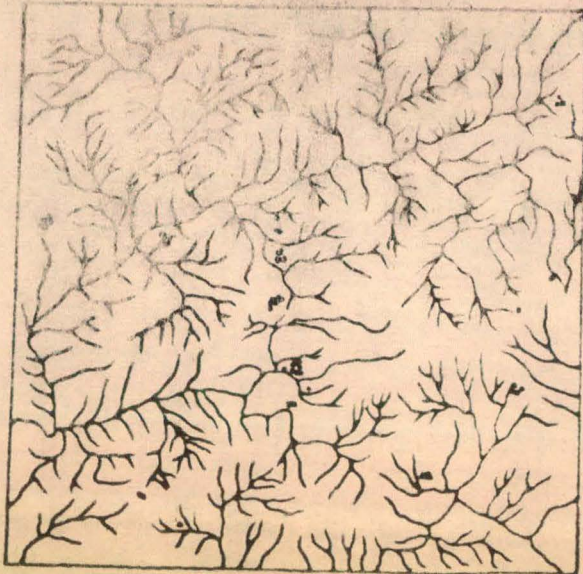
CLUSTERED SETTLEMENTS : SOUTH HOLLAND



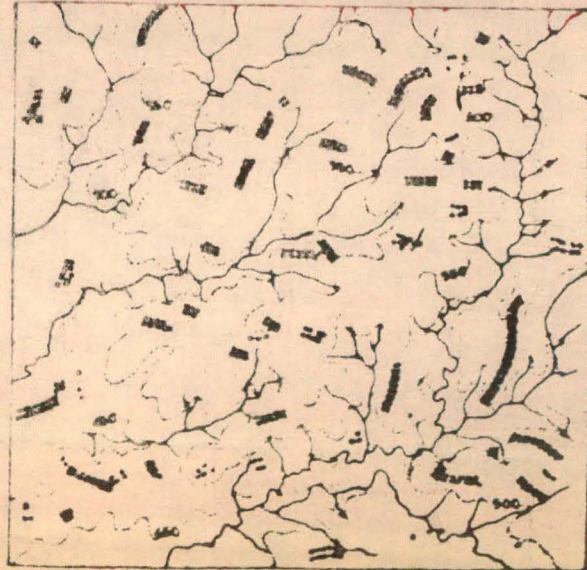
COMPACT SETTLEMENTS : BRASSER COALFIELD



DISPERSED SETTLEMENTS : BARBADOS FOREST



LINEAR SETTLEMENTS : SUWAKANERMA VALLEY



Between the compact-clustered and hamletted settlements three other types of settlement are (i) cluster-cum-hamlet; (ii) cluster-cum-hut; (iii) cluster-cum-hamlet-cum-hut types (fig. 5.1). Upper south Koel basin, Lower Sankh basin and Pat region have been distributed as a clustered settlement. Disperse settlement also may be divided into three sub-types (i) hamlet-cum-hut; (ii) open cluster; (iii) lines huts. These settlements are highly dispersed on the south scarp of Ranchi plateau, and Saranda forest has interlinked with chaibasa plain and south Koel valley where large number of tributaries originates in a narrow strip.

Apart from the above two types, the third and important type of settlement pattern is linear. Such are the settlements which occur in parts of the districts of Santhal Pargana and Singhbhum, Mayurbhanj, Keonjhar and Sundargarh districts. These settlements consist of parallel rows of huts on either side of a cart tract. All these are single lane villages which represent ideal cases of 'strassendorf'. The pattern of settlements in plains is just opposite to hilly and dissected terrain. Closely spaced and the clustered settlements (Jharia coal field and mica belt) are large in number (fig. 5.1). The pattern of distribution of settlements in Surguja highland and Son valley is different due to sandy patches.

5.1.4 Distribution of Rural Settlements

The distribution of rural settlement in Jharkhand is very uneven. Many factors (physical, socio-economic and political) have been responsible for such distribution. Till today a large part of region is covered by forests and difficult terrain. Industrialisation and changing pattern of economy have also influenced the habitation in the region.

Table 5.1 shows that about 30 per cent of population has in 70 per cent of villages. Thus the concentration of population is more in small villages i.e. below 500 population. Remaining 80 per cent villages are occupied by 70 per cent of population. This explains that the share of medium size of villages in the rural villages is high. The spatial distribution and concentration of rural settlement can be analysed by using the following statistical methods:

- (i) Nearest neighbour analysis
- (ii) Lorenz curve
- (iii) Gini's co-efficient.

5.1.5 Nearest Neighbour Analysis

This technique shows the degree of spatial distribution of observed settlement in any area. It helps in

Table 5.1

**JHARKHAND: PERCENTAGE DISTRIBUTION OF RURAL SETTLEMENTS
AND RURAL POPULATION BY SIZE CLASS OF SETTLEMENT 1971**

S.No.	Size class of villages	% of village to total villages	Cumulative % of villages	% of population to total population	Cumulative % of population
1.	below 200	33.29	33.29	6.29	6.29
2.	200-499	36.39	69.68	23.48	29.77
3.	500-999	19.86	89.54	29.50	59.27
4.	1000-1999	8.60	98.14	21.60	80.82
5.	2000-4999	1.73	99.87	16.75	97.62
6.	5000-9999	0.12	99.99	2.30	99.92
7.	above 10000	0.002	100.00	0.08	100.00

Source: Statistical Profile of Rural India
(District-wise), 1971.

distinguishing three kinds of basic distributions of points (settlements on an area) namely (i) uniform, (ii) random, and (iii) clustered.⁶ The formula used here reads as:

$$R = \frac{\bar{r}_a}{\bar{r}_e}$$

where R = 'R' values

\bar{r}_a = mean of observed distances in a given area

$$\bar{r}_e = \frac{1}{2/P}$$

P = Density of settlements

N = Number of settlements

A = Area of the region

6. Aslam Mahmood, Statistical Method in Geographical Studies, 1977, p.72.

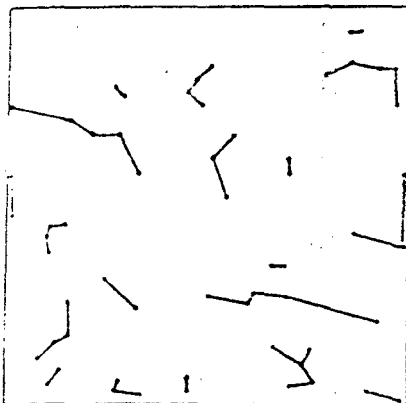
Table 5.2

JHARKHAND : 'R' VALUES

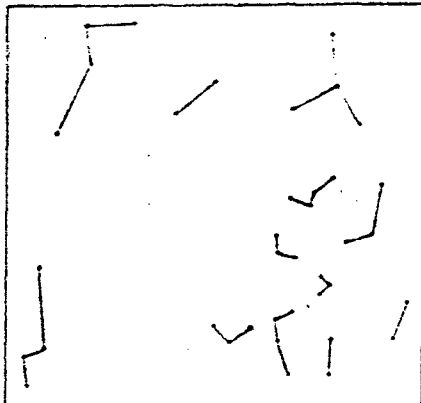
Sl. No.	Topo sheet no.	Region	Area in square kilometre	of actual distance in square kilometre	Number of observations	\bar{r}_a	\bar{r}_e	'R' values
1.	73 $\frac{B}{7}$	Upper south Koel basin	400	32.96	60	0.540	1.280	0.421
2.	64 $\frac{O}{14}$	Around Hirakunda reservoir	400	28.37	39	0.727	1.601	0.454
3.	73 $\frac{O}{10}$	Barhait valley Rajmahal hills	400	30.56	62	0.492	1.270	0.387
4.	72 $\frac{L}{8}$	Koderma plateau (Mica belt)	400	34.86	82	0.424	1.104	0.384
5.	73 $\frac{J}{2}$	Subernrekha valley	400	30.30	33	0.918	1.740	0.527
6.	73 $\frac{F}{5}$	Jhariacoal- field	400	34.96	131	0.66	0.873	0.304
7.	73 $\frac{B}{8}$	Pat region	400	18.04	22	0.820	2.132	0.384
8.	73 $\frac{6}{10}$	Ranchi plateau	400	29.50	46	0.64	1.474	0.434

NEAREST NEIGHBOUR DISTANCE

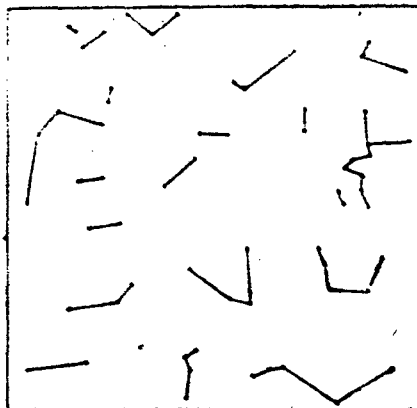
UPPER SOUTH HILL BASIN



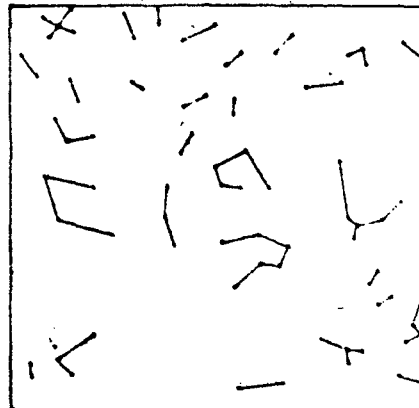
ARCHER HILL BASIN



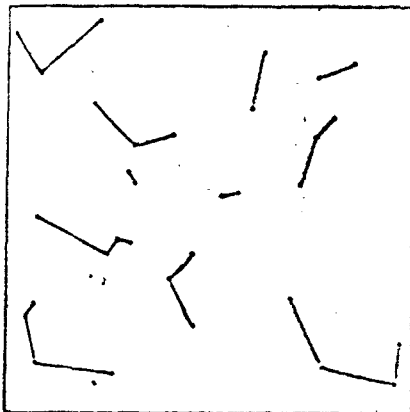
SECRET VALLEY



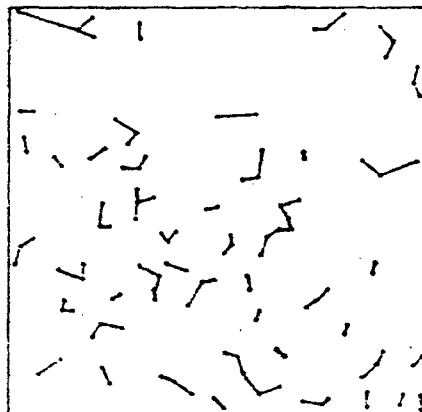
SECRET PLATEAU



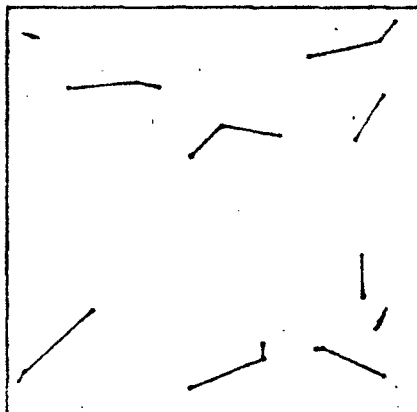
SECRET VALLEY



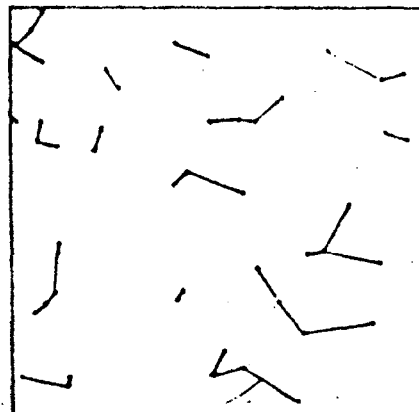
SECRET PLATEAU



SECRET VALLEY



SECRET PLATEAU



Index of distribution pattern

<u>'R' values</u>	<u>Pattern of distribution</u>
(i) 0.00	Clustered or compact
(ii) 0.50	Random
(iii) 1.50	Even or uniform

'R' values in Table 5.2 reveals the distributional pattern in different type of land surface and other physical environment which affects the development process of settlement in a region. 'R' values ranges from the 0.304 (in Jharia coal-field) to 0.527 (in Subernrekha valley). All the 'R' values of different types of physiography except Subernrekha valley indicates the clustered or compact distribution of settlement (Fig. 5.2). In Subernrekha it is random distribution because of its physiography.

It has been found that the tabulated value is less than calculated value and it shows that these regions have played a significant role in the distributional pattern of the rural settlements. The settlement do not have full choice to be developed at some places like Pat region and Subernrekha valley.

It has been found that in some places the distribution pattern of settlement is almost random while in other places, the distribution is from random to uniform. The chi square analysis has shown that this amount of

Table 5.3
CHI SQUARE TEST

S.No.	Region	Observed no. of settle- ments	Expected no. of settle- ments	$(O-E)^2$	$\frac{(O-E)^2}{E}$
1.	Upper south Koel basin	60	60	0	0
2.	Around Hirakund reser- voir	39	60	441	7.35
3.	Barhait valley (Rajmahal hill)	62	60	4	0.06
4.	Kedarma Plateau (Mica belt)	82	60	484	0.80
5.	Subernrekha valley	33	60	729	12.15
6.	Jharia coal field	131	60	5041	48.03
7.	Pat region	22	60	1440	24.00
8.	Ranchi Plateau	46	60	156	26.00
Total		475	480	8295	118.39

$$\frac{E - EO}{N} = \frac{E(O-E)^2}{E} = 118.39$$

Tabulated chi square value at 1 per cent = 68.20
Calculated chi square value at 1 per cent = 118.39

departure is affected by the various physio-cultural and environmental factors. These environments are not uniform over the space and so it has given rise to the variations in the amount of such departure from random distribution.

LORENZ CURVE

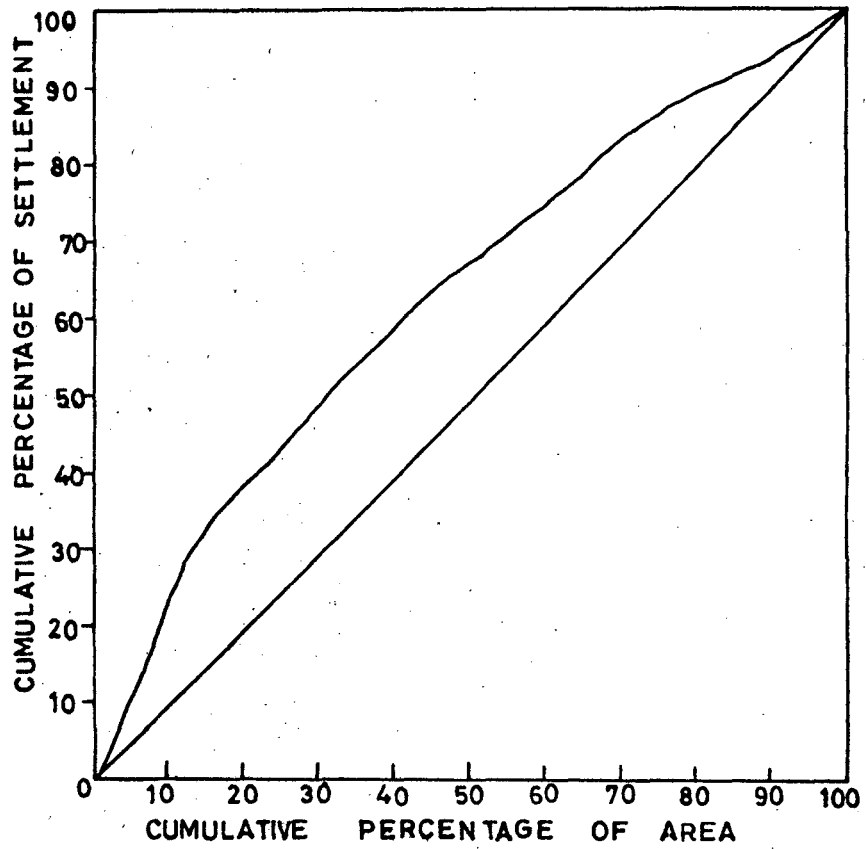


Fig. 5.3

5.1.6 Lorenz Curve

The Lorenz curve is like a convex shape in nature which shows the concentration of one attribute with respect to another. It basically deals with the cumulative percentage distribution of the variables at different points. This has been drawn with the help of the following attributes:

- (i) cumulative percentage of area to total area, and
- (ii) cumulative percentage of settlement to total settlements.

These attributes have been plotted on the x and y axis respectively with the help of Table 5.4. The different points found on both axis joined by smooth freehand curve. For comparison of distribution a diagonal line was also drawn on these axes (fig. 5.3). It shows the concentration of rural settlement with respect to area but not high concentration, means that the rural settlements are disperse in nature also. This is clear from the table. It also reveals that about 50 per cent of the settlements is concentrated in 30 per cent of area while the remaining 50 per cent are concentrated in 70 per cent of area in the region.

5.1.7 Gini's Co-Efficient

Gini's coefficient is the method of measurement of the overall concentration found in Lorenz curve in terms

Table 5.4

JHARKHAND: CONCENTRATION OF RURAL SETTLEMENT, 1971

Sl. No.	Districts	Area of district ('00 sq. km.)	No. of rural settlement in district	Density of rural settlement (per sq. km)	Percent- age of district total settlement	Percent- age of settlement to total settlement	Cumula- tive per- centage of area to total area	Cumula- tive per- centage of settle- ment to total settlement	$X_1 Y_1 + 1$	$X_1 + 1 Y_1$
					X	Y	X_1	Y_1		
1.	Midnapur	13724	10380	0.75	7.41	16.96	7.41	16.97	246.90	253.36
2.	Santhal Pargana	14129	10025	0.70	7.52	16.39	14.93	33.32	648.26	818.00
3.	Hazaribagh	18060	6131	0.33	9.62	10.10	24.55	43.42	1065.96	1376.84
4.	Singhbhum	13447	4351	0.32	7.16	7.12	31.71	50.54	1801.12	2095.89
5.	Ranchi	18331	3836	0.20	9.76	6.26	41.47	56.80	2606.80	2670.16
6.	Mayurbhanj	10412	3712	0.35	5.54	6.96	47.01	62.86	3234.48	3166.25
7.	Bankura	6081	3548	0.53	3.36	5.95	50.37	68.81	8744.50	4110.02
8.	Sambalpur	17570	3390	0.19	9.36	5.53	59.73	74.34	4440.32	4942.12
9.	Palamau	12677	3218	0.25	6.75	5.25	66.48	79.59	5621.54	5556.17
10.	Puruliya	6259	2459	0.39	3.33	4.97	69.81	84.56	6169.10	6909.39
11.	Surguja	22337	2396	0.10	11.90	3.81	81.71	88.37	7513.23	7827.81
12.	Raigarh	12410	2198	0.17	6.87	3.58	88.58	91.95	8433.70	8548.59
13.	Keonjhar	8240	2009	0.24	4.39	3.28	92.97	95.21	9097.11	9342.00
14.	Sundergarh	9675	1621	0.16	5.15	2.64	98.12	97.85	9812.00	9785.00
15.	Dhanbad	2994	1365	0.45	1.88	2.22	100.00	100.00	-	-
	Jharkhand	187646	61231	0.32	100.00	100.00	100.00	100.00	65335.02	67408.60

Source: Statistical Profile of Rural India (Districtwise), 1971.

of the area under the curve and the line of equal distribution to the area of the triangle formed by the x axis, the y axis and the line of equal distribution.⁷ This ratio varies from 0 to 1 in the case of uniform and highest concentration. If the rural settlement is uniformly distributed, the curve will fall on the line and the area of the triangle will be always $100 \times 100 \div 2 = 500$. The ratio in this case will be 0 (0 divided by 500). But in the case of high concentration, the area between the curve and the line will change but this ratio will not change.

This Gini's co-efficient ratio (G) may be computed by the following formula:

$$G = \frac{1}{100 \times 100} \sum_{i=1}^n x_i y_{i+1} - (x_i - y_i)$$

In Table 5.4 the x_i and y_i are already computed as cumulative percentage of each other. To know the values of $x_i x_{i+1}$ and $x_i + y_{i+1}$ the two columns are included furthermore. These values may be calculated by cross multiplication between x_i and y_i columns. For example to know the $x_i y_{i+1}$ and $x_i + y_i$ values for Midnapur district, the cross multiplication ($7.41 \times 33.32 = 246.90$ and $16.97 \times 14.93 = 253.36$) will be

7. Ibid., pp. 112-13.

worked out. All the computed values will then be arranged in the same manner. The last district i.e., Dhanbad will remain without such values. The total value of $x_i y_i + 1$ and $x_i + y_i$ are 65335.02 and 67408.60 respectively. Thus the ratio may be computed as:

$$G = \frac{1}{100 \times 100} / 65335.02 - 67408.601$$

$$G = \frac{1}{100 \times 100} / 2073.58$$

$$= 0.207$$

This 0.207 ratio shows that the concentration of rural settlement in the region is very low.

5.1.8 Density of Rural Settlements

The average density of rural settlements in Jharkhand is 0.32 villages per square kilometre (Table 5.4). Most of the districts fall below this average viz., Ranchi, Sambalpur, Palamau, Surguja, Rasgosh, Keonjhar and Sundargarh. These districts are relatively large in area but less in number of villages because of difficult terrain. Midnapur has the highest density (6.75 villages per square kilometre) while Surguja has the lowest (0.10 villages per square kilometre). Other higher density districts are Santhal Pargana and Dhanbad respectively. These densities show that the plain areas

are densely settled than the plateau and hilly region. All the district having density below the average, are mainly hilly and forested.*

5.1.9 Average Size of Household

Household means a group of persons living together and having their meals from a common kitchen. Size of household gives the idea of the size of family i.e., how many persons are living in one family under the control of the one head of the family. Table 5.5 shows the average size of household in the region. The average size of household is found in Jharkhand which accounts for 5.39 persons per household. Dhanbad has lowest size of household while Puruliya has 5.62 persons in an average size of family. Among rural areas Puruliya again shares the maximum and Sambalpur has the minimum (4.72) persons in a family.

5.1.10 Average Size of Villages

The average size of villages include 511 persons in Jharkhand. Dhanbad with 1074.29 tops (Table 5.5) the list because it has small area and high population pressure.

$$\text{Density of Rural Settlements} = \frac{\text{Total no. of villages in the region}}{\text{Total area of the region}}$$

Table 5.5JHARKHAND: AVERAGE SIZE OF HOUSEHOLD AND VILLAGES 1971

Sl. No.	Districts	Average Size of Household			Average Size of Villages
		Total	Rural	Urban	
1.	Santhal Pargana	5.39	5.36	5.30	317.87
2.	Palamau	5.55	5.53	5.79	467.51
3.	Hazaribagh	5.50	5.66	7.17	578.78
4.	Ranchi	5.38	5.39	5.34	680.77
5.	Dhanbad	4.69	5.25	4.11	1074.29
6.	Singhbhum	4.99	5.03	4.90	560.30
7.	Surguja	5.10	5.18	4.19	553.60
8.	Raigarh	5.22	5.25	4.75	581.75
9.	Sambalpur	4.71	4.72	4.64	541.77
10.	Sundergarh	5.08	5.41	4.24	635.87
11.	Keonjhar	5.50	5.58	4.58	475.16
12.	Mayurbhanj	5.48	5.49	5.41	386.16
13.	Bankura	5.58	5.57	5.63	572.44
14.	Midnapur	5.59	5.59	5.20	530.75
15.	Puruliya	5.62	5.65	5.25	651.84
	Jharkhand	5.39	5.42	5.04	511.84

Source: Census of India 1971, Series 4, Part II, General Population Tables.

Ranchi, Furuliya and Sundargarh also have above 600 persons per village. Whereas Santhal Pargana has the lowest number (318 persons) per village.*

5.2 URBAN SETTLEMENT

This section deals with the number of towns in the region. The meaning of urban area (urban unit) has been changing from time to time. Census of 1981 defines an urban area as follows:

- (a) All places with a municipality corporation cantonment board or notified town-area committee etc.
- (b) All other places which satisfy the following criteria:
 - (i) a minimum population of 5000;
 - (ii) at least 75 per cent of male working population engaged in non-agricultural pursuits; and
 - (iii) a density of population of at least 400 persons 1000 square kilometres (1000 persons per square mile).

Average size of household = $\frac{\text{Total population of the region}}{\text{Total number of households}}$

Average size of village = $\frac{\text{Total rural population of the region}}{\text{Total number of inhabited villages}}$

5.2.1 Town

Town as a unit of urban areas has been used for analysis of urban settlement. Town with population of one million and above generally referred to as cities. Thus town may have population below one million.

5.2.2 Size and Distribution of Towns

Population is a prime factor which divides the towns into six classes. Total town in Jharkhand in 1971 were 120 (Table 5.6) in which six towns were million plus and six class II towns. Most of the million plus towns are basically industrial centres. Class III, IV and V towns have been recorded as 101 i.e., more than 84 per cent of the total number of towns, while class I, II and VI have only 19 towns which comes to 16 per cent of the total towns in the region. Singhbhum, Midnapur, Hazaribagh, Ranchi and Santhal Pargana accounts for more than 50 per cent of towns to total number of towns.

In 1981 Census only eight new towns have been added (fig. 5.6) but the qualitative change has taken place in the character of some cities. Total number of towns in many districts were reduced and have been included as urban agglomeration. But the total population of individual towns has increased. These towns are

Table 5.6JHARKHAND: DISTRIBUTION OF TOWNS 1971-81

Sl. No.	Districts	No. of Town in Each Class 1971							No. of Towns in Each Class 1981						
		I	II	III	IV	V	VI	Total	I	II	III	IV	V	VI	Total
1.	Santhal Pargana	-	-	2	3	5	-	10	-	1	4	4	2	-	11
2.	Palamau	-	-	1	2	1	1	5	-	1	1	2	-	2	6
3.	Giridh	-	-	-	-	-	-	-	1	1	1	2	-	1	6
4.	Hazaribagh	-	2	5	6	-	-	13	-	3	2	2	-	-	7
5.	Ranchi	1	-	-	6	3	-	10	1	-	2	4	1	-	8
6.	Dhanbad	2	-	1	3	1	1	8	2	1	1	1	5	1	11
7.	Singhbhum	1	-	2	3	6	4	16	1	-	4	5	6	1	17
8.	Surguja	-	-	2	1	3	1	7	-	1	1	2	3	-	7
9.	Raigarh	-	-	1	-	3	-	4	-	1	-	3	2	-	6
10.	Sambalpur	-	1	3	1	4	-	9	1	2	1	2	1	-	7
11.	Sundergarh	1	-	2	1	-	-	4	1	-	3	-	-	-	4
12.	Keonjhar	-	-	1	2	1	-	4	-	-	4	-	1	1	6
13.	Mayurbhanj	-	-	1	1	-	-	2	-	1	-	2	1	-	4
14.	Bankura	-	1	1	1	2	-	5	-	1	1	2	1	-	5
15.	Midnapur	1	1	3	3	8	-	16	1	1	6	4	3	1	16
16.	Puruliya	-	1	-	5	1	-	7	-	1	1	3	2	-	7
	Jharkhand	6	6	25	38	38	7	120	8	15	32	38	28	7	128

Source: 1. Census of India 1971, Part II B (1), General Economic Table
2. Census of India 1981, Series-1, India Paper 30 f, 1981, Provisional Population Table.

Hazaribagh, Ranchi and Sambalpur. It is notable that Giridih as a district was not existing in 1971 included some towns of Hazaribagh after its information in 1981. Medium size towns in 1981 also share the maximum number of towns i.e., 98.

5.2.3 Concentration of Towns

It is clear from Table 5.7 that about 54.2 per cent population was living in only 11.20 per cent of towns in 1971. On the other hand 45.8 per cent population were concentrated in 88.8 per cent of towns (medium and small size of towns). Thus I and II class towns share the large proportion of the total population.

The table shows that according to 1981 census nearly 70 per cent of the population is concentrated in 18.0 per cent of the towns. In both the censuses the share of class I towns is very high in respect of population i.e., 43.05 in 1971 and 51.44 per cent in 1981. It is important to note that the percentage of towns has increased in respect of all categories of towns but in terms of population it shows a decline from class III to class VI.

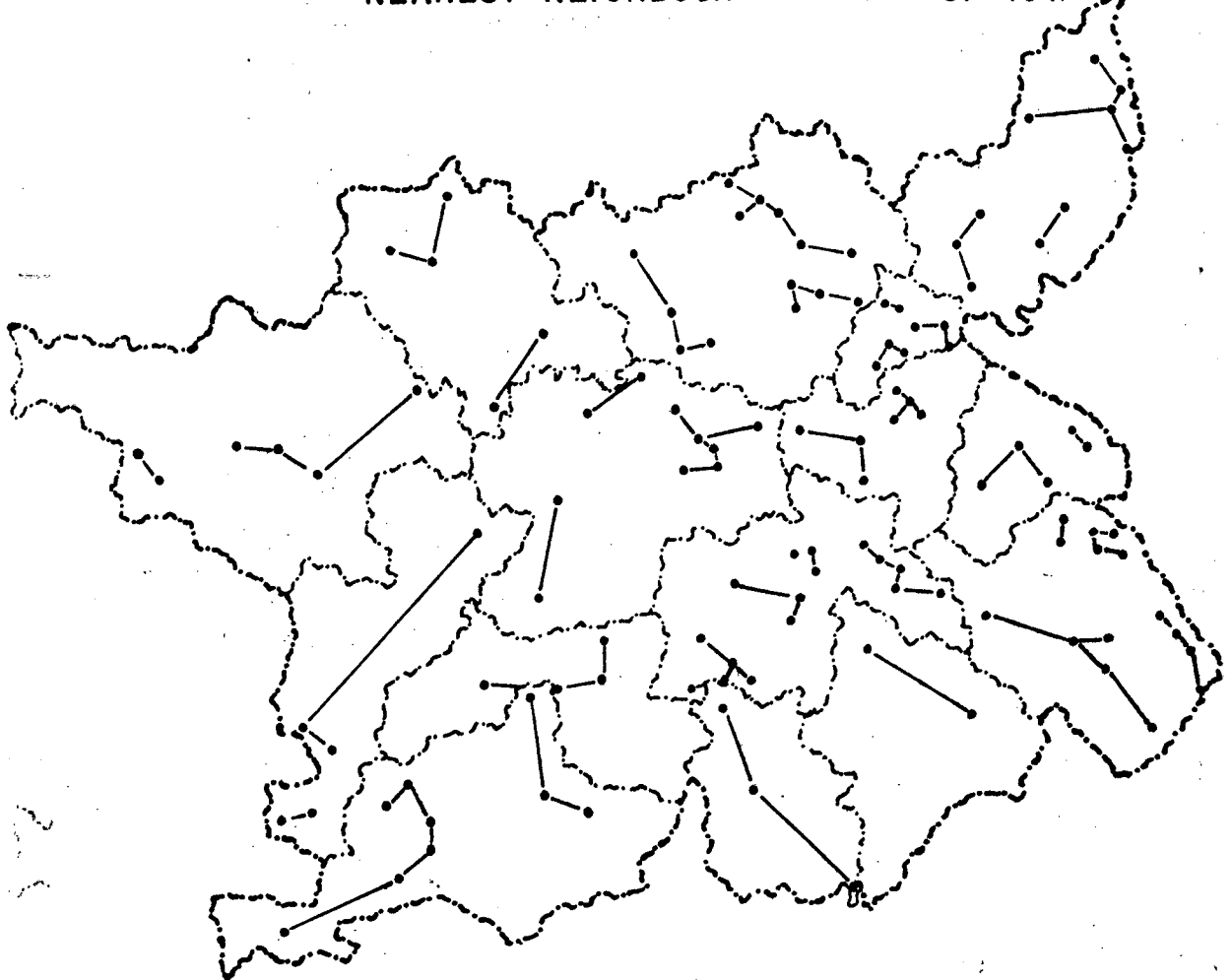
Table 5.7

JHARKHAND : PERCENTAGE DISTRIBUTION OF TOWNS AND URBAN POPULATION
BY SIZE CLASS OF TOWNS, 1971-81

Sl. Size class No. of towns	Percentage of Towns to Total Towns		Cumulative Percentage of Towns		Percentage of Population to Total Population		Cumulative Per- centage of Population	
	1971	1981	1971	1981	1971	1981	1971	1981
1. Above 100000	5.60	6.25	5.60	6.25	43.50	51.49	43.50	51.49
2. 100000-50000	5.60	11.71	11.2	17.96	10.70	17.80	54.20	69.25
3. 49000-20000	25.23	25.00	36.43	42.96	23.18	17.45	77.38	86.74
4. 19000-10000	28.97	29.68	65.40	72.64	15.29	9.25	92.67	95.95
5. 9999-5000	28.03	21.87	93.43	94.51	6.60	3.69	99.29	99.72
6. Below 5000	6.54	5.48	100.00	100.00	0.73	0.28	100.00	100.00

JHARKHAND

NEAREST NEIGHBOUR DISTANCE OF TOWNS,



50 0 50 100 150 Kms.

Fig. 54

5.2.4 Spatial Analysis of Towns

Spatial analysis is based on the nearest neighbour analysis method (fig. 5.4). The statistical technique applied is the same as used in the case of rural settlement. Hence the 'R' values have been calculated district-wise.

Table 5.8 shows that total towns of Jharkhand fall under the random distribution. 'R' values ranges from 0.089 to 0.215. 'R' values of Jharkhand itself has 0.129 which accounts for random distribution.

5.2.5 Economic Bases of Towns

The economic bases has been analysed on the basis of 1971 data. Jharkhand is the region where natural resources and number of activities are interdependent. The process of change in the character of towns have been found in the fast industrialization in this region. Basically some districts of Chotanagpur i.e., Dhanbad, Hazaribagh and Ranchi recently emerged as industrially developed. In these districts several towns have come up around the mining areas like coal, mica etc. Jharia, Rampur, Patratu, Chaitudih, Katras Baraghutu and Bermo are some examples where more than 70 per cent workers are in primary sector. Bokaro steel city and its agglomeration forms a largest urban centre with large

Table 5.8

JHARKHAND : 'R' VALUES OF TOWNS, 1971

Sl. No.	Districts	No. of towns	Area ('00 square kilometre)	of actual distance	\bar{ra}	\bar{re}	'R' values
1.	Santhal Pargana	10	14129	316	31.62	187.94	0.168
2.	Palamau	5	12677	196	39.25	251.73	0.155
3.	Hazaribagh	13	18060	286	22.00	186.34	0.118
4.	Ranchi	10	18331	235	23.51	214.00	0.109
5.	Dhanbad	8	2994	133	16.25	96.73	0.168
6.	Singhbhum	16	13447	208	13.00	144.95	0.089
7.	Burguja	7	22337	222	31.71	282.44	0.112
8.	Raigarh	4	12410	240	60.00	278.50	0.215
9.	Gambalpur	9	17570	334	37.11	220.91	0.167
10.	Sundargarh	4	9675	124	31.00	245.90	0.126
11.	Keonjhar	4	8240	149	36.00	226.93	0.158
12.	Mayurbhanj	2	10412	140	70.00	360.76	0.194
13.	Bankura	5	6081	126	25.28	174.33	0.144
14.	Midnapur	16	13724	250	15.62	146.43	0.106
15.	Puruliya	7	6259	123	17.57	149.51	0.117
	Jharkhand	120	187646	3082	25.68	197.71	0.129

number of industrial workers in manufacturing activities and associated industries. Kusbani, Ghatsila, Boamundi, and Gua are the towns in Singhbhum where maximum number of workers are in the mining and quarrying or in other activities in primary sector. On the other hand Jamshedpur, Jhinkapani, Jadugora, Sini and Kiniburu are the manufacturing centres where more than 50 per cent workers are engaged in secondary activities. Apart from this the whole south Bihar is found to be engaged in two main activities i.e., transport and communication. Kuresia and Jharkhand are the two towns in Surguja district where more than 85 per cent (89.63) and 86.86 per cent of workers respectively are engaged in the exploitation of natural resources while in the neighbouring districts of Raigarh, the maximum number of workers are employed in 'other services' of tertiary sector.

In the districts of Jharkhand region of Orissa no single activity is important except in Birmitrapur and Sundargarh where more than 55 per cent of workers are engaged in mining and quarrying. All other towns in these districts do not show any specialized work but fall in either secondary or tertiary sectors.

Due to the intensive agriculture and minor industrial development a number of towns have come up in the lower Ganga plain. These sixteen towns in Midnapur where maximum participation of workers in primary or tertiary sectors. Same is the case with Puruliya and Bankura.

5.2.6 Functional Classification of Towns

The urban settlements do not work out to be in the same proportion as other settlements in the same region. Some specialised services are done by different towns in different manner. Urban units as functional entities also differ from place to place within the town on the basis of its economic base. In Jharkhand all the 120 towns are of very complex nature in their functional character. Overall estimation of economic activities have been dealt in the earlier pages but these economic activities in combination by ranking is more revealing for a true picture of economic system than a simple estimation.

Harris,⁹ for the first time introduced the statistical method to find out the combination. He classified on this basis nearly 897 American cities into different

9. C.D. Harris, "A Functional Classification of Cities in the United States," Geographical Review, Vol.33, January 1943, pp.86-99.

category. He used the proportion of labour force in a particular occupation as the basic criteria for determining the intensity of its specialization. Nelson¹⁰ has used simplest and most widely understood of all statistical measures of variation. The degree of variation can thus be compared by the use of I S.D., II S.D. and III S.D.

Weaver¹¹ suggested another method to find out the combination by taking the actual percentage and theoretical base curve, Rafiullah¹² further modified Weaver's method for determining the combination.

5.2.7 Weaver's Method

Hence, Weaver's method has been used to classify the towns according to its function. Weaver used his method for the analysis of the combination of crops. His formula reads as:

$$S.D. = \sqrt{\frac{\sum (X_1 - \bar{X})^2}{N}}$$

where \bar{X} is the theoretical percentage X_1 is actual percentage and N is the number of towns.

-
10. H.J. Nelson, "A Service Classification of American Cities", Economic Geography, Vol.31, No.3, July 1956, pp.184-210. Also see, in Urban Research Methods ed. Jack P.Gibbs, 1966, pp.353-74.
 11. J.C. Weaver, "Crop Combination Region in the Middle East," Geographical Review, Vol.XLIV, No.2, April 1954, pp.173-200.
 12. S.M.Rafiullah, "A New Approach to Functional Classification of Towns," The Geographer, Vol.12, 1965, pp.40-53.

THEORETICAL BASE CURVE

S.No.	Functional Combination	Theoretical Percentage
1.	Mono functional combination	100.00
2.	Two functional combination	50.00
3.	Three functional combination	33.53
4.	Four functional combination	25.00
5.	Five functional combination	16.66
6.	Six functional combination	16.66
7.	Seven functional combination	14.29
8.	Eight functional combination	12.50
9.	Nine functional combination	11.11

The actual percentage of every function in a town does not appear same as the theoretical percentage in practice. So the actual percentage will be deducted from each theoretical base curve percentage of every combination. Second step of computation is d^2 , and the values of d^2 will be further divided by number of functions. The lowest value of the deviation among the different combinations of functions will thus be taken as the combination of that town. Table 5.9 presents the combination of functions for different districts.

In the table only six towns represents the mono combination function in Jharkhand. These towns are developed particularly in the mining areas of Dhanbad,

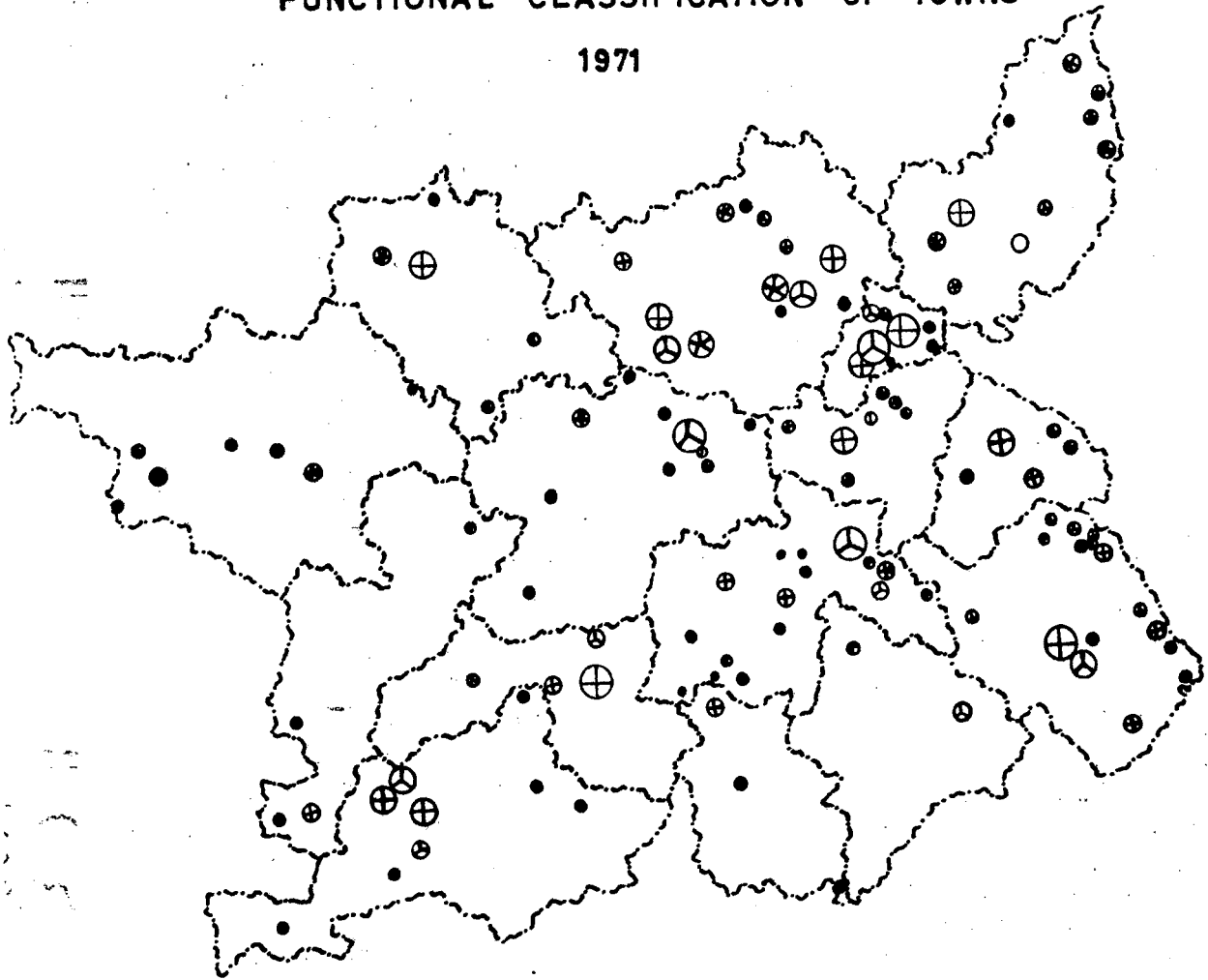
Table 5.9JHARKHAND: NO. OF TOWNS IN EACH COMBINATION OF
FUNCTIONS IN EACH DISTRICT 1971

Sl. No.	Districts	No. of Town in Each Combination						Total
		Mono	Two	Three	Four	Five	Six	
1.	Ganthal Pargana	-	-	1	2	4	3	10
2.	Palamau	-	-	2	2	1	-	5
3.	Hazaribagh	1	-	3	5	4	-	13
4.	Ranchi	1	1	1	3	4	-	10
5.	Dhanbad	2	-	3	2	1	-	8
6.	Singhbhum	-	1	3	6	6	-	16
7.	Surguja	2	1	-	1	3	-	7
8.	Raigarh	-	-	-	2	1	1	4
9.	Sambalpur	-	-	3	3	3	-	9
10.	Sundergarh	-	-	2	2	-	-	4
11.	Keonjhar	-	-	-	3	1	-	4
12.	Mayurbhanj	-	-	1	1	-	-	2
13.	Bankura	-	-	1	2	2	-	5
14.	Midnapur	-	-	8	7	1	-	16
15.	Puruliya	-	1	1	2	3	-	7
	Jharkhand	6	4	29	43	34	4	120

JHARKHAND

FUNCTIONAL CLASSIFICATION OF TOWNS

1971



CLASS OF TOWNS

- I
- II
- III
- IV
- V
- VI

FUNCTIONS

- MONO
- TWO
- ⊖ THREE
- ⊕ FOUR
- ⊗ FIVE
- ⊗ SIX

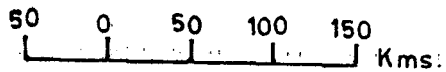


Fig. 55

Burguja, Hazaribagh and Ranchi (fig. 5.5). In two occupations combination only four towns come in the same area. Maximum number of (more than 38 per cent) towns fall under the Three, Four and Five occupation combination while 35.83 per cent of towns come under the four occupation combination. The numbers of towns in each combination according to the size class of towns have been given in Table 5.10.

Mono function is generally found in the small and medium size towns. According to Table 5.10 maximum number of towns (84.16 per cent) i.e., 101 fall under III, IV and V classes of towns. Baraghati (M), Chaitudih (M), Kurasia and Jharkhand (M) are mono-functional towns. All four towns have more than 30 per cent workers in mining and quarrying. But Kanke (O) and Maithan (O) have 'other services' as the mono function. Maithan is a big hydro-electric station under the Damodar valley corporation. In two combination function workers are mainly engaged in activities like 'other services' mining, transport and communication and cultivation.

Towns having three combination functions have large proportion in other services, cultivation, agricultural labourers and manufacturing industries. Apart from this, some towns have tertiary activities like

Table 5.10

**JHARKHAND : NUMBER OF TOWNS IN EACH COMBINATION OF
FUNCTIONS ACCORDING TO ITS SIZE OF CLASS, 1971**

Sl. No.	Size class of towns	Number of towns in each combination						Total
		Mono	Two	Three	Four	Five	Six	
1.	Above 100000	-	-	3	3	-	-	6
2.	100000-50000	-	-	2	4	-	-	6
3.	49000-20000	1	-	5	10	7	-	23
4.	19000-10000	3	-	9	9	15	1	37
5.	9999-5000	1	3	8	15	11	3	41
6.	Below 5000	1	1	2	2	1	-	7
	Jharkhand	6	4	29	43	34	4	120

Key of the Functional Classification

1. Cultivators	Cu
2. Agricultural labourers	A
3. Livestock, forestry and fishing etc.	L
4. Mining and quarrying	M
5. Manufacturing (household + other than household)	MF
6. Construction	C
7. Trade and commerce	T
8. Transport and communication	Tc
9. Other services	O

construction, trade and commerce and transport and communications. For example, Jharsuguda has FC, T, O, Bargarn T, C, O, Midnapur O, C, T and Kolaghat FC, Y, O. But town like Bokaro (steel city) also comes under three combinations C, MF, FC.

Four, Five and Six functions combination are also dominated by tertiary activities. Maximum number of workers are engaged in 'other services' like transport and communication as well as in trade and transport. Deoghar (O, T, M, Tc), Daltanjang (O, T, Mf, Tc), Giridih (T, O, Mf, M), Chaibasa (O, T, Mf, Tc), Chakulia (T, O, Tc, Ag), Barajmda (Tc, T, O, M), Mahendragarh (Tc, T, O, Mf), Raigarh (O, T, Mf, Tc), Sambalpur (O, T, Mf, Tc), Tanluk (O, T, Tc, Mf) and Puruliya (O, T, Mf, Tc) come in four functions combination; Sahibganj (Tc, T, O, C, Cu), Ambikapur (Tc, T, Mf, Cu, o), Balichak (O, Tc, T, Cu, Ag) and Arra (Tc, T, O, Cu, Ag) in five functions combination and Madhupur (T, Tc, Mf, o, Cu, Ag), Pakur (O, T, Ag, Mf, Tc, M) in six functions combination are some of the examples. It may be, therefore, concluded that most of the towns in each class has the combination of different functions of tertiary activities.

Chapter VI

ECONOMY

LANDUSE, AGRICULTURE, MINERALS AND INDUSTRIES

The study of economy of a region is necessary to understand the standard of living as well as means of livelihood of the population living there. However, Jharkhand has primarily an agriculture and forest based economy with some exception to certain industrialized districts where most of the working population is engaged in mining and industries. In spite of this, only one third of land area of the region is devoted to agriculture. As yet only about 20 per cent of the tribal population depends upon forests and forest produce. This is mainly due to high rate of migration of dikus which has created gap in the tribal economy. This may be one of the main causes of Jharkhand movement. Gradually the valuable forest resource is being depleted due to ruthless exploitation of forest by the private as well as the government agencies in the Chotanagpur region. In order to understand the economy it is worthwhile to know about the landuse pattern of the region.

6.1 LANDUSE PATTERN

The revenue department generally classify the land as (a) the use to which it is put and (b) the

JHARKHAND

GENERAL LANDUSE

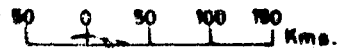
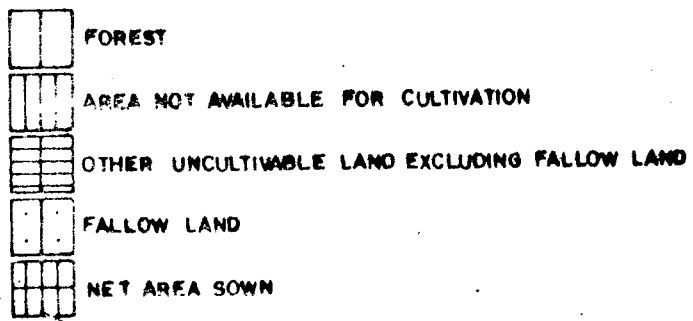
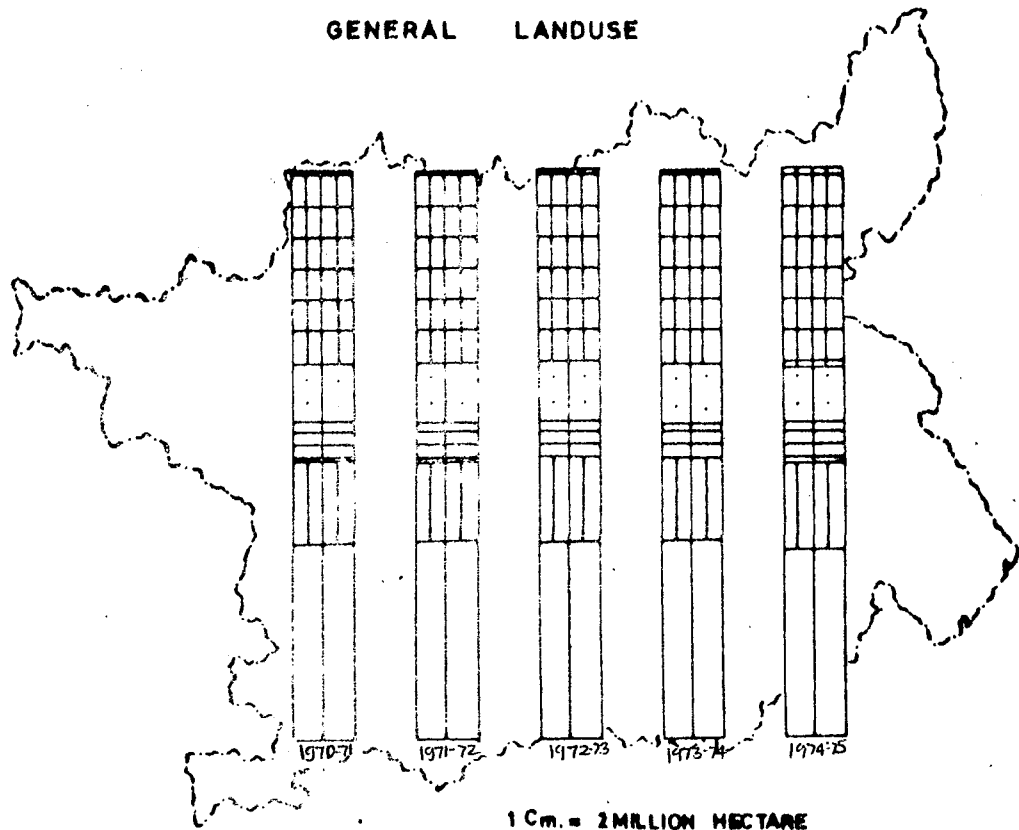


Fig. 6.1

productivity and yield of the land (fig. 6.1). As for use of the land it can be classified under various heads as given in subsequent paragraph. Out of 18.73 million hectares of land only 34.94 per cent (6.54 million hectares) was used for growing the various types of crops in 1970-71. This increased to 36.60 per cent in 1974-75 (Table 6.1). Forest cover on 30 to 34 per cent of the land has an important role in the economy of the region and shows very slow declination in its area. Area not available for cultivation accounted for 2.60 million hectare in 1970-71 and increased upto 2.76 million hectare (16.68 per cent) in 1974-75. 'Other cultivable land excluding follow land' increased from 1.29 million to 1.31 million hectare during this period. But on the other hand follow land showed a declining trend due to extensive cultivation.

6.1.1 Forests

In Jharkhand forest covers the vast area. It is more than 30 per cent of the total area of the region. Area under forests has declined by 1.13 per cent in 1972-73 and 2.66 per cent in 1974-75.

√The table 6.2 shows the percentage distribution of area under forests by districts in different years. It is clear from the table that the area under forest has declined

Table 6.1

JHARKHAND : LAND USE PATTERN

Sl. No. different uses	1970-71		1971-72		1972-73		1973-74		1974-75	
	Area	%	Area	%	Area	%	Area	%	Area	%
1. Forest	6314613	33.70	6314018	34.73	63009987	33.60	6327543	37.17	6003512	30.11
2. Area not available for cultivation	2603416	13.89	2421077	12.92	2008410	13.91	2660024	15.91	2763891	16.68
3. Other uncultivable land excluding fallow land	1296813	6.97	1296118	6.89	1296702	6.94	1102571	6.19	1312581	7.00
4. Fallow land	1977318	10.55	1977559	10.58	1977032	10.58	1894207	10.11	1801530	9.61
5. Net area sown	6541790	34.94	6539332	34.90	6541832	34.97	6749083	36.02	6852456	36.60
Total area	18733950	100.00	18733446	100.00	18733963	100.00	18733923	100.00	18733970	100.00

Source: Indian Agricultural Statistics, Vol. II, District-wise, 1977-78.

Table 6.2

JHARKHAND : AREA UNDER FOREST

Sl. No.	Districts	Percentage of Forested Area to Total Area				
		1970-71	1971-72	1972-73	1973-74	1974-75
1.	Santhal Pargana	10.75	9.73	9.86	9.43	9.36
2.	Palamau	48.04	44.70	44.92	43.94	43.01
3.	Hazaribagh	40.17	40.72	40.36	40.96	41.82
4.	Ranchi	23.54	22.14	24.09	23.57	23.76
5.	Dhanbad	8.37	8.42	8.08	8.42	8.25
6.	Singhbhum	29.06	24.64	24.32	25.30	24.58
7.	Surguja	54.64	54.22	54.00	52.30	54.29
8.	Raigarh	32.09	31.96	33.32	33.25	33.81
9.	Sambalpur	30.30	30.31	30.30	29.73	30.28
10.	Sundargarh	49.54	48.20	49.84	49.54	48.63
11.	Keonjhar	45.96	44.35	48.96	45.96	47.80
12.	Kayurbhanj	38.65	38.82	37.68	42.50	42.28
13.	Bankura	20.47	19.18	20.35	20.35	20.02
14.	Midnapur	12.64	12.62	12.68	12.64	12.67
15.	Puruliya	14.05	13.91	14.60	14.77	14.83
	Jharkhand	33.70	34.73	33.60	32.77	30.11

Source : Indian Agricultural Statistics, Vol. II,
District-wise, 1977-78.

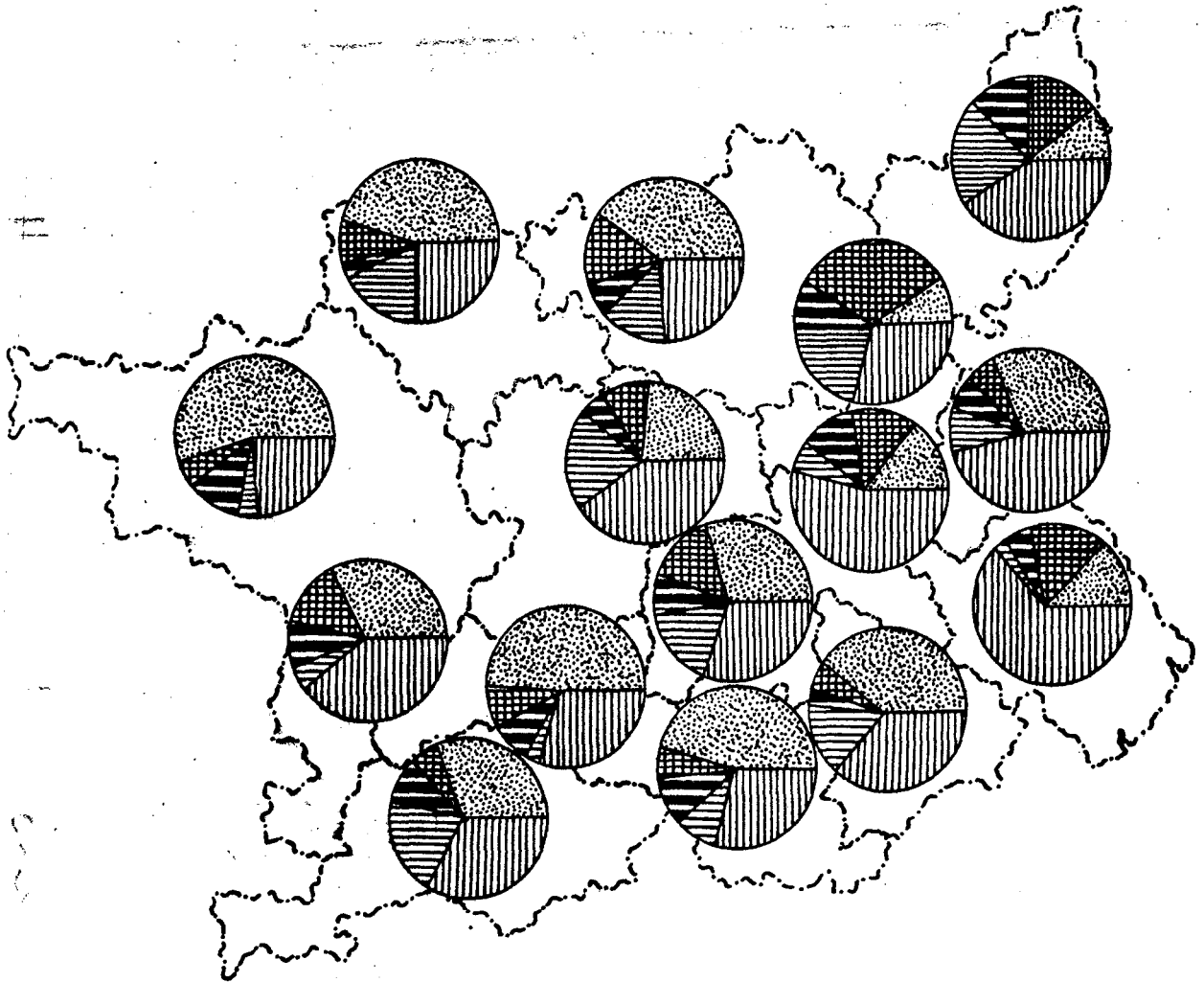
steadily in Santhal Pargana, Palamau, Dhanbad, Singhbhum, Surguja, Sundargarh and Bankura. Ranchi, Singhbhum and Dhanbad of the Chotanagpur contain relatively low percentage because large area has been put to non-agricultural uses such as mines, location of industries and settlements. Highest percentage has been recorded by Surguja (54.64), Sundargarh (49.84) in 1972-73 and Palamau (48.04) in 1970-71. Bankura, Midnapur and Puruliya of West Bengal have low percentage because of extensive as well as intensive agricultural practices in lower Ganga valley (fig. 6.2).






Forest types within the region varies from tropical moist deciduous to dry peninsular type. Moist deciduous forest predominates over two third of the area of the region, except Surguja, Hazaribagh, north Santhal Pargana, Palamau and West Giridih. These forest are found mainly on steep slopes and inaccessible parts of the plateau region.

Deciduous dry forest covers relatively small area in the north western part of Jharkhand. Some tidal and semi-evergreen forest are found in Midnapur coastal area. In all these forests the principal species are Sal, Asan, Kend, Piar, Sidha, Karam, Narra, Behora, Arjun, Palas, Teley, Salai, Mahua, Khair, Bamboo, Dhanta, Paisal, Gamhar, Karanj and several others of minor importance.

JHARKHAND

LANDUSE



-  FOREST
-  AREA NOT AVAILABLE FOR CULTIVATION
-  OTHER UNCULTIVABLE LAND EXCLUDING FALLOW LAND
-  FALLOW LAND
-  NET AREA SOWN

50 0 50 100 150 Kms.

Fig. 6.2

These species come from the part of both reserved and protected forests.

6.1.2 Land Not Available for Cultivation

Land under this category includes two sub-types as:

- (a) land put to non-agricultural uses,
- (b) barren and uncultivable land.

Settlements, mines, factories, road and railways, rivers, canals and water-bodies come in the non-agricultural uses. This category accounted for 2.60 million hectare land in 1970-71 which decreased to 0.97 per cent in 1971-72. The annual growth rate accounted from 0.77 per cent to 2.01 per cent during 1972-73 to 1974-75.

Area under this category in the districts are unevenly distributed (fig. 6.2). Dhanbad has high per cent (above 30) over time. It is notable that area under forest in Dhanbad recorded below 9 per cent. This is because of the development of mining and industries over a large area of the district. Nearly 228 coal mines have been recorded in this district in 1980. Mining and industries also has a significant role to play in Singhbhum and Hazaribagh districts. These two districts have more than 15 per cent of area under this category. Districts like Surguja and Bankura have less than 6 per

cent of the area of the district. Other districts as Mayurbhanj, Sambalpur, Palamau have very low percentage (5 to 9). But these percentages show the changing trend over time. Dhanbad has declined with 0.69 per cent as annual decrease in 1971-72 and 0.67 per cent in 1973-74. On the other hand Singhbhum has increased with 1.35 per cent in 1971-72 and 0.53 per cent in 1973-74. Such changes have been noticed in several districts.

6.1.3 Other Uncultivable Land Excluding Fallow Land

This includes:

- (a) Permanent pasture and other grazing land,
- (b) Land under miscellaneous trees and groves not included in net area sown,
- (c) Culturable waste land.

This category covers 1.01 to 1.29 million hectares of area in the region. The area varies from 6.19 per cent to 7 per cent to total area of the region. Culturable waste land shares the maximum (45 to 60 per cent) percentage among the above sub-categories. Land under miscellaneous trees and groves has lowest percentage, ranging from 0.50 to 4.00 to total land of the region and 5 to 10 per cent to total land of the uncultivable land.

The area under these have declined over time in different districts. Santhal Pargana which has highest percentage (12.16) in 1970-71 has declined with 0.45 per cent in 1971-72. This has rapidly decreased by 4.11 per

cent in Hazaribagh, Sundargarh by 4.29 and Mayurbhanj by 3.12 per cent in 1971-72. It has increased by 1.52 per cent in Surguja and 4.44 per cent in Keonjhar in 1973-74. Maximum number of districts recorded steady increase in 1974-75. It occupies a very low percentage in the districts of West Bengal and in some districts of Orissa (1.11 to 7.19).

6.1.4 Fallow Lands

Fallow lands include both current fallow as well as old fallow. These are cultivated land which are left uncultivated due to some soil constraints for a long period. The land left for a period not less than one year and not more than five years, is categorised as fallow land and that kept uncultivated during the current years is recorded as current fallow.

Out of total fallow land, current fallow shares 55 to 70 per cent. Its proportion is gradually high in the districts of Chotanagpur. Santhal Pargana has the highest per cent (22.44) followed by Dhanbad (21.07). Districts of Madhya Pradesh, Orissa and West Bengal have below 10 per cent.

Fallow land shows an increasing trend during 1970-71 to 1974-75, specially in Chotanagpur. Santhal Pargana where 22.44 per cent of area under this has

increased to 2.96 per cent in 1971-72 and 6.31 per cent in 1972-73. Now they claim to 31.71 per cent land under fallow land. It is also increasing in Dhanbad, Ranchi and Singhbhum but with slowly and steadily. The districts in Orissa also show increase in 1973-74 but has declined in 1974-75.

6.1.5 Net Area Sown

It includes the area under crops during the agricultural years in physical terms. Net area sown in Jharkhand has declined by 0.46 per cent in 1970-71. From 1971-72 it recorded the continuous increase. Net area sown covers 6.54 million hectares land in 1970-71 and 6.83 million hectares land in 1974-75. It was highest (over 50 per cent) particularly in these districts where land under forest is less. These are the districts of lower Ganga plain in West Bengal (Table 6.3).

Table 6.3 represents the proportion of net sown area to total area. In Midnapur the area under plough is highest (0.89 million hectares) followed by Bankura (0.37 million hectares) and Puruliya (0.26 million hectares) in 1970-71. In Chotanagpur only two districts have the percentage above the average percentage (34.35) of the region during the above period. It ranges from 16.93 to 30.53 per cent in various districts of the region.

Table 6.3

JHARKHAND : PERCENTAGE OF NET AREA SOWN

Sl. No.	Districts	Percentage of Net Sown Area to Total Area				
		1970-71	1971-72	1972-73	1973-74	1974-75
1.	Santhal Pargana	40.38	38.77	31.75	50.63	46.28
2.	Kalamau	21.81	18.29	28.01	23.64	21.87
3.	Hazaribagh	19.80	17.46	19.25	11.18	16.80
4.	Ranchi	39.47	40.90	39.25	40.25	40.17
5.	Dhanbad	30.53	29.42	23.21	28.24	29.06
6.	Singhbhum	29.85	30.46	30.58	29.67	28.72
7.	Surguja	24.29	24.60	19.64	24.92	23.87
8.	Raigarh	39.70	39.02	39.51	38.38	37.56
9.	Sambalpur	32.10	36.10	32.53	36.19	37.28
10.	Sundargarh	32.33	30.20	26.25	30.19	32.79
11.	Keonjhar	23.87	34.81	29.00	34.91	40.12
12.	Mayurbhanj	33.36	33.29	38.08	41.35	40.70
13.	Bankura	55.14	55.70	54.01	53.29	55.35
14.	Midnapur	66.00	66.18	65.03	65.70	66.09
15.	Puruliya	43.00	44.21	46.61	48.80	49.00
JHARKHAND		34.35	34.81	35.21	37.04	35.86

Source: Indian Agricultural Statistics, Vol. II,
Districtwise 1977-78.

6.2 AGRICULTURE

6.2.1 Crop Combination Region

Analysis of crop combination is useful techniques to understand the cropping pattern. Rice is the principal crop under the maximum net sown area of the region. It covers the 29.30 per cent to 83.92 per cent area under net sown area in different districts. It has been accounted for lowest in Palamau district and highest in Singhbhum. Percentage of this crop is slightly less in lower Ganga Valley where this gap has covered by another crop like wheat and 'tur' (Arhar). Percentage of land under rice has increased in 1972-73 but decreased in 1973-74. Except in Ganga valley, in whole of the region, pulses (excluding gram and 'tur') have second place which ranges from 16 per cent to 40 per cent followed by millets and maize. Other crops are 'tur', gram, oilseeds, vegetable and wheat which are decreasing and increasing both in different years.

To find out the crop combination different statistical approaches have been suggested by Weaver,¹ Ayyar,²

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1. J.C. Weaver, "Crop Combination Region in the Middle West," Geographical Review, Vol. XLIV, No. 2, April 1954, pp. 173-200.
 2. N. A. Ayyar, "Crop Regions of Madhya Pradesh - A Study in Methodology," Geographical Review of India, Vol. 31, No. 1, March 1969, pp. 24-36.

Scott,³ Bhatia,⁴ Banerjee,⁵ Johnson⁶ and several others. All these methods have almost similar attributes and computation. Present study is based on the weaver method. Eighteen crops have been selected under rabi, kharif, jayad and some others which are common under different crop seasons like species, fruits and vegetables. For these crops the crop combination has been calculated separately from 1970-71 to 1974-75. Table 6.4 shows the crop combination in different districts in different years.

Table 6.4 reveals that there are some principal crops in the region which have the maximum share in the agricultural economy. For instance, rice has 50 to more than 80 per cent share in all districts except Palamau which has only 29.30 per cent share in 1973-74. Rice is the only crop which comes under the mono combination in many districts over time. In the second combination pulses (excluding tur and gram) has effective role. Third place in the different combination occupied by maize and

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3. Peter Scott, "The Agricultural Regions of Tasmania: A Statistical Definition," Economic Geography, 1975, pp. 109-21.
 4. B.S. Bhatia, "Pattern of Crop Concentration and Diversification in India," Economic Geography, 1965, pp.41-43.
 5. R.K. Banerjee, "Crop Regions of West Bengal," Geographical Review of India, Vol.25, No.4, December 1963, pp.251-59.
 6. B.L.C. Johnson, "Crop Association Regions in East Pakistan," Geography, 1958, pp.86-103.

Table 6.4

JHARKHAND : CROP COMBINATIONS

Sl. No.	Districts	1970-71	1971-72	1972-73	1973-74	1974-75
1.	Santhal Pargana	Four (RMOT)	Three (ROM)	Four (RDMT)	Three (RMO)	Four (RMOO)
2.	Palamau	Five (RMIMPT)	Four (RMPW)	Five (RMIMPT)	Six (RMOMITRa)	Five (RMWMIT)
3.	Hazaribagh	Five (RPMRaO)	Three (RPRa)	Three (RPMI)	Four (RMIMP)	Three (RFRa)
4.	Ranchi	Four (RPELRa)	Five (RPMIRaO)	Three (RMIP)	Four (RPMIRa)	Five (RFRaGIT)
5.	Dhanbad	Two (RM1)	Two (RM1)	Two (RW)	Two (RM1)	Three (RNP)
6.	Singhbhum	Mono (R)	Two (RP)	Mono (R)	Mono (R)	Two (R)
7.	Surguja	Four (RPOM1)	Four (ROMIP)	Four (RPOT)	Five (RM1OPMa)	Five (ROMIPMa)
8.	Raigarh	Five (RPMIOV)	Four (RMIORa)	Three (RPW)	Four (RPM1Ma)	Four (RPWO)
9.	Sambalpur	Three (RPV)	Four (RPVO)	Three (ROB)	Mono (R)	Mono (R)
10.	Gundargarh	Two (RP)	Two (RP)	Two (RP)	Two (RP)	Mono (R)
11.	Keonjhar	Four (ROPV)	Three (RP)	Four (ROTV)	Four (ROPV)	Three (ROP)
12.	Nayurbhanj	Two (RT)	Five (RPM1W)	Three (RPO)	Three (RPO)	Three (RPW)
13.	Bankura	Two (RW)	Three (RWP)	Three (RWP)	Two (RWP)	Two (RW)
14.	Midnapur	Mono (R)	Mono (R)	Mono (R)	Three (RWP)	Three (RWP)
15.	Puruliya	Three (RWT)	Three (RJT)	Three (RWT)	Three (RWT)	Three (RWO)

Key of the Functional Classification

1) Rice = R; (2) Pulses = F; (3) Oilseeds = O; (4) Millets = M1;
 (5) Maize = M; (6) Ragi = Ra; (7) Wheat = W; (8) Tur = T;
 (9) Vegetable = V; (10) Bajra = B.

millet. Oilseeds, wheat and Ragi come at fourth and fifth places respectively. Other crops have negligible role in the combinations.

6.2.2 Changes in Crop Combination Region

There are many changes in the crop combination. This is obvious in some marginal crops which have low percentage to total cropped area. A number of changes have been shown in Table 6.5.

Table 6.5

JHARKHAND: CHANGES IN CROP COMBINATION REGION

Sl. No.	From	To					Total
1	mono	two 2	three 1	four -	five -	six -	3
2	two	mono 2	three 2	four -	five 1	six -	5
3	three	mono 1	two 1	four 7	five -	six -	9
4.	four	mono -	two -	three 7	five 4	six -	11
5	five	mono -	two -	three 4	four 2	six -	6
6	six	mono -	two -	three -	four -	five -	0

Rice is the main crop which holds the top position in every district in all the years under study and occupies first place in all the combinations and in some places it

comes as the mono-crop such as Singhbhum and Midnapur (1970-71). In 1971-72 only one district had mono-crop as rice but in 1972-73 it again followed the earlier pattern. Sambalpur and Sundargarh are the other two districts which occupied as mono-crop region in 1974-75. Singhbhum and Midnapur have two and three combinations respectively.

Apart from this, changes in the crops and combinations may be seen in two, three, four and five combination regions. Maximum changes occurred in three and four crop combinations (Table 6.5). Six crop combinations remained without any change and is found in only one district in the region.

6.2.3 Cropping Intensity

Cropping intensity is defined as the gross cropped area as percentage of net area sown and it refers to the number of crops grown on the same land area in any one agricultural year. Intensity of cropping in a region is the result of input factors as well as the physical environment which controls the growth of crops on the earth surface.

Cropping intensity in Jharkhand is increasing very slowly (Table 6.6). Net area sown is very less than the total cropped area in the region. This trend

Table 6.6JHARKHAND : INDICES OF CROPPING INTENSITY

Sl. No.	Districts	1970-71	1971-72	1972-73	1973-74	1974-75
1.	Santhal Pargana	114.53	115.89	108.70	119.23	121.30
2.	Palamau	121.71	117.90	106.33	114.06	117.81
3.	Hazaribagh	111.67	128.78	119.57	114.73	123.56
4.	Ranchi	109.12	102.01	104.69	107.06	107.08
5.	Dhanbad	106.75	104.40	99.20	107.94	105.83
6.	Singhbhum	104.61	102.27	110.29	105.45	104.37
7.	Surguja	111.96	112.26	112.95	116.88	118.85
8.	Raigarh	106.81	107.11	108.91	107.67	112.38
9.	Sembalpur	118.94	119.80	120.38	119.43	120.81
10.	Sundargarh	112.51	113.76	110.00	108.81	113.63
11.	Keonjhar	105.95	104.10	109.57	114.13	113.25
12.	Mayurbhanj	106.39	107.09	110.60	113.25	114.56
13.	Bankura	108.98	109.78	111.31	118.35	116.79
14.	Midnapur	116.74	117.92	120.80	124.23	123.28
15.	Puruliya	116.10	118.45	119.48	122.76	120.82
	Jharkhand	113.50	114.83	116.92	121.90	123.22

Source: Indian Agricultural Statistics, Vol. II,
District-wise, 1977-78.

may be seen in districts of Jharkhand. Many efforts have been made to increase the cropping intensity by providing the means of irrigation, fertilizer, high yield varieties of seeds and consolidation of holding etc. but it has not kept pace with. Second reason may be that in whole of the region except five districts (Bakura, Midnapur, Puruliya, Sarguja and Raigarh) percentage of total cropped area is very small as compared to other parts of the country. It is affected mainly by the area under non-agricultural uses i.e. forests, minings and industrial units and settlements.

In 1970-71 the index of cropping intensity was 113.50 which increased to 123.22 in 1974-75. The annual growth rate raised from 1.32 to 4.98 during 1970-71 to 1974-75. From the 1970-71 to 1972-73 it was almost constant between 1.33 to 1.32 but in 1973-74 it has increased to 121.90 and showed the maximum changes in the cropping pattern in the region.

Some industrial areas like Ranchi, Dhanbad, Singhbhum, Keonjhar and Mayurbhanj show very low indices of cropping intensity. Dhanbad in 1972-73 goes down at

$$\text{Cropping Intensity} = \frac{\text{Gross Cropped Area}}{\text{Net Sown Area}} \times 100$$

the level of 99.20 and not more than 107.94 (1973-74) in any other year. Same pattern was also followed by Ranchi during that period. This trend of cropping intensity indicates the low level of agriculture in the economy of the above districts. Districts of West Bengal in the Jharkhand have relatively high indices and are increasing with reasonable rate.

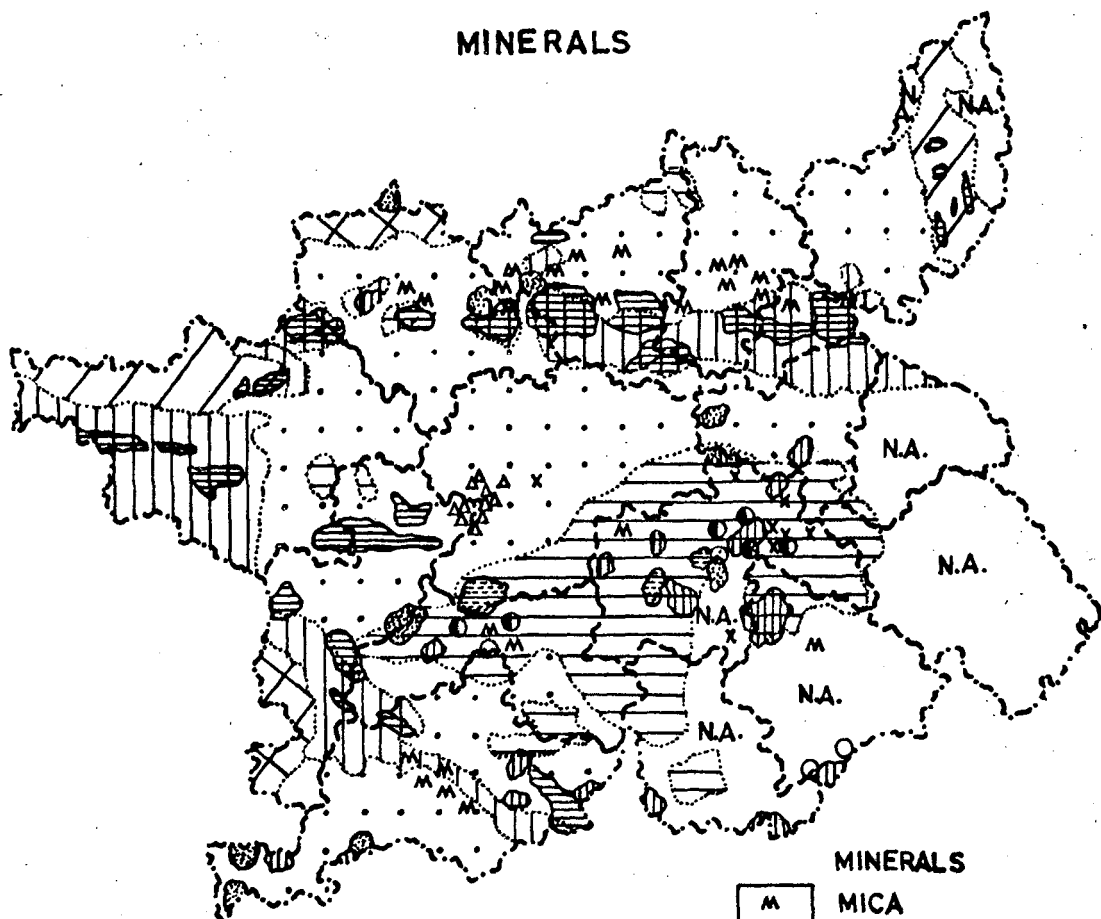
6.3 MINERAL RESOURCES







In mineral resources Jharkhand is sufficiently rich to provide not only to the region but to the country and to some other countries also with necessary base for an industrial development. The position is particularly enviable in metallic minerals of the ferros group including the ores of iron, manganese and chromite. Metallic minerals of non-ferros group like copper and bauxite are also available in sufficient quantity in the region. Valuable minerals like gold and silver are also produced in the region as a by-product of copper and lead respectively.










The situation of non-metallic minerals like coal, apatite, dolomite, fairclay, graphite, kyanite, mica, quartzite and limestone is also satisfactory. More than 80 per cent coal is produced in the region and 67 per

JHARKHAND

MINERALS



- GEOLOGICAL FORMATION**
-  UPPER GONDWANA
 -  LOWER GONDWANA
 -  CUDDAPAH
 -  DHARWARIANS
 -  CHARNOKITES
 -  DATA NOT AVAILABLE

- MINERALS**
-  MICA
 -  KYANITE
 -  COAL
 -  IRON ORE
 -  MANGANESE
 -  LIMESTONE
 -  DOLOMITE
 -  BAUXITE
 -  COPPER

50 0 50 100 150 Kms.

Fig. 63

cent by the Chotanagpur region itself to total production of India. Still today a number of agencies (ONGC, NDMC, CCI, NCDC and GSI) are doing surveys to find out the new minerals, in various part of the region. The production of minerals like barytes, felspar, steatite, clay and abestos below 5 per cent to total production of India.

6.3.1 Distribution of Minerals

Mineral resources are widely distributed over a large area. From geological and mineralogical stand point, Jharkhand can be divided into various regions. The distribution of minerals (fig. 6.3) found in these rock deposits. . These regions are as:

(a) Upper Gondwana Region

Coal deposit is the only mineral found in this region, covering a small area in upper Rajmahal hills in Santhal Pargana district. Raniganj, Rajmahal and Jayantiya comprise of four coal mines and produce 2.06 per cent of coal to total coal production of Bihar. Coal in a very small quantity is found in Surguja but are of poor quality.

(b) Lower Gondwana Region

In the lower Gondwana shales larger resources of coal seams are found in a large area in Chotanagpur

plateau. Above 97 per cent of country's total coal reserves are located in the Damodar, Son and Mahanadi valley in Bihar, West Bengal, Madhya Pradesh and Orissa respectively. Some coal fields occur in the North Koel and Barakar⁷ river basins in Palamau and Giridih districts. These seams are either horizontal or gently dipping and have varying thickness, ranging up to a maximum of 80 feet. Dhanbad, Hazaribagh and Giridih are the main producer of coal where 228, 82 and 40 mines are located respectively.

(c) Vindhyan and Cuddapah Region

This system contains small reserves of limestone in Son basin in Palamau district. Some iron ore is also found in this region.

(d) Dharwarian Region

Dharwarian formation is full of minerals particularly metallic minerals like iron ore, manganese, chromite, copper and bauxite in Singhbhum, Keonjhar, Mayurbhanj and Sundergarh districts (fig. 6.3). The most important hematite deposits of iron ore occur near Notu Buru, Noamundi, Pansira Buru, Borajanda, Gua and Gasanga in the Kalhan area of Singhbhum district. Magnetite ores

7. Enyat Ahmad, Bihar - Physical, Economic, Regional Geography, Ranchi, 1965, pp.189-96.

occur near Daltenganj in Palamau district. In Orissa the most important deposit is the Donaigarh range of Sundargarh, Keonjhar and Mayurbhanj.

The high grade Gondite ore of manganese is found at Jamunkaria, Naktipalli, Patmunda and Bhutura in Sundargarh district. Secondary enrichment deposits occur near Janda, Koira, Nadidin Bamebari, Bhadrashahi and Dhubna in Keonjhar district. Small deposits are in Mayurbhanj also. In Singhbhum manganese ore deposits are in the form of psilomelane and pyrolusite at Bistampur. Gitilpi, Kalenda and Tutugute near Chaibasa. Chromite ore one of the important minerals which help in producing chromium metal is found in Keonjhar and Singhbhum. Copper and bauxite is extracted in Singhbhum and Ranchi districts.

(e) Archaean Region

Important mineral deposits of Archaean group in Bankura, Midnapur and Puruliya districts of West Bengal are clay, mica, potstone, dolomite, apatite, kyanite and wolframite. Coal is also found in small quantity as a part of Raniganj coal field in northern Bankura and Puruliya.

(f) Charnockites and Unclassified Crystallines Region

This formation covers vast area but from the minerals point of view it is very poor. Only limestone is extracted

in some quantity in Palamau and Hazaribagh districts. Coal is another important deposits of this formation in Raigarh and Jurguja districts of Madhya Pradesh.

6.3.2 Production and Value

Jharkhand is the largest mineral and industrial producing region in India. Concentration, quality and production of minerals in Jharkhand as compared to other parts of India is very high. It is clear from the Table 6.7 that high concentration of minerals production i.e., the 62.20 per cent of India's total production is found only in 23.33 per cent of mines. The region is very rich in good quality of minerals like coal, manganese, copper, chromite, bauxite, dolomite and graphite in India.

In 1980 the region produced 79.24 million tonnes of minerals which was 62.20 per cent of total production of India. Share of coal in 1980 was 76.06 per cent to total mineral production of the region. Iron ore is the second largest production of the region which accounts for 9.26 per cent of the total production of the region during the same period. Other important products are limestone (3.77 per cent), copper (0.85 per cent), dolomite (0.68 per cent) and manganese (0.42 per cent). In all twenty five kinds of minerals (Table 6.7) are

Table 6.2

JHARKHAND : PRODUCTION AND VALUE OF MINERALS
(Comparison with India's Total Production)

Sl. No.	Minerals	Percentage of Mines to Total Mines in India		Percentage of Production to Total Production of India		Percentage of Values to Total Values of India	
		1980	1981	1980	1981	1980	1981
A. Metallic Minerals							
1.	Bauxite	17.94	10.63	28.14	31.69	15.78	19.21
2.	Chromite	19.04	21.05	82.29	82.47	96.22	93.68
3.	Copper	45.45	41.66	57.11	59.10	61.59	62.13
4.	Gold	-	-	2.28	2.56	2.98	3.56
5.	Iron ore	29.35	28.24	29.64	32.15	35.75	37.83
6.	Manganese ore	13.22	14.44	32.96	29.70	24.74	18.52
7.	Tungston	50.00	50.00	8.18	21.80	10.48	26.75
8.	Silver	-	-	95.89	77.10	96.00	77.19
B. Non-Metallic Minerals							
9.	Apatite	50.00	50.00	81.72	75.80	67.80	51.69
10.	Asbestos	3.84	2.85	4.85	6.05	10.91	7.80
11.	Barytes	1.69	1.69	0.06	0.04	0.12	0.07
12.	Clay	9.09	11.11	2.24	1.10	2.92	1.24
13.	Coal*	41.22	43.06	89.60	83.86	87.69	84.96
14.	Dolomite	11.71	10.61	45.08	38.28	37.95	52.39
15.	Felspar	2.40	1.20	1.92	0.33	2.08	0.38
16.	Fairclay	24.57	27.57	57.89	58.28	72.95	72.31
17.	Graphite	22.44	25.58	75.90	96.10	94.23	96.17
18.	Kaolin	13.49	13.60	12.94	11.20	23.53	18.76
19.	Kyanite	-	7.17	42.30	47.71	56.34	59.40
20.	Limestone	5.96	5.86	17.26	15.98	31.06	29.05
21.	Mica	44.36	42.02	32.89	57.81	62.12	63.88
22.	Quartzite	57.89	50.00	39.48	90.28	67.08	48.70
23.	Silica sand	3.00	3.11	5.78	5.31	10.19	14.98
24.	Sand	2.33	2.75	10.14	6.56	10.66	7.79
25.	Steatite	11.11	12.50	0.47	0.79	0.26	0.46
	Jharkhand	23.33	23.39	62.20	59.94	70.66	68.75

*Data has been compiled from 1978-79 sources.

Sources: 1. Mineral Statistics of India, Vol.14, No.1, April, 1982.

2. Statistics of Coal Mines India, Vol.I, Coal 1978-79.

found in the region which explain importance of Jharkhand in its mineral resources.

It is obvious from the table that there has been a decline of 2.36 per cent production of minerals in the region in 1981. But during this one year span, many minerals, particularly metallic minerals like bauxite, chromite, copper, gold, iron and tungsten record increasing trend from 0.18 per cent to 13.62 per cent. Tungsten which has been exploited from the single mines in Bankura has increased more than two times. Mica, limestone, quartzite, graphite and kyanite are some of the non-metallic minerals which recorded significant changes in the production.

As far as value is concerned the production of Jharkhand accounts for more than two third of the mineral value to total mineral value of the country. Total value of the mineral production of the region was 464 million rupees in 1980 which was 68.69 per cent to total mineral value of India. Coal has maintained its top position in the case of value also and shares 66.13 per cent of the total mineral value of India. Copper (12.19 per cent) holds second position followed by manganese (6.99 per cent). These three minerals together accounts for 85.31 per cent of the total mineral value of the region. Other minerals like iron ore (4.49 per cent), limestone (3.39

per cent), bauxite (1.52 per cent) and dolomite (0.58 per cent) account for about 10 per cent of value to total mineral value of the region. However, the total production of the minerals has declined by 0.53 million tonnes in 1981 but per unit increased price of minerals, increase the total mineral value of the region (Table 6.7). Coal alone accounts for 11.57 million rupees to total mineral value of the Jharkhand. Major decline was recorded by manganese, dolomite, kaolin and cromite and has affected 2.01 per cent of mineral value.

6.3.3 Districtwise Production

The number of mines containing the number of minerals are more numerous in the districts of Jharkhand. It is obvious from the fact that number of more minerals do not mean more production. From the minerals point of view Singhbhum is the first and produces fourteen types of minerals. Except bauxite all the metallic minerals are found in this district. The Damuda series in the district have deposits of important hematite iron ore. Dhanbad is the largest producer of coal not only in Jharkhand but also in the whole country. Thus it occupies top most position (35.70 per cent) in only three types of mineral production in 1980 (Table 6.8). Jharia and Chandrapura are the largest coalfields and contain mostly first grade bituminous coal, suitable for producing coke.

Table 6.8

JHARKHAND : PRODUCTION AND VALUES OF MINERALS

Sl. No.	Districts	No. of Minerals		Production				Values				Rank
		1980	1981	1980		1981		1980		1981		
				Produc- tion (tonnes)	Per- centage	Produc- tion (tonnes)	Per- centage	Value (Rs. '00)	Per- centage	Value (Rs. '00)	Per- centage	
1.	Santhal Pargana	3	3	384941	0.49	331935	0.42	16169	0.34	14882	0.32	12
2.	Palamau	7	7	3021188	3.81	3009958	3.82	142322	3.06	146197	3.00	8
3.	Hazaribagh	4	4	10904564	13.76	11124743	14.13	613598	13.19	637590	13.17	2
4.	Giridih	4	4	7403250	9.38	7508376	9.60	507751	10.92	530268	10.41	4
5.	Ranchi	4	4	2718171	2.79	2831260	3.60	124233	2.67	121565	2.50	9
6.	Dhanbad	3	3	28298835	35.70	26624865	33.82	1866132	40.19	1894376	38.95	1
7.	Singhbhum	14	14	7463544	9.41	8693910	11.04	459962	9.89	509956	10.48	3
8.	Surguja	1	1	6843298	8.63	6590571	8.31	347288	7.47	418578	8.60	5
9.	Raigarh	2	3	18218	0.02	22258	0.02	1723	0.03	2879	0.06	14
10.	Jambalpur	6	6	1494750	1.89	1765352	2.24	73018	1.57	94473	1.94	10
11.	Sundargarh	6	6	5078603	6.40	4835657	6.14	273173	5.87	272484	5.60	6
12.	Keonjhar	4	5	4542114	5.73	4610829	5.80	208295	4.47	209336	4.31	7
13.	Mayurbhanj	3	3	391202	0.49	147622	0.19	7326	0.16	2854	0.05	13
14.	Bankura	3	2	47104	0.06	9067	0.01	858	0.01	896	0.01	15
15.	Midnapur	0	0	0	0.00	0	0.00	0	0.00	0	0.00	16
16.	Puruliya	2	2	638316	0.80	604511	0.77	7112	0.16	5768	0.12	11
Total		25	25	79248098	100.00	78711114	100.00	4649460	100.00	4862602	100.00	

Source : Mineral Statistics of India, Vol.14, No.1, April 1982.

Hazaribagh is the another big producer of coal and mica and hold second position in the production of best quality of mica as well as coal. Main centres of production are Kodarma Reserve forest, Chaikari, Dharhakola, Domchanch, Dhengura, Dhab Gwari Masnodih, Parsabad, Tisri, Bedi and Garia. Surguja in the Son valley produces only coal. Birsampur, Jharkhand, Jhilmili, Kharsia, Sonhat and Koreagarh are the important coal fields. Sundargarh with a bunch of minerals, produces important ore of iron ore and manganese. Iron ore, manganese and chromite are the main minerals of Keonjhar district. In Palamau there are seven different kind of minerals which are extracted in large quantity. They are coal, iron ore, dolomite and limestone. Daltanganj, Auranga and Hutar are important coal fields. Other producers are Ranchi and Sambalpur. Midnapur is the only district which did not produce any mineral during 1980-81. The district of West Bengal in Jharkhand produced less than one per cent minerals to total production of the region.

Based on distribution the regions given in Table 6.9 are identified which are mentioned so far as the production and the value are concerned.

One of the important observations that one can have about the minerals is that the Subernrekha basin is

Table 6.9

REGIONAL DISTRIBUTION OF MINERALS

Sl. No.	Regions	Districts included	Percentage
1.	Damodar basin	Hazaribagh, Dhanbad, Dhanbad	58.81
2.	Subernrekha Koel basin	Singbhum, Ranchi, Palamau	16.41
3.	Mayurbhanj highland	Sundargarh, Keonjhar, Mayurbhanj	12.62
4.	Son basin	Surguja	8.63
5.	Mahanadi basin	Sambalpur, Raigarh	2.00
6.	Lower Ganga plain	Bankura, Midnapur, Puruliya	0.98
7.	Rajmahal high- land	Santhal Pergana	0.55
	TOTAL	Jharkhand	100.00

characteristically a metallic (iron ore and copper) country in contrast to its northern counterpart, Damodar basin, which is essentially a non-metallic (coal) country.⁸ Son basin which includes some part of Palamau district is also non-metallic mineral belt.

6.3.4 Mineral Exploitation and Employment

Mining and quarrying has developed as job oriented activity in the region. In 1971, 0.31 million workers were engaged in this occupation which was 3.21 per cent

8. B.N. Chaudhary, Land Utilization in Subernrekha Basin, New Delhi, 1973, p.16.

total workers of the region and 4.00 per cent of primary sector occupation. Apart from this, large number of workers are employed in its associated and ancillary activities such as processing smelting and refining of the mineral products. Table 6.10 gives the average daily employment in these mines. In 1979 there were 858 workable mines and 0.30 million average daily employment in these mines. These workers account 45.12 per cent working capacity to total working capacity of India in mining and quarrying activities.

Coal exploitation from the 438 mines employed maximum (0.24 million) average daily workers and account 80.06 per cent workers to total workers employed in mining. Iron ore comes at second place and covers 6.23 per cent to total workers. Limestone with 4.07 per cent is also main mining activities next to coal and iron ore. Other important mining activities are manganese (3.13 per cent) copper (1.84 per cent) and mica (1.02 per cent) exploitation. These five minerals covers 92.28 per cent of workers which are employed in mining. Other twenty minerals have only 7.72 per cent average daily employment. Table also compared these workers with national average. Some minerals which are available only in Jharkhand have the highest percentage of daily employment. For example sandstone, co. per, kyanite and mica.

Table 6.10

JHARKHAND : MINERALS AND EMPLOYMENT
1979

Sl. No.	Minerals	No. of mines	Average daily employment	Percentage of average daily employment to total average daily employment in India
A) <u>Metallic Minerals</u>				
1.	Bauxite	14	1477	34.28
2.	Chromite	4	1293	28.65
3.	Copper	5	5665	66.81
4.	Iron ore	91	19216	41.58
5.	Manganese ore	41	9301	22.01
B) <u>Non-Metallic Minerals</u>				
6.	Gypsum	1	338	13.79
7.	Asbestos	3	780	39.45
8.	Barytes	1	203	38.10
9.	Clay	2	1656	23.62
10.	Coal	438	247291	49.56
11.	Dolomite	13	2003	23.29
12.	Felspar	2	38	12.50
13.	Fairclay	58	1485	45.63
14.	Graphite	11	331	19.19
15.	Kyanite	1	1043	54.18
16.	Lime stone	26	12550	29.70
17.	Mica	122	3166	53.56
18.	Quartzite	11	300	22.59
19.	Silica-sand	6	16	1.07
20.	Sand-stone	1	170	89.00
21.	Steatite	6	41	1.03
22.	Wolfram	1	297	37.83
	Jharkhand	858	308657	45.12

Source : Statistics of Mines In India, Vol. II, Non-Coal, 1979.

6.4 INDUSTRIES

The industries of Jharkhand may broadly be divided into three groups (i) forest based, (ii) agriculture based, and (iii) mineral based. These industries are concentrated in those areas where raw materials are available. Forest provides sizeable avenues of employment. Large number of people engaged in conservation and exploitation of forest. These industries are basically small and cottage industries like Biri industries, saw milling, lac and shellac industries, toy making and card-board factories. Ranchi, Chandrapur and Daltanganj are important centres of Biri making and saw milling. Forest also provide various uses of leaves and fruits of the trees such as kendu leaves for biri manufacturing, flower and fruits of Mahua for food, liquor and oil, Karanj for medicinal oil, leaves of sal for temporary containers, sabaigrass for ropes and paper industries, bamboo for paper industries, etc. About 20 per cent tribal population is dependent on these forest products. These forests are gradually being reduced day by day due to over utilization and ruthless cutting of forests under government policy. This is one of the main reasons of uprising of the tribals in Chotanagpur.

Agricultural based industries are sugar industries, flour and rice milling, vegetable oil industries, alcohol industries, tobacco manufacturing etc. These industries are distributed in Puruliya, Midnapur and Bankura, Surguja and Raigarh mainly.

6.4.1 Large Scale Industries

Large scale industries include basic metallurgical industries as well as heavy engineering industries. Iron and steel, aluminium, copper and lead categorised as metallurgical, heavy machinery, industrial machinery, machine tools and railway coach and wagon as engineering group. Other industries like chemical, fertilizer, cement, rubber, glass and textile also come under the large scale industries.

Dhanbad, Singhbhum and Sundargarh are the main centres of iron and steel plant, collectively produce more than 45 per cent pig iron and steel of India. The primary raw materials required by this industry is iron ore, manganese, steel scarp, flux and fuel, freely available in the region. In 1975-76 these plants produced 34.11 (Rourkela 12.82, Bokaro 3.42 and TISCO 17.87) lakh tonnes steel which was 47.04 per cent of total production of India. Bokaro steel plant started its production in 1975 and has now become one of the biggest producer of

steel in the country. Rich availability of bauxite in the region is the strong base for aluminium industry. Sundergarh is the chief producer of aluminium goods. In 1975 its unit at Hirakund produced 7860 tonnes smelting aluminium which was 4.72 per cent of total production of India.

Singhbhum produces 60 per cent of copper of India. Its refinery is located at Maubhandar near Ghatsila. It smelts copper ore mined at Kosabani, Rakha, Dhabni, Rajdah, Tamapahar and Turandih, all located in Singhbhum district. The plant produced about 13 thousand tonnes of electrolytic copper in 1974-75 which was 50 per cent of India's production. India has only one lead ore smelting unit in the country at present which is located at Tundoo near Dhanbad. It has the capacity of 54 hundred tonnes of lead ingot per annum which is 90 per cent of India's total lead production. Besides lead, this plant also produces silver in small quantity.

Jharkhand is also the chief producer of engineering goods. Three units of each heavy machinery-industrial machinery and machine tools are located at Ranchi. Rourkela has one unit of railway wagons and coaches. Heavy engineering corporation of Ranchi installed capacity of 80 thousand tonnes of heavy machinery. Heavy machine

tools has installed capacity of 278 machine per annum. The Hindustan Steel Limited, Rourkela and TISCO at Jamshedpur are the main producer of railway wagons and coaches.

Four units of fertilizer plants are located at Sindri, Dhanbad, Jamshedpur and Rourkela in the region. They produce 7 per cent fertilizer of the total production of the country. Cement factories are distributed at Sindri, Khalari, Chaibasa, Barabhand, Puruliya.

6.4.2 Medium and Small Scale Industries

Medium and small scale industries are spreading very rapidly in the region. Raw materials from the forest, mining and agriculture has given good opportunities to these industries. These industries produce some substitute equipments, valuable parts and ancilliary goods for heavy industries. These industries have basically developed in four zones such as:

- (i) Hazaribagh, Giridih, Dhanbad area in the Damodar valley;
- (ii) Singhbhum area in the Subernrekha valley;
- (iii) Sundargarh area.

6.4.3 Industries and Capital Investment

Huge capital has been invested in the industrial sector in the region. Both extraction industries and

manufacturing industries needs more capital and labour-force. Small scale industries function comparatively with less capital investments. Table 6.11 gives the total number of industries, capital investment and workers employed in factories.

6.4.4 Industrial Regions

The industrial developments in the region is very uneven. Some pockets are concentrated more with heavy industries while large areas are without any industrial units. Jharkhand may be divided into five industrial zones:

1. Heavy and basic industrial belts
 - (a) metallurgical based industries
 - (b) non-metallurgical based industries
2. Coal field industrial belt
3. Mica field industrial belt
4. Agricultural based industrial belt
5. Forest based industrial belt
6. Industrial centres.

6.4.5 Heavy and Basic Industrial Belts

This industrial belt has developed in four areas: (i) Dhanbad; (ii) Singhbhum; (iii) Ranchi; and (iv) Sundargarh. Dhanbad is basically a non-metallic

Table 6.11

JHARKHAND : INDUSTRIES, CAPITAL INVESTMENT AND
EMPLOYMENT, 1975

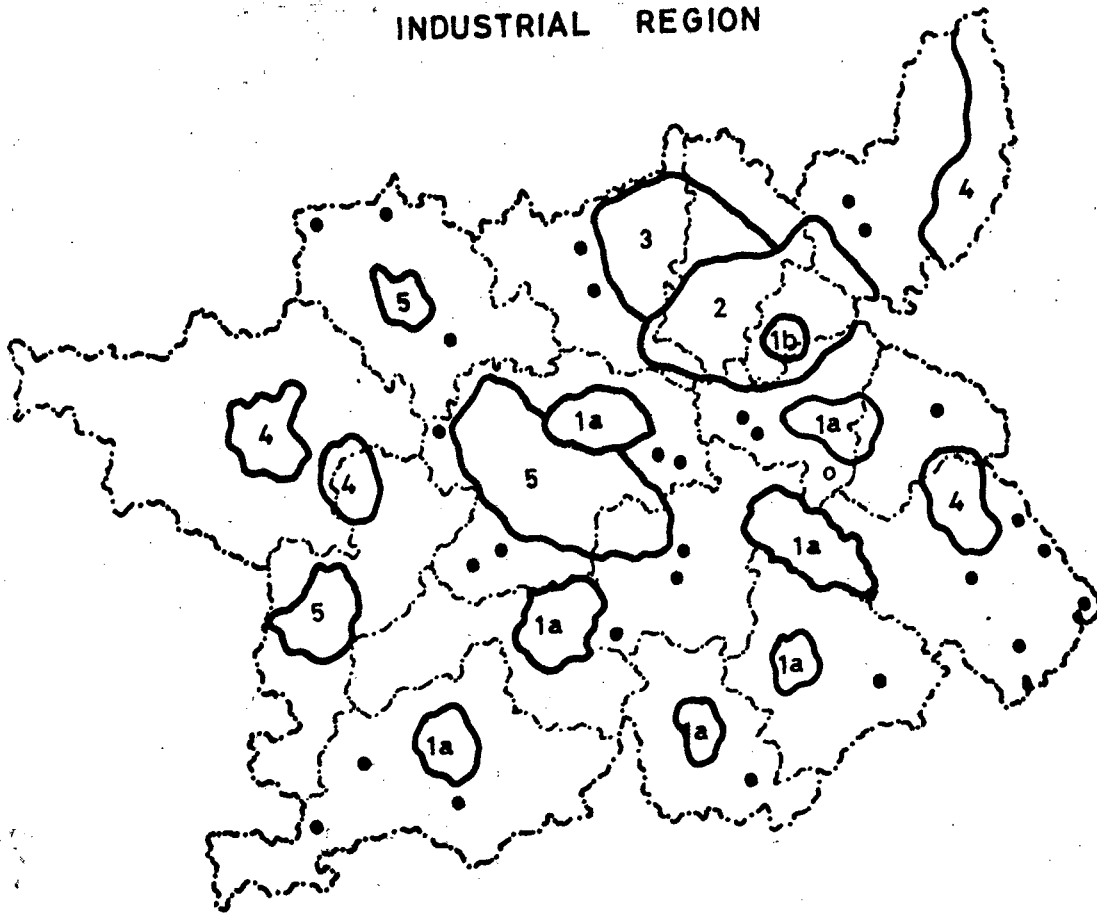
Sl. No.	Districts	No. of registered factories	Capital Investment (Rs. in lakh)			Persons employed number	Gross value of output (Rs. in lakh)
			Fixed capital	working capital	Productive capital		
1.	Ganthal Pargana	531	9310	780	1219	12136	7520
2.	Palamau	182	886	610	926	1095	5936
3.	Hazaribagh	619	25901	20948	31980	32860	46318
4.	Giridih	427	780	686	1008	41983	4832
5.	Ranchi	803	27517	24357	34112	41032	62171
6.	Dhanbad	932	36593	34918	46807	52816	109806
7.	Singhbhum	1143	40964	38919	47473	61936	128802
8.	Surguja	422	10167	928	1554	1430	3534
9.	Raigarh	278	8020	773	1192	1225	3228
10.	Sambalpur	126	2615	2046	4661	18127	8243
11.	Sundargarh	65	19155	10371	29526	35029	27915
12.	Keonjhar	16	753	591	1344	1129	1185
13.	Nayurbhanj	33	64	92	156	785	335
14.	Bankura	75	423	736	538	2276	2671
15.	Midnapur	87	389	590	526	16831	1439
16.	Puruliya	46	415	681	474	2743	1672

Jharkhand

- Sources: 1. Bihar, Statistical Handbook, 1978.
 2. Selected Plan Statistics, Bihar, 1976.
 3. Industrial Statistics, Madhya Pradesh, 1976.
 4. Statistical Abstract of Orissa, 1979.
 5. Statistical Abstract of West Bengal 1977-77 (combined).

JHARKHAND

INDUSTRIAL REGION



- 1a HEAVY AND BASIC INDUSTRIAL BELT
- 1b NON METALLURGICAL BASED INDUSTRIES
- 2 COAL FIELD INDUSTRIAL BELT
- 3 MICA FIELD INDUSTRIAL BELT
- 4 AGRICULTURAL BASED INDUSTRIES
- 5 FOREST BASED INDUSTRIES
- INDUSTRIAL CENTRES

50 0 50 100 150 Kms.

Fig. 6-4

industrial area. This belt has the highest concentration of factories which employed 88 per cent of the total factories workers in 1975 in the region. The TISCO, HCL of Bokaro and Rourkela is the basis of all industries which have developed subsequently to the establishment of the steel factories. Heavy engineering corporation Ranchi has emerged as one of the biggest industrial centre in this region.

6.4.6 Coal Field Industrial Belt

Around the Dhanbad a large number of coal based factories have been developed. Jharia-Dhanbad is decidedly the principle focus of the region. Kumardhubi and Ramgarh coalfield are the foci of second order. The third centre is Chandrapura and Bokaro coalfield industrial belt (fig.6.4).

6.4.7 Mica Field Industrial Belt

This comprises of most of the mica mining easterly extension upto Giridih. Giridih situated outside the mica mining area, is the principal centre of mica industries. Hundreds of mica splitting factories employed about 5 per cent of the total factory workers of the region.

6.4.8 Agro Based Industrial Belt

Agro based industries are concentrated in Midnapur Bankura areas. Since these districts are the main producers

of the agricultural products, it has become the good base of this industry. Rice flour milling and tobacco manufacturing are the main industries. Other centres are Sambalpur and Raigarh districts where rice mills are located. Alluvial upland of Rajmahal also provide some base for these industries. Sahibganj has several agro-based industries. Such industries are located at some places in Surguja and Raigarh also.

6.4.9 Forest Based Industries

Forests support a large number of cottage industries based on forest products. Timber, furniture and saw milling are located at Ranchi, Chakradharpur and Daltonganj. Area outside Ranchi has also developed some lac and timber industries.

6.4.10 Industrial Centres

Several industrial centres have also developed in the region. Jalpa, Khallary, Kharagpur, Chaibasa, Bargarh, Jhumritillaya and Keonjhar are the principle industrial centres of some importance.

Chapter VII

SUMMARY AND CONCLUSION

There are great varieties in the foregoing chapters in which physical and cultural disparities may be seen broadly. Historical process also deals with its different human occupation through which Jharkhand has been passing since the beginning. In this chapter an attempt has been made to conclude and demarcate the region into different orders according to its levels of development.)

History of Jharkhand reveals its evolution in different chronological orders in a dialectical process. Jharkhand has changed its economy in different social systems. In the pre-class society, economy was basically forest based where people (tribals) were dependent on its forest products. There was not any law or principle which had reduced that economic system. In feudalistic society human occupation moved towards another direction and that was the hand over of the contemporary economic system to feudal lords. Agrarian improvement occurred during this system. Colonisation developed in the region in pre-capitalistic society. Exploitation of minerals and deforestation took place during this system. And today when the petty and nation bourgeoisies have emerged in the region, the whole face of the economy has changed in the capitalistic landscape which may be seen. Only in

some parts of the region many mining areas and factories have come up very recently. On the other hand a large proportion of the population have been alienated from their lands and are wandering here and there as homeless.

Its physiographic characteristics divide the region in many parts. Chotanagpur plateau is the largest geographical region and comprises of various micro level geomorphic units. Its northern part is comparatively low land ending ultimately in the valley of Ganga. Its central part is occupied by the highest plateau in the region. Hazaribagh plateau, Ranchi plateau and Pat region are the highly elevated regions. Low land in the southeastern part of Jharkhand is formed by the Ganga valley. Its southern most boundary touches the Bay of Bengal where its average height is 3 to 4 meters above sea level. Orissa highland is the southern part of the Jharkhand in which Mayurbhanj and Keonjhar highland are highest plateau land. Western part is comparatively low land through which Mahanadi runs from north-west to southeast. Surguja which covers the south eastern part of the Baghelkhand region, is a flat topped land with general elevation of 1000 meters. Raigarh upland rises parallel to Mahanadi and forms a series of plateaus. Thus except Ganga valley, whole Jharkhand is a land of plateaus. Its rivers drains in different directions and forms different types of

drainage pattern. Some are of trellis pattern in Damodar valley, barbed pattern in Sankh and radial pattern in south Koel.

Geologically Jharkhand comes under different geological formation from pleistocene to charnockites and unclassified. From the point of view of minerals, lower Gondwana and Dharwarian deposits are important. Red and laterite are the two main soils. Deltaic sterile covers the low land of Midnapur district. Climate of the region is of sub-continental type. Jharkhand may be divided into three main climatic regions viz. moist subhumid, dry subhumid and semi-arid. Tropical deciduous moist, tropical deciduous dry and semi-evergreen are the important types of natural vegetation that are found in the region.

Ethnographic, demographic and occupational structure are the more important aspects of the present study. The population in the region is evenly distributed in some parts. Dhanbad, Singhbhum and Ranchi are the most populous districts of the region. On the other hand Keonjhar, Mayurbhanj and Jurguja are least populated. Growth rate of the population is high mostly in industrial districts like Dhanbad, Singhbhum and Ranchi. In 1961-71, population of rural areas in Dhanbad recorded negative growth rate. But in urban areas it accounted for 120.07 per cent. Such a high urban growth rate is the clear indication of not

only high migration from rural areas to urban areas but also heavy industrialization during the decade 1961-71. Other districts like Keonjhar, Hazaribagh, Sundargarh and Sambalpur also record high growth of population in urban areas due to industrialization. In 1981, this situation has greatly changed but high growth rate may be still seen in industrialized districts. Impact of industrialization is also very significant factor in influencing the pattern of sex ratio. For example, in Dhanbad there were only 792 females per thousand of males in 1971. In Raigarh it was very high and recorded 1008 during the same year. This ratio is very less particularly among the workers in urban areas.

Literacy rate has shown an increasing trend during 1971-81. Literacy is comparatively higher in urban areas especially in those areas where large proportion of population is engaged in secondary and tertiary activities. Literacy rate on the whole is very low among female population and particularly in rural areas and more so among scheduled castes and scheduled tribes. Dependency ratio is high in rural areas. Thus all the hypotheses have ^{been} proved except some in few districts. For instance, Midnapur has been recorded highest percentage of literacy in rural areas. On the other hand it also recorded highest rural population

in the region. Dependency ratio also ignore the hypothesis when it is more in urban areas in some districts like Santhal Pargana, Ranchi, Sarguja, Mayurbhanj, Bankura, Puruliya and Midnapur.

Impact of industrialization in the distribution of rural and urban settlements are significant. Distribution of rural settlements in coal and mica belts is close to uniform pattern. On the other hand it is randomly distributed in those parts which are inaccessible and interior parts of the region. Maximum rural settlements have been classified as small size. Nearly 36.60 per cent of rural settlements fall under the second category (villages having 200 to 500 population). From the study of rural settlement it is clear that 70 per cent of the rural population lives in only 30 per cent of villages and these villages come under the small size villages. This shows that the concentration of small rural settlement is high while large villages accounts for very low percentage 'R' values for different types of land surfaces in the region also explain the effect of physical and technological factors on the nature of the distribution of settlements.

Distribution of urban settlements too is very uneven in the region. Districts like Singhbhum and Midnapur accounts for the highest (13 urban centres) number of

urban settlement. 'R' values of spatial distribution of towns show that the distribution is random. Maximum number of towns fall under the four and five functional combination. Mono functional towns are only six. These six towns are basically mining centres. Four, five and six function combinations are dominated mostly by tertiary activities.

Economy of the region is considerably backward. Only some areas are industrially well developed where secondary and tertiary activities are predominant. Otherwise a vast area remains without any industrial unit. People in the rural areas are dependent on agricultural and forest products for their livelihood. Land use pattern of the region reveals that only 30 to 35 per cent area is suitable for cultivation. Nearly 30 per cent of area is covered by forests. In spite of heavy exploitation of forest by various agencies in recent past. Among the agricultural production, rice is the main food crop which is produced over more than 70 per cent of area to total agricultural area of the region. Other minor crops are maize, millets, pulses (excluding gram and tur) vegetables and oil seeds. Wheat is being cultivated in a small area especially in the lower Ganga valley. Double cropped area is hardly practiced. Indices of cropping intensity in the region is very low. It varies from 113 to 123. In many districts it is below 100. These indices indicate that double cropped and tripple cropped

area in the region is very small. Crop combination region depicts that rice is the main crop occupying as a first crop in all the combination and covers the vast area of agricultural land. In a few districts rice only ranks as mono crop.

Exploitation of mineral resources is the main activities of primary sector in Damodar valley. Jharkhand produces more than 60 per cent of minerals to total mineral resources of India. Twenty five important (metallic and non-metallic) minerals are produced in the region. The coal production is more than 65 per cent of India's total production. Iron ore, mica, manganese, bauxite and copper ore are other important minerals. A large number of workers are engaged in mining.

Concentration of industries has some pockets where raw materials (minerals) are easily available. Singhbhum, Dhanbad and Ranchi are highly industrialized districts. Sundergarh, Sambalpur, Hazaribagh are semi-industrialized districts. The region produces 47 per cent of iron ore and steel, 60 per cent of refined copper and 90 per cent of refined lead. Ranchi, Rourkela, Jamshedpur produce engineering goods as well as heavy machinery, railway coaches and wagons. Jharkhand also produces India's 7 per cent of fertilizer at Sindri, Dhanbad, Jamshedpur and Rourkela. Cement factories are located at Sindri, Khalari, Chaibasa, Baragarhand and Puruliya.

7.1 LEVELS OF DEVELOPMENT

Development is a long process which is determined by different phenomena such as agriculture, infrastructure, potential of human resources, participation rate in occupational structure, manufacturing, organised industrial productivity and natural resources etc. Here fifteen indicators have been selected for determining the levels of development in the region. Equal weightages has been given to each indicators upto a fixed percentage and indices. According to these weightages the following levels have been noticed.

1. District with less than 30 weightage - First order, underdeveloped.
2. District with 30 to 40 weightage, second order, semi-developed.
3. District with more than 40 weightage, third order, developed.

These weightages have been given districtwise in Table 7.1.

7.1.1 Underdeveloped Districts

There are seven districts in this group. They are Santhal Pargana, Palamau, Surguja, Raigarh, Sambalpur, Keonjhar and Mayurbhanj. In this group Raigarh has the lowest weightage that is 21.50. All the indicators, like

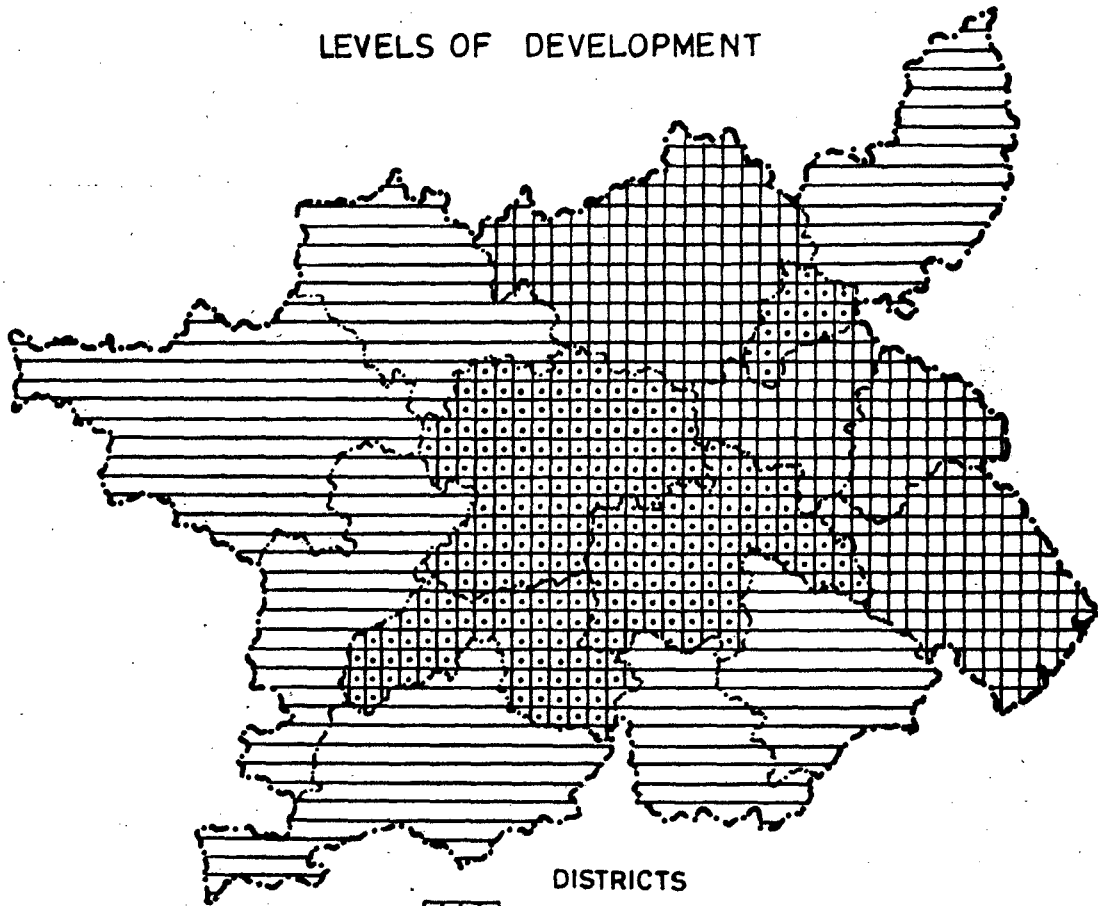
Table 7.1JHARKHAND: LEVELS OF DEVELOPMENTS - 1971

S.No.	District	Weightage	Rank	Levels of Developments
1.	Santhal Pargana	27.46	XI	Underdeveloped
2.	Palamau	25.93	XII	Underdeveloped
3.	Hazaribagh	35.23	VI	Semi-developed
4.	Ranchi	41.98	III	Developed
5.	Dhanbad	44.32	II	Developed
6.	Singhbhum	45.68	I	Developed
7.	Surguja	24.37	XIV	Underdeveloped
8.	Raigarh	21.50	XVI	Underdeveloped
9.	Sundargarh	40.09	IV	Developed
10.	Sambalpur	29.97	X	Underdeveloped
11.	Keonjhar	24.71	XIII	Underdeveloped
12.	Mayurbhanj	22.33	XV	Underdeveloped
13.	Bankura	34.90	VIII	Semi-developed
14.	Puruliya	35.14	VII	Semi-developed
15.	Midnapur	37.20	V	Semideveloped

percentage of literate population to total population, percentage of urban population to total population, percentage of workers engaged in manufacturing percentage of mineral production and transport have very low weightage. Dependency ratio and size of household is very high while in developed district it is found low. Crop productivity is low but intensity of

JHARKHAND

LEVELS OF DEVELOPMENT



DISTRICTS



DEVELOPED



SEMI DEVELOPED



UNDER DEVELOPED

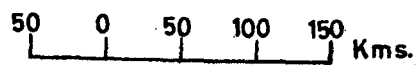


Fig. 7.1

cropping in some districts is high. Besides these all the weightages fall below 30.

Sambalpur (29.97) is in transition from under-developed to semi-developed. Some indicators like mineral production, industrial production and transport show very high value in this district. Literacy is also high as compared to other underdeveloped districts like Raigarh, Mayurbhanj, Santhal Pargana and Surguja. Santhal Pargana comes in the second place in this group followed by Palamau and Keonjhar respectively. All these districts are less developed in manufacturing activities except in some urban centres. In Keonjhar iron ore and manganese are the important minerals. Coal production is highest in Surguja in this group. Palamau is at the top in the total mineral production in this group. According to Professor Asok Mitra's demarcation of levels of development in 1961, Keonjhar, Mayurbhanj, Sambalpur, Surguja and Raigarh were included in the first category i.e. lowest level. Santhal Pargana and Palamau comes in second category means least developed districts.

7.1.2 Semideveloped Districts

Hazaribagh, Bankura, Puruliya and Midnapur have been included in the second category. Weightage of above fifteen indicators in these districts range from 30 to 40. Midnapur scored highest weightage followed by Hazaribagh

and Puruliya respectively. From the point of view of minerals Hazaribagh is very rich. Hazaribagh produces highest quantity of mica and ranks second next to coal after Dhanbad in the region and also in the country. Large number of workers are engaged in these mines. Districts of West Bengal in lower Ganga valley have maximum cultivable land and produces highest quantity of food grains. Rice and wheat are the principal crops. Cropping intensity is also highest in these districts. On the other hand these three districts are very poor in mineral resources. Midnapur recorded nil production in 1980-81. Bankura and Puruliya produced less than one per cent mineral to total mineral production of the region.

Other indicators like percentage of literacy, percentage of urbanization, dependency ratio and tertiary sector workers are high. Manufacturing workers and percentage of industrial production is very low. Transport indicators include high weightages. Per capita road and railway length is high particularly in Midnapur. There are 13 urban centres in Midnapur and recorded as highly urbanised. In 1961, Bankura, Midnapur and Puruliya fell in the second order according to Asok Mitra, while Hazaribagh was placed in third order. Main focus was given to mineral as well as industrial production. Hazaribagh in the Damodar valley having several small clusters of

industrial production are developed particularly in non-metallic production.

7.1.3 Developed Districts

Four districts (three from Chotanagpur and one from Orissa) come under the developed group. In 1961 only Singhbhum and Dhanbad were demarcated as developed districts by Asok Mitra. Sundergarh was in third order while Ranchi in second. Consequently, Sundargarh shows rapid development in all fields.

Singhbhum has the highest number of (thirteen) urban centres and occupies top position in urbanization. Singhbhum produces more than 15 minerals in which some minerals are available only in this district. Jamshedpur is the most developed industrial centre. Iron ore, lead, manganese, copper are the important metallic minerals which are produced in the district. It is the highest producer not only in Jharkhand but also in the country. Besides these, cement, fertilizer, railway coaches and wagons and engineering goods are also manufactured in a large scale. Large number of workers are engaged in these industries. Over thousands of small and medium industries are established in and around Jamshedpur. About 10 per cent of land area is covered by the factories and mines. Therefore, cultivable land is very small where rice is dominant crop.

Dhanbad is highly developed and is the leading producer of coal which is one of the most important factors in establishing iron and steel industry. In 1980, it produced 57.30 per cent of coal to total coal production of Bihar. Other minerals are fair clay and silver. All these three minerals production was more than 35 per cent to total production of Jharkhand which was 33.82 per cent of the total mineral value of India. There were 228 coal mines in Damodar valley within 2.98 lakh hectare area. Percentage of literacy, percentage of workers in manufacturing is very high. Bokaro steel city is the biggest in Jharkhand. Per capita road railway length is very high as compared to other districts. Production of manufactured goods is also very high in Dhanbad. It thus ranks second among the developed districts.

Ranchi occupies third position in the hierarchy of development. It is a cultural centre of Chotanagpur and mini capital of Bihar. A number of educational and administrative institutions are located here. Index of urban literacy of Ranchi is the highest in the region. It is also second largest city of Jharkhand where a number of heavy industries have been located. Large number of small and medium industries have been established during 1961-71 decade. Forest based industries like paper industry, match factory, biri making, saw mills and lakh

industries are well developed in and around the Ranchi city. Agricultural production in Ranchi is relatively low. More than 70 per cent of working population is engaged in primary sectors. Tribal population records more than 50 per cent of total population of the district.

Sundargarh ranks lowest among the developed districts. In terms of total weightage it is 40.0. It means that it is slightly above the semi-developed districts. Its industrial as well as mineral production is high in the whole of Orissa. This is mainly due to its small population. Per capita industrial production is higher than Ranchi. Rourkela is largest industrial centre of iron and steel, heavy machine, fertilizers, cement and others. Agricultural production in the district has increased considerably due to irrigation facilities provided by Hirakund on Mahanadi.

APPENDIX I

JHARKHAND : AVERAGE RAINFALL AND TEMPERATURE AT METEOROLOGICAL STATIONS

Sl. No.	Stations	Districts	RAINFALL												Annual rainfall in centi-metre	Number of rainy days
			Average Monthly Rainfall in Milli Metre													
			Janu-ary	Febru-ary	March	April	May	June	July	August	Septem-ber	Octo-ber	Novem-ber	Decem-ber		
1.	Hazaribagh	Pazaribagh	30.4	26.4	20.4	15.1	48.8	165.0	335.4	349.8	233.3	80.0	11.0	4.7	132.02	75.8
2.	Ranchi	Ranchi	24.1	38.1	28.3	22.6	49.9	202.3	360.3	353.8	256.2	105.2	17.4	3.9	146.27	78.5
3.	Dhanbad	Dhanbad	15.8	21.8	16.0	16.2	41.1	160.2	249.1	347.0	228.8	89.6	8.6	3.2	119.73	68.8
4.	Chaibasa	Singhbhum	16.4	28.2	23.6	28.3	63.4	175.8	324.3	314.5	218.1	98.7	21.3	1.8	131.44	74.0
5.	Raigarh	Raigarh	18.4	15.5	21.0	7.5	13.7	167.7	475.2	507.7	241.4	56.9	0.7	1.3	162.70	72.5
6.	Sambalpur	Sambalpur	18.8	24.7	23.1	11.7	24.5	237.6	503.0	476.5	262.4	67.7	9.5	2.0	166.15	75.4
7.	Midnapur	Midnapur	14.2	29.9	34.3	43.9	109.4	232.2	322.1	336.3	261.8	131.5	36.1	3.2	155.49	79.1
8.	Puruliya	Puruliya	9.8	13.5	20.5	27.3	41.6	177.7	331.4	312.4	287.0	80.1	4.3	1.4	130.70	75.0
9.	Jamshedpur	Singhbhum	14.1	28.3	23.5	25.4	68.8	217.5	347.2	356.1	215.4	76.2	16.7	1.8	139.10	75.7
10.	Dumka	Santhal Pargana	19.7	25.5	13.7	28.9	61.5	205.2	371.6	350.1	279.9	128.5	15.4	2.2	150.22	77.1
11.	Daltanganj	Palamau	30.7	27.4	9.7	9.1	12.6	139.7	345.9	357.7	223.5	56.7	6.8	3.7	123.44	67.4
12.	Deogarh	Sambalpur	0.0	0.2	7.9	7.6	48.5	797.5	834.5	491.8	247.9	165.7	21.9	2.8	161.96	100.6

Sl. No.	Stations	Districts	TEMPERATURE												Annual temperature in degree centigrade	Annual stations level pressure (mb.)
			Average Monthly Temperature in Degree Centigrade													
			Janu-ary	Febru-ary	March	April	May	June	July	August	Septem-ber	Octo-ber	Novem-ber	Decem-ber		
1.	Hazaribagh	Hazaribagh	26.9	30.0	35.6	39.7	41.9	40.4	32.8	31.9	32.1	31.2	28.3	28.3	33.56	941.0
2.	Ranchi	Ranchi	27.7	30.8	35.7	39.6	41.5	39.9	32.5	31.4	31.8	31.0	28.5	28.5	33.49	936.1
3.	Dhanbad	Dhanbad	28.8	32.4	35.9	41.8	43.8	42.2	34.7	33.5	34.0	33.2	30.5	30.5	35.23	979.9
4.	Chaibasa	Singhbhum	30.2	33.9	39.3	42.8	44.5	42.7	35.0	34.1	34.1	33.6	31.4	31.4	36.14	983.3
5.	Raigarh	Raigarh	31.2	36.1	40.2	43.1	45.7	43.9	35.6	33.9	34.3	34.1	32.1	32.1	36.72	984.0
6.	Sambalpur	Sambalpur	30.0	34.6	39.7	43.2	45.1	43.4	34.5	33.5	34.6	33.8	32.2	32.2	36.50	992.3
7.	Midnapur	Midnapur	30.6	34.4	39.8	42.8	43.6	41.2	34.9	34.3	34.2	34.2	31.8	31.8	35.97	1000.8
8.	Puruliya	Puruliya	29.3	33.6	39.0	42.7	44.5	42.2	35.2	33.9	34.5	33.5	30.5	30.5	35.64	980.6
9.	Jamshedpur	Singhbhum	30.5	33.8	39.2	42.7	44.3	42.5	35.4	34.3	34.5	34.1	31.8	30.5	35.59	994.8
10.	Dumka	Santhal Pargana	29.0	32.9	39.0	42.4	43.6	41.9	34.9	34.3	34.8	32.2	31.5	31.5	35.05	992.0
11.	Daltanganj	Palamau	28.9	32.1	38.3	42.4	44.7	43.9	36.3	34.3	30.0	33.8	31.1	31.1	34.20	983.9
12.	Deogarh	Sambalpur	33.4	33.7	33.7	34.3	34.4	33.6	30.7	30.0	31.2	33.5	34.2	34.2	33.38	1007.2

Source: Climatological Tables of Observatories in India.

APPENDIX IIJHARKHAND: PERCENTAGE OF SCHEDULED CASTES AND
SCHEDULED TRIBES TO TOTAL POPULATION 1971

Sl. No.	Districts	Total Rural Urban	Scheduled Castes			Scheduled Tribes		
			Per-sons	Males	Females	Per-sons	Males	Fe-males
1.	Santhal Pargana	T	7.19	7.19	7.19	36.22	35.45	37.02
		R	7.08	7.12	7.06	32.26	37.55	38.92
		U	8.81	8.41	9.29	3.40	3.44	3.35
2.	Palamau	T	25.44	25.24	25.65	19.09	18.97	19.21
		R	26.69	25.96	26.27	19.80	19.72	19.87
		U	11.65	11.35	12.00	4.60	4.53	4.67
3.	Hazaribagh	T	12.07	11.64	12.52	10.99	10.83	11.15
		R	12.37	11.99	12.75	11.81	11.78	11.85
		U	10.02	9.46	10.92	5.34	5.00	5.75
4.	Ranchi	T	4.83	4.83	4.83	58.08	56.95	59.26
		R	4.94	4.97	4.91	55.16	54.76	55.55
		U	4.14	4.01	4.36	16.74	16.72	16.76
5.	Dhanbad	T	15.18	15.14	15.24	10.61	9.67	11.81
		R	16.95	17.72	16.62	15.34	14.75	15.99
		U	12.87	12.70	13.12	4.47	3.82	5.43
6.	Singhbhum	T	3.61	3.59	3.62	46.12	44.38	47.96
		R	3.20	3.22	3.17	58.44	57.54	59.34
		U	4.75	4.51	5.04	11.48	11.00	12.04
7.	Surguja	T	4.81	4.81	4.80	55.93	55.40	56.48
		R	4.53	4.59	4.58	59.23	58.88	59.50
		U	7.78	7.60	7.99	10.67	10.18	18.59
8.	Raigarh	T	9.16	9.60	8.72	47.28	46.28	47.59
		R	9.16	9.64	8.69	49.73	49.53	51.57
		U	9.05	8.94	9.18	8.44	8.56	8.29
9.	Sambalpur	T	15.61	15.50	15.73	28.13	27.64	28.64
		R	15.86	15.89	15.83	30.38	30.10	30.65
		U	13.73	12.82	14.79	11.67	10.97	12.49
10.	Sundergarh	T	8.02	7.95	8.10	53.40	51.71	55.19
		R	8.09	8.10	8.07	63.85	63.40	59.75
		U	7.79	7.46	8.21	18.86	17.05	21.16

Sl. No.	Districts	Total Rural Urban	Scheduled Castes			Scheduled Tribes		
			Per-sons	Males	Females	Per-sons	Males	Females
11.	Keonjhar	T	11.28	11.30	11.26	46.96	46.32	47.60
		R	11.14	11.21	11.08	48.19	47.75	48.64
		U	13.00	12.36	13.77	30.59	28.90	32.57
12.	Mayurbhanj	T	7.23	7.27	7.19	58.56	58.06	59.07
		R	7.13	7.17	7.08	59.97	59.58	60.36
		U	10.69	10.18	11.29	9.06	8.86	9.31
13.	Bankura	T	32.22	28.19	28.25	10.28	10.14	10.42
		R	28.93	28.98	28.90	11.05	10.87	11.19
		U	19.39	18.18	20.01	0.58	0.60	0.56
14.	Midnapur	T	13.57	13.53	13.61	8.04	7.94	8.15
		R	13.97	13.97	13.98	8.56	8.47	8.66
		U	8.59	8.87	8.82	1.65	1.41	1.55
15.	Puruliya	T	14.99	14.99	15.00	19.58	19.36	19.80
		R	14.77	14.82	14.22	21.17	21.01	21.34
		U	17.44	16.80	18.16	1.77	1.73	1.80
Jharkhand		T	11.92	11.88	11.22	29.42	28.77	30.09
		R	12.26	12.32	12.14	32.35	31.93	32.77
		U	9.46	9.02	10.31	7.94	7.97	7.91

Source:- Census of India 1971, Series 1, Paper 1 of 1975
Scheduled Caste and Scheduled Tribes.

APPENDIX IIIJHARKHAND: GROWTH RATE OF POPULATION 1971-81

Sl. No.	Districts	Total	Growth Rate 1971			Growth Rate 1981		
			Rural Urban	Per-sons	Males	Females	Per-sons	Males
1.	Santhal Parganas	T	19.13	20.42	17.81	16.32	16.37	16.27
		R	18.60	19.94	17.25	14.96	14.97	14.89
		U	28.41	28.14	28.75	39.03	37.61	40.74
2.	Palamau	T	26.65	28.00	24.05	27.37	33.91	33.91
		R	26.70	28.17	25.21	26.10	26.38	30.34
		U	25.62	24.84	26.57	53.20	53.61	52.70
3.	Giridh	T	-	-	-	25.91	25.89	25.87
		R	-	-	-	24.38	24.98	24.23
		U	-	-	-	36.03	35.14	37.48
4.	Hazaribagh	T	27.32	26.82	25.24	33.41	34.64	34.80
		R	23.23	19.89	19.84	29.63	29.24	29.76
		U	93.24	94.97	91.12	59.45	56.38	62.69
5.	Ranchi	T	22.11	22.95	21.25	17.15	17.58	17.32
		R	16.44	16.77	16.12	7.30	7.20	7.40
		U	76.27	76.45	78.97	79.36	77.05	86.55
6.	Dhanbad	T	23.97	26.57	26.55	43.50	41.68	45.80
		R	-4.64	-7.01	-1.83	25.24	25.22	25.26
		U	120.07	116.37	125.90	67.27	60.59	77.01
7.	Singhbhum	T	18.92	20.00	17.80	17.29	17.22	17.34
		R	11.73	12.42	11.04	7.99	8.28	7.70
		U	45.18	44.74	45.73	43.41	39.89	47.78
8.	Surguja	T	27.90	27.32	28.58	22.97	23.05	22.88
		R	24.61	23.89	26.76	20.37	20.38	20.35
		U	103.33	98.16	108.73	59.07	57.75	60.62
9.	Raigarh	T	22.81	22.96	22.65	12.77	12.89	12.65
		R	22.56	22.25	22.41	9.82	9.76	9.86
		U	26.96	26.76	26.83	59.62	59.60	59.56
10.	Sambalpur	T	22.29	23.43	21.13	23.27	23.50	23.01
		R	16.49	17.50	15.52	18.35	18.61	18.05
		U	92.22	87.52	98.06	59.24	56.71	62.21

Sl. No.	Districts	Total Rural Urban	Growth Rate 1971			Growth Rate 1981		
			Per-sons	Males	Females	Per-sons	Males	Females
11.	Sundargarh	T	35.87	33.97	37.94	29.69	30.31	29.03
		R	27.00	26.83	27.17	17.40	17.64	17.17
		U	76.55	60.77	101.58	70.45	67.90	73.21
12.	Keonjhar	T	28.55	28.85	28.23	16.14	15.74	16.54
		R	24.85	25.08	24.61	10.14	10.11	11.36
		U	110.69	103.89	119.41	87.45	84.52	90.94
13.	Mayurbhanj	T	19.12	19.37	18.85	9.96	9.75	10.58
		R	18.60	18.86	18.32	6.61	6.16	7.06
		U	40.57	38.32	43.34	126.50	125.34	128.00
14.	Bankura	T	22.02	23.43	20.59	16.00	16.53	17.30
		R	21.85	23.44	20.21	16.69	16.37	17.02
		U	24.21	23.91	25.33	19.40	17.99	20.92
15.	Midnapur	T	26.89	27.32	26.42	22.06	21.63	22.48
		R	26.99	27.68	26.25	20.84	20.57	21.14
		U	25.69	50.66	28.56	36.62	34.37	39.49
16.	Puruliya	T	17.86	18.45	17.44	15.76	16.12	15.37
		R	16.01	16.57	15.44	14.83	15.25	14.38
		U	43.13	43.03	43.25	26.09	25.41	26.84
Jharkhand	T	24.04	24.32	17.59	20.91	21.38	26.74	
	R	20.07	20.30	19.36	16.86	16.90	16.85	
	U	63.90	62.00	66.39	52.12	48.08	57.27	

Sources:- 1. Census of India 1971, Series 1, General Population Table.

2. Census of India 1981, Series 1, Provisional Population Totals.

APPENDIX IVJHARKHAND: LITERACY PATTERN

Sl. No.	Districts	Total Urban	Percentage of Literacy 1971			Percentage of Literacy 1981		
			Rural	Persons	Males	Females	Persons	Males
1.	Banthal Parganas	T	15.96	25.02	6.44	22.06	33.21	10.41
		R	13.93	22.76	4.80	19.60	30.62	8.19
		U	48.64	59.48	35.57	55.29	66.06	42.58
2.	Palamau	T	15.12	24.29	5.66	20.34	31.09	9.10
		R	13.62	22.56	4.40	18.45	29.10	7.42
		U	45.63	57.16	31.94	51.83	62.20	39.44
3.	Giridih	T	-	-	-	24.01	35.59	10.11
		R	-	-	-	20.00	33.64	6.39
		U	-	-	-	48.23	59.40	34.84
4.	Hazaribagh	T	16.41	26.24	6.37	23.56	35.69	10.95
		R	11.53	22.16	3.60	18.68	30.65	6.72
		U	40.64	50.99	27.62	50.98	60.71	38.32
5.	Ranchi	T	23.24	33.21	12.92	31.32	42.41	19.84
		R	18.03	27.71	8.36	23.45	34.51	12.42
		U	56.19	64.78	45.54	61.08	69.85	50.63
6.	Dhanbad	T	29.51	40.98	15.09	39.25	52.26	23.28
		R	20.11	32.41	6.34	26.64	41.73	9.75
		U	41.72	50.74	28.35	51.52	61.70	37.84
7.	Singbhum	T	25.86	37.12	12.22	33.63	45.76	20.77
		R	15.77	26.56	4.94	22.76	39.92	9.50
		U	54.22	63.88	42.17	56.63	65.07	46.66
8.	Surguja	T	12.78	20.88	4.88	16.22	24.57	7.56
		R	10.72	17.74	3.14	13.12	21.09	4.94
		U	43.91	54.33	31.11	48.83	59.09	36.93
9.	Raigerh	T	20.12	31.16	9.16	26.39	38.38	14.46
		R	18.22	28.99	7.60	23.85	35.60	12.29
		U	50.17	63.83	35.27	54.01	67.01	39.59
10.	Sambalpur	T	27.11	40.51	13.40	34.02	47.98	19.67
		R	24.27	37.42	10.75	30.95	45.24	16.54
		U	33.62	59.20	3.42	50.72	62.07	37.80

Sl. No.	Districts	Total Rural Urban	Percentage of Literacy, 1971			Percentage of Literacy, 1981		
			Persons	Males	Females	Persons	Males	Fe- males
11.	Sundergarh	T	26.40	36.67	15.62	36.17	47.34	24.19
		R	19.48	29.10	9.76	26.81	38.05	15.44
		U	49.60	59.22	37.43	57.48	66.62	46.25
12.	Keonjhar	T	21.25	32.35	9.86	29.87	42.61	16.95
		R	20.04	31.02	8.92	27.77	40.49	15.05
		U	37.26	48.61	23.75	46.41	58.10	32.94
13.	Mayurbhanj	T	26.29	37.63	14.47	25.47	37.01	13.82
		R	24.21	36.15	11.93	23.52	35.02	12.02
		U	45.47	55.56	34.65	57.51	67.30	45.99
14.	Bankura	T	26.80	37.63	14.47	36.50	49.40	23.11
		R	24.75	36.16	12.16	34.77	47.90	21.19
		U	45.50	55.54	34.60	57.40	67.52	46.66
15.	Midnapur	T	32.87	45.59	19.42	42.84	55.32	29.73
		R	31.31	44.23	17.75	41.29	54.09	27.91
		U	51.78	61.42	40.64	59.48	68.09	49.90
16.	Puruliya	T	21.50	34.27	8.25	29.82	45.58	13.34
		R	19.22	32.06	5.98	27.31	43.50	10.49
		U	46.85	57.78	34.59	55.20	66.00	43.22
Jharkhand	T	23.14	34.18	12.26	31.00	43.00	18.00	
	R	19.84	30.65	8.78	26.00	39.00	18.00	
	U	47.55	56.02	35.96	54.00	64.00	43.00	

Sources:- 1. Census of India 1971, Series 1, General Population Table.

2. Census of India 1981, Series 1, Provisional Population Total.

JHARKHAND OCCUPATIONAL STRUCTURE 1991

Sl. No.	Districts	Workers (in '00)		Non-workers (in '00)		Construction	Agriculture labourers	Percentage of		Occupation				
		Number	Percentage	Number	Percentage			Stock and mining	Manufacturing	Construction	Trade and commerce	Transport, storage and communication	Other services	
1.	Bhadracharya	10419	32.69	21449	67.31	60.48	25.27	1.67	0.21	1.27	1.05	0.00	2.33	3.76
2.	Palamu	4242	32.18	10202	67.82	48.30	40.47	1.13	0.12	1.29	1.24	0.00	1.05	1.40
3.	Hazaribagh	9974	29.78	21228	70.22	53.32	22.52	0.96	0.62	2.08	1.40	1.00	1.60	1.75
4.	Ranchi	9311	31.80	17503	68.20	61.24	19.62	1.60	0.56	2.22	0.00	1.00	1.00	2.00
5.	Dhanbad	4945	33.72	9710	66.28	23.22	11.36	2.60	29.50	1.20	2.00	1.00	1.00	1.00
6.	Singhbhum	8092	33.19	16186	66.81	40.91	27.80	1.00	2.30	1.00	1.00	0.00	1.00	1.00
7.	Surguja	4774	35.99	8109	64.01	65.39	21.00	1.00	2.70	2.00	0.00	0.00	1.50	1.00
8.	Raigarh	4782	37.39	8005	62.61	61.72	25.80	1.10	0.10	3.50	1.00	0.00	1.00	1.00
9.	Sambalpur	6518	35.33	11930	64.67	42.26	28.30	1.60	0.60	5.63	3.20	0.50	3.03	1.00
10.	Sundargarh	3241	31.44	7066	68.56	43.19	16.75	1.70	3.85	2.70	10.10	0.60	1.00	1.00
11.	Keonjhar	2924	30.60	6631	69.40	53.28	22.02	1.00	1.36	2.00	1.00	0.30	1.00	1.00
12.	Mayurbhanj	4782	33.34	9759	66.66	46.17	37.41	2.38	0.10	4.00	1.00	0.30	1.00	1.00
13.	Bankura	5749	28.31	15061	71.69	41.61	39.75	0.78	0.20	3.00	1.00	0.00	1.00	1.00
14.	Midnapur	14707	26.70	40533	73.30	45.98	18.71	0.79	0.20	1.00	1.00	0.00	1.00	1.00
15.	Puruliya	4985	31.10	11213	72.00	57.00	33.80	1.10	2.10	3.00	1.00	0.00	1.00	1.00
	Jharkhand	98046	31.28	215362	68.72	49.60	36.00	1.40	3.20	2.00	1.00	0.00	1.00	1.00

Source: Statistical Profile of India, Table 15.

APPENDIX V

JHARKHAND : NUMBER OF VILLAGES AND ITS PERCENTAGE TO TOTAL VILLAGES IN EACH
SIZE CLASS OF VILLAGE POPULATION, 1971

Sl. No.	Districts	Total No. of village	Below 200		200-499		500-999		1000-1999		2000-4999		5000-10000		Above 10000	
			No. of vill-ages	Per-centage	No. of vill-ages	Per-centage	No. of vill-ages	Per-centage	No. of vill-ages	Per-centage	No. of vill-ages	Per-centage	No. of vill-ages	Per-centage	No. of vill-ages	Per-centage
1.	Santhal Pargana	10025	4991	49.79	3510	35.01	1157	11.54	309	3.08	51	0.50	6	0.05	1	0.01
2.	Palamau	3218	1082	33.62	1161	36.07	627	19.49	254	7.89	43	1.33	1	0.03	-	-
3.	Hazaribagh	6131	2524	41.17	2044	33.33	928	16.11	435	7.09	124	2.02	14	0.22	1	0.01
4.	Ranchi	3836	657	17.13	1537	41.00	1058	27.58	498	12.98	94	2.45	6	0.15	-	-
5.	Dhanbad	1365	361	26.45	433	31.72	343	25.13	775	24.34	45	3.30	4	0.29	-	-
6.	Singhbhum	4351	1354	31.12	1793	41.21	930	21.37	244	5.61	26	0.60	2	0.05	-	-
7.	Surguja	2396	527	21.99	897	37.44	706	29.47	242	10.10	24	1.00	-	-	-	-
8.	Raigarh	2998	388	17.65	917	41.72	633	28.80	226	10.28	33	1.50	-	-	-	-
9.	Sambalpur	3390	1190	35.10	1096	32.33	714	21.06	314	9.26	74	2.18	2	0.05	-	-
10.	Sundargarh	1621	439	27.08	642	39.60	379	23.38	131	8.08	29	1.78	1	0.06	-	-
11.	Keonjhar	2009	539	26.82	866	43.10	453	22.54	132	6.57	17	0.84	2	0.09	-	-
12.	Mayurbhanj	3712	1246	33.56	1561	42.05	733	19.74	151	4.06	21	0.56	-	-	-	-
13.	Bankura	3548	860	24.00	1346	38.00	910	26.00	337	9.00	93	2.62	2	0.06	-	-
14.	Midnapur	10380	3724	36.00	3553	34.00	1872	18.03	895	9.00	316	3.04	20	0.19	-	-
15.	Puruliya	2459	506	21.00	895	36.00	660	27.00	322	13.00	72	2.93	4	0.16	-	-
	Jharkhand	61231	20388	33.30	22287	36.38	12163	19.88	5267	8.68	1062	1.78	64	0.10	2	0.002

Source : Statistical Profile of Rural India (District-wise), 1971.

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