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PLANNING STRATEGIES FOR SOUTH CHHOTANAGPUR REGION OF BIHAR

A DISSERTATION

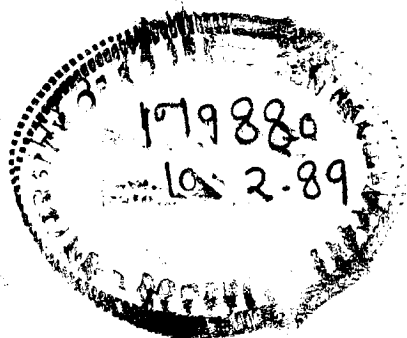
Submitted in partial fulfilment of the
requirements for the award of the degree

of

MASTER OF URBAN AND RURAL PLANNING

By

SATYENDRA NATH PANDEY



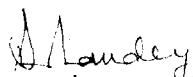
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ROORKEE-247 667

May, 1988

CANDIDATE'S DECLARATION

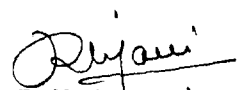
I hereby certify that the work which is being presented in the dissertation entitled 'PLANNING STRATEGIES FOR SOUTH CHHOTA-NAGPUR REGION OF BIHAR' in partial fulfilment of the requirement for the award of the Degree of 'Master of Urban and Rural Planning', submitted in the Department of Architecture and Planning of the University is an authentic record of my own work carried out during a period of nine months from August, 1987 to April 1988 under the supervision of Shri R.K.Jain, Lecturer, Department of Architecture and Planning, University of Roorkee. The matter embodied in this dissertation has not been submitted by me for the award of any other degree.

Dated 30/5/88


(Satyendra Nath Pandey)

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

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A C K N O W L E D G E M E N T

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CHAPTER-1

INTRODUCTION

1.1 BACKGROUND :

The Regional Planning and development in India may be said to have been given official recognition sometimes in the mid-fifties when 'The Housing and Regional Planning Panel of the Planning Commission (1955)' recommended that delineation of suitable regions for development purposes for the whole country be undertaken followed by preparation of development plans for each of the regions. Successively third, fourth, fifth and sixth five year National plans recognised the need for the development programmes in the country to be conceived in terms of regions (spatial), defined by economic, social and geographical considerations. Growing imbalances in the development from state to state or region to region or area to area necessitated the realisation of such programmes. Consequently, the strategies for regional development and planning have been set in the past five year plans. Division of the country into planning regions at macro, meso and micro levels as also the preparation of regional plans for some of priority areas in the country were sponsored under five year plans. While there have been only sporadic reference to rural-urban relations in the First and Second plan documents, the Third plan contained chapters on 'Balanced Regional Development', and 'Housing and Urban and Rural Planning'. The Fourth plan referred at length to the need for redressing inter-state and intra-state imbalances in development which

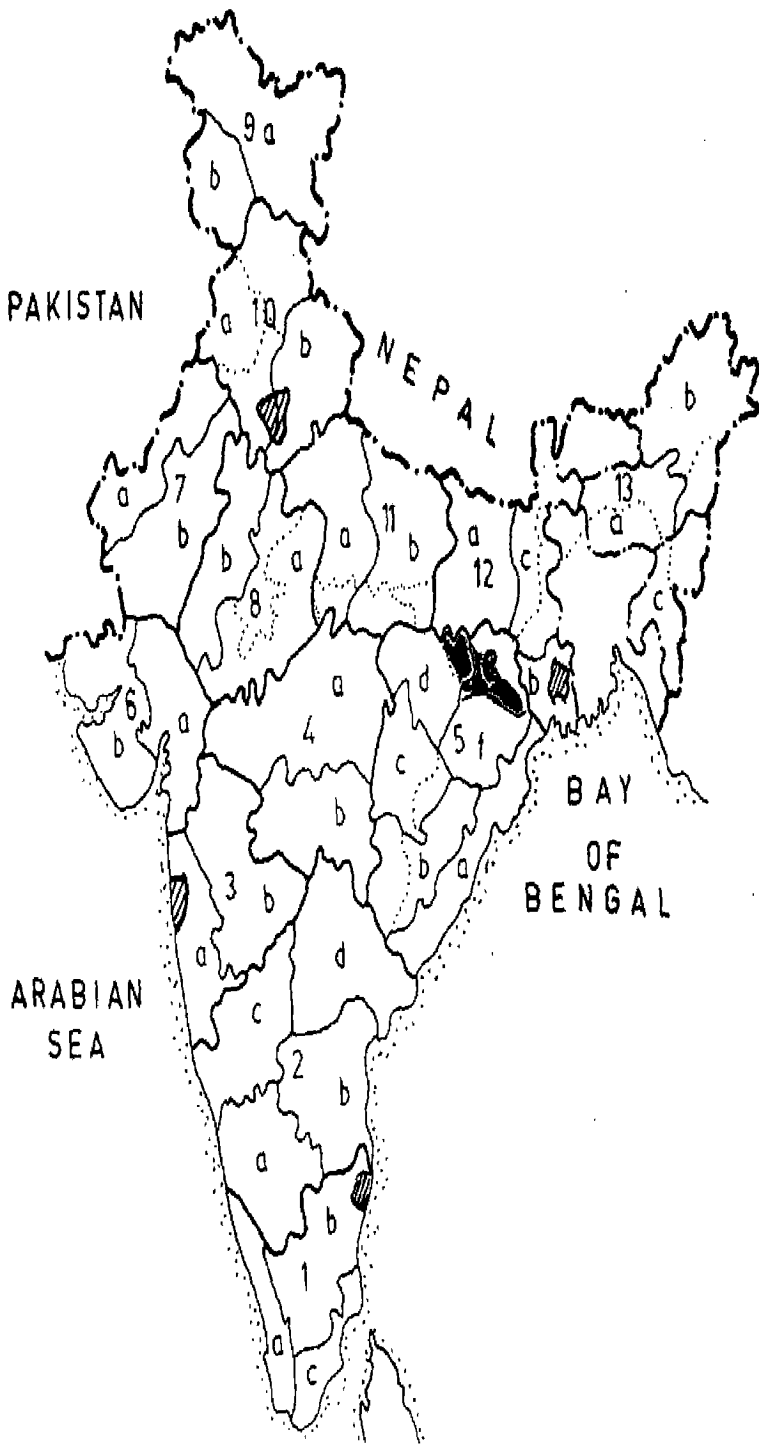
1. 'Regional Planning Efforts in India', A Monograph Town and Country Planning Organisation, Govt. of India, 1982.

included, by implication, the rural problem as well. The plan emphasized the urgent need for preventing unrestricted and chaotic growth in metropolitan cities and highlighted the necessity of regional approach to the problems of urban development. The Fifth Five Year Plan accepting the Fourth plan strategy enlarged the scope of urban development in small and medium towns for regulating the growth of big metropolises. It was against this background that the idea of multilevel planning was used for the first time in the Fifth plan. The Sixth Five Year Plan strived to achieve a balanced national growth, wherein development programmes for backward regions called for special attention. The objective of Sixth Five Year Plan was to bring about progressive reduction in regional inequalities in the pace of development and in the diffusion of technological benefits. The Seventh Five Year Plan has recommended the preparation of district development plans for effective implementation and monitoring.







1.1.1 Planning Regions : India

Now, so far as the division of the country into planning regions is concerned, consequent upon the recommendations of planning commission, Town and country planning organisation of India, based on adoption of certain criteria and methodologies tentatively divided the country into 13 macro and 36 meso regions. Further meso regions were divided into micro regions at state level (Map No 11). The

INDIA PLANNING REGIONS

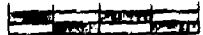


LEGEND

-  INTERNATIONAL BOUNDARY
-  STATE BOUNDARY (Not coinciding with regions)
-  MACRO REGIONS
-  MESO REGIONS
-  METROPOLITAN AREA BOUNDARY
-  STUDY AREA



200 0 200 400 600 K.m.



PLANNING STRATEGIES FOR
SOUTH CHHOTANAGPUR
REGION OF BIHAR

SATYENDRA NATH PANDEY

M. U. R. P II 1986-87

DEPT. OF ARCH. & PLANNING
UNIVERSITY OF ROORKEE

FIG. 1.1.

above three levels of classified regions have been defined as follows :

(i) Macro Region : A macro region is envisaged as an area having a certain economic unity functionally or in relation to possibilities of specialised production and development of associated and ancillary activities¹. Thus at the macro level the programmes for planning and development of hydro-graphic resources (river basins and irrigation systems), food self sufficiency, power supply, supply of industrial fuels, location of industries of national importance and transport development etc are initiated.

(ii) Meso Region : Meso regions are sub-divisions of macro regions. They really form the primary economic units for the purpose of planning. The main objective of delineating meso region is to carve out viable areal units for effective exploitation conservation and utilization of resources with prime consideration of economic viability measured in terms of indicators like percapita usable land, productivity index manufacturing potential etc.²

(iii) Micro Region : The micro region is designated to represent 'Community of interest', particularly with regard to dynamic types of production, market relationships and labour supply and demand.³ The micro units are intended to be suitable units for the formulation of area development plans.

1,2,3 'Regional Planning Efforts in India', A Monograph
Town and Country Planning Organisation, Govt. of India,
1982.

1.1.2 Planning Regions in Bihar :

Town and country planning organisation of India has divided Bihar into 4 meso regions (first order region) and 7 micro region (second order regions).(Map 1,2). Alongwith various general considerations, following factors have been especially considered while identifying the planning regions of Bihar :









- (i) Structure
- (ii) Relief and drainage
- (iii) Vegetation
- (iv) Soil types
- (v) Land use
- (vi) Cropping pattern
- (vii) Minerals
- (viii) Population, its distribution, its ethnic and social qualities
- (ix) Levels of economic development
- (x) Intra-regional resource linkages

1.2 DELINEATION OF SOUTH CHHOTANAGPUR REGION :

South Chhotanagpur Region is one of the first order regions of Bihar. It encompasses the boundaries of two micro regions of Bihar namely (i) Patland and the Ranchi Plateau, (ii) South East Chhotanagpur Mining and Industrial Region. (Refer Map No.1.2) Planning Regions:Bihar).

BIHAR PLANNING REGIONS

LEGEND

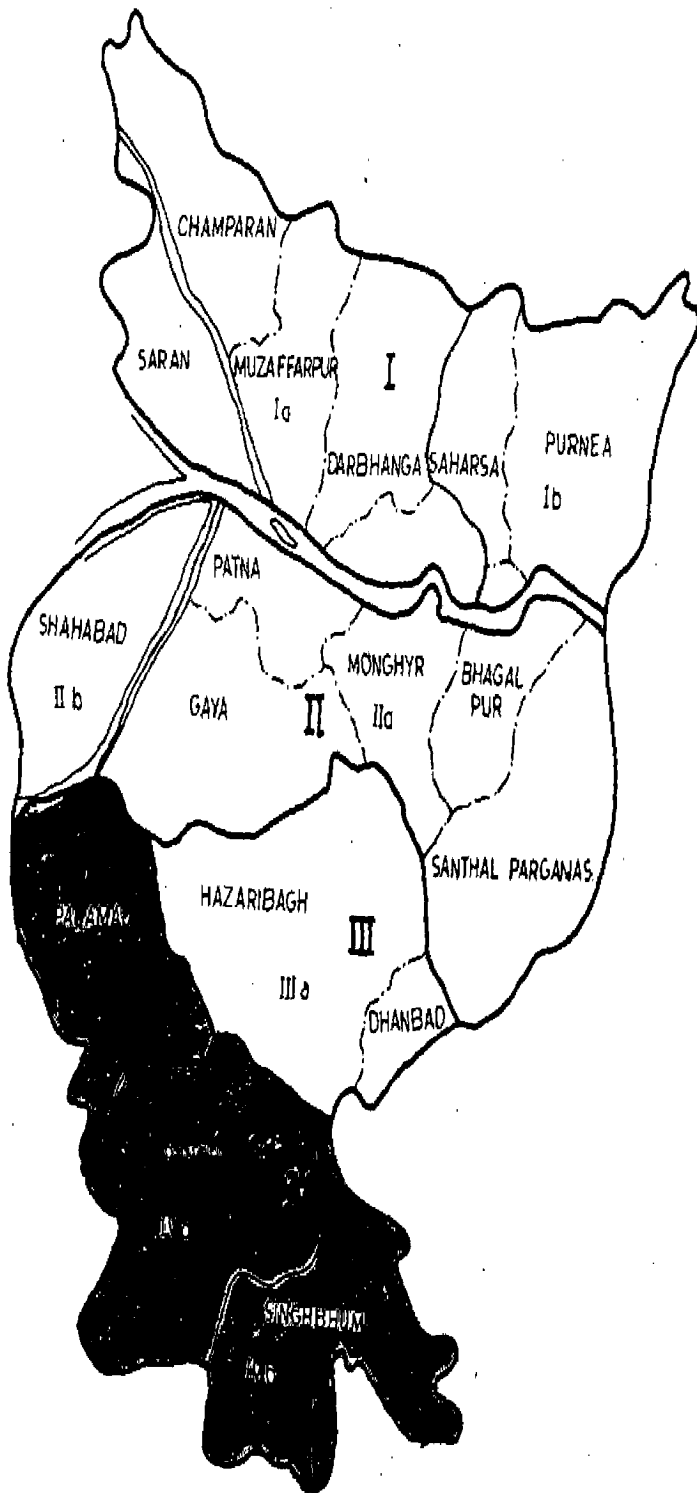
-  FIRST ORDER REGIONS BOUNDARY
-  SECOND ORDER REGIONS BOUNDARY
-  DISTRICT BOUNDARY
- FIRST ORDER REGIONS**
-  NORTH GANGETIC PLAIN
-  SOUTH GANGETIC PLAIN
-  NORTH CHHOTANAGPUR PLATEAU
-  SOUTH CHHOTANAGPUR PLATEAU
-  STUDY AREA

20 0 20 40 60 Miles



PLANNING STRATEGIES FOR
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1.2.1 Implication of Planning of South Chhotanagpur Region: of Bihar :

In¹ the past in the country the efforts for National Development Plans have given rise to the need for comprehensive regional plans at sub-national, state and sub-state level. Such a realisation will help in more effective implementation of National and state development plans. National and state plans will get an effective co-ordination, integration and synchronisation in space and time if they are properly executed through meso regional plans or micro regional plans.

Although the present study does not attempt at preparation of regional plans of South Chhotanagpur region, even then the study carried out under limited scope will serve as an overall framework for micro level planning or grass root level planning to be carried out in future.

1.2.2 South Chhotanagpur Region : Problems, Prospects and Constraints :

The picture of the South Chhotanagpur that emerges from study of its different aspects is that of an area of immense natural resources in the form of agricultural land forests mineral wealth and water potential on the one hand and on the other hand, a substantial tribal population 42.6% of the population of the region, living on subsistence economy under social and economic system quite alien to the modern industrialised society.

The Region, richly endowed with resources has a low density of population (176.5 p.psq km.) and has been found to be suitable for intensive exploitation of its natural resources especially for key minerals such as iron, ore, bauxite, limestone and ^{various} major and minor forest products. The demands of the national economy for harnessing some of minerals to produce iron, steel, aluminium have attracted huge investments in basic industries. Thus iron and limestone mines were opened, iron and steel plants were established and industries based upon use of iron and steel, or plants required for development of iron and steel manufacturing have come into being.

Such a large investment in the Region for industrial development was naturally expected to result in the exploitation of the resources and establishment of large scale industries, and their impact on all parts of the Region, resulting in the living standards of people, significant and economic development, development of well organised urban market systems etc.

In actual fact, the regional economic picture reveals that the investments in basic industries and in mineral development are concentrated in only two districts and that too in two cities of Ranchi and Jamshedpur. The remaining ^{of the} population/Region have gained marginally from the projects and the remaining areas are in either emerging state of development or are still to be thought for development.

Except for the wages earned by employees directly involved in the project, there has been hardly any impact of these projects on the Region's economy. The income originating from manufacturing and mining sectors has been almost wholly taken out of the Region and except to the limited extent of the wages earned, it has not become available to the region for general development.

Further, the type of industries that were established i.e. basic industries, have not attracted around them small, medium and large scale industries of auxiliary and ancillary character which normally get established alongwith basic industries putting out a range of intermediate and consumer products. Two reasons may be attributed to this firstly intermediate and consumer goods are market oriented. Secondly, the Region has not generated sufficient consumer demand for intermediate and finished products due to backward and stagnant sectors of economy building up consumer purchasing power. For instance, agriculture, one of the consumer purchasing power building sector, is in backward state of development even after presence of immense agricultural potential. Improvement in land, irrigation, seeds, fertilizers, infrastructure in form of marketing facilities, road and railway network for transporting surpluses and services to meet the needs of a growing agriculture has been marginal and localised over past span of time. Due to these factors the agriculture has been confined to 26.6%

of the geographical area and irrigation to 11.2% of the gross cropped area in spite of very large resources of water available in the Region. Production of rice is only 828 kg/hectare in the Region compared to the all India figure of 1,074 kg per hectare.

Secondly, even though the resources for industrial development are widely spread in the Region, the development of infrastructure has been confined to few areas where large scale basic industries have been located. Power, water, roads and other facilities are not available in most parts of the Region with the result that industrial entrepreneurship has concentrated its activities to a few points only.

The Region is thus a picture of contrasts, highly organised industrial complexes have come up at a few centres (e.g. Ranchi and Jamshedpur) while large areas (e.g. part of Ranchi district, Gumta, Lohardaga and Palamu districts) hold on primitive agricultural practices. If organised industrial economy flourishes in a few areas, major part of the Region has a subsistence tribal economy or at best incipient commercialisation. Tremendous wealth is produced in the form of basic products and mineral within the Region and except for the people directly involved in these efforts, most people of the Region have per capita income less than one fourth of the national average. Huge water resources are available within the Region, but marginal amount is being presently utilized.

Forest resources of the Region are higher than the country's average but forest produce contribute only small percentage to the economy of the Region. Agricultural resource is substantial but in most parts of the Region agricultural population is extremely poor and makes only a marginal living. Power resources - hydel and nuclear are surplus but hydel power potential has been marginally harnessed. Except near the few industrialised centres, the Region lacksⁱⁿ electricity, only 10.6% of the villages have electricity and large sections of the population are not able to benefit from power development.

This paradoxical situation has arisen on account of a number of factors. Firstly, the national objective has mainly been to exploit the selected resources available in this Region, without adequate consideration to the diversity of available resources and the manner in which the Region could benefit from such exploitation. Large investments have been made on central industrial projects. These have been confined only to those areas which directly benefit the project and the project does not recognise any obligation to the surrounding area and in fact are isolated from it physically, socially and economically. The problems of displaced people and disrupted economy of the concerned areas have been left to the politically unstable state to resolve as best as it could which has met little achievement.

Development of infrastructural facilities such as roads, railways, power and even water supply have mainly been directed to provide for effective functioning of projects. At no stage an attempt has been made to see that the development of resources brought positive improvement to the areas around in terms of not only employment but also in terms of raising the living standards and generally making the people prosperous.

The region is poor in terms of quality of labour due to poor infrastructural and training facilities etc. Even the share of region's population to unskilled or semi-skilled employment in the projects has fallen while the highly skilled or professional employees have had to be largely imported from outside the region, as could be normally expected because of low level of literacy, centres of general and technical education facilities.

The locations of large industrial projects has been examined purely from point of view of the final products and perhaps with some political overtones. The impact of the projects on the surrounding area or its relation to one another in the overall context of the Region was not foreseen. This has resulted in concentration of industries in some centres. The result of all this has been that the living standards of majority of the people in the Region have remained stagnant.

Economic and social organisation which serves the people and which helps in generating activity has practically been non-existent, except of in the limited areas around important towns in the Region. That there is only one town for every 600 or more villages in some of districts of the region indicates the type and level of services which the people are able to obtain in terms of commercial, health educational facilities, professional skills and services.

Therefore in developing this Region, it will be necessary to keep in view not only the national objective of maximising production in key sectors but also maximising the benefits which such activities will confer on the region's population and taking measures to spread the benefits more uniformly over the whole region. Keeping in view of the problems and prospects of the Region and the time limit of this dissertation the potentiality of only key resources with spatial disparity has been presented to have a guideline ^{for} micro or root level planning of smaller spatial units in the future. The planned setting of regional urban settlements which will always act as vehicles for development in the Region has been investigated in detail. Considering all constraints, objectives, scope and limitation of study have been set in as follows :

1.3 OBJECTIVES :

- (A) To evolve a set of planning strategies for comprehensive development of South Chhotanagpur Region.

(B) To maximise the benefits of key sectors with a view to spread the benefits uniformly over the whole Region.

(C) To develop a planned complex of growth centres and nodal points having definite functions.

1.4 SCOPE OF STUDY :

Due to limited available time, the work on dissertation in regard to achieve the stipulated objectives shall be within following scopes :

(i) The basic guidelines which control the present pace of development or will control the future development will be presented while evolving the planning strategies for comprehensive development of the region.

(ii) The key sectors activities of the Region will be shifted/restructured/augmented in spatial dimensions in such a way that the fruits of development are spread uniformly over the Region keeping at the same time objectives of nation attached with the development in the Region.

(iii) The growth centres and nodal wpoints will be planned within its existing functional capabilities and probable changed functional aspects especially arising due to shifting/restructuring/augmenting of key sectors activities.

(iv) The required phased programmes to achieve the objectives with financial implications and the management of organisational set up to effectively adapt the change etc will not be covered in the study.

1.5 LIMITATIONS :

Due to limited available time and the ease of availability of data at district level, the districts have been taken as the areal units for studies and analysis. The study is mainly based on the secondary data from various government departments. Further, the districts of Lohardaga and Gumla which were previously the parts of new Ranchi district have been constituted in late 1984 after the latest census year 1981 and that is why most data of Lohardaga and Gumla districts are combinedly available under the head of Ranchi district. Therefore, in the subsequent analysis wherever data for Lohardaga and Gumla districts are not separately available ~~the combined data for Lohardaga, Gumla~~ and new Ranchi districts has been presented under the head 'Ranchi (old)'. Statistics are expected to marginally affect the result so far as planning of the Region is concerned.

CHAPTER-2

16

PHYSICAL AND CLIMATIC CHARACTERISTICS OF THE REGION2.1 LOCATION :






South Chhotanagpur Region is a part of South Bihar. Its physical dimensions extend from the state boundary of Madhya Pradesh in the east to the state boundary of west Bengal in the west and from river Sone in the North to the boundary of Orissa in the south. The region comprises the administrative areas of districts of Palamau, Singhbhum and Gumla, Lohardaga, Ranchi (new) (*combinedely referred as Ranchi (old)). It lies between longitude $83^{\circ}22'$ to $84^{\circ}54'E$ and latitude $20^{\circ}21'N$ to $24^{\circ}29'N$. (Refer map No.2.1 and 2.2)

2.2 TOPOGRAPHY :

Physiographic setting of the Region can be grouped into three sharply defined areas. They are (i) North Chhotanagpur mining belt (Palamau district) consisting of hill and forest soils of steep slope and highly dissected area lying on the down contour of Sone river and in the Netarhat-Lohardaga plateau, upland grey yellowish grey heavy soils on sedimentary and allied rocks, yellow raddish-yellow medium deep light textured catenary soils in the central Palamau. (ii) Patland and Ranchi Plateau (Gumla and Ranchi (new districts areas) under the cover of red yellow-light grey catenary soils and yellow raddish-yellow medium deep light textured catenary soils. This portion of the Region is highly suitable for agricultural land.

1. Report, Figures and Forecast, Directorate of Extension Education, Birsa Agriculture University.

INDIA

- LEGEND**
-  INTERNATIONAL BOUNDARY
 -  STATE BOUNDARY
 -  CAPITAL OF COUNTRY
 -  CAPITAL OF STATE
 -  STUDY AREA



PLANNING STRATEGIES FOR
SOUTH COASTAL AREAS
OF INDIA

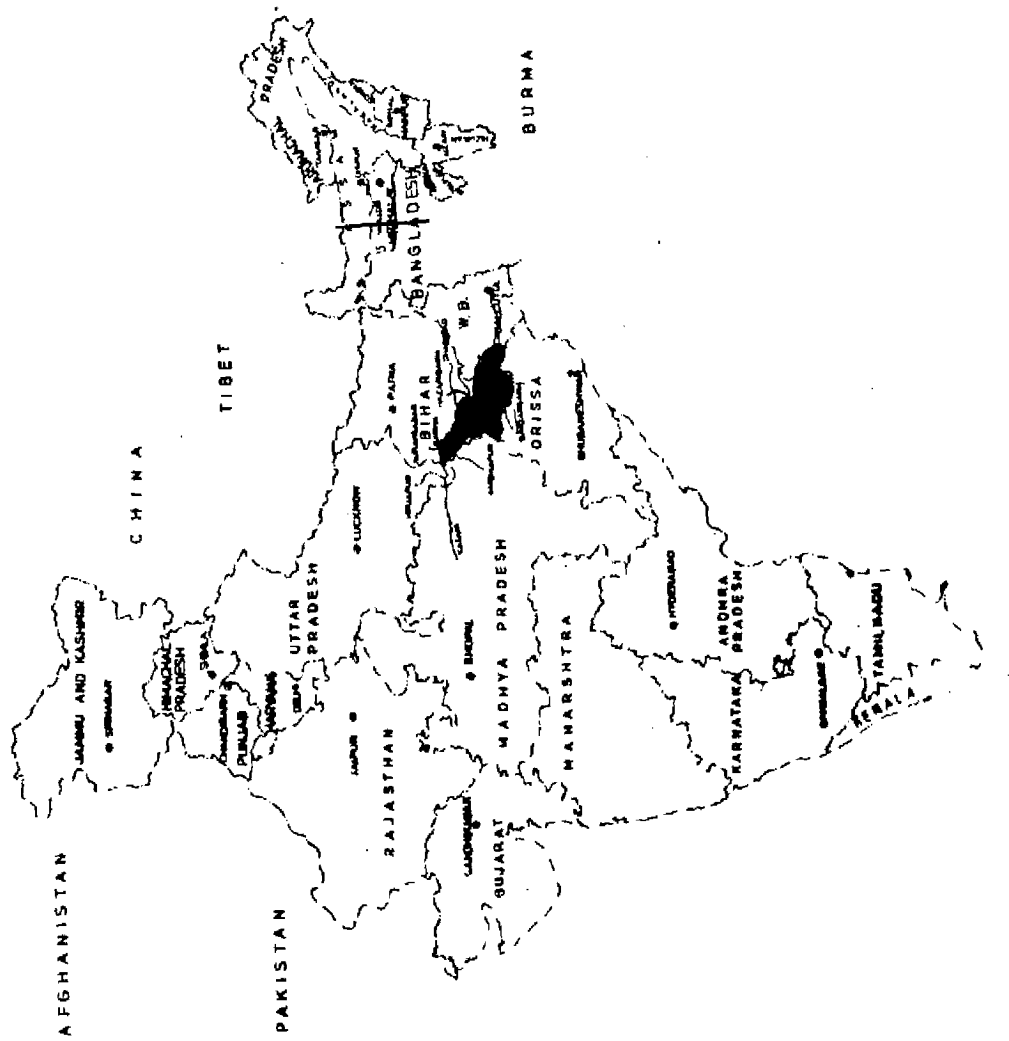
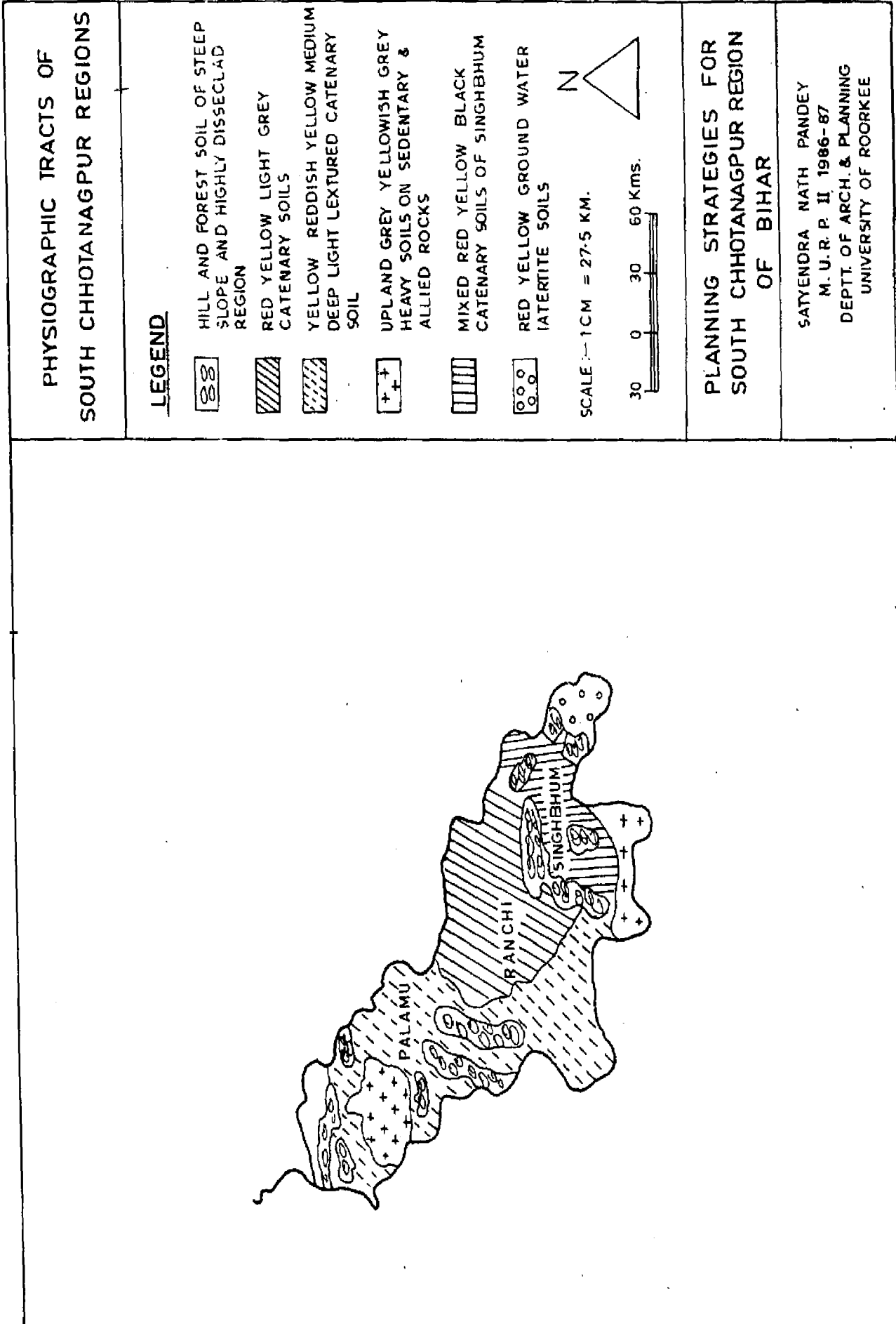








FIG. 2.1

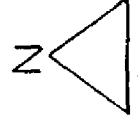


PHYSIOGRAPHIC TRACTS OF SOUTH CHHOTANAGPUR REGIONS

LEGEND

-  HILL AND FOREST SOIL OF STEEP SLOPE AND HIGHLY DISSECTED REGION
-  RED YELLOW LIGHT GREY CATENARY SOILS
-  YELLOW REDDISH YELLOW MEDIUM DEEP LIGHT TEXTURED CATENARY SOIL
-  UPLAND GREY YELLOWISH GREY HEAVY SOILS ON SEDENTARY & ALLIED ROCKS
-  MIXED RED YELLOW BLACK CATENARY SOILS OF SINGHBHUM
-  RED YELLOW GROUND WATER LATERITE SOILS

SCALE :- 1 CM = 27.5 KM.



PLANNING STRATEGIES FOR SOUTH CHHOTANAGPUR REGION OF BIHAR

SATYENDRA NATH PANDEY
M. U. R. P. II 1986-87
DEPTT. OF ARCH. & PLANNING
UNIVERSITY OF ROORKEE

Fig. 2

(ii) South East Chhotanagpur Mining and Industrial belt (Singhbhum district) consisting of two district type of soils (a) Hill and forest soils of steep slope and highly dissected area. (b) red yellow light grey catenary soils. Map No. 2.3 depicts the major physiographic track of the Region.

2.3 CLIMATE :

2.3.1 Rainfall Temperature and Humidity :

The normal annual rainfall in the region varies from about 1250.00 mm to 1482.60 mm in different districts. 80% of the rainfall is received during the months of June to September. Palamau district is most susceptible to normal average rainfall variations over years causing often ~~droughts in the district. In the region Jamshedpur and~~ Daltanganj record highest temperature (45°C) and lowest temp. (5°C) respectively in a year [Refer Table Nos 2.1, 2.2 and 2.3].

Table 2.1

Districtwise Annual Rainfall, S.C.R.

District	1977-78	1978-79	1979-80	1981-82	1982-83	Normal Rainfall (mm)
Ranchi (old)	641.0	1495.6	910.2	1163.5	1194.3	1482.6
Palamau	1408.8	1443.1	672.9	946.4	982.2	1335.8
Singhbhun	1652.9	1347.8	931.2	1262.4	1114.2	1438.6
Bihar	1176.4	1298.5	973.2	1190.8	963.6	1271.9

Source:

Directorate of Statistics and Evaluation, Bihar.

Table No.2.2

Districtwise Monthly Normal Rainfall, S.C.R.
(in mm)

District	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Ap.	May	An
1	2	3	4	5	6	7	8	9	10	11	12	13	1
Ranchi	205.8	395.5	386.6	220.9	92.3	18.9	5.6	27.1	41.0	24.0	19.5	45.4	148
Palamau	165.4	367.0	395.1	212.6	61.8	17.1	5.6	27.3	35.5	19.5	9.6	18.6	135
Singhbhen	212.0	279.8	352.0	210.0	81.1	18.6	4.3	20.6	33.4	21.8	28.8	72.2	143
S.C.R.	194.4	347.4	377.9	214.5	78.4	18.2	5.2	25.0	36.6	21.8	19.3	45.1	141
Bihar	182.1	330.4	330.3	222.2	69.2	11.6	3.9	17.2	24.4	1.44	17.1	49.1	127

Source: Directorate of statistics and Evaluation, Bihar.

Table 2.3

Annual Temperature and Humidity (as Recorded in different Stations, 1979)

Name of Station	Annual Temperature (O _c)		Annual Humidity (%)		
	Highest Main	Lowest Main	Mean	8.30 A.M. 5.30 P.M.	
Ranchi	41.0	6.4	24.5	59	49
Daltonganj	44.5	5.0	26.2	55	42
Jamshedpur Town	45.0	8.5	27.4	65	64
Jamshedpur (Aerodrome)	44.6	7.4	26.7	64	57

Source: Regional Metrological Centre, Patna,

CHAPTER-3STUDY AND ANALYSIS : EXISTING CHARACTERISTICS3.1 DEMOGRAPHIC CHARACTERISTICS3.1.1 Population Characteristics of the Region :

South Chhotanagpur Region is spread over a geographical area of 44,455 sq. kilometers and has a population of 78.5 lakh as per 1981 census. It accounts for 25.7% of area and 8.9% of population of Bihar as per 1981 census [Refer Table 3.1 for area and population].

3.1.2 Density of Population :

The pressure of population on land is always the of problem for planners. The density data are needed not only for planning balanced population distribution but also for achieving maximum economy in space.

Density of population in the region (176.5 persons per sq.km) is comparatively much lower than that of Bihar (406 p.p. sq.km). Ranchi and Singhbhum districts in the Region have higher densities than the rest of districts probably due to polarisation of heavy industries in these two districts only. [Refer Table 3.1 and Mp 3.1 for density of population].

3.1.3 Sex Ratio :

Study on male-female ratio depicts that the proportion of females on average in the Region is less than males (male female ratio = 954.1000). But Lohardaga and Gumla districts have higher proportion of females than males (Refer Table 3.1 for male-female ratio).

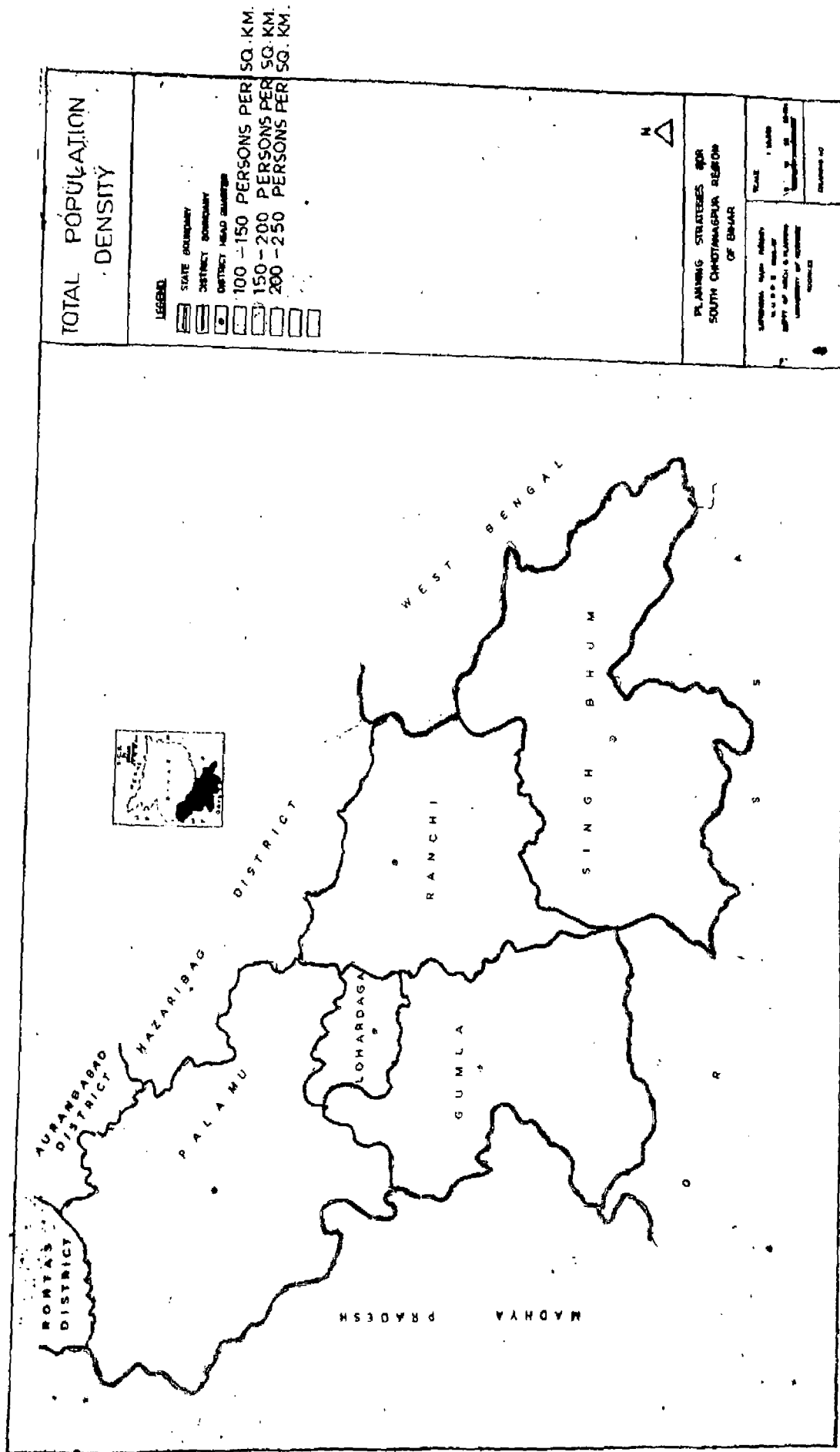


Fig. 3.1 Fig. 3.1

3.1.4 Population Characteristics by Race :

52.61% of the population of the region comprises of scheduled caste and scheduled tribes. 42.61% of population in the Region is tribal. Gumla district has highest percentage of tribal population (75.0%) while Palamau district has least percentage of tribal population (18.33%) in the Region (Refer Table 3.1)

3.1.5 Literacy :

Less than one third population of the Region is literate. Literacy percentage are higher in Ranchi (35.0%) and Singhbhum (34.59%) districts in the Region due to existence of advanced institutions of learning and the rapid industrialization. It is to be noted that most tribal population concentrated belt of Gumla and Lohardaga have literacy percentages near to the average literacy percentage of the Region. This is most probably due to the influence of Ranchi on these districts and the wide range of educational institutions run by foreign christian machineries in these districts. Only one-fifth of population of Palamau district is literate (Refer Table 3.1 for literacy).

3.1.6 Population Growth :

During recent census decade 1971-81 the growth of population in the Region was 19.77% Palamau and Ranchi districts recorded higher population growth during the same

Table 3.1
General Population Characteristics, 1981

Sl. No.	Item	Districts / Region/State								
		Ranchi	Loherdaga	Gumla	Palamau	Singhbhum	S.C.R.	Bihar		
1	2	3	4	5	6	7	8	9		
1.	<u>Population by sex</u>									
	(i) Males	946918	113867	503036	979955	1473697	4017473			
	(ii) Females	876497	115919	514195	937573	1388102	3832286			
	Total	1823415	229786	1017231	917528	2861799	7849759			
2.	Area (Sq.km.)	7701	1488	9077	12749	13440	44455			
3.	Density of population (p.p.sq.km)	236.7	154.4	112.1	150	213	176.5			
4.	Sex Ratio (females per 1000 Males)	925	1018	1022	957	942	954			
5.	<u>Population by Race</u>									
	(i) S/C	95997 (5.20)	8280 (3.60)	53822 (5.29)	478225 (21.94)	137055 (4.78)	773739 (9.85)			
	(ii) S/T	833414 (45.69)	134854 (58.69)	763764 (75.33)	351432 (13.33)	1261504 (44.08)	3344968 (42.61)			
	(iii) Other	894004 (49.20)	86652 (37.71)	199645 (19.13)	1087871 (56.74)	1463240 (51.14)	3731412 (47.577)			

Contd.....

1	2	3	4	5	6	7	8
6.	Literacy (i) Male	443050	47210	178715	305949	691587	1666511
	(i) Females	195237	16241	84102	85439	298451	679470
	Total	638287	63451	262817	391388	990038	2345981
7.	Literacy(percentage)						
	(i) Male	46.8	74.4	35.62	31.22	46.92	71.03
	(ii) Females	22.2	25.6	16.35	9.11	21.50	28.96
	Total	35.0	27.60	25.88	20.41	34.59	29.88
8.	Percentage popula- tion(growth (1971-81)	23.68	14.08	8.7	27.47	17.39	13.77
9.	Population by place of living						
	(i) Urban	578825	23342	40242	108108	917698	1668211
	(ii) Rural	1244590	206444	976989	1809420	1944101	6181544
	Total	1823415	229786	1017231	1917528	2861799	7849755

Source: South Chhotanagpur at a glance, 1986
Directorate of Statistics and Evaluation, Bihar, Ranchi

decade. The population growth was least in Gumla district one of the most tribal concentrated districts [Refer Table 3.1 for population growth during 1971-81].

3.1.7 Population Growth and Population Projection :

Estimation of population in different years is a prerequisite and a vital part of analysis because after all planning is undertaken for shaping the future. Due to large scale disparities in the level of development in the constituent districts of the Region the nature of population growth in different districts of the Region is different. Therefore the future population of each constituent district of the Region has been projected and sum total of population of all districts has been referred to as projected population of the Region. The population of the districts of Lohardaga Gumla and Ranchi (new) have been combinedly projected under the head Ranchi (old) and the distribution of projected population among individual districts has been made in proportion to latest census (1981) census population of the concerned districts.

3.1.7.1 Population Projection Methods : There are various methods of population projection and it is essentially a matter of judgement to select most suitable method for the Region. Commonly used methods for population projection are as follows :

- (a) Arithmetic Progression method
- (b) Geometrical Progression method
- (c) Logistic curve method
- (d) Graphical projection method
- (e) Graphical comparison method

3.1.7.2 Selection of a particular method : To select any particular method to project the population of the three districts of the Region, it is a must to understand the suitability of that method. The Arithmetic progress method is only suitable for areas where future growth is practically controlled and constant increment occurs periodically. The geometrical progression method is very well applicable to the areas with unlimited scope for expansion and development and large scale industrialisation is likely to occur in the future. The Logistic curve method is suitable in case where the rate of increase or decrease of population with time or population growth is likely to reach the saturation limit. The Graphical extension method is very approximate method, where as for Graphical comparison method it is very difficult to find out the similar area in the country. When all said the Geometrical progression method appears to be most suitable method for population projection for the Region as a whole, because a vast area of the Region is endowed with immense natural resources but they are under utilized or improperly utilized. Large scale industrial development may take place if the resources

are optimally exploited and planned. But so far the population projection for individual districts are concerned, the subsequent resource analysis has concluded that districts of Lohardega, Gumla (part of Ranchi (old)) and Palamau are backward in many respects even after presence of economic resources. Although the resources of Ranchi (old) and Singhbhum districts have also not been optimally utilized, but these are comparatively much advanced in industrial development etc. Thus a clear cut areas development imbalance is existing. Therefore in light of surfacing regional development policies of central and state governments and the stipulated objectives of this dissertation it is logical to think that for next 20 years planning and development inputs should be geared in the backward districts of the Region to progressively reduce the existing imbalance. Under these arguments the most suitable method for Ranchi (old) and Palamau appears to be Geometrical progression method. Now, two options lie for the development of Singhbhum district either further industrial development could be suppressed for coming 20 years or its present development rate may be made constant. The second option appears more practical and justifiable. Therefore Singhbhum district qualifies for Arithmetical increase method. Hence both Arithmetical increase method and Geometrical increase methods are described and accordingly population is estimated.

A. Arithmetical Increase Method : The method is based upon a assumption that the population increases at a constant rate. The future population P_n after n decades is given by $P_n = P_o + nI$

Where P_n = Future population at the end of n decades

P_o = Present population

I = Average increment for a decade.

B. Geometrical Progression Method : In this method, it is assumed that the percentage increase in population from decade to decade remains constant. Thus future population P_n after n decade is given by

$$P_n = P_o \left(1 + \frac{I_g}{100}\right)^n$$

where I_g = Average percentage increase per decade

P_o = Present population

P_n = Future population at the end of n decades.

The projected population of the region is estimated to be 90.2 lakhs, 1.03 crores, 1.23 crores by the year 1991, 2001 and 2011 respectively. The largest share of the population of the region will be housed in districts of Singhbhum (35.16%) and Palamau (25.56%) at projected growth trend of population.

Table 3.2

Population(1931-1981)

Districts	1931	1941	1951	1961	1971	1981	1991	2001
Ranchi(oid)	1554186	1661554	1815812	2138565	2611445	3070432	3542728	4064218
Palamau	818736	912734	985767	1187789	1504350	1917528	2305157	2739218
Singhbhum	1312630	1565306	1700590	2049911	2437911	2861799	3171633	3481467
S.C.R.	3685552	4139594	4532169	5376265	6553594	7849759	9019518	10284900

Source: (i) 1971 census Primary Census Abstract, Series-4, Bihar
(ii) 1981 Census, Primary Census Abstract, Series-4, Bihar
N.B. L. Provisional Projected Population
G.P.M. Geometrical Progression Method
Aim Arithmetical Increase method

Table 3.3

Percentage variation of population(1931-1981)

District	1931-1941	1941-51	1951-61	1961-71	1971-81
Ranchi(old)	+6.91	+11.09	+15.86	+22.11	+17.62
Palamau	+11.48	+8.0	+20.49	+26.65	+27.53
Singhbhum	+19.25	+8.64	+20.54	+18.92	+17.39
S.C.R.	+12.55	+9.24	+18.93	+22.56	+20.54

Source: 1. Census of India, 1961, Section IV, Part. A, Bihar

2. Census of India, 1971 Series 4.

3. 1981 Census, Primary Census Abstract, Bihar.

Table 3.4
Projected Population

District	1981	1991	2001	2011
Ranchi (new)	1823415	2104486	2414267	3093760
Loherdaga	229786	264383	303300	388664
Gumla	1017231	1173859	1346651	1725665
Palamau	1917528	2305157	2739218	3255013
Singhbhum	2861799	3171633	3481467	3791301
S.C.R.	7849759	9019518	10284903	12254403

3.2 PER CAPITA INCOME :

On the basis of a sample survey conducted by Tribal Research Institute, Ranchi in five project areas in the Region the average per capita income was Rs.416.54 in 1977 whereas the same figures for state and the country were Rs.773.0 and Rs. 1316.0 respectively. Although the project areas did not include Ranchi and Jamshedpur subdivisions in which almost all industries of the Region are concentrated, even then, figures give clear indication of low economic status prevailing in the Region (Refer Table 3.5 for per capita income).

3.3 EMPLOYMENT :

As per the number of applicants registered at the end of the year 1985 on live registers of employment exchanges in the region, 4.74 lakh persons are unemployed. 86,108 applicants were registered in the year 1985 only. Only 3,411 were employed through various vacancies of posts in 1985. Thus out of registered applicants approximately 4% are employed every year. The number of the actual unemployed may be much more than registered in employment exchanges.

As per 1981 census 44.13% of total workers of the Region are cultivators, 19.17% are agricultural labourers and 37.90% are engaged in activities other than agriculture. 15.50% of total workers were marginal workers.

Higher agriculture indicates the inclination of workers

1. South Chhotanagpur Division at a Glance, 1986.

Table 3.5
Per Capital Income, 1977

Sr. No.	Name of Project Area	Area (Sq.Km.)	Population	Per capita Income (Rs.)
1.	Bihar		6,35,19,000	773.0
2.	<u>Ranchi (old) district</u>			
(i)	Simdega	3756.20	6,57,972	654.0
(ii)	Khunti	3765.30	6,66,825	373.28
3.	<u>Palamau District Lahar</u>	4240.64	485239	267.61
4.	<u>Singbhum district</u>			
(i)	Chaibasa	3107.80	8,73,372	421.95
(ii)	Chakardharpur	2143.50	5,60,128	366.13
	S.C.R.	44,455	7336000	416.54

Source (i) Tribal Research Institute, Ranchi
(ii) Bihar through figures, 1983.

Table 3.6

Distribution of Workers by Their Main Occupation (1981)

Sl. No.	Occupation	Districts/Region					S.C.R.
		Ranchi	Lohordegga	Gumla	Palamau	Singhbhum	
1.	Cultivator	311891 (44.32)	57427 (52.78)	282234 (60.13)	300021 (44.12)	383623 (34.11)	1335196 (44.13)
2.	Agricultural Labourer	87512 (12.36)	12186 (11.11)	51063 (10.87)	227724 (33.38)	202393 (18.00)	580878 (19.17)
3.	Household Industry	14212 (2.0)	4246 (3.70)	11581 (2.56)	10832 (1.47)	25036 (2.23)	65907 (2.18)
4.	Marginal Workers	102880 (14.63)	21528 (19.44)	97804 (2.35)	59974 (8.82)	186560 (16.65)	468746 (15.50)
5.	Other workers	187898 (26.70)	12729 (12.03)	26798 (5.76)	81804 (12.06)	325281 (28.94)	634510 (20.96)
	Total Workers	704393 (100.00)	108116 (100.00)	469480 (100.00)	680355 (100.00)	1122893 (100.00)	3025237 (100.00)

Source: South Chhotanagpur Division at a Glance, 1986
Directorate of Statistics and Evaluation, Ranchi, Bihar

NB -> Figure in bracket shows percentage.

Table 3.7

Districtwise Number of workers classified into Main Workers, Marginal Workers and Non-workers (1981)

Sl. No.	Classification of workers	Districts					Region
		Ranchi	Lohardega	Gumla	Palamau	Singhbhum	
1.	Main workers	601513 (32.91)	86588 (37.83)	371676 (36.47)	620381 (32.29)	936333 (32.70)	255649 (32.61)
2.	Marginal workers	102880 (5.60)	21528 (9.13)	97804 (9.61)	59974 (3.12)	186560 (6.53)	468740 (5.97)
3.	Non-workers	1119022 (61.44)	121670 (52.60)	547751 (53.52)	1237173 (64.43)	1738906 (60.80)	476452 (60.69)
4.	Total	1823315 (100.00)	229788 (100.00)	1017231 (100.00)	1917528 (100.00)	2861799 (100.00)	784979 (100.00)

Division
 Source: South Chhotanagpur at a Glance, 1986
 Directorate of Statistics and Evaluation, Bihar.

towards secondary and tertiary activities due to obvious reasons i.e. availability of economic, industrial and manufacturing resources. Therefore the future strategy for tackling unemployment situation should be aimed at not only creating employment opportunities through secondary and tertiary activities but also at raising the utilization rate of those who are at present under employed (Refer Table 3.6 for distribution of workers by their main occupation (1981))

3.4 AGRICULTURE :

Agricultural land is another natural resource available to this Region. Net cultivated area forms 26.6% of the geographical area of the Region. 36.9% geographical area, which is otherwise a culturable land is not utilized for agriculture and is wasted in form of barren and fallow lands. Only 23.36% of total sown area in a year is under double cropping due to poor irrigation facilities. Only 6.3% of the gross cultivable was under irrigation during 1983-84. 63.31% of total working population of the Region is dependent on agricultural pursuit (Refer Table 3.8).

3.4.1 Land Utilization :

The 1983-84 land utilization of the region revealed that 29.5% of the area of the region was under forest, 8.0% was barren land, 57.4% was gross cultivable land, 5.9% was non agricultural land and 1.1% was under pastures and trees. The gross cultivable land include all lands

Table 3.8

Land Uses (1983-84) (in lakh acres)

Sl. No.	Land use category	3	4	5	6	7	8
		Ranchi	Lohardaga	Gumla	Palamau	Singhbhum	S.C.R.
1.	Geographical area	17.95	3.67	23.00	29.71	33.52	107.85
<u>A. Land Not fit for cultivation</u>							
2.	Forest	3.45	1.07	5.87	12.76	8.70	31.85
3.	Barren Land	1.10	0.23	1.50	2.75	3.05	8.63
4.	Land put to non-agricultural use	1.19	0.20	1.05	1.06	2.87	6.37
<u>B. Culturable Land</u>							
5.	Permanent Pastures and other grazing land	0.02	0.04	0.04	0.15	0.26	0.48
6.	Cultivable waste	0.80	0.13	0.93	0.72	2.12	4.70

Table Contd.....

1	2	3	4	5	6	7	8
7.	Land under Miscellaneous trees and grooves	0.08	0.007	0.21	0.10	0.37	0.77
8.	Other fallow land	2.18	0.30	3.97	3.18	3.50	13.13
9.	Current fallow	2.30	0.36	2.64	4.82	3.97	14.09
C.	<u>Net Area Sown</u>	6.84	1.37	6.79	5.06	8.68	28.74
D.	Area sown more than once	3.21	0.58	3.18	0.97	0.82	8.76
E.	Gross sown area	10.0	1.95	9.97	6.03	9.50	37.45

Source: South Chhotanagpur Division at a Glance 1986
 Directorate of Statistics and Evaluation, Ranchi, Bihar.

useful for agriculture whether they are cultivated or not. Although net cultivated land was only 26.6% of the area of the Region. Table 3.8 gives the districtwise land uses for year 1983-84 (Table 3.8 and Map 3.2 for land uses).

3.4.2 Sources of Irrigation :

Sources of Irrigation in the Region were other sources (38.08%) which include private irrigation practices other than canal, pond, well or tubewell irrigation used by farmers, wells (25.6%), canal (19.85%) and ponds (8.10%) (Table 3.9 for sources of Irrigation and Map No. 3.3 for percentage of area irrigated).

3.4.3 Crops and Yields

Principal food grain crops of the Region are rice, maize and wheat sown in 56.3%, 3.6% and 2.3% of the gross cropped area during a year. Principal commercial crops include potatoes in 0.68% of gross cropped area and sugarcane in 0.12% of gross cropped area. During the year 1983-84 70.3%, 7.8%, 3.1% and 1.5% of gross cropped area were utilized for production of cereals, pulses, oil seeds and cash crops respectively (Refer Table 3.10). The average fertilizer consumption per acre of gross cropped area in the year 1985-86 was 3.45 kg/acre (Refer Table 3.11). The average yields of principal foodgrain crops rice, maize and wheat in the region are 828, 1094 and 1118 kg/hectare respectively (Table 3.12).

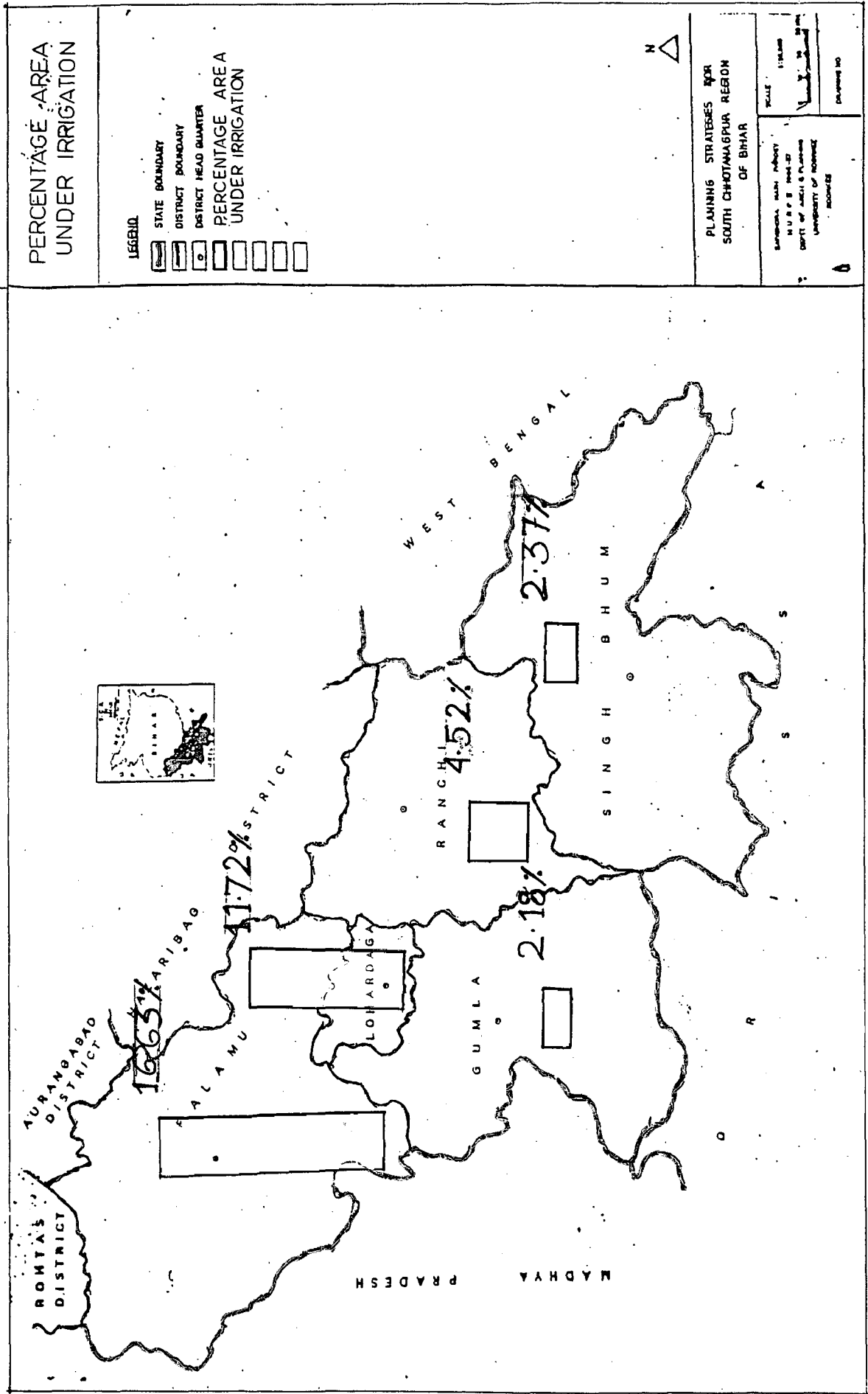


Fig 3.3

Table 3.9

Source of Irrigation, S.C.R. (1983-84)
(Area Irrigated in 1000 acres)

Sl. No.	Source	Ranchi	Lohardaga	Gumla	Palamau	Singhbhum	S.C.R.	% of irrigated area
1.	Canal	16.57	4.71	2.51	35.07	24.70	83.56	19.85
2.	Ponds	8.18	2.11	1.83	13.54	9.68	35.35	8.40
3.	Wells	19.31	12.03	14.33	59.66	2.45	107.73	25.61
4.	Tube wells	0.10	0.85	1.92	1.04	N.A.	3.91	0.93
5.	Other sources	11.07	6.20	11.14	123.96	7.89	160.26	38.08
	Total	55.23	25.90	31.73	233.27	44.72	390.85	100.00

Source: South Chhotanagpur Division at a Glance, 1986
Directorate of Statistics and Evaluation, Bihar.

Table 3.9A

Percentage of Area Under Irrigation

Sl. No.	District/Region	Gross cultivable area (in lac acres)	Gross irrigated area (in 1000 acres)	Percentage area of irrigation
1	2	3	4	5
1.	Ranchi	12.22	55.23	4.52
2.	Lohardaga	2.21	25.90	11.72
3.	Gumla	14.58	31.73	2.18
4.	Palamau	14.03	233.27	16.63
5.	Singhbhum	18.90	44.72	2.37
6.	S.C.R.	61.91	390.85	6.31

Table 3.10

Area under Principal Crops (1983-84)
(in lakhs of acres)

Sl. No.	Crops	Ranchi	Lohardaga	Gumla	Palamau	Singhbhum	S.C.R.	Percentage total area to gross cropped
<u>A. Food Crops</u>								
(i)	Rice	5.18	1.07	4.73	1.82	8.32	21.11	56.3
(ii)	Maize	0.14	0.06	0.07	0.87	0.22	0.86	3.6
(iii)	Wheat	0.12	0.08	0.07	0.53	0.05	1.35	2.3
(iv)	Others	0.95	0.16	1.20	0.56	0.18	3.05	8.1
<u>B. Pulses</u>								
		0.63	0.14	0.99	0.75	0.38	2.91	7.8
<u>C. Oil seeds</u>								
		0.24	0.05	0.48	0.21	0.15	1.14	3.1
<u>D. Cash crops</u>								
		0.10	0.03	0.06	0.13	0.24	0.57	1.5
<u>Total</u>		7.36	1.59	7.6	4.87	9.54	30.99	

Source: South Chhotanagpur Division at a Glance, 1986
Directorate of Statistics and Evaluation, Bihar.

Table 3.11
Average Yield of Principal food Crops(kgs/hectare)

Sl. No.	Crops	Ranchi	Lohardage	Gumla	Palamau	Singhbhum	S.C.R.
1.	Rice	1032	621	601	898	987	828
2.	Maize	1209	1229	573	1232	1229	1094
3.	Wheat	1116	N.A.	N.A.	1111	1126	1118

Source: South Chhotanagpur Division at a Glance, 1986
Directorate of Statistics and Evaluation, Bihar.

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3.4.4 Distribution of Land Holdings :

Share of net sown area per cultivator tends to be less than one hectare in the region. Distribution of land holding (1980-81) indicates that 35% of agricultural land is under medium farmers, 24% under big farmers, 20.5% under semi-medium farmers, 10.6% under marginal farmers and 16.2% under small farmers.

3.4.5 Conclusions : Agriculture

Large scale inter district disparity exists in the region in form of sprawl of district area, land utilization-cultivable, cultivated and waste lands etc., sources of irrigation facilities, net and double cropped areas under various foodgrain and commercial crops, distribution of land holdings etc. The corresponding districtwise tables clearly reveal the disparities.

On the basis of reconnaissance of physical characteristics of land of the region and statistical analysis of data on land uses it is concluded that even after presence of immense agricultural land, the agriculture has not flourished to its required level due to lack in developmental efforts in the field of irrigation, better seeds, fertilizers, supply of modern agricultural equipments, infrastructure facilities relating to development of road and railway network. Land reclamation, land conservation, market system, agricultural training centres etc. All these factors have resulted in low utilization of agricultural land, low average yields of crops and high wastage and transformation of land and poor development of market.

3.5 FOREST RESOURCE :

3.5.1 General :

13,384 sq.kms of land of the Region is under forest cover which forms 30.11% of the geographical area of the Region. This percentage of the forest cover is higher than that of state's and country's averages which are placed at 16.8% and 22.80% of geographical area respectively as per 1981 census. The most of the forests are concentrated in Palamau and Singhbhum districts. 41.54% and 33.35% of total forest lands of the Region are concentrated in districts of Palamau and Singhbhum. Forests of the Region are rich in 'Sal' the main source of industrial timber in India. Mahua is one of the common trees in the Region. Its flowers, juicy and sweet, are eaten fresh as well as dried. Its seeds give edible oil after crushing. Besides these, it forms a very important raw materials for country liquor. Other minor products of the forests are lac, tendu leaves and Kathra from acacia catechu. They possess exploitable quantities of bamboo and sabai grass which form raw materials for paper manufacturing. [Refer Table 3.13 and 3.14 for divisionwise and districtwise area of forests].

3.5.2 Forest Resource Potential :

productions of industrial timber and fuel in the Region in the year 1980-81 were around 3.04 and 2.23 lakhs cubic meter respectively. (Refer table 3.15

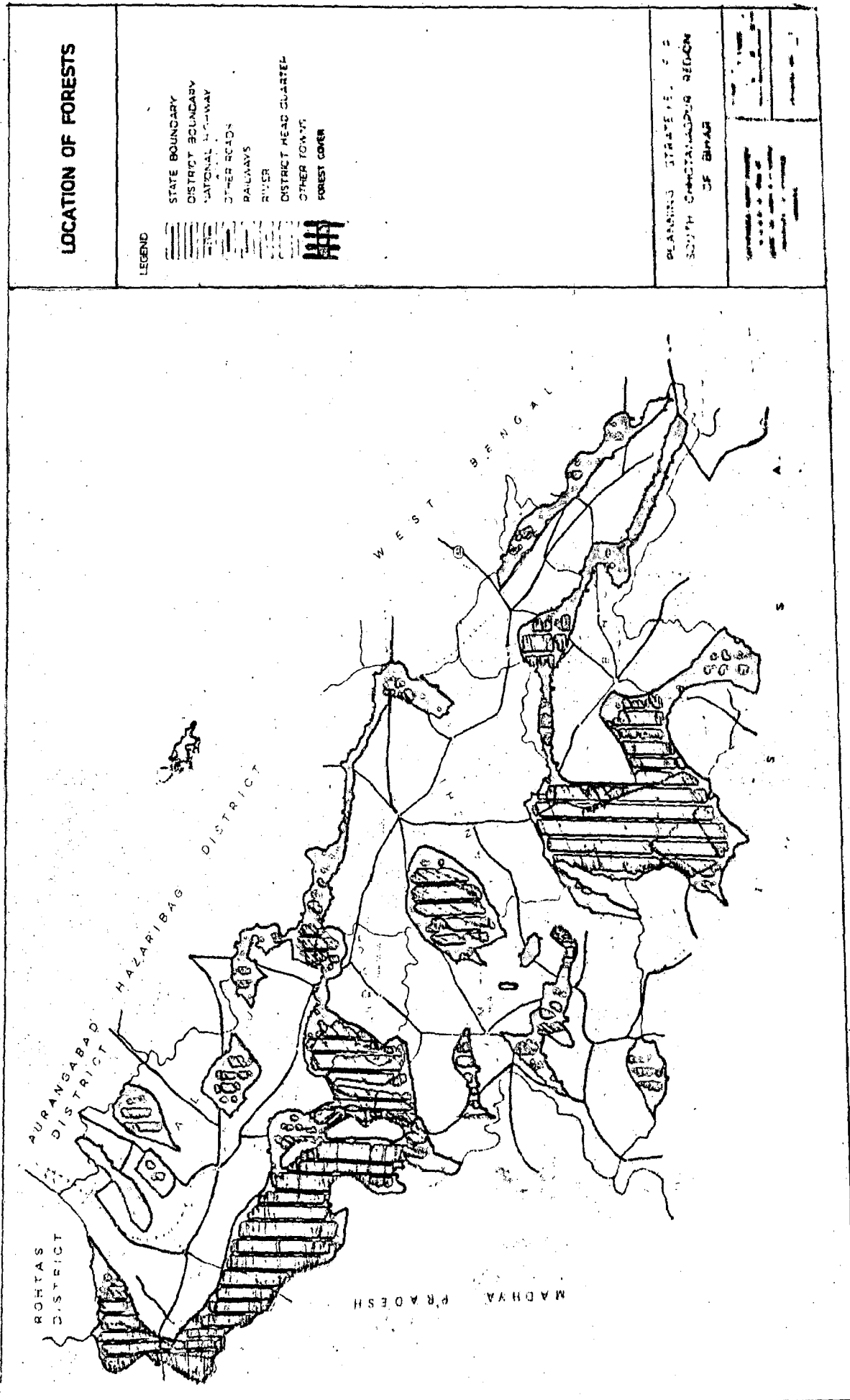


Fig 3.4

Table 3.13

Divisionwise Area of Forests
(Area in ha)

Sl. No.	Name of Division	District	3	4	5	6	7
			Reserved forests	Protected forest	Unclassified forests	Total	
1.	Saranda	Singhbhum	81808	3988	86	85882	
2.	Kolhen	-do-	58716	11258	68	70042	
3.	Porehet	-do-	56622	15816	98	66542	
4.	Chaibasa(south)	-do-	31	50875	-	50906	
5.	Chaibasa(North)	-do-	6486	61540	-	68626	
6.	Dhalbhum	-do-	53050	51963	-	105018	
7.	Ranchi(east)	Ranchi(old)	11742	30182	-	91924	
8.	Ranchi(west)	-do-	26290	73744	-	100034	
9.	Gumla	Ranchi(old)	12102	118717	16	130835	
10.	Latehar	(i)Ranchi(old)	3417	10652	-	132366	
		(ii)Palamau	17213	101084	-		

Contd....

Table 3.14

Districtwise Area of Forests(1982-83)

Sl. No.	Name of District	Geographical area in sq. km.	Forest area in sq. km.	Percent of land under forest	Human population in thousand	Per capita forest area (in ha)	Live stock in lakh	Forest area/head of live stock (in ha)
1.	Ranchi (old)	18266	3360	18.4	3070	0.109	22.39	0.149
2.	Palamau	12749	5560	43.6	1918	0.289	14.0	0.399
3.	Singhbhum	13440	4464	33.2	2862	0.155	16.15	0.976
	S.C.R.	44455	13384	30.11	7850	0.170	52.54	0.255

Source: Census of India, 1981

Provisional figures of 1982, Census by Directorate of Animal Husbandary, Bihar.

Table 3.15

Divisionwise Major Forest Produce(1980-81)
(Quantity in m³)

Sl. No.	Name of Division	District	Industrial Timber	Fire wood	Total
1	2	3	4	5	6
1.	Saranda	Singhbhum	45662	8680	54342
2.	Kolhan	-do-	37509	2985	40494
3.	Porahat	-do-	7256	27264	34520
4.	Chaibasa(S)	-do-	10609	4070	14679
5.	Chaibasa(N)	-do-	11325	14406	25731
6.	Dhalbhum	-do-	10601	53071	63672
7.	Ranchi (East)	Ranchi(old)	1828	1832	3660
8.	Ranchi (West)	-do-	401	13200	13601
9.	Gumla	-do-	26391	8671	35062
10.	Latehar	-do-	13669	28843	42512

Contd.....

1	2	3	4	5	6
11.	Daltonganj(south)	Ranchi (old)	19327	622	19949
12.	Daltonganj(north)	-do-	53491	5780	59271
13.	Garhwa (south)	-do-	6524	11752	12276
14.	Garhwa (north)	-do-	34146	4582	33728
15.	Singhbhum affn.	Singhbhum	6739	7271	14010
16.	B.S.F.D.C.Palamau	Palamau	2057	25128	27185
17.	B.S.F.D.C. Chaibasa	Singhbhum	22035	5048	27083
Total			303570	223205	526775

Source: Statistical Glimpses of Bihar Forests, 1980-81,
Forest Research Officer, Ranchi, Bihar.

Table 3.16

Divisionwise Minor Forest Produce (1980-81)

Sl. No.	Name of Division	Bamboo	Kendu leaf	Sabai Grass	Grazzing	Other M.F.P.						
		Qty. in tonnes	Qty. in stand	Qty. in Quin-	Value in Rs.	Qty. in Quin-	Value in Rs.	Qty.	Value in 000 Rs.	10	11	12
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Saranda	-	-	5089	150	-	3400	-	-	-	102	-
2.	Kolhan	-	-	11370	262	-	-	-	-	-	113	-
3.	Porahet	2808	900	6157	297	-	-	-	-	-	435	-
4.	Chaibasa(s)	-	-	6234	173	-	-	-	-	-	999	-
5.	Chaibasa(N)	-	-	19326	349	-	-	-	-	-	135	-
6.	Dhalbhum	1121	89	19732	512	-	-	-	-	-	107	-
7.	Ranchi(East)	-	-	18757	326	-	-	-	-	-	36	-
8.	Ranchi(West)	2886	353	6316	105	135	1195	-	-	-	16	-
9.	Gumla	-	-	32885	2165	-	-	-	-	-	56	-

Contd.....

1	2	3	4	5	6	7	8	9	10	11	12	13
10.	Latehar	13146	1244	71561	3067	-	-	-	-	-	23	-
11.	D'ganj (south)	19291	2589	13243	798	-	-	-	-	-	1300	-
12.	D'ganj(north)	9012	751	59325	2788	-	-	-	-	-	28	-
13.	Garhwa(S)	523	160	63110	2921	-	-	-	-	-	23	-
14.	Garhwa(N)	534	49	36490	3231	-	-	-	-	-	3	-
15.	Palamau Affn	-	-	-	-	-	-	2083	2083	-	-	-
16.	Singhbhum Affn.	-	-	-	-	-	-	-	-	-	141	-
Grand Total		49321	6435	363515	17184	135	4595	2083	2083	-	3517	-

Source: Statistical Glimpses of Bihar Forests, 1980-81
Forest Research Officer, Bihar, Ranchi.

Table 3.17

Districtwise Collection of Stick Lac (1979-83)
(in quintals)

District	Year			Average Collection (1979-83)
	1979-80	1980-81	1981-82	
Ranchi (old)	44900	63280	84100	61910
Palamau	49430	48260	34500	1539443
Singhbhum	10550	16800	30100	17233
S.C.R.	104880	128340	148700	118585

Source: Directorate of Lac Development, Circular Road Ranchi.

Table 3.18

Estimated Growing Stock, Percentage availability and Average Annual Production by species in South Chhotanagpur Region

Sl. No.	Local Name	Botanical Name	Growing stock in '000 m ³ (in round)	Specieswise percentage of forests cover	Average annual availability in '000 m ³ (in round)
1.	Sal	<i>Shorea robusta</i>	12101	55.0	424.5 (65.0%)
2.	Asan	<i>Terminalia tomentosa</i>	9772	13.1	35.5 (65.0%)
3.	Mahua	<i>Madhuca Indica</i>	202	3.9	25.5 (3.9%)
4.	Dhurwa	<i>Anogeissus Latifolia</i>	1777	2.4	15.7 (2.4%)
5.	Bija	<i>Petrocerpus marsupium</i>	806	1.7	11.1 (1.7%)
6.	Jamun	<i>Syzygium Gumai</i>	475	0.5	3.3 (0.5%)
7.	Sandan	<i>Ougeinia Ojeinensis</i>	425	0.9	5.9 (0.9%)
8.	Semat	<i>Salmalia belerica</i>	394	0.5	3.3 (0.5%)
9.	Karam	<i>Adina cordifolia</i>	221	1.3	8.5 (1.3%)
10.	Miscellaneous		21500	15.5	42.4 (6.5%)
Total			47674	-	653.0 (100.0%)
Bamboo					
		<i>Dendrocalamus strictus</i>	930	-	145

Source: Forest Research Officer, Bihar, Ranchi.

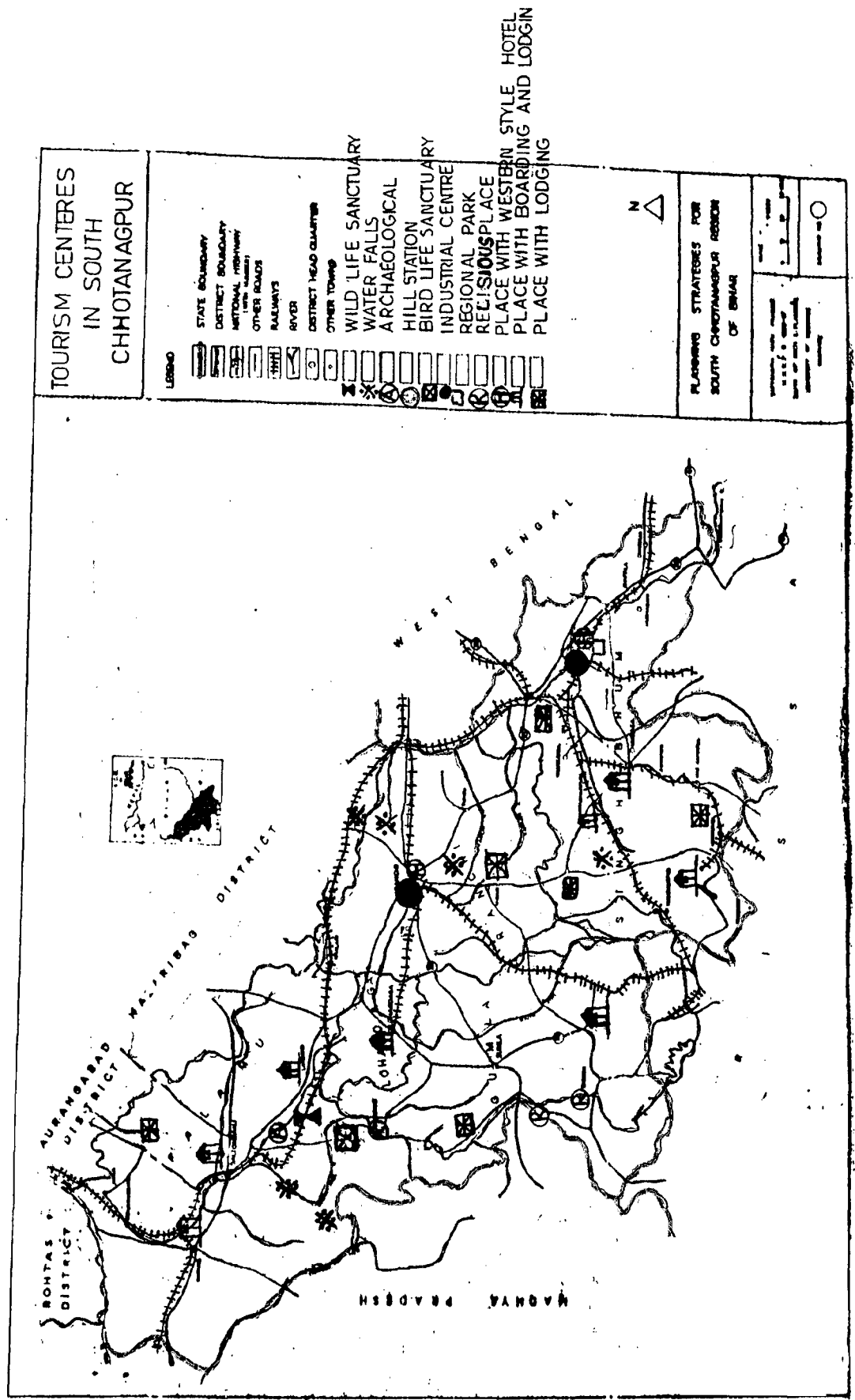
Table 3.19

Important Tourist Places in S.C.R.

Sl. No.	District	District HQ	Name of Tourist place	Distance of tourist place from district headquarter
1	2	3	4	5
1.	Ranchi	Ranchi	Hundru waterfall	45
			Jonha waterfall	40
			Dash Ghagh waterfall	34
			Hirni waterfall	75
			Heavy Engineering corporation Tagore Hill	11
2.	Lohardaga	Lohardaga		
3.	Gumla	Gumla	Ramrekha (Living place of sugareev and Ramrekha dam)	75
			Anjan (Birth place of Hanuman)	35

Contd.....

1	2	3	4	5
4.	Palamau	Daltanganj	(i) Natarhat (Scenic Beauty of Natarhetplateau Waterfalls, sunrise view, emerging river view)	74
			(ii) Lodh waterfall	30
			(iii) Sadani waterfall	50
			(iv) Palamau National Park (at Bett)	35
			(v) Palamau Fort	34
			(vi) Bird Sanctuary at Garu	57
5.	Singhbhum	Chaibasa	Tatanagar Steel Plant Jubali Park, Jamshecpur	45



All the above statistics on forest resource of the Region reveal that there is an ample scope for development of forest based industries in the region and tourism in the Palamau National Park. A list of proposed forest based industries with their probable sites has been given under the head forest Based Industries in Table 3.32. The development of Palamau National Park as an important tourist attraction centre can be coupled with an integrated development of tourism in the region through various existing tourist places in the region. A list of important tourist places in the region have been given in Table 3.19 (Refer also Map No.3.5). Integrated development of tourism in the region requires development of quick transportation facilities inter and outer, hotels, recreational facilities, shopping facilities, water supply facilities etc. Wide publicity of the tourist places are most required.

3.6 WATER RESOURCES :

The average annual rainfall varies from 40'' to 60'' in the S.C.R. Region and run off available at 75% probability is 15'' to 17'' during monsoon period. The South Chhotanagpur lies in the five water basins namely Subarnrekha, South Koel, Sankh, North Koel and Damodar river. A number of tributaries branch off from these rivers and add to the vast water resources of the region. Available water potential in the region is estimated to be around 122.0 lakh

acre ft. (Refer Table 3.20. Position of Water Resources and Refer Map No. 3.6 for water basins and their yields). Approximately 64.83 lakh acre ft. of water potential are still left to be unutilized by 2001 AD. (As per estimate done by Advanced Planning and Investigation, Irrigation Deptt., Ranchi). Due to gradual and steep slopes of the rivers at various locations in the region, the rivers of the region can facilitate the construction of dams/reservoirs/hydro-power station/storage structures. Table 3.20 shows the position of water resources, Table 3.21 shows the possibility of storage and generation of hydel power on important rivers/tributaries and Table 3.22 gives the details of projected needs by 2001 AD (estimated by Advanced Planning and Investigation, Irrigation Deptt., Ranchi).

It is also to be mentioned that appreciable amount of water may be made also to be available from ground and fissures etc. Rural water supply is at present also ensured through ground water by digging open wells/tubewells etc.

Study made so far on the water availability in the region reveals that total 75% dependable utilizable potential is around 122.0 lac acre ft. out of which 113.0 lakh

Table 3.20

Position of Water Resources, South Chhotanagpur Region

Sl. No.	Name of Basin	Total catchment area (sq.miles)	Run off (75%)	Dependable potential [75% yield available for the creation of reservoir on the main river (lakh acre-ft)]	Utilization (present and near future through medium and major schemes) (lakh acre ft)	Balance water left to be unutilized (lakh acre ft)
1	2	3	4	5	6	7
1.	Subarnrekha	5250	-	34.70	27.26	7.44
2.	South Koel	4420	16.5"	32.40	17.38	15.02
3.	Sankh	1650	17.0"	12.00	4.08	7.92
4.	North Koel	540	17.00	36.90	0.02	4.88
5.	Damodar	340	17.0"	3.08	-	3.08
	Total	16900	-	119.08	54.25	64.83
6.	Other catchment	-	-	3.00	-	-
	Total	16900	-	122.08	54.25	64.83

Source: Advanced Planning and Investigation, Irrigation Deptt., Ranchi.
 Planning and Monitoring Division, Irrigation Deptt., Daltanganj.

Table 3.22

Water Utilization [By 2000 AD]

Basin	Available water for utilization (lakh acre-ft)	Need for agriculture (lakh acre ft)	Need for Municipal use (including industry) (lakh acre ft)	Total Need (lakh acre ft)	Balance needed (lakh acre ft)
Subaranrekha	34.70	35.48	7.0	42.48	7.78
South Koel	32.40	25.96	0.50	26.46	- 5.94
Sankh	12.00	3.86	0.80	9.66	- 2.34
North Koel	36.90	17.16	5.27	22.43	- 14.47
	116.00	87.46	13.57	101.03	- 14.97

Source: Advanced Planning and Investigation, Irrigation Deptt., Ranchi.
 Planning and Monitoring Division, Irrigation Department, Daltangaj

Acre ft. can be stored by reservoir on the main streams eg. Subarnrekha, South Koel, North Koel, Sankh and with 6.00 lakh Acre ft. on different tributaries.

3.7 COMMUNICATION NETWORK :

The South Chhotanagpur Region has fairly good road network needing proper upkeep. (Refer Table 3.23 for road length and Map No.5.1). Only 20% of the total road lengths in the region are surfaced which indicate the lack of pucca roads in the region.

There is no National Highway in Palamau district- one of the potential resource district. However, it has good number of state Highways and other roads. No project road in Palamau district is surfaced. Road density (kms of road length per hundred sq.km of area) in the region comes out to be 39.3 with maximum in Ranchi (old) district (44.8) and minimum in Palamau district (34.5) (Refer Table 3.23). Only 0.75% of pucca project road length indicates the poor level of road development in the project area (Refer Table 3.24, for districtwise lengths of project roads).

Total rail length in the region is 1,383 kms giving a rail length density (kms of rail length per 100 sq.km. of area) in the region equal to 3.1 (Refer table 3.25 for rail length and rail length density, Map 6.4 for rail network) Singhbhum district has highest rail lengths 61.0% of the region's total rail length) while Ranchi has lowest (Table 3.25). Existing railways network indicates that uptill now the railways have been developed in the region with a sole purpose to connect the project areas only. Although, this trend of development economically is viable but it has not been in the interest of the whole area in the past. Infra-structural development has not dispersed over the region due to coming of projects. Passing of only one expres train through Palamau district per day is an indication of the extent to which the population of the northern part of the region is served by rail network. However, this area is an important interlink for transport of raw materials, manufactured goods etc. by rail to northern India. Newly constituted districts of Gumla and Lohardaga are poorly connected to rail network. Lohardega is still served by age old Ramchi Lohardega. meter gauge. It has no direct rail connection to Palamau district. Nearest railway station for Gumla (the district head quarter of Gumla) is Ranchi (96 km) or Pokla (102 km). In light of poor dispersal of rail and road network, proposals for revised communication network have been conceptualised.

Table 3.23

Districtwise Road Length in South Chhotanagpur Region by Types
as on 31st March 1988 (in kms)

District	Total	N.H.	S.H.	Other PWD Roads	Zila Parishad Roads	Block Highways	Urban Roads	Project Roads	Total road density (km/sq.km)
Ranchi (old)	8187	330	410	596	5505	263	104	979	44.8
Palamau	4394		228	551	835	159	19	2602	34.5
Singhbhum	4880	175	186	527	1148	235	22	2587	36.3
S.C.R.	17461	505	824	1627	7488	657	145	6168	39.3

Source: Statistics of Roads in India, 1980

Ministry of Shipping and Transport, Government of India.

Table 3.24

Districtwise Surfaced Roads length in S.C.R. by type as on 31st March, 1980
(in kms)

District	Total	N.H.	S.H.	Other PWD Roads	Zila Parishad Road	Block Highways	Urban Roads	Projected Roads
Ranchi (old)	1572 (19.2)	330 (100)	410 (100)	493 (82.7)	43 (0.18)	163 (1620)	99 (952)	34 (3.5)
Palamau	922 (21.0)		228 (100)	496 (90.0)	77 (9.2)	108 (679)	13 (68.4)	
Singhbhum	976 (20.0)	175 (100)	186 (100)	429 (81.4)	87 (7.6)	76 (32.3)	11 (12 (
S.C.R.	3470 (19.9)	505 (100)	324 (100)	1418 (87.2)	207 (2.8)	6347 (52.8)	123 (84.8)	46 (0.75)

Source: Statistics of Roads in India, 1980, Ministry of Shipping and Transport, Government of India.

N.B. Figures in brackets indicate the percentage of corresponding total figure (districtwise).

Table 3.25

Districtwise Rail length in South Chhotanagpur Region
(in kms)

District	Rail Length	Rail Density (km/100 sq.km)
Ranchi (old)	297	1.6
Palamau	242	19
Singhbhum	844	6.3
S.C.R.	1383	3.1

Source: Railway Map of India, 1984
Survey of India, India.

INDUSTRY :

Introduction :

Heavy central investments, foreign technological collaborations easily available power, availability of abundance raw materials, cheap and easily available labour, concerned efforts of some leading private industrialists, govt. promotion and priority for developing industrial complex through the formation of industrial development authority, financing corporations etc. attracted a large number of enterprenuers during past five year plans towards most industrialy prospective areas. Ranchi and Jamshedpur Consequently iron ore mining activities were intensified and industries based on use of iron and steel or plants required for development of iron and steel industries came into being in the towns of Jamshedpur and Ranchi in South Chhotanagpur Region. Many heavy industries like Tata Engineering Locomotive Company Ltd. (TELCO), Tata Iron and Steel Company Ltd. (TISCO), Heavy Engineering Corporation Ltd., Indian Aluminum Industries etc. came on the national picture. Due to intensified and early programmes by promising private industrialist Jamshedpur took the lead in heavy iron and steel industries and a series of medium and small ancillary and by products industries were developed around Jamshedpur. But Ranchi, due to various reasons could ^{not} catch up the environs of ancillary industries parallel to Jamshedpur Town. Of late,

industrial areas and industrial states in Kikar, Namkum, Tatisilwai, Hatia around Ranchi town have come up. Thus a certain degree of disparities in industrial environs is existing even in the two growth centres of the South Chhotanagpur Region. But it is more even heartening to note that where there is only difference in level of industrial development between Jamshedpur and Ranchi, the part of Ranchi district, Lohardaga, Gumla and Palamau districts are completely backward in all respects even after presence of basic industrial resources. Presently Lohardaga, Gumla and Palamau districts have been declared 'No Industry Districts' by Centre and State.

In the event of existing industrial development over the Region it is suggested that future strategy for industrial development should not be to divert all investments towards already industrially developed area of the Region rather the effective strategy should be to identify the possible economic resources of the non-industrialized areas of the region and to exploit these resources also to ensure the balanced development of the region as a whole. Following this concept specifically the further analysis for industrial, infrastructural, social and economic development has been done in respective chapters.

3.8.3 Industrial Resources :

The potential industrial resources of South Chhotanagpur Region have been grouped under following categories besides basic supporting industrial resource i.e. Land and Human:

- (i) Energy Resources which include water and coal resources.
- (ii) Economic Mineral Deposits
- (iii) Other Natural Resources
 - (a) Forest Resources

Out of above mentioned resources land, forest and water have been described in the previous chapters. The potentials of coal and economic mineral deposits have been depicted in Table 3.26.

3.8.4 Existing Industries :

Study on number and type (Table 3.27 and 3.28) and structure of industries (Table 3.29) reveal following worthwhile mentioning points regarding status of existing industries :

(a) There is much diversity in industrial development over the region. While there is preponderance of industrial locations in Jamshedpur and Ranchi urban agglomeration, there are very few industrial locations in other parts especially in district of Lohardaga and Gumla (part of old Ranchi) and Palamau. The district head-quarters, sub-divisional headquarters and other places of these districts are poorly developed in the field of industries.

(b) Structure of industrial development around Jamshedpur is much strengthened than of Ranchi. Industrial development in Singhbhum has penetrated beyond Jamshedpur agglomeration while the industrial development in Ranchi district is concentrated only in Ranchi U.A. only.

(c) While Ranchi and Jamshedpur are the growth centres of iron and steel based products manufacturing, the other centres of the region could be developed as centres of mining and other mineral and forests based product, manufacturing industries.

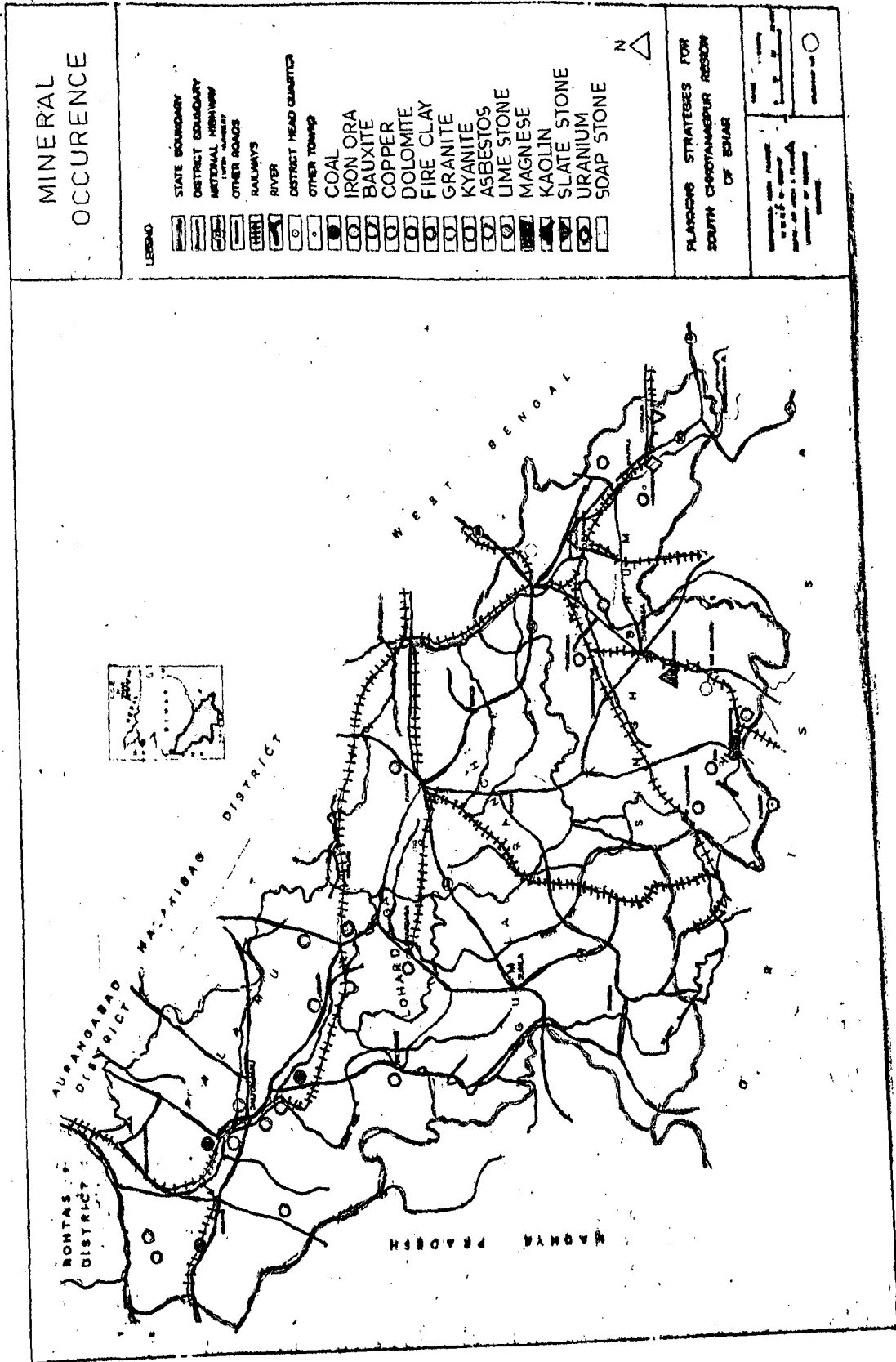


Fig 37

Table 3.26

Mineral Reserve and Production, 1982

Sl. No.	Name of Mineral	Ranchi (old)			Palamau			Singhbhum			S.C.R.		
		Total Reserve (in mt)	No. of Mines	Production (in mt)	Total Reserve (in mt)	No. of Mines	Production (in mt)	Total Reserve (in mt)	No. of Mines	Production (in mt)	Total Reserve (in mt)	No. of Mines	Production (in mt)
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Apatite	-	-	-	-	-	-	1.78	-	-	1.78	-	-
2.	Asbestos	-	-	-	-	-	-	0.118	1	0.014x10 ⁶	0.118	1	0.014x10 ⁶
3.	Bauxite	55.85	10	612993	3.114	-	-	-	-	-	58.964	10	612993
4.	Chromite	-	-	-	-	-	-	0.465	1	595	0.465	1	595
5.	Copper	-	-	-	-	-	-	218.0650	5	1347895	218.065	5	1347895
	(i) Ore	-	-	-	-	-	-	2.8569	-	-	-	-	-
	(ii) Metal	-	-	-	-	-	-	-	-	-	-	-	-
6.	Dolomite	-	-	-	34.575	1	188277	-	-	-	34.575	1	188277
7.	Felspar	-	-	-	10.002	1	-	-	-	-	0.002	1	-
8.	Fireclay	2.285	4	10573	5.642	20	155073	0.07	1	8033	7.997	25	173679

Contd....

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
9. Graphite	-	-	-	-	2.878	6	23193	-	-	-	-	2.878	6	23193
10. Iron Ore	-	-	-	-	-	-	-	-	3671.45	20	2246341	3671.45	20	2246341
(i) Hemalite	-	-	-	-	-	-	-	-	0.09	1	20150	0.09	1	20150
(ii)Magnelite	-	-	-	-	0.64	8	41053	-	-	-	-	0.64	8	41053
11. Kyanite	-	-	-	-	-	-	-	-	-	-	-	89.46	-	-
Kyanite Rock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Limestone (all grades)	42.69	-	202284	196.52	2	463830	77.0	6	304400	316.21	12	970514	-	-
13. Magnese	-	-	-	-	-	-	-	0.138	5	3827	0.138	5	3827	-
14. Barytes	-	-	-	-	-	-	-	0.018	1	290	0.018	1	290	-
15. Coal(all types) 45% non cooling coal	-	-	-	-	424	3	-	-	-	-	-	-	-	-

Source: (i) Mineral Handbook, 1983, Indian Bureau of Mines, Nagpur.
(ii) Khanan Bharati, August 1987, Coal India Ltd., Calcutta.
(iii) The C.C.L. Story, Darbhanga House Ranchi.

N.B. Not available or Not Reported.
mt - million tonne

Table 3-27

Number of Industries by Type

Sl. No.	Type of Industry	Ranchi(old)	Palamau	Singhbhum	S.C.R.	Remarks
1.	Large scale					
2.	Medium scale	14	3	39	56	
3.	Small scale	1978	488	2234	4212	Concentration of SSI- In and around Ranchi, Jamshedpur, Daltanganj, Loherdaga etc.
Total		1992	491	2273	4268	

Source: (i) Singhbhum District at a Glance, 1986
(ii) Report on Industrial Potential, Survey of Palamau District, 1983
Bihar Industrial and Technical Consultancy Organisation Ltd.,
(BITCO) PATNA
(iii) Report on Industrial Potential Survey of Ranchi District, 1983
BITCO, Patna.

Table 3.28Existing Mineral Based Industries

Sl. No.	Name of Location	District	Type of Industry
1	2	3	4
1.	Aditayapura	Singhbhum	Mopped, Engineering
2.	Bhatin, Napha Pahar	-do-	Urainium Mines
3.	Chokardharpur	-do-	Shellack, Leather, Bidi, Railway Coaches Engineering.
4.	Chanchani	-do-	Glass
5.	Dhobani	-do-	Copper Mines
6.	Ghatsila	-do-	Copper Factory
7.	Jadugor	-do-	Urainium Factory
8.	Jamshedpur	-do-	Iron and Steel Track Bus Machine Tools, Boiler, Tin plate, Steel Tube.
9.	Jhinkpani	-do-	Cement
10.	Kandra	-do-	Glass
11.	Kiriburu	-do-	Iron one
12.	Mosabani	-do-	Copper, coal mines
13.	Ranchi	Ranchi	Heavy Machine/Tools, Diesel Engines, Electric Equipments, Shellack, Bakery, Oxygen.
14.	Namkum	-do-	Insulator Factory
15.	Ratu	-do-	Ball Bearings
16.	Ormanjhi	-do-	Fibre Industry
17.	Getalsood	-do-	Ceramics

Contd....

1	2	3	4
18.	Khelari	Ranchi	Cement
19.	Muri	-do-	Aluminium
20.	Daltonganj	Palamau	Shellack
21.	Garhwa	-do-	Shellack
22.	Lateher	-do-	Shellack
23.	Japla	-do-	Cement

- Source: (i) Khanna General Knowledge, 1986
(ii) Report on Industrial Potential of Survey of Palamau District, 1983.
(iii) Report on Industrial Potential Survey of Ranchi (old) District, 1983.

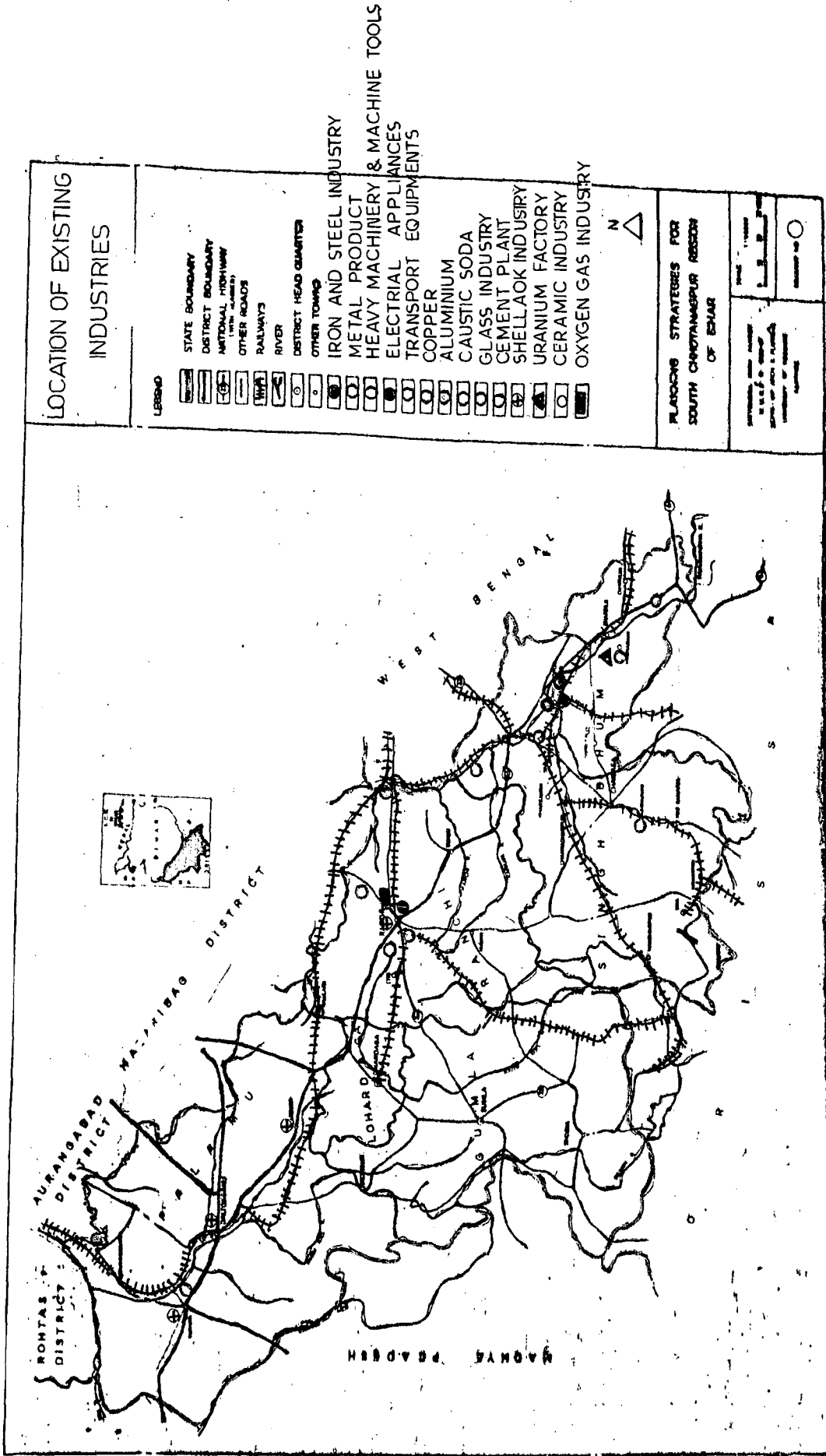


Fig 3.8

Table 3.29

Structure of Industries

Industry	Distribution of units by no. of workers employed					Total Employment	Locations with no. of units	
	upto 10	11-20	21-50	51-100	>100			No. %age of total employment
I. Manufacture of Fuel Products.	2	3	4	5	6	7	8	9
		20	8	6	-	753	0.8	Jamshedpur(1), Chakulia(5) Chandal(1) Dhalbhumgarh(1) Chakrdherpur(1), Chaibasa(1), Sini(1), Sundarnagar(1), Gamheria(1), Ranchi(8) Khunti(1) Daltonganj Hariherganj(1)
II. Manufacture of B Tobacco Products		3	7	2	2	1499	1.43	Ranchi(9), Ameshedpur(1), Aditayapura(3), Ormanjhi(1)
III. Manufacture of wood and wood products Furniture, fixtures	6+16+3=25	5+15=20	2+4=6	1+3=4		899+257=1156	1.1	Ranchi(1), Chandwa(1), Daltoganj(6), Latehar(4), Tatanag(2), Manoharpur(2), Baraja Chaibasa(2), Goelkhera(1), Musabani(1), Mango, Aditayapur(3), Sakch(7) Khunti(1) Panki(1).

Contd.....

1	2	3	4	5	6	7	8	9
IV. Manufacture of paper and paper products	151	6	5	1	1+1=2	660	0.6	Ranchi(12), Jamshedpur(5) Chaibasa(1), Jugsalai(1)
V. Printing, Publishing and Allied Industries	3	20	60	7	5	6590	6.2	Ranchi(31), Mahilong(1), Halundu(1), Kheleri(1), Khijri(1) Jamshedpur(2), Aditayapura(5), Chaibasa(3), Mango(1), Govindpur(1) Sundarnagar(1), Jhinkpani(2), Rajmahal(1), Rekha(1), Khandra(1) Kharsaw(1), Bahargora(1), Gama- heria(1), Nonmundi(1), Chandel(1), Pokhar(1), Jamdih(1), Daltonganj (17), Garwa(1), Satbarwa(1) Bhawanathpur(2), Japla(2), Rajahara ()
VI. Manufacture of Basic Metal and alloy industries	1	26	63	10	22	13585		Jamshedpur(8+4=12), Ghatsila(1), Rakha(1), Aditayapur(21), Gamaha- ria(1), Mango(3), Dhalbhumgarh(4), Jugsalai(8), Ranchi(42), Mahilong (3), Chakulia(1), Ghatsila(3), Tatanagar(1), Golmuni(2), Indeg- nagar(1), Daltonganj(1), Nagar- untari(1), Sin(1), Mandal(2).

Contd.....

1	2	3	4	5	6	7	8	9
IV. Manufacture of paper and paper products	151	6	5	1	1+1=2	660	0.6	Ranchi(12), Jamshedpur(5), Chaibasa(1), Jugsalai(1)
V. Printing, Publishing and Allied Industries	3	20	60	7	5	6590	6.2	Ranchi(31), Mahilong(1), Halundu(1), Kheleri(1), Khijri(1) Jamshedpur(2), Aditayapura(5), Chaibasa(3), Mango(1), Govindpur(1) Sundarnagar(1), Jhinkpani(2), Rajmahal(1), Rakha(1), Khandra(1) Kharsaw(1), Bahargora(1), Gama- herie(1), Nonmudi(1), Chandel(1), Pokhar(1), Jamdih(1), Daltonganj (17), Garwa(1), Satbarwa(1) Bhawanathpur(2), Japla(2), Rajahara ()
VI. Manufacture of Basic Metal and alloy industries	1	26	63	10	22	13585		Jamshedpur(8+4=12), Ghatsila(1), Rakha(1), Aditayapur(21), Gamaha- ria(1), Mango(3), Dhalbhumgarh(4), Jugsalai(8), Ranchi(42), Mahilong (3), Chakulia(1), Ghatsila(3), Tatanagar(1), Golmuni(2), Indeg- nagar(1), Daltonganj(1), Nagar- untari(1), Sin(1), Mandal(2).

Contd.....

1	2	3	4	5	6	7	8	9
VII. Manufacture of Metal Products and Parts except Machinery and Transport Equipments.	22	59	44	2	5	8129	7.8	Ranchi(47),Mango(10),Aditayapur(32),Ghatsila(2),Chakardhepur(2),Jugsalai(6),Jamshedpur(12),Tatanagar(4)
V. Manufacture of metals products and parts								Sundarnagar(4),Mosabein(2),Gamheria(6),Barajameda(1).
VIII. Manufacture of Machinery Machine Tools and parts except electrical machinery	14	28	15	6			4.6	Ranchi(2),Sundarnagar(3),Aditayapur(14),Mango(5),Gamhari(5),Baragora(1),Jamshedpur(6),Chaibasa(2),Jugsalai(2),Japla(2),Tatanagar(4),Parasdi(1).
IX. Manufacture of Electrical Machinery apparatus appliances etc.	5	3	3	2	3		3.3	Sundarnagar(1),Ranchi(8),Jamshedpur(3),Kuru(1),Aditayapur(2),Tatanagar(1),Jugsalai(1).
X. Manufacture of Transport Equipments								Jamshedpur(1),Ranchi(1),Aditayapur(2),Tatanagar(1).
Total	85	186	213	34	47	104686	-	

CHAPTER-4

RURAL AND URBAN SETTLEMENTS

4.1 URBANISATION AND ANALYSIS OF EXISTING URBAN AND RURAL SETTLEMENTS IN THE REGION :

Urbanisation : ¹The urbanisation in a region indicates the social and economic status of the people living in that region. The study on growth trend of urbanisation reveals that urban population in the region has doubled during recent decade (1971-1981). The percentages of urban population of the region recorded in three censuses 1961, 1971 and 1981 are 13.0%, 9.49% and 21.25% respectively. The overall growth of urbanisation although may be said to be better compared to state but it is still showing poor urban growth trend compared to India. Also remarkable disparities in urban population over the region may be noted. On one hand the percentage of urban population in 1981 census in Singhbhum district is 32.07%. On the other hand the corresponding figures for Palamau and Ranchi districts are 5.63% and 20.92% respectively. (Refer Table 4.1 for Urbanisation Trend in SCR).

There are total 39 towns of various sizes as per 1981 census in the Region, out of them there are 2 class I towns, 3 class II towns, 10 class III towns, 14 class V towns and 3 class VI towns 56.77% of urban population of the region is concentrated in Class I towns, 10.37% in class II towns, 17.39% in class III towns, 11.51% in class IV towns, 30.6% in class V towns, 0.66% in class VI towns. Singhbhum district in the region has well organised hierachy of urban settlements

1. Report on Rural and Urban settlements, South east Resource Regional Plan town and country planning Organisation, India.

with presence of all class of towns in the district. Class II and Class VI towns are absent in Ranchi district. While Class I and Class V towns are absent in Palamau, district indicating poor hierachy of urban settlements. The percentage of population for Class III towns (having population range of medium towns) is only 10.6 which indicates weak Urban Centres in the Region. [Refer Table 4.2 Distribution of settlement]. Weak urban centres may affect the accessibility of people of the region to proper market system, facilities, amenities, services of specific types etc. and interaction among settlements.

The subsequent analysis of available important resources like land, forest, mineral, water, power, human and industrial and the recent remarkable percentage decinnial growth of urban population of some of resource bound towns like Khunti (59.98), Kaelari (63.43), Muri (36.74), Gumla(44.00), Daltonganj (), Hussainabad (36.91), Garwa (41.28),, Chakardharpur (27.35), Ghetsila (37.19), Musabani (48.47), Jhinkpani (39.48), Kiriburu (93.28), Adityapura (89.26), Jadugora (75.97), Bagbera (52.24) etc. indicate that there is an ample slope for future urbanisation even in those areas which are deficient in urban population provided urban settlements of the region are properly planned and developed with optimum utilization of available economic resources. Some of the urban settlements like Simdega (an important road transport terminal), Netarhat (a potential tourist centre),

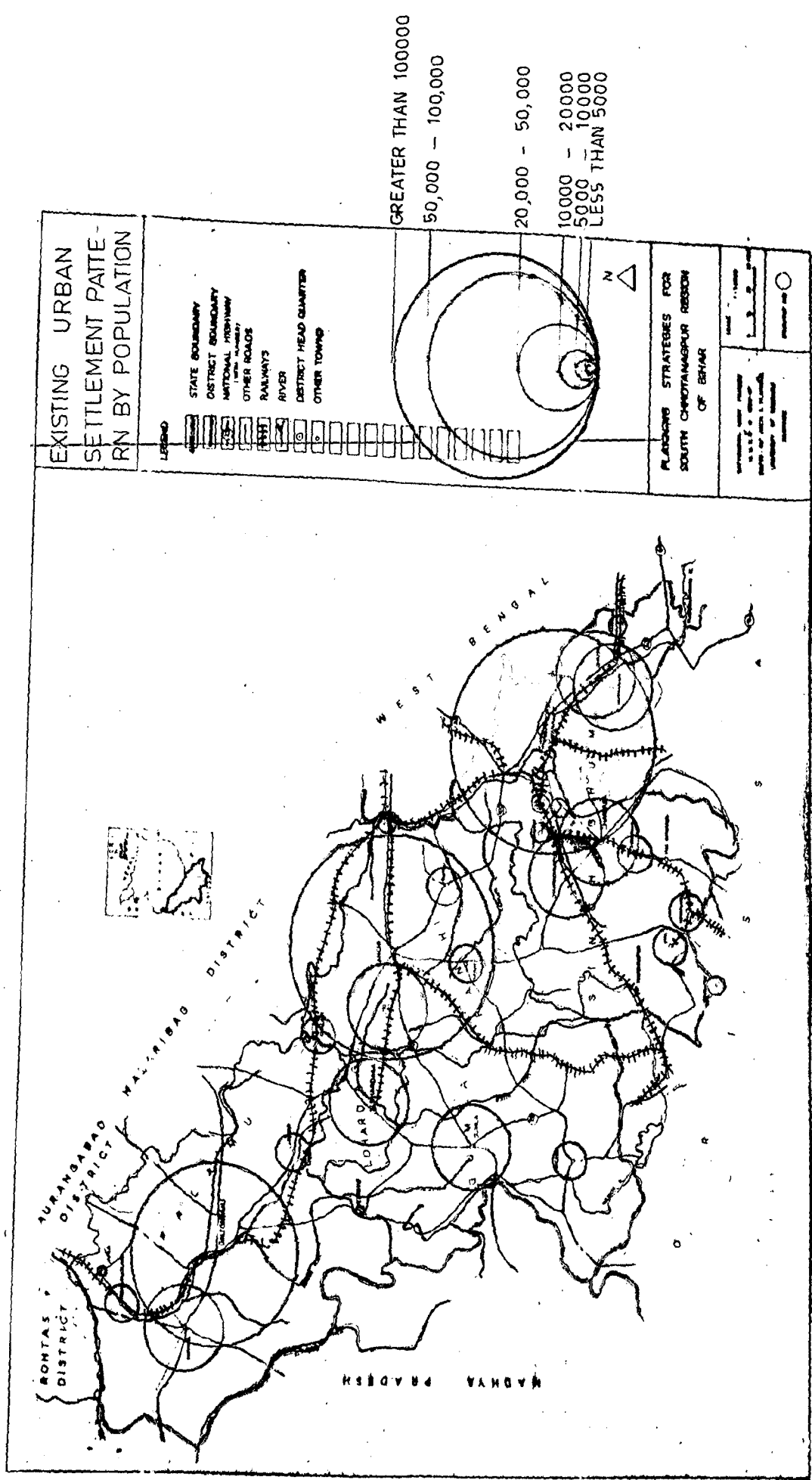


Fig 4-1.

Table 4.2
Distribution of Urban Settlements (1981 Census)

Sl. No.	District	Class of Towns						Total Urban pop.	Total Towns						
		I	II	III	IV	V	VI								
Popula- tion		No. Pop.	No. Pop.	No. Pop.	No. Pop.	No. Pop.	No. Pop.	No. Pop.No.							
1.	Ranchi(oid)	489626	1	-	65960	3	77521	5	9312	1	-	-	642409	10	
2.	Palamau	-	-	51952	1	21514	1	26976	2	-	-	7666	2	108108	6
3.	Singhbhum	457061	1	120705	2	221700	6	72462	7	42451	6	3319	1	917698	23
S.C.R.		946687 (10.77)	2	172657 (10.37)	3	309164 (17.39)	10	176959 (11.51)	14	51769 (3.06)	7	10985 (10.66)	3	1668215 (100.00)	39

Source: Provisional Population Total - Census of India (1981), Bihar.
N.B. : Figures in brackets indicate the percentage of population.

Table 4.3

Urban Growth Rate Since 1961

Sl. No.	U.A./City/Town	District	Rate		
			1961-1971	1971-1981	
1	2	3	4	5	
<u>Class I Towns</u>					
1.	Jamshedpur U.A.	Singhbhum	39.05	46.88	
	Jamshedpur (N)	-do-	17.55	28.21	
	Tatanagar (O.G.)	-do-	29.70	22.70	
	Mongo (N)	-do-	-	-	
	Aditayapur (N)	-do-	-	89.02	
	Bagbera	-do-		52.76	
	Jugsalai (M)	-do-	11.56	24.71	
	Chhota Govindpur	-do-	-	-	
	Gadhra	-do-	-	-	
2.	Ranchi U.A.		82.21	95.89	
	Ranchi	Ranchi (old)	43.72	177.08	
	Karke	-do-	-	19.23	

Contd....

1	2	3	4	5
<u>Class II Towns</u>				
3.	Daltonganj (M)	Palamau	28.08	60.48
<u>Class III Towns</u>				
4.	Chaibesa (M)	Singhbhum	60.71	28.04
5.	Chakardharpur (i) Chakardh	-do-	13.41	27.28
	(ii) Chakardharpur Railway	-do-	12.09	28.83
		-do-	15.14	24.40
6.	Musabani	Singhbhum	160.17	48.32
7.	Ghatsila	-do-		
8.	Lohardega (M)	Ranchi (old)	28.06	37.06
9.	Gumla (M)	-do-	29.42	36.52
10.	Garhwa (N)	Palameu	41.28	44.06
11.	Itaki (N)	Ranchi (old)	-	-
<u>Class-IV Towns</u>				
12.	Khunti (N)	Singhbhum	43.98	59.89
13.	Simdega. (N)	Ranchi (old)	40.82	25.45

Contd.....

1	2	3	4	5
14.	Hussainabad	Palamau	11.61	36.77
15.	Noamundi (N)	Singhbhum	8.87	19.77
16.	Bundu (N)	Ranchi (cld)	20.12	24.41
17.	Khelari	Ranchi (cld)	40.23	63.71
18.	Latehar (N)	Palamau	28.39	26.85
19.	Gua	Singhbhum	8.27	13.60
20.	Jhinkpani	Singhbhum	15.53	39.52
<u>Class V Towns</u>				
21.	Muri	Ranchi (cld)	44.22	38.24
22.	Kiriburu	Singhbhum	-	93.24
23.	Chekulia	Singhbhum	-	31.07
24.	Seraikala (M)	-do-	15.37	25.04
25.	Sini	-do-	-	21.90
26.	Chiria	-do-	-	-
27.	Kharsawa (N)	-do-	18.77	7.24

Contd.....

1	2	3	4	5
<u>Class VI Towns</u>				
28.	Deorikalan	Palamau		
29.	Megahatuburu	Singhbhum		
30.	Netarhet	Palamau	21.20	15.08

Source: Provisional Population Potals, Census of India, Series-1, India,

Note: M.Corp - Municipal Corporation
 - Municipal Committee
 M. Municipality
 N - Notified Area-Committee
 OG - Out growth

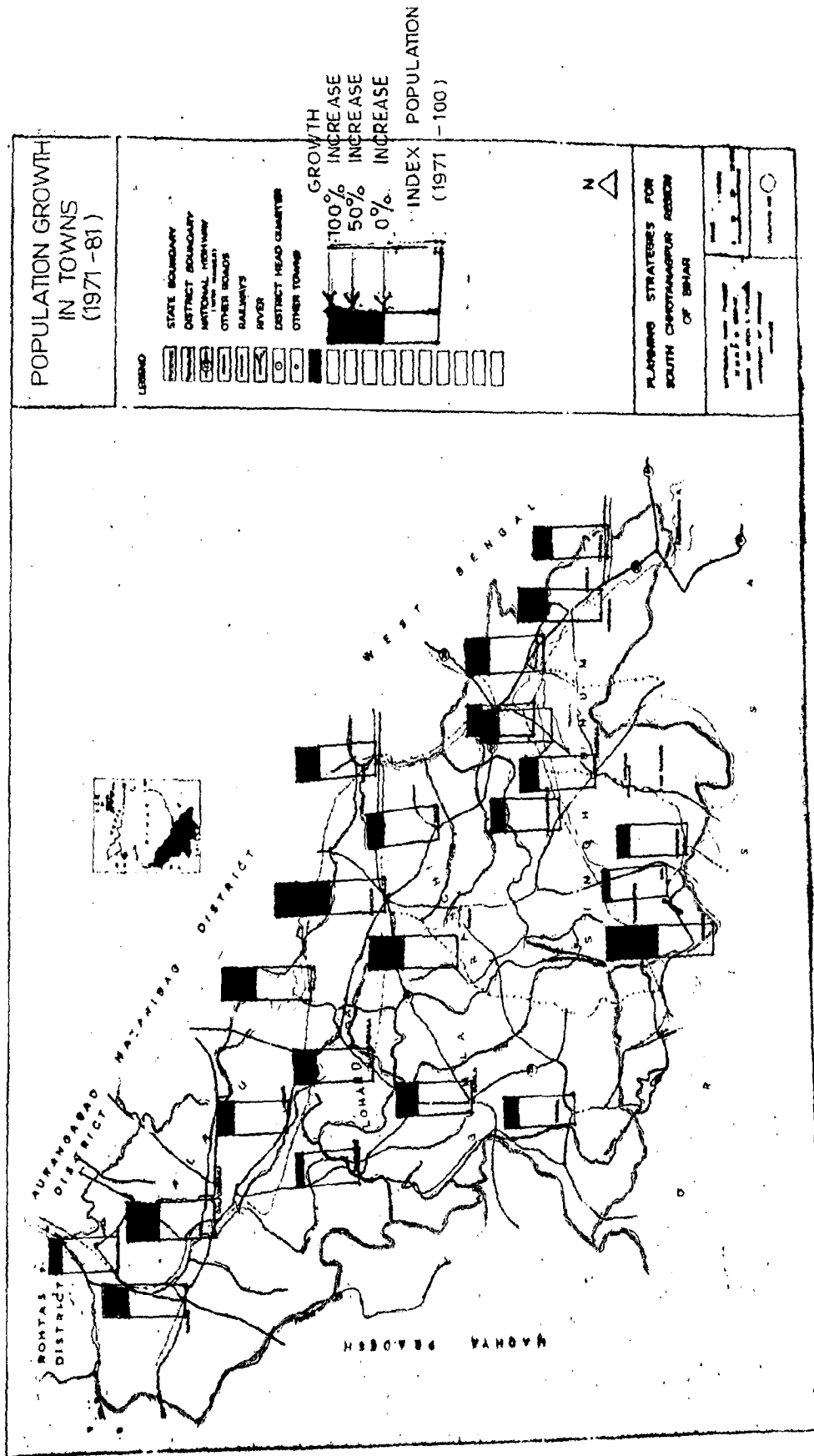


Fig 4.2

Table 4.4

Distribution of Rural Settlements

Sl. No.	District/Region	Less than 200	200 to 499	500 to 999	1000 to 1999	2000 to 4999	5000 to 9999	10000 and above	Total
1.	Ranchi (old)	661 (17.12)	1584 (41.01)	1065 (27.98)	451 (11.68)	95 (2.46)	6.0 (0.16)	Nil	3862 (100.00)
2.	Palamau	1204 (33.61)	1292 (36.07)	154 (21.05)	233 (7.90)	48 (1.34)	1.0 (10.03)	Nil	3582 (100.00)
3.	Singhbhum	1438 (31.11)	1907 (41.26)	988 (21.38)	259 (5.60)	23 (0.61)	2.0 (0.04)	Nil	4622 (100.00)
	Region	3303 (27.37)	4733 (39.64)	2807 (23.26)	993 (8.23)	171 (1.42)	9.0 (0.07)	Nil	12066 (100.00)

Source: Bihar Through Figures, 1983.

Chaibasa (a district Headquarter) have shown slow growth rates compared to previous decade growth rate due to either absence of developmental effort or heavy pull of industrially advanced cities of Ranchi and Jamshedpur. [Refer Table 4.3 for Growth Rates of Towns].

4.2 RURAL SETTLEMENTS :

Distribution of rural settlements in the Region has been classified into different population groups. Settlements in the population group 200-499 are predominant in the Region. Settlements in population group less than 200 rank second after the settlements in population group 200-489. Settlements with population higher than 500 are very few. Settlements in the population group, 10,000 and above are nil. [Refer Table 4.4.].

4.3 Urban Functional Hierarchy of Settlements :

Study of existing pattern of urban settlements in a Region gives an idea of the social and economic organisation under which the urban settlements are operating. ¹The determination of exact pattern of settlements requires sophisticated mathematical and modelling analysis of data on input/output ratios, intra-regional and inter regional flow of goods and services, growth potential etc. In the absence of data on these aspects a simple empirical methodology has been evolved. The methodology has been evolved with an aim to bringout the level of disparities between various settle-

1. Report on 'Rural and Urban Settlements', South East Resource Regional Plan, Town and Country Planning Organisation, New Delhi, India.

ments on the basis of availability of certain common functions.

For analysis of urban settlements on the basis of the adopted methodology, ten functions in order of importance for industrial cum urban development have been selected. These functions are :

- (1) Urban Population (100)
- (2) Industrial Employment (90)
- (3) Transportation (80)
- (4) Electrification (70)
- (5) Protected Water Supply (60)
- (6) Sewerage system (50)
- (7) Medical facilities (40)
- (8) Education (30)
- (9) Bank (.20)
- (10) Recreation (10)

The individual numerical data to be analysed under each function has been shown in Appendix 4A . Each function has been given weightage arbitrarily in accordance with its importance in an industrial cum urban settlement. The weightage assigned to each function has been indicated in the brackets against each function as shown above. Now, all the settlements have been ranked with respect to each function on the basis of the numerical value of that function. Then all functions have been integrated on one

scale based on their weights and a final ranking of all settlements have been done. The final ranking of a settlement has been done on the basis of total attained relative values due to each function of that settlement.

The relative value obtained for each settlement due to each function has been calculated in the manner as illustrated. Suppose a particular settlement among total 32 settlements has a rank number 1 under a function with weightage 100. Then the relative value for this particular settlement due to the particular function (weight 100) would be 100 divided by 1. Similarly the relative value of another settlement of another rank (say 2) due to same function would be 100 divided by 2. Similarly the relative values of other settlements due to other functions are calculated.

Thus Relative Value of Settlement = $\frac{\text{Functional weightage}}{\text{Rank Number}}$

.3.1 Existing Settlements :

Four distinct groups of settlements were identified on the basis of above adopted methodology. They are

- (a) 1st Group Settlements - Settlements attaining total relative value between 110-275 (20% to 50% of max. in total values)
- (b) 2nd Group Settlements - Settlements attaining total relative value between 85-110 (15% to 20% of max total values)

- (c) 3rd Group Settlements - Settlements attaining total relative value between 55-85(10% to 15%)of max. total values)
- (d) 4th Group Settlements - Settlements attaining total relative value between 22-55 (4% to 10% of total max. total values)

Map No. 4.3 shows the location of different identified group of urban settlements.

Some striking features of urban settlements have emerged from the formation of above four groups of settlements. Attainment of low percentage of maximum total weightage value by the settlements indicates that all settlements are weak in basic infrastructures like transportation, power, water supply, sewerage system, bank, education, recreation etc. The existing infrastructures are not coping with the existing urban population and hence infrastructures are strained due to population pressure. Secondly, existence of a particular infrastructure has not been entirely decided by urban population criteria, rather industrial development had been the major deciding factor in installation of a particular infrastructure in a settlement. Inclusion of smaller settlements like Muni and Sini into first group settlements has favoured this tendency. The close scrutiny of location of some of major infrastructures in Ranchi and Jamshedpur Urban Agglomerations reveals that the infrastructure have been mostly installed in its industrial township. In many cases it has been observed that small industrial townships were developed

with all infrastructure facilities by public sector undertakings or private sector undertakings. No specific attempt has been made to improve the condition of larger general urban settlements which attract population due to the availability of diversified but inadequate infrastructures in it. Thus low level of infrastructures in larger urban settlements is notable to serve the commoners of the urban settlements and the rural settlements. As a result the interaction between rural and urban settlements is weak and has resulted in backward state of the region. Therefore to make such urban centres more service oriented, it would be necessary to provide them with adequate facilities.

TABLE 4.5

FUNCTIONAL RANKING OF SETTLEMENT

S.N.	Name of Settlement	URBAN POPULATION		INDUSTRIAL EMPLOYMENT		TRANSPORTATION				ELECTRIFICATION		PROTECTED WASTE SUPPLY		SEWERAGE		MEDICAL LITERS	
		Popu-lation	Rank	No. of Industrial Workers	Rank	Length of Pucca Road/Str	No. of Road/Str	No. of Cycles	Total	Rank	No. of Connections	Rank	Capacity Person (Ct/Person)	Rank	No. of Latrines/100 Person	Rank	No. of Beds/100 Person
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	Ranchi U.A.	502771	2	119735	2	0.68	10	10.68	3	11.54	8	64.25	2	10.00	6	14.03	1
2.	Khelari	13269	17	4433	11	0.12	4	2.12	26	3.50	15	14.04	7	12.37	4	5.55	5
3	Muri	9312	23	3703	9	1.09	2	5.09	10	23.41	4	119.31	1	7.97	12	0.00	30
4	Khunti	18187	13	4076	14	0.13	4	4.13	16	5.14	23	0.00	9	9.55	7	1.19	24
5	Bundu	13876	16	5434	9	0.38	43	3.38	17	3.17	28	0.00	9	2.87	28	1.08	25
6	Itaki	20810	11	4513	10	0.14	2	2.14	24	4.18	25	0.00	9	8.77	10	1.20	23
7	Gumla	21798	11	5380	8	8.67	4	12.67	1	5.57	20	0.00	9	5.45	16	1.32	22
8	Simdega	18444	14	4405	12	0.25	2	2.25	22	2.47	29	0.00	9	2.48	27	3.00	31
9	Lohardaga	23342	8	7503	6	0.13	3	3.13	18	5.80	19	0.00	9	43.54	25	3.75	9
10	Daltanganj	51952	3	11179	4	0.87	6	6.87	6	8.80	12	17.82	5	8.45	11	2.63	16
11	Deorikalan	4758	30	761	30	0.10	2	2.10	28	4.17	26	10.61	9	5.38	17	1.73	21
12	Garhwa	21514	10	4392	13	0.24	7	7.24	5	7.32	16	13.45	8	7.12	13	2.73	14
13	Hussainabad	14441	14	2549	20	0.16	5	5.16	9	3.54	27	0.00	9	6.73	15	0.48	28
14	Netarhat	2908	32	1231	27	0.11	5	2.11	27	1.12	31	0.00	9	3.28	26	2.00	20
15	Latehar	12535	18	2774	17	0.22	6	6.22	7	6.83	17	0.00	9	4.31	21	2.48	18
16	Chaibasa	45751	4	8098	5	1.86	6	10.86	4	9.46	11	14.40	6	5.37	18	2.83	12
17	Jhinkpani	10469	22	752	31	0.23	4xxx	4.23	15	10.84	9	0.00	9	3.67	24	2.66	15
18	Noamundi	14376	15	2986	15	0.21	2	2.21	23	43.37	1	0.00	9	9.02	9	4.17	17
19	Gua	10618	20	2833	16	0.75	1	1.75	29	8.85	13	0.00	9	5.07	19	6.42	2
20	Kiriburu	9036	24	1627	25	1.51	1	2.51	20	23.14	5	0.00	9	13.90	2	6.20	3
21	Meghatuberu	3319	31	664	32	1.45	2	2.45	21	21.12	6	0.00	9	6.85	3	4.20	8
22	Manchazpur	5756	28	1094	28	0.89	2	2.89	19	0.00	32	0.00	9	2.64	29	0.54	27
23	Chakardharpur	44532	5	13440	3	0.54	4	4.54	12	14.44	7	0.00	9	5.32	8	2.22	19
24	Seraikela	7865	26	1837	23	3.07	3	6.07	8	5.56	21	0.00	9	0.69	32	0.04	4
25	Sini	5976	27	1395	26	1.49	3	4.49	13	30.12	2	35.63	4	20.91	1	0.00	30
26	Kharsawan	5106	29	1019	29	2.87	2	4.87	11	5.54	22	0.00	9	0.42	31	0.00	26
27	Jamshedpur U.A.	669580	1	159847	1	4.16	7	11.16	2	4.30	24	59.73	3	6.66	14	2.80	13
28	Chatsila	25175	7	2229	21	0.45	4	4.45	14	8.08	14	0.00	9	4.14	23	2.62	17
29	Chakulia	8712	25	166656	24	0.13	2	2.13	25	6.06	18	0.00	9	0.75	30	0.00	30
30	Musabali	29413	6	7090	7	0.14	1	1.14	31	10.27	10	0.00	9	4.54	20	3.28	10
31	Jadugora	11540	19	2769	18	0.30	1	1.13	32	24.82	3	0.00	9	10.28	5	4.88	6
32	Gadhra	10474	21	2204	22	0.47	1	1.47	30	1.56	30	0.00	9	4.30	22	0.31	29

S. N.	EDUCATION						BANK				RECREATION				Total Rank
	Highway (1981-1982)	Middle School (1000 Pop.)	Primary School (1000 Pop.)	Days/Week	Total Expenditure (1000 \$)	Rank	No. of Banks/Population	Rank	No. of Stadiums (1000 Pop.)	No. of Amebus (1000 Pop.)	No. of Amebus (1000 Pop.)	No. of Public Buildings (1000 Pop.)	Total	Rank	
1	0.10	0.18	0.24	0.01	2.22	20	0.05	16	0.007	0.03	0.02	0.08	0.14	16	
2	0.12	0.24	0.24	0.00	2.24	23	0.00	19	0.00	0.00	0.00	0.00	0.00	26	
3	0.15	0.30	0.30	0.00	2.55	17	0.00	19	0.00	0.50	0.30	0.30	0.75	1	
4	0.27	1.17	1.08	0.00	2.89	15	0.17	3	0.00	0.00	0.00	0.08	0.08	22	
5	0.18	0.36	0.36	0.00	7.02	2	0.09	11	0.00	0.09	0.00	0.18	0.27	6	
6	0.33	0.26	0.33	0.00	3.06	12	0.10	9	0.00	0.00	0.00	0.16	0.16	14	
7	0.27	0.20	0.54	0.00	4.08	10	0.13	8	0.00	0.00	0.00	0.14	0.14	18	
8	0.35	0.41	0.70	0.00	3.57	13	0.14	7	0.00	0.00	0.00	0.40	0.40	3	
9	0.21	0.23	0.23	0.08	5.08	5	0.09	10	0.00	0.00	0.06	0.02	0.18	13	
10	0.21	0.21	0.21	0.05	5.69	4	0.17	2	0.00	0.06	0.02	0.06	0.14	17	
11	0.16	0.16	0.32	0.00	4.40	8	8.00	19	0.00	0.00	0.00	0.00	0.00	26	
12	0.07	0.14	0.35	0.00	2.24	19	0.14	6	0.00	0.05	0.00	0.05	0.10	21	
13	0.34	0.34	0.68	0.00	1.40	27	0.07	15	0.00	0.00	0.00	0.07	0.07	23	
14	0.24	0.16	0.24	0.00	4.76	7	0.00	19	0.00	0.00	0.00	0.34	0.34	5	
15	0.17	0.28	0.28	0.06	2.88	16	0.08	13	0.00	0.00	0.00	0.00	0.00	26	
16	0.13	0.26	0.13	0.00	4.81	6	0.22	12	0.00	0.06	0.03	0.09	0.18	12	
17	0.08	0.08	0.24	0.00	2.08	21	0.08	14	0.08	0.08	0.08	0.00	0.24	7	
18	0.01	0.01	0.01	0.00	1.20	29	0.00	14	0.00	0.00	0.02	0.00	0.02	25	
19	0.21	0.21	0.00	0.00	0.13	32	0.00	19	0.00	0.00	0.00	0.00	0.00	26	
20	0.07	0.28	0.42	0.00	2.52	18	0.00	19	0.00	0.00	0.00	0.00	0.00	26	
21	0.38	0.64	1.15	0.00	1.89	26	0.00	19	0.00	0.00	0.00	0.12	0.12	19	
22	0.15	0.17	0.19	0.00	6.48	3	0.00	19	0.00	0.00	0.00	0.16	0.20	10	
23	0.32	0.32	1.75	0.06	2.05	22	0.00	19	0.00	0.04	0.00	0.16	0.20	15	
24	0.20	0.40	0.00	0.00	11.35	1	0.16	4	0.00	0.00	0.00	0.16	0.16	15	
25	0.21	0.42	0.84	0.00	3.00	14	0.00	19	0.00	0.00	0.20	0.20	0.20	4	
26	0.10	0.19	0.31	0.006	4.00	11	0.00	19	0.00	0.00	0.00	0.21	0.21	8	
27	0.11	0.22	0.33	0.00	2.00	24	0.03	18	0.006	0.02	0.03	0.05	0.10	20	
28	0.30	0.30	0.60	0.00	1.98	25	0.05	17	0.11	0.05	0.05	0.25	0.46	2	
29	0.05	0.20	0.15	0.00	4.20	9	0.15	5	0.00	0.00	0.00	0.00	0.00	26	
30	0.00	0.15	0.30	0.00	1.20	29	0.00	19	0.00	0.00	0.00	0.20	0.20	11	
31	0.00	0.15	0.30	0.00	0.75	31	0.00	19	0.00	0.00	0.00	0.00	0.00	26	
32	0.00	0.14	0.14	0.00	0.78	30	0.00	19	0.00	0.00	0.04	0.00	0.04	24	

Table 4.6

FINAL RANKING OF SETTLEMENTS

Sl. No.	Name of settlement	Population (wt.=100)		Industrial employment (wt.=90)		Transportation (wt.=80)		Electricity (wt.=70)		Protected water supply (wt.=60)		Sewerage (wt.=50)		Medical facility (wt.=40)		Education (wt.=30)	
		Rank	R.V.	Rank	R.V.	Rank	R.V.	Rank	R.V.	Rank	R.V.	Rank	R.V.	Rank	R.V.	Rank	R.V.
1.	Ranchi U.A.	2	50	2	5.00	3	26.67	6	8.75	2	30.00	6	8.33	1	40.00	20	1.50
2.	Khelari	17	5.88	11	8.18	26	3.08	15	4.67	7	8.57	4	12.50	6	8.00	23	1.30
3.	Muri	23	4.35	19	4.74	10	8.00	4	17.5	8	60.00	13	4.17	30	1.33	17	1.76
4.	Khunti	13	7.69	14	6.43	16	5.00	23	3.04	10	6.00	7	7.14	24	1.67	15	2.00
5	Bundu	16	6.25	9	10.00	17	4.71	28	2.50	10	6.00	28	1.79	25	1.62	2	15.0
6	Itaki	11	9.09	10	9.00	24	3.33	25	2.8	10	6.00	10	5.00	23	1.74	12	1.43
7	Gumla	9	11.11	8	11.25	8	80.00	20	3.5	10	6.60	16	3.13	22	1.82	10	3.0
8	Simdega	14	7.14	12	7.5	22	3.64	22	2.41	10	6.60	27	1.84	11	3.64	13	2.37
9	Lohandega	8	12.5	6	15.0	18	4.44	19	3.65	10	6.00	25	2.00	9	4.44	5	6.00
10	Daltonganj	3	33.33	4	22.5	6	13.33	12	5.63	5	12.00	11	4.54	16	2.50	4	7.50
11	Deorikalan	30	3.33	30	3.00	28	2.86	26	2.69	9	8.67	17	2.94	21	1.91	8	3.75
12	Garhwa	10	10.00	13	6.92	5	16.00	16	4.38	8	7.150	13	3.85	14	2.86	19	1.55
13	Hussainabad	14	7.14	20	4.5	9	8.89	27	2.59	10	6.00	15	3.33	28	1.43	27	1.11
14	Nearhat	32	3.13	27	3.33	27	2.96	31	2.88	10	6.00	26	1.92	20	2.00	7	4.29
15	Latehar	18	5.56	7	5.29	7	11.43	17	4.12	10	6.00	21	2.38	18	2.22	16	1.88
16	Chaibasa	4	2.5	5	18.00	4	20.0	11	6.36	6	10.0	18	2.78	12	3.33	6	5.00
17	Jhinkpani	22	4.54	31	2.90	15	5.33	9	7.78	10	6.00	24	2.08	15	2.67	21	1.43
18	Noarmundi	15	6.66	15	6.00	23	3.48	1	70.00	10	6.00	9	5.56	7	5.71	29	1.03
19	Gua	20	5.00	16	5.63	29	2.67	13	5.38	10	6.00	19	2.63	2	20.0	32	0.94
20	Kiribaru	24	4.17	25	3.60	20	4.00	5	14.00	10	6.00	2	25.00	3	13.33	18	1.67
21	Meg	31	3.23	32	2.81	21	3.81	6	11.67	10	6.00	3	16.67	8	5.00	26	1.15
22	Manoharpur	28	3.57	28	3.21	19	4.21	32	2.19	10	6.00	29	1.72	27	1.48	3	10.00
23	Chakrabortpur	5	20.0	3	30.0	12	6.67	4	10.0	10	6.00	8	6.25	19	2.11	22	1.36
24	Serakola	26	3.85	23	3.91	8	10.0	21	3.33	10	6.00	32	1.56	4	10.0	1	30.00
25	Sini	27	3.70	26	3.46	13	6.15	2	35.0	4	15.0	1	50.0	30	1.33	14	2.14
26	Kharsawan	29	3.45	29	3.10	11	7.27	22	3.18	10	6.00	31	1.61	26	1.54	11	2.72
27	Jamshedpur	1	100.0	1	90.0	2	40.0	24	2.92	3	20.0	14	3.57	13	3.08	24	1.25
28	Ghatasila	7	14.29	21	4.29	14	5.71	14	5.00	10	6.00	23	2.17	17	2.35	25	7.23
29	Chakulia	25	4.00	24	3.75	25	3.20	18	3.89	10	6.00	30	1.57	30	1.33	9	5.33
30	Musabani	6	16.66	7	12.86	31	2.58	10	7.00	10	6.60	20	2.60	10	4.00	29	1.03
31	Jadugar	19	5.26	18	5.00	32	2.50	3	23.33	10	6.00	5	10.00	6	6.67	31	0.97
32	Gadhwa	21	4.76	22	4.09	30	2.67	30	2.33	10	6.00	22	2.27	29	1.38	30	1.00

Bank Rank	Bank R.V. (wt=20)	Recreation Rank	Recreation R.V. (wt=10)	Total relative value	Final Rank	Group No.	Sl. No.
16	1.25	16	0.63	212.13	2	I	1
19	1.05	26	0.38	53.01	17	IV	2
19	1.05	1	10.0	112.90	5	I	3
3	6.67	22	0.54	46.09	21	IV	4
11	1.82	6	1.67	51.34	19	IV	5
9	2.22	14	0.71	41.32	23	IV	6
18	2.50	21	0.56	122.87	3	IX	7
8	2.50	18	0.56	122.87	3	I	7
7	2.86	3	3.33	40.74	25	IV	8
10	2.00	13	0.77	56.83	14	III	9
2	10.0	17	0.59	112.12	6	I	10
0	1.05	26	0.38	28.58	31	IV	11
6	1.33	21	0.48	56.90	13	III	12
15	1.33	23	0.43	36.75	26	IV	13
19	1.05	5	2.00	28.24	30	IV	14
13	1.54	26	0.38	40.80	24	IV	15
12	1.67	12	0.83	92.97	8	II	16
1	20.0	7	1.43	54.16	16	IV	17
14	1.43	8	1.25	107.12	7	II	18
19	1.05	25	0.40	49.79	20	IV	19
19	1.05	20	0.38	72.20	11	III	20
19	1.05	26	0.38	51.77	18	IV	21
19	1.05	19	0.53	33.96	27	IV	22
19	1.05	10	1.00	84.44	9	III	23
4	5.00	15	0.67	74.32	10	III	24
k9	1.05	4	2.50	120.33	4	I	25
19	1.05	8	1.25	31.17	19	IV	26
19	1.11	20	0.50	212.43	1	I	27
18	1.18	2	5.00	47.10	21	IV	28
17	4.00	20	0.56	31.55	28	V	29
5	1.05	11	0.91	54.59	15	IV	30
19	1.05	26	0.38	61.16	12	III	31
19	1.05	24	0.42	25.97	32	IV	32

Group No. - R.V.
 1st Group > 110 --6
 2nd Group 85-110
 3rd Group - 55-85
 4th Group - 25-55

N.B. - R.V. - Relative value
 Wt. - Weightage

CHAPTER-5

CONCLUSIONS

5.1 Regional Planning and Development in India got official recognition in mid fifties through five year plans. Successively third, fourth, fifth and sixth five year plans of India, recognised the need of development in terms of regions (spatial), defined by economic, social and geographical considerations.

5.1.1 Sixth five year plans called for reduction in regional development inequalities and the diffusion of technological benefits over the regions.

5.1.2 India has been divided into 13 macro and 36 meso regions. Meso regions are divided into micro regions at state level.

5.1.3 Bihar consists of 4 meso regions and 7 micro regions.

5.1.4 South Chhotanagpur region is one of the meso regions of Bihar. It lies in South Bihar consisting of districts of Ranchi, Lohardaga, Gumla, Palamau and Singhbhum. It is an important mining and industrial region of India.

5.2 South Chhotanagpur region is an area of immense natural resources in form of agricultural lands, forests, mineral wealth, water potential and power potential.

5.2.1 South Chhotanagpur region accounts for 25.7% of area and 8.2% of population of Bihar.

5.2.2 Density of population in the Region is lower than that of state of Bihar. It is approximately half of Bihar's average.

5.2.3 Proportion of females in the region is on average less than that of males except in Gumla and Lohardaga districts of the region.

5.2.4 More than 2/5th of population of region is tribal.

5.2.5 Less than one third of population of region is literate. Literacy percentage in the region is less than India's average due to poor quality of population.

5.2.6 Percentage of urban population in the region (1981) was less than India's average (23.73).

5.2.7 Percentage growth rate of total population in the region (1971-81) was lower than that of India's average (24.75). Urban population growth rate in the region was approximately half of India's average urban population growth rate during same decade.

5.2.8 Projected population of the region by 2001 and 2011 is estimated to be 90.2 lakhs and 1.03 crores respectively. Two methods of population projection namely incremental increase method and geometric progression method have been applied to estimate the projected population of the region.

.3.1 Physiographically the South Chhotangapur Region

consists of cyclically eroded surfaces marked by series of scraps and endowed with rich deposits of minerals. Soils of the region consists of red soils and mixture of red and black soils.

5.3.2 Climatically the region lies in moderate rainfall belt of Indian rainfall in the region is due to winds from south-east direction.

5.4.1 The average per capita income of the region in 1977 was Rs. 416 which is roughly half and one fourth of state's and India's average.

5.4.2 Approximately one lakh people of this region seeks employment every year and out of them only 4% are employed every year.

5.4.3 Workers participation ratio (percentage of workers to total population) in the region was 38.54% as per 1981 census.

5.4.4 26.6% of the geographical area forms the land for net cropping area every year. 36.9% of geographical area, which is otherwise a culturable land, is wasted in form of barren land fallow lands.

5.4.5 Agriculture is in backward state due to lack of proper irrigation facilities, land reclamation, land conservation, better seeds, required amount of manures, supply of modern agricultural equipments and infrastructural facilities rela-

ing to development of rural roads, railways, market centres agricultural training centres etc. per hectare yield of crops in the region is low and agricultural production is not sufficient to feed the whole population of the region.

5.5.1 Forest is one of the important economically exploitable resources of the region. Lack of transportation network and other developments efforts over plan periods in the region has resulted in low production and utilization of forest resources. No forest based industries on large scale or medium scale has been attempted in the region.

5.5.2 Existing tourism potential of the region has not been given any worthwhile attention by Bihar tourism corporation etc. as a result many tourist centres are in dormant state due to lack of proper transportation facilities, accomodation facilities, commercial facilities, recreational facilities, water supply facilities. Publicity of these tourist centres by state Government is almost nil.

5.6.1 More than 100 lakh acre ft. of water resource potential is available in utilizable state for use of agriculture, water supply, industry etc. Proposed Mastern Plan of water resources of the Region by planning and investigation Department of Irrigation. Bihar is likely to give result if the plans are implemented within stipulated time limit.

5.7.1 Uptill now the roads and railways in the region have been developed with specific aim to connect the project areas. No deliberate attempt has been made to connect the rural areas also or to improve the urban rural interaction through expansion of roads and railways. That is why rural centres (Block Headquarters or important villages) are not effectively connected by roads and rails.

5.8.1 Industrial development in the region is polarised around the towns of Ranchi and Jamshedpur only due to various reasons like heavy central investments, foreign technological collaborations, availability of raw materials, labours and power, promotion to privatisations in industries, communication network govt. priorities to iron and steel industries development etc.

✓ 5.8.2 Newly constituted Lohardaga and Gumla districts and Palamau districts of the region have been declared 'no industry districts' by central and state government. It is important to note that these areas have heavy industrial base for future industrialisation.

5.8.3 Existing industrial resources include land and human resources, energy resources (coal and water) mineral resources, forest resources and domestical livestock resources besides other infrastructural facilities like regional road and railway network.

5.9.1 The average percentage of urban population in the region is higher than the state's average but lower than India's average. Distribution of urban population is remarkable in the region. The percentage of urban population in Palamau district of the region is 5.63% whereas the same figure for Singhbhum district is 32.07%.

5.9.2 Distribution of urban settlements in the region is also remarkable. The Singhbhum district has better hierarchy of different order of urban settlements, whereas the hierarchy pattern in Palamau and Ranchi is very poor. Class I (100,000 and above) and Class V (5000-10,000) urban settlements in Palamau district and Class II (50,000-100,000 pop) and Class VI (< 5000 pop.) settlements in Ranchi (old) district are totally missing in their hierarchy of settlements.

5.9.3 Various settlements of the region have shown remarkable rising trend in urban population.

5.9.4 Smaller rural settlements (200-409) population are predominant in the region.

5.9.5 Urban rural interaction is very weak in the region due to inadequate existing infrastructural facilities like transportation, electrification, water supply, sewerage system, recreation etc. in the urban settlements, inadequate regional transportation system in terms of connection, backward agriculture low purchasing index of rural people etc.

5.9.6 A comprehensive development of resources and planning of settlements is urgently required to improve the urban rural interaction.

5.9.7 Industrial development cum urban development based on resources appears to be a thoughtful strategy in the region.

5.10.1 Development of future communication network should take into account both industrial and rural development to maximum extent possible.

CHAPTER-6PLANNING STRATEGIES AND RECOMMENDATIONS6.0 PLANNING STRATEGIES :

Foregoing discussions and conclusions have revealed that south Chhotanagpur Region has enough industrial resources with lopsided spatial industrial development. The north-west portion of the region (Palamau district) has been mere appendeges for centuries for flow of minerals and fuels for industrial development in the central portion (Ranchi area) and south east portion (Singhbhum district) of the region. This trend has given rise to unbalanced industrial development and unplanned spatial growth centres resulting in imbalance in economic structure and poor urban rural interaction. To avoid various regional imbalances, resource based ~~max~~ manufacturing industries have been proposed and growth focus planning has been attempted to disseminate the benefits resulting from industrial development to the people through various growth foci.

In this way following three planning strategies appear to be worth applicable for balanced regional development.

- (i) Emphasise on resource based manufacturing industries
- (ii) Strengthening of the existing growth foci so that they are better equipped for the innovative tasks they are intended to perform.
- (iii) Creation of new growth foci in the areas where they have failed to emerge.

6.1 Emphasise on Resource Based Manufacturing Industries

6.1.1 Power sector and coal based industries :

For any industry to develop the requirement of power is a must. Additionally the industrial development is substantiated if sufficient power, is available from power station/stations in the nearby area. Proximate locations of power stations eliminates transmission losses and keep better control over power supply. Although South Chhotanagpur Region is not enriched with coal production presently but its nearby part of North Karpura, whole Barkakana, Ardaga, Kuju, Rajrappa, Hazaribag coal areas have strong influence on it in the field of coal production and coal transportation. It is to be noted that a part of North Karanpura coal area also includes the high quality energy coals (coking coals) areas of Rajahara and Hutar which lie in Palamau district on Barkakana Daltanganj, Dehriosone Railway line. Much of the coal lying in the coal fields of Rajahara and hutar is yet to be fully assessed.

6.1.2 Proposed sites for Power Stations :

At present there is no power station in the South Chhotanagpur Region. The demand for power is met by DVC in Singhbhum district and by Palamatu Thermal Power Station in Ranchi and Palamau districts. In light of rising demand for industries in the region it is anticipated that present power stations are not fully capable to supply power to the region.

In the region there is a possibility of getting 6000 MW thermal power in North Karpura field. The proposal for site for thermal power stations in the region have been made keeping in view the basic criterias required for setting up power station.

(A) Input Required for setting up 2000 MW Thermal Power Station (T.P.S.)

- (a) Land required for plants, township etc. = 1600 hectares
- (b) Water required for circulation = 200,000,000
cooling etc. m^3/yr (a discharge = $0.63 \text{ m}^3/\text{day}$)
- (c) Coal - 6 to 8 million tonnes per year.

(B) Proposed sites for T.P.S. (Thermal Power Stations)

(i) Mccluskieganj Thermal Power Station (2000 MW) :

Mccluskieganj lies in the district of Ranchi on the border of Ranchi and Hazaribagh districts of Bihar. This site is ideally suited for a proposed thermal power station with 2000 MW capacity. Adequate land is available here. Requirement of coal can be met from the North Karanpura coal field area from Dakara, K.D. Hesalong and Karkata lying within 8 to 10 km radius. Water requirement can be fed by constructing a dam on Saphi river in Hazaribagh district. The site is close to Barkakana Dehrion sone B.G. Railway line.

Ran

(ii) Panki Thermal Power Station (2000 MW)

An alternate site to McCluskieganj for thermal power station can ~~be~~ also be considered at Panki. Panki lies in the district of Palamau on Daltanganj, Chatra state-highway. Adequate land is available here. The requirement of coal can be had from North Karanpura coal field through proposed Kishunpur-Panki Daltanganj railway line. Sufficient water would be available from dam under construction on Amanat River. The proposed Kishunpur Panki Daltanganj railway line would have other advantages also like to reduction of freight load on Barkakana-Barwadih section of railway line, an alternate line for diversion of coal Western India via proposed Barwadih Karonji-Bishrampur (M.P.) line and interconnection of Lestiganj and Chatra subdivisions of Palamau and Hazaribagh districts respectively

(iii) Manika Super Thermal power Station (Near Latehar)

-2000 MW :

This site can also be considered for a thermal power station of capacity 2000 MW. Site requirement is justified after following considerations :

(a) Water Requirement : This can be met from the dams to be constructed or being constructed by Bihar Government across Auranga, Amanat, North Koel (Kutnu), Tahla rivers. A part of water requirement can also be met from Kanhar dam across Kanhar river. Kanhar dam construction is joint venture of Governments of Bihar and U.P..

(b) Coal : Coal can be received initially from North Karanpura field and afterwards Auranga coal field whose coal potential is yet to be fully assessed.

(c) Transport : Site is close to Barka kana Daltonganj Dehri-onsone Railway line.

(d) Land-Adequate land is available.

(iii) Manoharpur Super Thermal Power Station (2000 MW) :

A third super thermal power station is proposed at Manoharpur in Singhbhum district. There is already a proposal for a mini steel plant at Manoharpur. The feasibility report for this steel plant has been proposed by MECON (Metallurgical Engineering Consultants, Ltd Ranchi). Site requirements are fulfilled as follows :

(a) Water : Tail race water of Basia dam, across South Koel River in Gumla district of the Region, the part of water available from Basia dam may be utilized by proposed steel plant and Aluminium complex at Lohardaga.

(b) Coal : Coal can be had from North Karpura.

(c) Transport : Manoharpur is on railway line.

(d) Land : Adequate land is available nearby.

6.1.3 Coal Based Industries :

(i) Manoharpur Steel Plant - Proposal for this plant has already been made by MECON.

(ii) Methanol Plant at Barwadih : This proposal has been made by Bihar Government. The proposed Barwadih Methanol plant would utilize the low ash coals from Hutar coal field lying around 10 km. away from Barwadih. The proposed plant is expected to give rise a range of ancillary industries around Barwadih.

6.1.4 Non Coal Based Mineral Industries :

Asbestos : Asbestos finds its use in textile industry, in manufacture of compressed sheets, brakelinings, shingles, corrugated sheets. Asbestos sheets are also used as filter and packing material for roofs etc. Reserve of asbestos is concentrated in Roro Mines, Barbena (Seraikela) and Dhalbhum in Singhbhum district. An asbestos based industry for manufacturing of asbestos cement products like shingles, corrugated sheets etc. is proposed at Jhinkpani in Singhbhum district. The proposed site is justified due to following reasons :

(a) Manufacture of shingles and corrugated sheets requires cement as chief raw material and there is a cement factory at Jhinkapani with average annual production capacity 0.782 m/yr.

(b) Jhinkapani is on good transport route of roads and railways and hence asbestos mined in the seraikela areas can be easily transported to Jhinkapani.

2. Bauxite : Bauxite is one of the important raw materials required for Aluminium Extraction Plant. The other raw materials required for setting up Aluminium plant are bauxite, Caustic soda, cheap electricity, and small quantity of flourspar and electrodes. A bauxite based Aluminium plant is proposed at Lohardaga. Raw materials requirement are met as follows :

(i) Bauxite - available from Netarhat P

(ii) Caustic soda - available from Garhwa caustic soda, Factory

(iii) Power - Lohardaga is equidistant from Manika, Koel Karo and McCluskienganj proposed thermal power stations (around 170 km).

Currently bauxite mined in Netarhat goes to Renukoot in U.P. and Muri (Ranchi district, Bihar). Muri plant produces alumina and sends it to Kerala for smelting and finally finished product goods are made available in Bombay. It is recommended that Bihar Govt. should send the finished product instead of alumina.

Expected Industries Based on Aluminium Plant :

(i) By product plant based on aluminium plant - By product available from / ^{Aluminium} plant finds uses in paints, pigments, vanadium, titanium industries which are not existing in Bihar.

(ii) Auxillary and Ancillary Industries : Railway passenger coaches, electrical conductors, domestic appliances, aluminium foils.

Proposed aluminium plant can give boost to industrialization in the tribal belt of Lohardaga.

3. Barytes : Promising deposits of Palamau district could be considered for small scale industrial units in the future.

4. Chinacky : A proposal for ceramic complex near Latehar is under active consideration of Bihar Government. Proposed complex would utilize, the China clay deposits of Latehar (Palamau).

5. Dolomite : Dolomite is required in fertilizer, iron and steel, ferromagnese, alloysteel, glass, chemicals, foundary parts, asbestos and insecticides industries. Dolomite of Palamau could be used as raw materials for fertilizer, chemical and insecticide industries in the country small scale industries for making tiles, chips, mossaic etc. utilizing dolomite are recommended.

6. Graphite: Graphite is required for metallurgical, chemical, nuclear, thermal and electrical industries.

Reserve of Graphite in the region is concentrated in Palamau district. Mining activities is recommended to be intensified in Bishrampur (Palamau) in light of large deposits expected. Presently there are three existing graphite beneficiation plants Daltonganj with total capacity 7000 tonnes/annum. The proposed graphite industries are detailed in Table 3.

Graphite in Palamau and MnO_2 of Singhbhum suggest a dry battery unit in Palamau.

Extensive exploration of deposits of graphite of Palamau is recommended.

7. Fire clay : Fire clay is the basic requirement for production of aluminium silicate. Reserve of fireclay is concentrated mainly in Palamau district. Fireclay reserve of Auranga Coal Field is yet to be assessed fully. A central fireclay calcination plant at Chandwa or Latehar in Palamau district is proposed. This plant will supply fire bricks to steel plants etc. Site justification is as follows :

Raw material from Chandwa or Latehar areas
coal - from North Karanpura, Palamau district
Water - from Auranga Dam.

In addition ceramic complex at Latehar has already been proposed. It is expected to give 20,000 direct and 30,000 indirect employment per annum.

Graphite Based Industries

Sl. No.	Industry	Location	Annual capacity (tonnes)	Man days	Investment (Lakhs)
1.	Carbon-bonded and clay bonded Graphite Crucibles plant	Daltonganj	6000 (finished product)	36,000	100
2.	Graphite	Daltonganj	-	3000 to 10,000	-
3.	Graphite Beneficetion plant	Daltonganj	30,000 (Raw Graphite)	Not Evaluated	350

Source: (i) Report on Industrial Potential Survey of Palamau District, BIICO, Patna
(ii) District Industry Cffice, Daltonganj, Palamau.
(iii) Personal Survey.

8. Kyanite : Kyanite is used as raw material in refractory industry for manufacture of pots, retorts , saggars, muffles, gas fires. It also finds its use in ceramic industry for manufacture of certain ceramic products. Reserve of Kyanite is concentrated in western Keraikola and Kharsawan in Singhbhum district of the Region. At present Kyanite is exported from the Region. Very small price is received from export of this material. It is recommended that home industries based upon use of Kyanite be set up in the Region itself. Ideal site could be Kharsawan where skilled labour is available. Better technical knowhow can be made available to the labourers.

9. Limestone : Limestone is used as raw materials in cement, iron and steel, fertilizer, calcium carbide, bleaching powder, caustic soda, soda ash textile industries. Existing deposits of limestone of Palamau and Ranchi are cement quality limestone. Presently there are three cement plants at Japla (Palamau), Khelari (Ranchi), Jhinkpani (Singhbhum) giving outturns of 0.254, 0.782 and 0.782 mt/per year respectively. In the light of extensive deposits in Palamau and Ranchi, proposal for mini cement plants each of capacity 100 T.P.P. (tonnes per day) is made. Table 6.2 gives the details of sites of proposed mini cement plants.

Requirements for 100 T.P.D. Mini Cement Plant

- i) Land = 4 acres

Table ~~331~~ 62

Proposed Mini Cement Plants

Sl. No.	Name of Deposit	Total Reserve (Million Tonnes)	I.P.D. (tonne per day)	Capacity Per Annum Production (Million tonne)	Likely Employment Direct	Employment Indirect	Remarks
1.	Bentibagda (Ranchi)	6.0	200	0.08	20,000	30,000	
2.	Balumath (Palamau) DEMU- (Bola-ha-Lambi Bak-Hanipahar Deposit)	2.31	150	0.06	18,000	27,000	
3.	Palmohi	9.70	500	0.20	35,000	53,000	Five units of 100 T.P.D. with common facilities

- (ii) Power = 3.9 MW hr
- (iii) Limestone = 39,000 tonnes/P.A.
- (iv) Clay = 3,560 tonnes/P.A.
- (v) Coke breeze = 5,940 tonnes/P.A.
- (vi) Gypsum = 1,485 tonnes/P.A.
- (vii) Manpower(Direct) = 15,000
- (viii) " (Indirect) = 522500(1.5xdirect) assumed.

Proper assessment of other raw materials like laterite, bauxite of Netarhet plateau is required. Clay is locally available around sites. Gypsum (small amount) may be imported from Rajasthan. Source of coke breeze is west Bokaro coal field. Water requirement for the cement plants is less and may be made from ground water also by digging tube wells etc. Power requirement may be assessed from the areas concerned. Afforestation and other environmental requirement for cement industries would be kept in mind.

10. Marble, slabs and stone chips : Marbles, dolomitic limestone and dolomite of Ranka (Palamau) in the Region is extensively suitable for marble slabs, chips and mosaic industry. There are presently two such concerns in Ranchi. Such industries are required to be encouraged.

3.8.9 FOREST BASED INDUSTRIES :

The common varieties of trees are Sal, Kushum, Argen, Mahua etc. Forest resources of Palamau, Ranchi, Lohardaga and Gumla are yet to be exploited for industrial development.

PROPOSED FOREST BASED INDUSTRIES

Sl. No.	Name	Probable site	Main Raw Material	Raw material availability Unit	6 Qty.	7 Main product	8 Use	9 Down stream industries	Remarks
1.	Tannin Extraction Plant	Chhipodohar (Palamau)	Harra Nuts Bark of Ason and Arjun trees	Tonnes	4500	Tannin	Leather Industry	Tannin Industry and subsequently since industry	Surplus could be exported.
2.	Gum and Resin	Burwadih	Salai, Starculi, Urans, Sal and other trees are tapped	-do-	200	Processed and graded Gum and Resin	Pharmaceuticals and Cosmetics, Textile and Food Industry, Varnish, perfumes and Aggarbatti etc.	Gum processing plant for pharmaceuticals and Resin plant, for Varnish, perfumes and Aggarbatti etc.	Gum is reported to have good market in Middle East.
3.	Solvent Extraction Plant	Around Latchar	Rice-bran Mahua cakes Sal seed Liasand oil cake and others	Tonnes	32000 16000 40000 14000	Oil Cocoa and Butter	Industrial and Edible oils	Soap, processed oil cake (Cattle feed)	
4.	Alkaloid Extraction Plant	Latehar (Palamau)	Rauwolfia serpentina (SURPGANDHA) Vincavessa (CARR-DALIAN)	Roots and shoots 20 to 50 tonnes are required		Alkaloid	Medicines for cancer and Heart diseases	Pharmaceutical Industry	A high precision Industry currently India exports these as raw material to Inter national drug companies of Switzerland and USA. The finished products are very costly.
5.	Manila Rope Plant and Cortizone by-product plant	Latehar (Palamau)	Sisal (Agava-sisalana)	Tonnes	1000	Manila Rope	For all work related to tightening and hauling	High quality tissue paper for Cigarettes, carpets, small scale handi craft like ladies hand-bags etc.	Currently country imports sisal fibre of Rs.1 crores.
6.	Black lead/ Graphite pencils	Gerhwa (Bisrampur)	Soft wood and Graphite		300	Cortezone	Pharmaceutical Industry	Essential pharmaceutical input	
7.	Match Indus-try	Daltanganj	Salai wood match powder			Match boxes and match splits			

8.	Half Dry wine plant	Macluskie-ganj (Ranchi)				Half dry wine			
9.	Katha and Cutch Industry	Mahuadand (Palamau) or Chatra/Tandwa (Hazariabagh)	Khair	Tonnes	3600	180 tonnes of Katha 320 tonnes of Cutch.			
10.	Ray-or pulp and staple fibre	Garhwa (Palamau)	Wood Caustic soda Limestone, coal etc.	Tonnes	152000 25000 2700	Viscose Rayon Pulp fibre	Spinning mill, Abbestos Breake lining gasket, abbestos rope non woven filter media lining material, glass ropes and fabrics		The skill for downstream industries is concentrated in North Bihar. Thus the semifinished products can be sent to artisers of North Bihar.
11.	Tassar spinning Cum-Reeling Mill	Gumla or Simdega	Asan and Arjun Trees	Base for Tassar Cocoos		Tassar silk	Tassar silk Ready-made products		Could be used by Ranchi High tension insulation factory and rest exported.
12.	Lac based Complex	Ranchi	Ranginee Insects Kusmi Insects	Palas Ber Kusum trees	9000 tesb	a) Micanita b) bleached shellac c) Malfelac (Varnish for furniture)	Export Item	Insulation for high tension industry etc.	
13.	Oxalic Acid plant	Chhipadohar	Saw dust Nitric acid Caustic soda	Tonnes	9000	Oxalic Acid	Automobile and radiator scale remover Textiles, Metal Polishing Industry etc. Export, railway carriages and passenger liners, table tops, panelling etc.	The technical knowhow is available with NRDC, New Delhi	
14.	Hardboard and Timber Board and Furniture	Chhipadohar and Timber				Hard board, particle boards, finished furniture			Chhipadohar should act as nucleus for an integrated plant, having saw mills, furniture complex oxalic acid plant, hard board and particle board plant, furnitures, board plant and particle boards are the export items.

Table 6.3 gives the details of proposed forest based industries with their possible locations (Refer Table 6.4 and Map No.)

6.1.6 Heavy Industries :

Numerous open cast minings in Ranchi, Palamau and Singhbhum have necessitated the establishment of industries for heavy earth moving equipments. Haulego of these equipments from existing plants in the country costs lakhs of rupees. Therefore it is proposed to set up an integrated complex for Heavy Earth moving Equipments in the Region. The ideal site seems to be Latehar. The site is justified due to following factors :

- (i) Latehar is near to North Karpura Coal Fields and Singrauli Coal Fields (260 kms).
- (ii) Auranga Dam under construction is in the vicinity of Latehar.
- (iii) Latehar is near to Barkakana Railway line and on Ranchi Daltonganj road.
- (iv) Jamshedpur and Ranchi are already in the grip of many heavy industries.
- (v) Future industries in the Region are expected to come in Palamau district only.

Besides these Latehar can also be reserved for mechanical equipments and spare parts required in the future to meet the instalation demand of proposed thermal power stations.

(Refer Map No.

6.1.7 Other Industries :

In addition to possibility of resource based industries enunciated in foregoing discussions, certain other industries have also been identified in Palamau district of the region by the Task Force set up of Govt. of Bihar for identification of projects. These industries are demand based and are likely to produce a number of auxillary and ancillary industries to support the main operations. A brief resume of these industries whose project briefs have been prepared are given in Table 3.32 and shown in Map No.3.14.

Table
Proposed other Industries

Sl. No.	Unit	Annual capacity	Investment in Rs. lakhs	Employment man days	Power required	Water required	Auxiliary/ancillary
1	2	3	4	5	6	7	8
GARHWA							
1.	Para-Nitro-chloro Benzene	3500T	400	67500	0.75MW	5000M ³	For manufacture of Dyes, Drugs and Intermediates
2.	Calcium carbide PVC complex	54,000Tca 17,500CI, Acetylene 27000T,HCL. 40,000T, Vinyl Mono- mer and 20,000T,PVC	4,000	120000	17.7MW	25000M ³	PVC compounds, foot wears, PVC films, pipes, tubes foam leather and cloths etc.
3.	Bonzen He a Chloride	3000T	241	45000	4MW	2000M ³	Postficides, formulation units.

1	2	3	4	5	6	7	8
	DALTEGANJ						
4.	Mobile X-Ray Plant	-	200	45000	-	10M ³	Chassis fabrication, assembly of printed circuits X-Ray accessory units.
	LATEHAR						
5.	Model Tannery unit	-	36	12000	150HP	50M ³	Leather based units.
6.	Aluminium Extrusion, casting and wire rod making units	30000 tonnes	150	150000			Wire drawing units, electrical kettle manufacture, utensils hardware units.
	ANCILLARIES GARHWA						
1.	PVC compound Manufacturing unit	2 Units 600 Tonnes	10	9000			
2.	PVC foot wear	2 units 450000 pairs	32	21000			
3.	Rigid PVC pipes, flexible tubings	240PVC pipes 600T flexible tubings	40	12000			

1	2	3	4	5	6	7	8
4.	Transparent PVC film	24000 roams	6	4500			
5.	PVC Leather clothes	225000 metres	7	6000			
6.	PVC Leather foam cloth	6000 metres	6	4500			
7.	Pesticide formulative DALIENGANJ	2 units 3000	30	9000			
8.	Chassis fabrica- tion unit for X-ray	-	10	9000			
9.	Assembly of printed circuit	-	10	9000			
10	X-Ray accessories such as tables	-	10	9000			

Source: Project officer, Ranchi Industrial Area Development
Authority (RIADA), Ranchi.

6.1.8 Autonagar :

In light of many industries expected to come and the expected multifold rush on the regional and urban roads, it becomes imperative to think of the necessary services required to be given to automobiles plying on the roads. Therefore it is proposed to develop Autonagar in the Region with certain basic facilities like :

- (i) Petrol and diesel pumps
- (ii) Servicing stations
- (iii) Kiosk Station
- (iv) Vulcanising and retreading shops
- (v) Auto-electrical shops
- (vi) Motels
- (vii) Lathe machines
- (viii) Spare parts shops
- (ix) weigh bridge
- (x) Break down services

Ideal locations for Autonagar are Ratu and Chutupalu, Kokar, (Ranchi district) Chianki, Chandwa, Garhwa, (Palamau district), Manoharpur (Singhbhum) etc. (~~Map No. 3.13~~).

1	2	3	4
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13.	Graphite	Daltanganj (Palamau)	Graphite
14	Ceramic Complex	Kharsawan (Singhbhum)	Kyanite
15	Cement Plant 5CTPD)	Ranka (Palamau)	Limestone
16	Cement Plants (200 TPD)	Bentibaga (Ranchi)	-do-
17	Cement plant (500 TPD)	Palmohi (Ranchi)	-do-
18	Cement plant (200 TPD)	Manoharpur (Singhbhum)	-do-
19	Marble, slabs and stone chips	Ranka (Palamau)	-do-
E.	<u>Forest Based Industries</u>		
20	Tannin Extraction Plant	Chipadohar (Palamau)	Harra Nuto Bark of Asan and Arjun Trees
21	Gum and Resin	Barwadih (Palamau)	Salai, Starculi trees, Urens, sal and other trees are tapped
22.	Solvent Extraction Plant	Latehar (Palamau)	Rice bran, Mahua cakes, Linseed oil.
23	Alkaloid Extraction plant	Latehar (Palamau)	Rauwelfia serpentina (SURPGANDHA)

Table Contd.....

24	Manila Rope Plant and Cortizone by product plant	Latehar (Palamau)	Sisal (Agava Sisa land.)
25	Black land/Graphite pencils	Garhwa (Palamau)	Soft wood and Graphite
26	Match Industry	Daltonganj	Salaiwood and Match Powder
27	Half Dry wine plant	Maccluskieganj (Ranchi)	Mahua Flower
28	Katha and Cutch Industry	Mahua land (Palamau)	Khair
29	Ray on pulp and Staple Fibre	Garhwa (Palamau)	Wood, Caustic soda, Limestone, Coal etc.
30	Tassar spinning cum Reeling Mill	Gumla	Asam and Arjun Trees
31	Lac Based Complex	Ranchi	a) Ranginee insects b) Kusmi Insects
32	Oxalic Acid Plant	Chhipadohar	Saw dust, Nitric acid, Caustic soda.
33	Herb and particle board and furniture	Chhipaoloh	Timber
D.	<u>Heavy Industries</u>		
34	Spares for Thermal Power Plant	Latehar	"

1	2	3	4
35	Heavy Earthmoving Equipment	Latehar	-
36	Mathenal Based Industry	Earwadih (Palamau)	-
37	Calcium Carbide PVC complex	Garhwa	-
38	Paranittrachloro Benzene	Garhwa	-
39	Benzene Chloride plant	--do --	-
40	Moblic X-ray plant	Laltanganj	-
41	Cotton Mill	Ranchi	-
42	Antibiotic plant	Ranchi	-

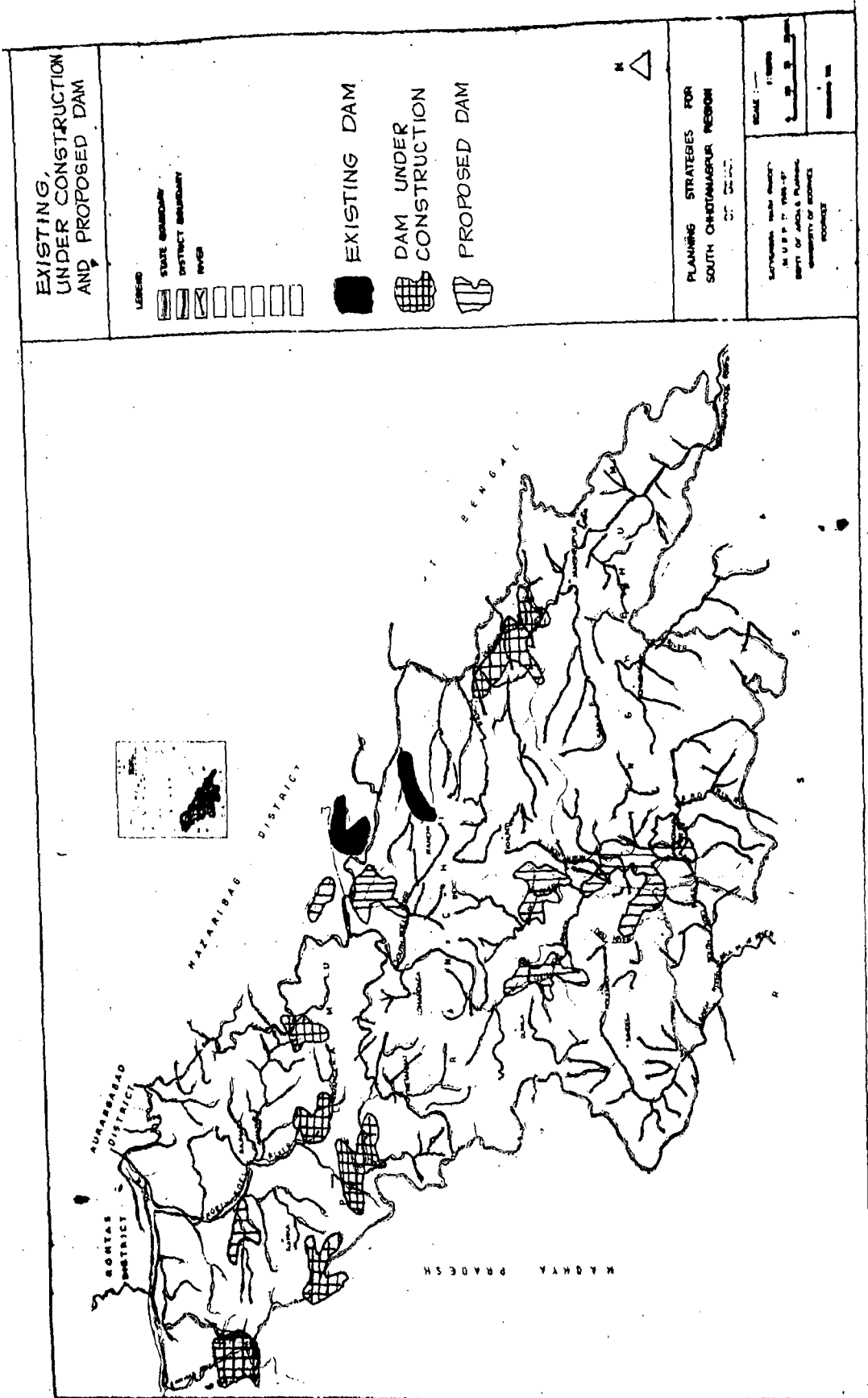


Fig 6-1

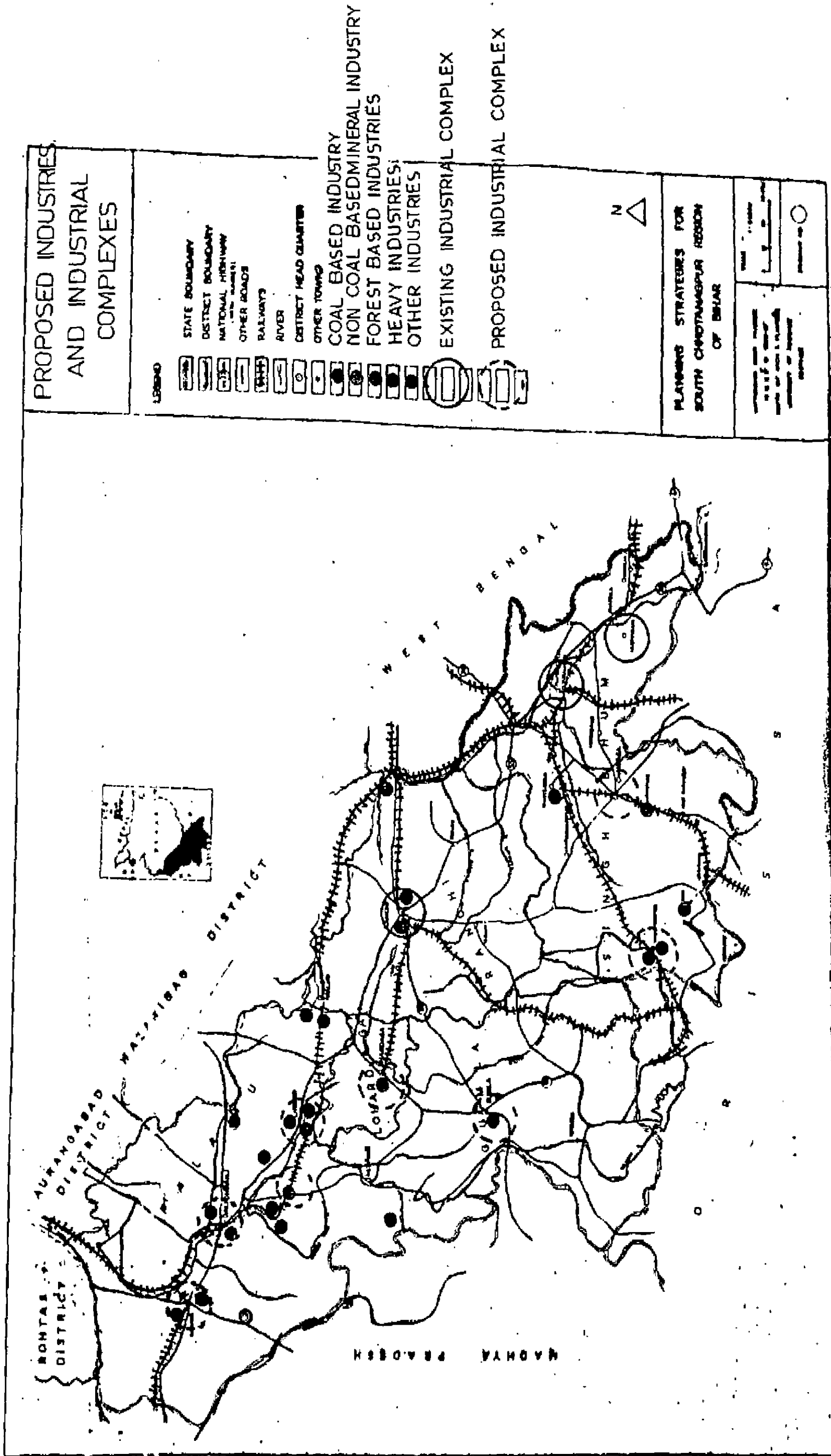


Fig 6.2.

6.2. GROWTH FOCUS PLANNING .

6.2.1 Strengthening of Existing Centres :

Except for Jamshedpur, most of the older towns in the Region have grown haphazardly. The urban amenities and facilities have not kept pace with the growth of the towns. None of these towns are planned. They have therefore, acquired evils of unplanned industrial towns. They are marked by two characteristics (i) mono functional (industrial) and (ii) haphazard growth. Being mono functional, their links with villages weak and hence they have not succeeded as growth foci in real sense. Therefore it is required to plan these settlements in total prospective with regional considerations also.

6.2.2 Establishing New Growth Foci :

The present distribution of urban centres in the region is lopsided. The south-east and central portion of the region (Singhbhum and Ranchi (new districts) are highly urbanized then north-west portion of the region (Palamau, Lohardaga and Gumla districts). The proposed industrialisation in the region is expected to give a developmental stimulus to Lohardaga, Latehar, Barwadih, Chandwa, Garhwa, Gumla, Chhipadohar etc. (all lying to the north west).

6.2.3 Proposed Urban Settlement Pattern :

To wipe out the gap in the existing functional hierarchy of settlements, to make the urban centres more service oriented and to create a conducive environment in the urban centres for speedy diffusion of industrial, technological and infrastructural development into the rural hinterland in the region, a revised pattern of settlements has been proposed. The proposed pattern of settlements would consist of five orders of classification of settlements namely growth centre, growth point, market town, service town and service village. 89 growth centres, growth points, market towns and service towns have been identified. Identification of service village has not been done in the dissertation. Identification of such centres is left to the planning at grass root level. The required levels of infrastructure to be developed in proposed ~~growth centres, growth~~ various orders of settlements has been tentatively given in Appendix 6B. The existing and proposed growth centres, growth points, market towns and service towns have been shown in Map No.

6.2.4 Functional Characters of Proposed Settlements :

(a) Growth Centres : Urban centres which are functioning as divisional head quarter, District headquarter or heavy national industrial centres have been grouped as growth centres. These centres besides being administrative centres also function as wholesale trading centre dealing with import and export of raw materials and finished industrial goods. These centres are the seats of some of offices at state and national level. These centres are mostly located along national highway/state highway and are served by railway lines and by air. They come within population range of 1,00,000 and above and as such they will be provided with

with sound mini-industrial base have been grouped as service centre. These centres will fulfill the requirements of either a cluster of villages or its industrial population depending upon its setting and the function. Required infrastructure to be developed in such certain has been shown in Appendix 6-B. They might be located along the periphery of growth centres or growth points to house the central percentages of industrial population of these higher order settlements or may be developed independently depending upon its resource.

6.2.5 Proposed Settlements :

In the Region 3 growth centres, 12 growth points, 29 market towns and 42 service towns have been suggested to be developed as urban nodal points by 2011. Out of them 5 market towns and 52 service towns would be the new settlements which have been proposed to be developed with adequate infrastructure by 2011. Following are the existing characteristics of settlements which have been proposed as new market towns :

- (a) These settlements have administrative (law and order), developmental, social, transportation, infrastructure facilities etc.
- (b) They lie in rich agricultural and high rural population density belt.
- (c) They are in the vicinity or on good transport route of potential industrial resource areas.
- (d) They lie in most urbanization deficient areas.

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- (c) They are in the vicinity or on good transport route of potential industrial resource areas.
- (d) They lie in most urbanization deficient areas.

Following points have been kept in mind while selecting the new settlements for developing them as service towns by 2011.

- (i) These settlements are within 10-20 km of radius of growth points or growth centre.
- (ii) These are industrial resource settlements. Industries have been proposed based on their potential resource.
- (iii) They have basic infrastructure like administrative (law and order), developmental (Block Headquarter or villages centre), Social(Education and Health), transportation etc.

6.3 PROPOSED COMMUNICATION NETWORK :

The proposed communication network for the region has been divided into three groups viz. railways, roads and civil aviation. The existing and proposed network is shown in Map 6-4 . Two factors have been kept in mind while making the proposals for communication network viz.

(i) Rural and urban development or accessibility to urban centres market centres from rural areas (ii) Industrial development com-urban development.

6.3.1 Proposed Network for Industrial Development Cum Urban Development :

(A) Proposed Railways : There are only four existing main railway links in the region, one from Ranchi to Rourkela, other from Daltonganj to Muri via Barkakana (Hazari-bagh district), third from Chandil to Rourkela, fourth from Jamshedpur to Kharagapur. Since proposed planning requires million tonnes of materials new railway lines are proposed in three subgroups :

- (a) On going projects - Those already proposed earlier and survey work etc. under progress (still not completed).
- (b) Extension of existing or ongoing lines
- (c) Entirely new railway lines

While justifications for first subgroup are well known same for second and third are furnished herewith.

(a) Ongoing Projects :(i) Burwadih-Karonji line (to join Bistrampur in M.P.) :

This was an old proposal of world war II. Survey and even railway cuttings and some bridges were constructed. This line would be one of the railway lines for transport of the finished materials from Latehar, Chhipadohar, Panki and Daltonganj to western India and would relieve the congestion of Mugal Sarai railway yard to a great extent.

(ii) Ranchi-Loherdega Line : Conversion from 'narrow - gauge' to 'broad gauge' is reported to be on anvil. This would open up the development of bauxite and ochre deposits of Netarhat Plateau and would also serve the proposed industries like aluminium Complex (Latehar) in the region. There is a proposal to extend this line to M.P. via Gumla.

(iii) Mahuamilan-Pinderkam Siding : This railway siding has been initiated by C.C.L. to open up vast potential of quarriable coals of the North Karpura coal field. The survey work has already been completed.

(iv) Khalari-Hesalong Siding : This siding is being constructed to cater the needs of K.D. Hesalong open cast project and churi mine in Hazaribagh district. Earthwork has been almost completed.

(b) Extension of Existing and Ongoing Lines

(i) Danea-Kedla-Pinderkom Line (Hazaribagh-Palamau districts) : For opening up of vast quarriable thermal

power coals as well as medium coking coals along the northern periphery of North Karapura coal field, it is proposed that Danea-Kedla siding (Hazaribagh district) and Mahuamilan-Pinderkam (Palamau-Hazaribagh) siding should be join to convert it into railway line. The advantages of this line would be :

- (i) It would relieve congestion on Barkakana-Barwadih line.
- (ii) It would cater the needs of northern part of North Karapura coal field which have so far remained undeveloped due to non-availability of communication.
- (iii) The washed coal from East and West Bokaro and at a later date from North Karapura coal field, if need could be sent to proposed Manoharpur steel plant via Richagutu-Loherdaga-Bano (proposed link)

(c) New Line Proposed :

(i) -Panki-Daltonganj line : The Kishunpur village situated in the North Karapura coal field and would be reached in due course by extension of Mahuamilan Pinderkom siding. It is proposed that a railway line be constructed from this place to connect Daltonganj, lying to the west of the area via Pamki. This line is required for :

- (i) To avoid Barkakana-Barwadih section which is already overloaded and has almost reached its capacity.

- (ii) From Daltonganj coal could be diverted to western India Via Barwadih-Karonji-Bishrampur line and to north India via Garhwa-Chopon line.
- (iii) This line would be essential for the proposed thermal power plant at Panki.
- (iv) It would cater to the needs of Lestighnj and Chata (adjacent) subdivisions of Palamau and Hazaribagh which are rather isolated and would help to open up limestone and forest wealth of this area.
- (ii) Richaghutu-Loherdega-Banoline : This line would be required :
 - (a) For the movement of washed coking coal/coke from east and west Bokaro (Dhenbad district) and north Kardapura. Coal field (Palamau Hazaribagh) to proposed Manoharpur steel plant.
 - (b) For movement of finished steel products from Manoharpur to north and west Indian consuming centres.
 - (c) To facilities construction of giant ~~ekoel~~-Karo project and subsequently Shankh Hydel Project. (Gumla) ^(Ranchi)
 - (d) For movement of finished aluminium goods from proposed aluminium complex of Lohardaga to northern India and Western India.
 - (e) Open up otherwise backward and tribal area of Lohardaga Gumla, Simdega, Kolebera and Bano region.
- (iii) Tupudana-Tatisilwai Chord Line : As per existing

system, the goods train going from Muri to Rourkela have to pass through two yards viz Ranchi and Hatia. Similarly the empties returning from Rourkela also have to pass through these two yards. The topographic configuration of Tupudan to Tatisilwai provides an excellent alignment for a chord to bypass both these yards. The alignment should be so chosen as to provide an under-bridge for Ranchi-Jamshedpur Road. A new industrial site all along this chord alignment could also be planned. This chord would be extremely useful for proposed Manoharpur steel plant for rapid transit of goods trains.

(iv) Gua Manoharpur Line : This proposal is tegged with Manoharpur steel plant for transport of iron ore from Gua to Manoharpur.

(B) ROADS : The Region under consideration is having fairly good network of roads needing proper upkeep. However, proposed development calls for their widening and strengthening to take the load of likely increase in the traffic. Particular mention may be made of following roads which should be made two lanes Industrial Highways.

- (i) State Highway between Ranchi-Daltonganj
- (ii) State Highway between Ranchi-Rourkela and Ranchi-Lohardega and Lohardega-Simdega.
- (iii) State Highway between Kolebera-Bano-Manoharpur.
- (iv) State Highway between Daltonganj-Panki-Balu

- (v) District Road between Daltonganj-Garhwa-Nagar Untari-Bhawanathpur.
- (vi) District Road between Daltonganj-Barwadih-Chhipadohar-Neterhat.
- (vii) N.H. between Ranchi and Hazaribagh.

Proposed Industrial Highways :

- (i) Macluskieganj-Chandwa Road- This is a classic road bus now in disused condition. The forest department has tried to restrote it. The road alignment runs parallel to Mcluskieganj-Mahuamilan section of the Eastern Railway. This road reduces distance between Khalari about 20 kms.
- (ii) Balumath-Mc cluskieganj Road : This road is partially constructed but before completion number of culverts have subsided or damaged. This road would be one of the main arteries of proposed industrialisation and should be thoroughly reconstructed with a bridge over Damodar river near Hesalong village.(Palamau-Hazaribagh Districts border).
- (iii) Panki-Manatu-Chhatarpur : This road would be required to promote the proposed market town Chhatarpur to develop as market town in future and to connect proposed thermal power plant site i.e. Panki which has also been proposed as service town.
- (iv) Ring Road for Ranchi : In the context of development of roads it may be mentioned that Ranchi is ideally suited for the concept of ring road and if further chaos

in this town is to be avoided, a ring road around Ranchi should be expeditiously constructed which would act as a by pass for through traffic.

(C) CIVIL AVIATION :

(i) There are four airstrips at Gumla Chaibasa, Jamshedpur and Daltonganj and an airport at Ranchi without night landing facilities. It would be necessary to improve all the five aerodromes at an early date. In addition, it would be necessary to construct three more airstrips one each at Garhwa, Latehar and at Lohardaga. All the three would be in the vicinity of the nucleus for proposed industrialisation. The Latehar air strip would be most important due to proposed industrial complex at Latehar.

(ii) - The present aerodrome site near Ranchi lies in the vicinity of fast growing township around H.E.C. It is recommended to change this site. It is proposed that a new site near Ratu village 8 kms from Ranchi town can be selected. This site would be ideal because it would not interfuse with the industrial, residential area of Ranchi and also it could be expanded in future. The present site could be alternatively better used for domestic housing needs as satellite industries of H.E.C.

6.3.2 Proposed Network for Urban Rural Development

(i) Proposed Roads : The proposed roads for future urban-rural development are either extension of existing

roads or are now entirely roads. The proposed growth points, market towns and service towns have been connected by these roads. Map No. 64 shows these roads. Following are the proposed roads for urban-rural development.

- (i) Bhawanathpur-Muhamadganj Road
- (ii) Dhurki-Ranka Road
- (iii) Ranka-Chainpur Road (Extension)
- (iv) Bhandaria-Barwadih Road (Extension)
- (v) Lohardaga-Bharno-Kamdara-Bano-Gulu-Manoharpur-Gus
- (vi) Ranchi-Barmu Khelari-Mahuamilan-Balumath Road
- (vii) Bundu-Khunti-Road
- ~~(viii) Lohardaga-Bharno-Road~~
- (ix) Kamadaya-Gulu Road
- (x) Khunti-Kharsawan Road (Extension road)
- (xi) Bundu-Muri Road.

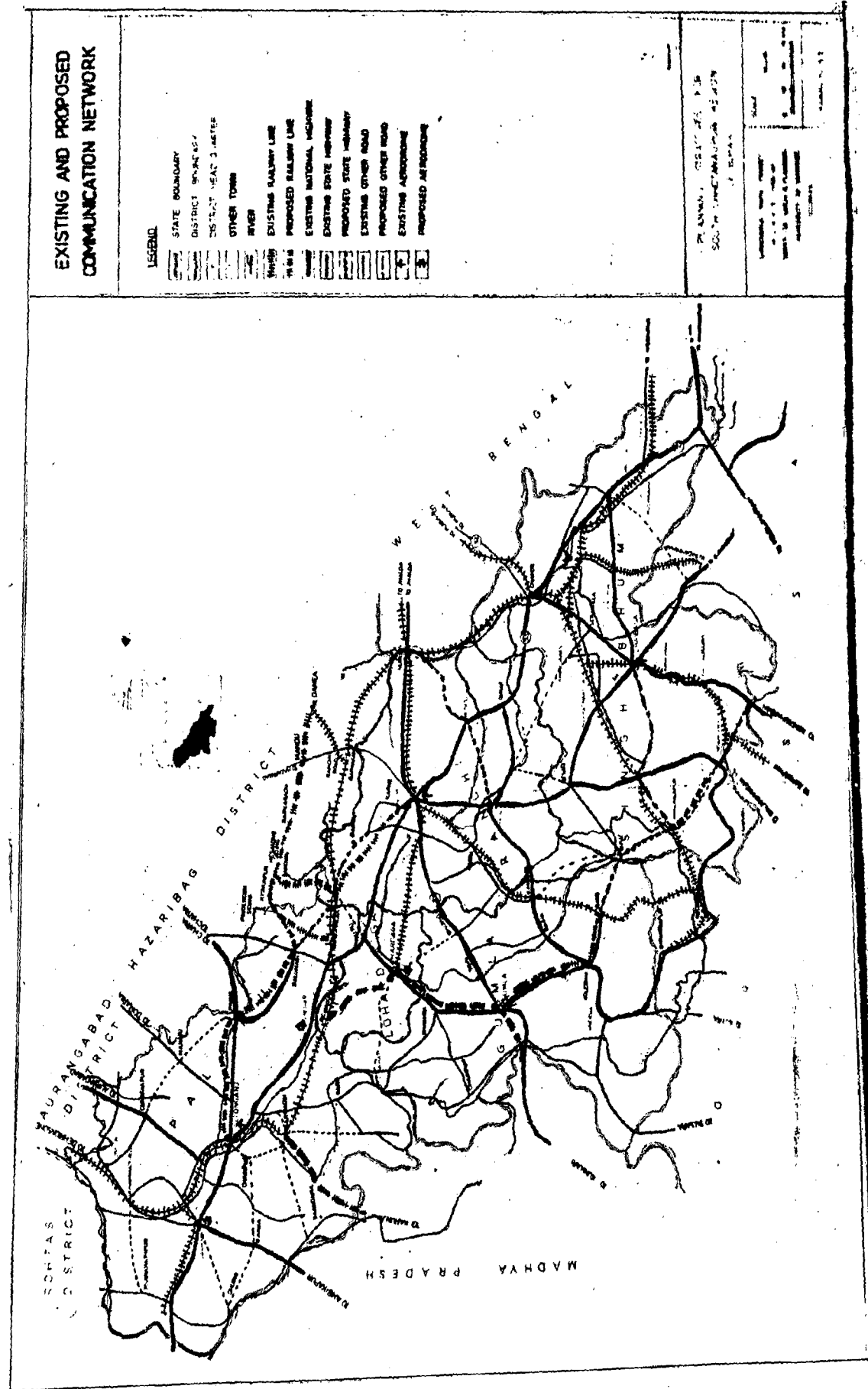


Fig 6.4

6.4 RECOMMENDATIONS :

- (1) State should try to bring about a change in industrial policy to utilize the coal and non-coal mineral resources of the region by setting up manufacturing industries as many as possible.
- (2) State should also bring about a change in investment climate to attract enterprenuers from within and outside state.
- (3) Steps should be taken to expand the educational centres so that adequate number of skilled, technical, administrative and other personnel would be available within the region.
- (4) Master pãans for all towns including pheripheral areas should be prepared.
- (5) Master plans for utilization of water potential for agriculture through medium and minor irrigation projects should be immediately prepared.
- (6) Existing tourism centres of the region should be tied to integrated network of development.

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Proposed Functional Hierarchy and Facilities, Utilities and services of Settlements

Sl. No.	Level of Settlement	Population Range	Influence Radius	Distributory Facilities	Trade and Commerce	Rural Development Extension work, agricultural credit institutions	Industrial Development Corporation	Education	Social services Health
1	2	3	4	5	6	7	8	9	10
1.	Growth Centre	100000-1000000	70 kms	Specialised retail shopping and whole-sale distribution	Several Banks	Divisional Head-quarter or District headquarter or Industrial centre of National Importance	Industrial Area	University Agriculture Engg.College Medical College, Degree Colleges, Polytechnics,	State Hospital with specialized facilities
2.	Growth point	50000-100000	30 kms	Wholesale distribution and retail shopping	Several Banks	District-head-quarter (Medium scale industrial centre)	Industrial Estate	Degree College Polytechnic, I.I.I., Inter College, H.S.	District Hospitals with min.50 beds
3.	Market Centre	20000-50000	20 kms	Wholesale agricultural product distribution/marketing Retail shops	Banks, wholesale market regulated market	Sub-divisional/Block Head-quarter	Small Industrial Park with Micro Industrial Park	Inter College H.S., I.T.I.	Sub-divisional Hospital with bed facilities
4.	Service Centre	10000-20000	10 kms	Retail shops and consumer Cooperative	Town Bank /market mainly to total consumption daily products, vegetables	Block Head-quarter, Rural Credit Society	Micro Industrial Park/Rural Industrial Estate	Inter College H.S., P.S.	Primary Health Centre with bed facilities

Law, Revenue Judicial Govt. Department	Transport and Communication Transport	Storage facilities	Service and Utilities		Specialised services and skills			
			Water supply	Housing Electricification Recreation				
11	12	13	14	15	16	17	18	19

Divisional Headquarter or District Head- quarter, District Police Headquarter	Rail head/ National Highway/ State Highway Regional Bus Stand	Divisional P and T Head- quarter or District P.O. and Telegraph Direct Trunk call facili- ties with national metro- path Centres and foreign urban centre	Large scale godown warehouses	Protected water supply	All Indus- trial workers	Adequate power supply	National or Regional park Stadium, Muse- ms and conse- vation of monumental buildings in any	Specialised worksho Eye, Dental Clinics Bar-Association
Distt. Head- quarter, District Police H.Q. District Courts	Bus stand, State Highway National Highway, Railway Station	District P.O. and Telegraph, Disect Tele- phone, Link with growth centres	Large scale godown Warehouses	Protected public water supply	All Indus- trial workers	Adequate power supply	District park	General workshop.
Subdivisional HQ, sub-divi- sional police HQ, sub-divi- sional Courts	Regional Roads, Distt. Roads, Bus stand, Fly- Station	Sub-P.O., Telegraph office/ telephone	Small scale godown	Protected water supply + private water supply	Priority Basis	Adequate power supply	Childre parks	Auto repair workshop
Block HQ, small industrial Town	District Road, Regular Bus stand Fly. Station with feeder	Branch P.O./ Telegraph/ Telephone	Nil	Protected water supply (Indus- trial town)	Township for Indus- trial workers	Adequate power supply	Play Fields	Petrol/Diesel pump Auto repair small shops.