PLANNING STRATEGIES FOR DEVELOPMENT OF CUTTACK-BHUBANESWAR REGION

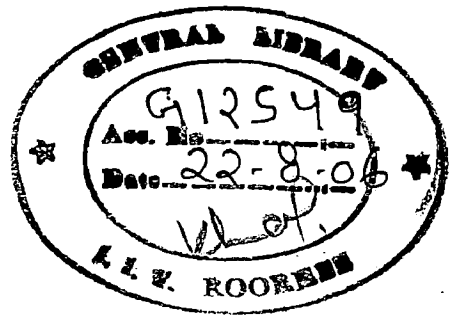
A DISSERTATION

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

MASTER OF URBAN AND RURAL PLANNING

By

PRABHUDUTTA DASH



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INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE - 247 667 (INDIA)

MAY, 2006

CANDIDATE'S DECLARATION

I hereby certify that the work, which is being presented in the dissertation, entitled **"PLANNING STRATEGIES FOR DEVELOPMENT OF CUTTACK-BHUBANESWAR REGION"**, in partial fulfillment of the requirement for the award of the degree of MASTER OF URBAN AND RURAL PLANNING, submitted to the Department of Architecture and Planning, Indian Institute of Technology Roorkee, Roorkee is an authentic record of my own work carried out during the period from July 2005 to May 2006 under the supervision of **Prof. R.K.Jain**, Department of Architecture and Planning, Indian Institute of Technology Roorkee, Roorkee.

The matter embodied in this dissertation has not been submitted by me for the award of any other degree.

Dated: 30 May 2006
Place: Roorkee

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

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CERTIFICATE

Certified that this report titled **"PLANNING STRATEGIES FOR DEVELOPMENT OF CUTTACK-BHUBANESWAR REGION"** which has been submitted by **Mr. Prabhudutta Dash,** in partial fulfillment of the requirements for the award of the post graduate degree in **MASTER OF URBAN AND RURAL PLANNING,** Department of Architecture and Planning, Indian Institute of Technology Roorkee, Roorkee is the student's own work carried out by him under my supervision and guidance. The matter embodied in this dissertation has not been submitted by me for the award of any other degree.

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ACKNOWLEDGEMENT

I take this opportunity to express my deep sense of gratitude to my guide **Prof. R.K.Jain**, for his constant encouragement, support and expert guidance throughout this work. Without his cooperation and understanding this work would not have been possible.

I express my sincere thanks to **Prof. R. Shankar**, Proffessor and Head of the Department, Department of Architecture and Planning, Indian Institute of Technology Roorkee, Roorkee for extending all kind of help and facilities of the department to me.

I am grateful to all the faculty members of the Department of Architecture especially **Dr. V. Devadas, Dr. Ashutosh Joshi, Dr.Nalini Singh** and **Prof. R.Chandra** for their moral support and encouragement.

I am thankful to **Mr. K.B Mohapatra**, Director ABIT-PMCA, Cuttack for providing me great opportunity to pursue post graduate degree, without his kind permission and cooperation this would not have been possible.

I am grateful to officials of Cuttack Development Authority, Directorate of Economics and Statistics, Bhubaneswar for providing me the required data without which this report would have been incomplete.

Finally I would like to express my heartfelt thanks to my parents, family members and friends for their constant inspiration and encouragement.

PRABHUDUTTA DASH

Dated: 30 May 2006

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In India out of the total population of 1027 million as on 1st March, 2001, about 742 million live in rural areas and 285 million in urban areas. The net addition of population in rural areas during 1991-2001 has been to the tune of 113 million while in urban areas it is 6 million. The percentage decadal growth of population in rural and urban areas during the decade is 17.9 and 31.2 percent respectively.

The percentage of urban population to the total population of the country stands at 27.8. The percentage of urban population to total population in the 1991 Census (including interpolated population of Jammu & Kashmir where Census could not be conducted in 1991) was 25.7 percent. Thus, there has been an increase on 2.1 percentage points in the proportion of urban population in the country during 1991 – 2001.

Among all the States and Union territories, the National Capital Territory of Delhi is most urbanized with 93 percent urban population followed by Union territory of Chandigarh (89.8 percent) and Pondicherry (66.6 percent).Among the major States, Tamil Nadu is the most urbanized state with 43.9 percent of the population living in urban areas followed by Maharashtra (42.4 percent) and Gujarat (37.4 percent). The proportion of urban population is the lowest in Himachal Pradesh with 9.8% followed by Bihar with 10.5 percent, Assam (12.7 percent) and Orissa (14.9 percent). In terms of absolute number of persons living in urban areas, Maharashtra leads with 41 million persons which is 14 percent of the total population of the country. Uttar Pradesh accounts for about 35 million followed by Tamil Nadu 27 million.

Growing imbalances in the development from state to state and region to region has necessitated the realization of regional development and planning in the five year plans. Where there has been only sporadic reference to rural-urban relations in the first and second

five year plan documents, the third plan contained chapters on "Balanced Regional Development" and "Housing and Urban and Rural Planning". The fourth five year plan emphasized the need for redressing inter-state and intra-state imbalances in development by 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. The sixth five year plan strived to achieve a balanced regional growth, wherein development programmes for backward regions, called for special attention. The seventh five year plan has recommended the preparation of district development plans.

In large part the pattern of spatial organization and the geographical distribution of physical and social infrastructure and productive assets, and in particular the presence or absence of mutually beneficial relationships between urban centres and rural hinterlands, determines the nature, rate and distribution of a nation's economic growth and social development. Self-sustaining economic growth and an equitable distribution of the benefits of growth in geographic space cannot occur in the absence of a well-articulated hierarchy of widely dispersed yet closely integrated human settlements - metropolitan areas, intermediate (regional) cities, market towns, and villages - that perform specialized and diversified production, distribution, consumption and exchange functions.

The city has grown as large as to dominate the entire national economy. Secondary cities either do not develop, or grow very slowly. They are usually few in number and not distributed widely enough to act as catalysts for development in marginal regions. In highly polarized spatial systems, market centres are usually small and scattered, and are poorly equipped to provide services to rural areas. Small cities and market towns are not efficiently linked to each other or to larger urban centres and thus marketing networks that could integrate rural areas economically and incorporate marginal populations cannot easily emerge. A large percentage of the urban population lives in the primate city and a few other secondary centres; but the overwhelming majority of people remain in rural areas, scattered in small settlements that are not large enough to support basic services and facilities needed to promote economic growth and resource development.

1.2 CUTTACK BHUBANESWAR REGION

In delineating the study area, the existence of an organization in terms of nodal points, both developed and developable, has been the major consideration. Another factor is the socio-economic and geographical uniformities that have played an overriding role in shaping the region. More recently the urbanization process has been accelerated in the region with Cuttack, Bhubaneswar playing a dominant role in steadily transforming a predominantly rural region into an urban growth region. Considering the urban influence, 8 community development blocks have been included in the study area which will be known as Cuttack-Bhubaneswar Region.

It has an area of 2,068 sq.km and a population of 2.2 million with 62 percent of its population living in urban areas (Table 1.1). Throwing off numerous branches, the river Mahanadi flows through the region. Soils in the region vary from clays to clay loams-with laterite soil in lower part of the basin and saline and deltaic soil in the coastal areas. Average rainfall in the region is 1488 mm. Agriculture is the most important sector of the regional economy and is the main stay of the people. About 56 percent of the working force is engaged in agriculture. The region has made good industrial progress, especially, in the last decade when a large number of industrial units have been added in the hitherto a very small industrial base. Cuttack, with its industrial suburbs Choudwar and Jagatpur, is the main industrial node.

Table 1.1 AREA, POPULATION, DENSITY AND URBANIZATION -2001

S.NO	DEVELOPMENT BLOCK	DISTRICT	AREA (SQ.KM)	POPULATION (2001)	DENSITY	URBAN POPLN.
1	Cuttack-Sadar	Cuttack	262.56	665,363	2534	535,139
2	Tangi-Choudwar	Cuttack	356.8	199,528	559	72,863
3	Barang	Cuttack	125.40	84,042	670	9,025
4	Khurda	Khurda	327.60	158,030	482	39,034
5	Bhubaneswar	Khurda	467.17	753,239	1612	656,744
6	Jatni	Khurda	236.95	137,318	580	57,827
7	Balipatna	Khurda	140.80	104,197	740	-
8	Balianta	Khurda	150.21	103,227	687	12,703
	Region Total		**2067.49**	**2,204,944**	**1066**	**1,383,335**
	Orissa State		**155707.0**	**36,804,660**	**203**	**5,517,238**

Source: Census of India 2001

1.3 THE REGION IN THE STATE CONTEXT

The region covers 1.3 percent of the total area and 6.0 percent of the total population of the state. With 1066 persons per sq km as compared to 203 persons per sq km for the state as a whole, it is the most densely populated part of the state. Again, with 62 percent of the people living in urban areas, as compared to the state's average of 15 percent, the region is the most urbanized part of the state. The urban population of 1.4million of the region constitutes 25 percent of the total urban population of the state. More than 86 percent of the total urban population of the region is concentrated in two class I cities Cuttack and Bhubaneswar while the remaining 14 percent is distributed in 5 smaller towns Tangi-Choudwar, Jatni, Khorda, Balianta and Baranga. Cuttack UA and Bhubaneswar of the region rank first and second respectively in the hierarchy of the cities in the state. Bhubaneswar is one of the three new state capitals built in the post independent India.

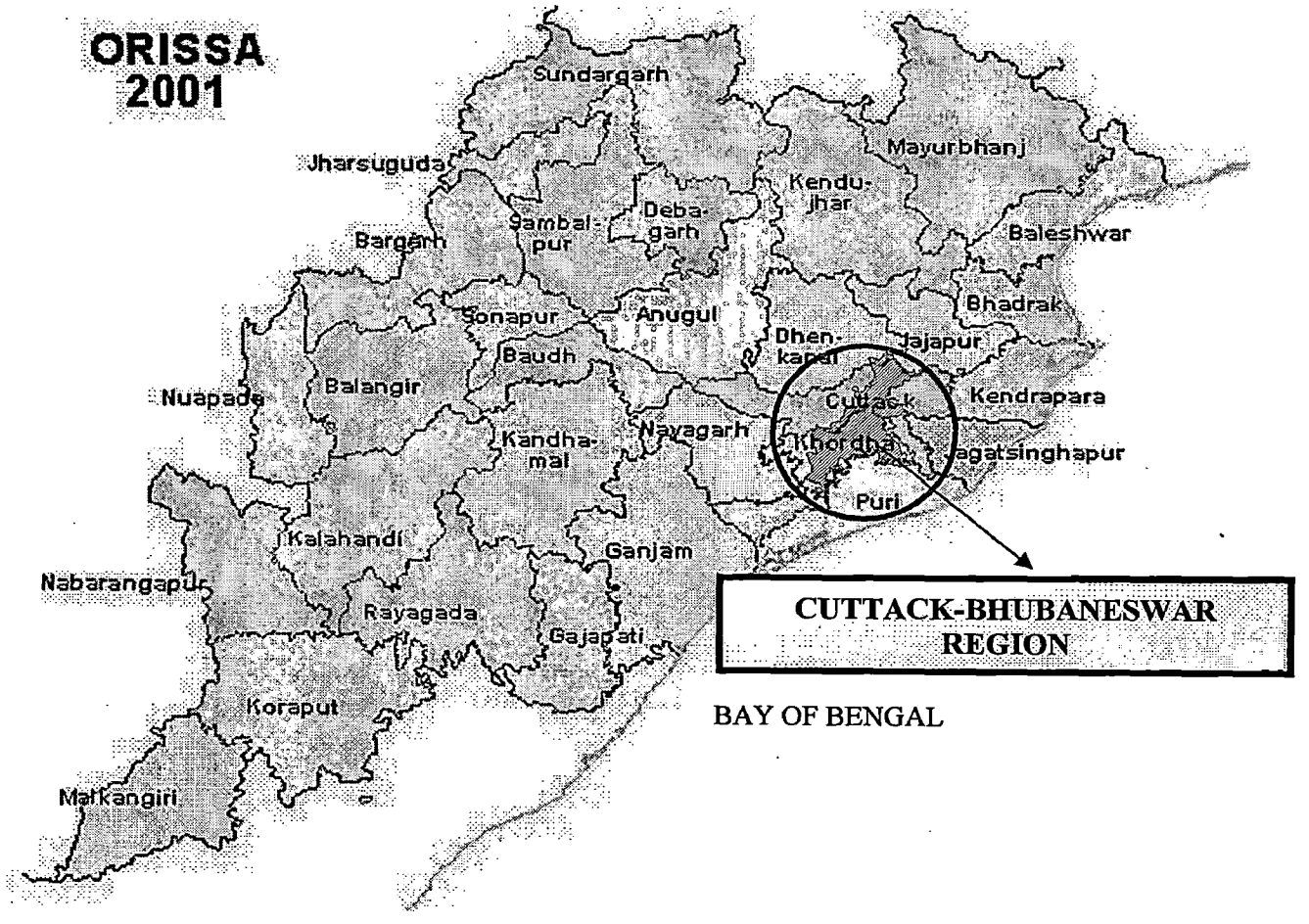


Fig 1.1 THE REGION

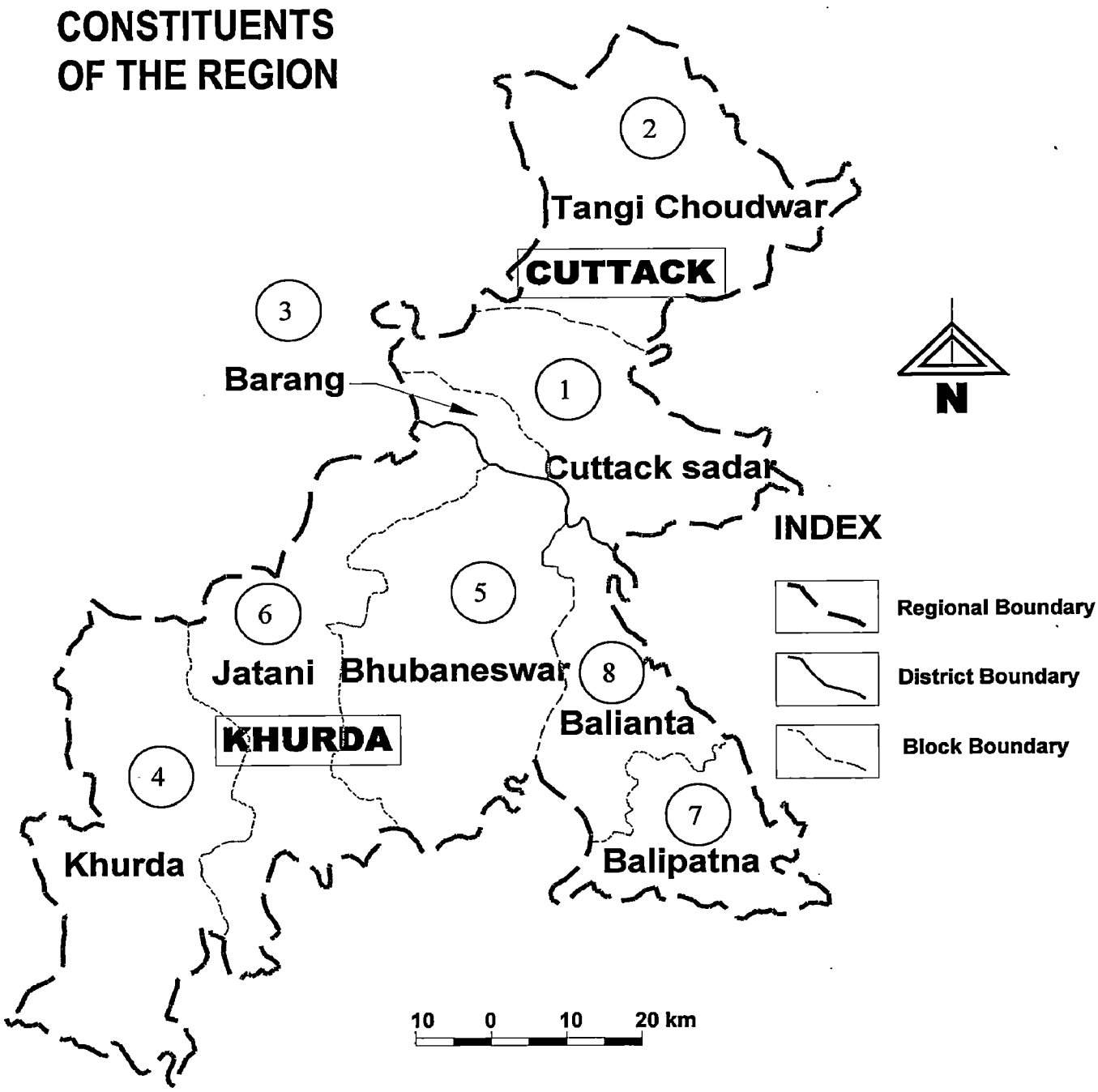


Fig 1.2 MAP SHOWING CONSTITUENTS OF THE REGION

1.4 HISTORICAL DEVELOPMENT OF THE REGION

The region has a long history as a densely populated area. Most of the existing urban centre owes their origin or early importance to their role as the capital of a local chieftain, lord or raja or to being the site of a temple or centre for pilgrims.

Tosali, known today as Bhubaneswar, was the capital of the Kalinga Empire in 370 B.C. It was the outskirts of Tosali where the famous Kalinga war was fought in 256 B.C. During the 6^{th} century AD, Jajati Keshari, the ruler of Kalinga constructed a number of temples at Bhubaneswar. It continued to be the capital till 1135 AD. and regained its glory in 1948 when the capital shifted from Cuttack to Bhubaneswar. It is considered as one of the planned cities of India after independence planned by Otto Koensberger.

Cuttack started as a capital of Raja Nirupa Keshori in 989 A.D. It was also the capital of Mughal Orissa. Trade and commerce flourished during the regime of Marahattas. Orissa came under British rule in 1803 and then onwards a period of total neglect started. Orissa was not even made a separate province. Parts of this state were merged with Bengal, parts with Madhya Pradesh and parts with Madras. This administrative disintegration led to gradual decay of the traditional capital and, over a period of time, Cuttack lost its earlier glory and remained only a pilgrim town. Orissa was constituted as a separate state in the year 1936 with its capital at Cuttack. From thereon, due to the increase of major administrative activities, education and health facilities, along with trade and commerce and other services, it accumulated the largest share of urban population. Cuttack continued to grow even after the shifting of state capital to Bhubaneswar because of its well-developed commercial and transport sectors

Six factors seem to have played quite important role in shaping this region, namely (1) natural endowments and rich historical past; (2) location of the state capital within the region, first Cuttack and then Bhubaneswar; (3) development of infrastructure, housing and institution in the capital cities; (4) well developed inter and intra-regional transport and communication network; (5) high literacy level and skilled manpower; (6) emergence of national and state level political leadership from the area.

1.5 IDENTIFICATION OF PROBLEMS

The Cuttack-Bhubaneswar region offers considerable **potentials** for development. It has fertile and flat land, sufficient water for agriculture and irrigation, industrial and urban uses, marine and inland fishery resources, natural beaches and scenic beauties, rich historical past, strong economic base, presence of large urban centres with administrative, political, social and cultural functions, high level of urbanization, high literacy level, skilled manpower, developed infrastructure, housing and institutions, well developed inter and intra-regional transport and communications and tourist centres of national and international importance.

The region has some **constraints** and development problems also.

- Major constraints are lack of minerals, limited and depleted forest resources, barren and less productive western half, pressure of population on fertile agricultural land in the east, lack of local entrepreneurship and comparative small size of the markets.

- Development of infrastructure is quite uneven with concentration of investments and industries in and around Bhubaneswar and Cuttack cities thereby creating large scale economic activities and employment opportunities, leading to high per capita income of the people of these cities while the smaller towns lack in infrastructure, dynamism and diversification in their functional character. Rural settlements in the region also lack in many of the basic facilities like transport, linkages, safe drinking water, electricity, health, higher education, housing, markets and post and telegraph.

- Migration from rural areas to Cuttack and Bhubaneswar has created not only pressure on the existing infrastructure but also formation of slums.

- Organized industrial development has come up in and around Bhubaneswar and Cuttack cities while the rest of the region is industrially backward. Tourist infrastructure and tourist based activities have concentrated in Puri which has caused overcrowding and escalating costs of goods and services in the city, while tourist potential zones lack in tourist infrastructure.

- National highway-5 bisects the city of Bhubaneswar into almost two equal halves. The traffic density over the road is very high, when the through traffic is added to the internal traffic circulation; it creates more congestion in the city. The cross communications between the areas in the north and south of national highway-5 are posing serious traffic problems. Further, because of increasing need of inter-communication between the two places on the national highway has considerably increased the pressure. Mixing of fast and slow moving traffic, particularly on Cuttack-Bhubaneswar stretch of NH-5, has led to delay and congestion of traffic.

- Dominance of Cuttack and Bhubaneswar in the total urbanization of the region has resulted in a spatial imbalance in the urbanization process. Scarcity and high price of developed land in these two cities have encouraged development, especially industrial, in the low-lying agricultural land between Cuttack and Bhubaneswar. The low-lying tract acts as water spread area, reducing the danger of flood to both the cities. If this low-lying area is filled up or their natural equilibrium is disturbed, it may affect the safety of Cuttack and Bhubaneswar.

- If growth is allowed to take place in the intervening area between Cuttack and Bhubaneswar, these will merge into one big complex. Moreover, both the cities are expanding, Bhubaneswar to the south and Cuttack to the north resulting into a linear growth pattern. This will further intensify the problems owing to its linear pattern, raising the cost of creating infrastructural network for such basic services as water, sewerage and transport.

- Absence of a well-articulated hierarchy of human settlements that perform specialized and diversified production, distribution, consumption and exchange functions.

- The small size of villages does not provide large enough markets for commercial agriculture or a network of industrial production and exchange. "There is little reason to save and invest; specialization and division of labour do not occur, and opportunities for market expansion and nonagricultural employment are few."

1.6 OBJECTIVES

- To evolve a planning strategy for comprehensive development of the region.
- To develop the growth centres and nodal points with definite functions and balanced economic development of the region.

1.7 SCOPE OF WORK

- To evaluate the resources of the region, population growth trends, land use, basic facilities and services both at the regional and at the settlement level.
- to suggest measures for tourism development
- To identify the existing hierarchy of settlements in the region and functional and spatial gaps therein.
- To evolve a well-knit regional settlement system, where the integration of urban and rural functions will be attained by means of a more balanced and mutually reinforcing system of central places, bringing a series of necessary functions into the actual reach of the rural population
- To suggest measures for faster urbanization in small and medium towns around Cuttack and Bhubaneswar so as to achieve a dispersal of economic development and also to counter the primacy of these two cities.

1.8 LIMITATIONS

- Due to lack of time and ease of available data, Development Blocks have been as units of study.
- Absence of some published data is complemented with unpublished records from various sources

1.9 METHODOLOGY

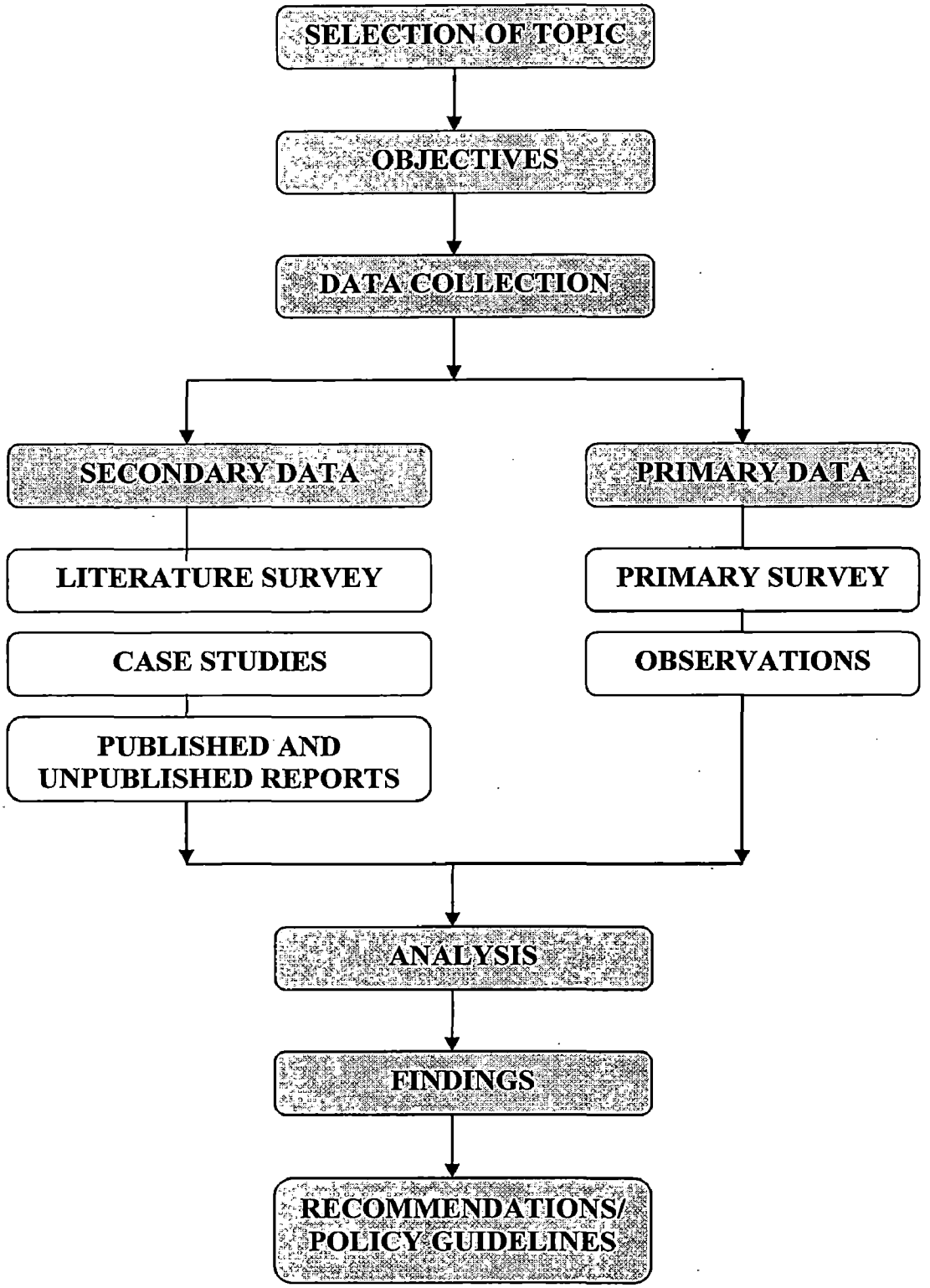


Fig 1.3 METHODOLOGY

CHAPTER 2

LITERATURE SURVEY

2.1 REGIONAL DEVELOPMENT A SPATIAL VIEW

Development, Growth and Progress are usually used as synonyms and mean increase or expansion, but in economic development literature, these are used as different concepts. Boudeville defines growth as "set of increases in qualities produced"; development as "growth plus a favorable change in production technique and in consumer behavior" and progress as "development plus a diminution of social tension between groups within a society". **Development is thus a qualitative change together with the quantitative expansion.**

The social aspects of development have often been ignored in the literature of economic development, but these two aspects of development are interrelated and interdependent. Barkin defines development as "... a dual process of enrichment and structural change..." and recognizes "... its counterpart in the human level ... which also involves enrichment and structural change".

Thus development could be explained as economic and social growth tied up with "introduction and diffusion of successive waves of innovations ... in geographical space" (Hermansen) bringing about a **'structural transformation of the social systems'** (Friedmann). On the basis of the various definitions put forward, it can be stated that development is a complex process having four main components - economic, social, cultural and politico - administrative (Chandrashekhar and Sundaram). Though the pattern and pace of development is greatly influenced by the laws of economics and practical politics, these systems "operate within an environmental and demographic framework which they do not themselves create" (Hoyle). Resources - natural as well as human - and technical know-how for their exploitation are distributed over space unevenly. Human effort is to allocate these resources efficiently among alternative uses through an economic system which involves basically three activities, i.e. production, consumption and exchange. These economic

activities are regulated by the demand and supply, which too have a spatial component. For any given goods there will generally be a spatial variation between the places at which it is demanded and the points of supply. Thus an economic system has a spatial dimension and, therefore, it is significant in regional development studies. It is this view point which distinguishes a geographer's approach to regional analysis from an economist's. Variations in the level of development are observed not only in space but through passage of time also.

Friedmann has argued that regional development takes place in an orderly fashion during which spatial sub-systems change their boundaries and rearrange themselves from relatively isolated regional enclaves to well integrated and functionally inter-dependent system of cities. Development patterns can, therefore, be explained within a spatio-temporal framework. Here the principles of spatial organisation state vividly that the development process takes place around a system of nodal centres and their tributary areas and as the tempo of development increases the system of nodal centres and their tributary areas becomes increasingly, complex. This is a sign of regional specialization and emergence of economic regions.

Regional variations in the level of development has been a growing concern for the people all over the world, who are interested in removing disparities between the regions or at least minimizing it for improvement of the living conditions of the society. It was felt that development being a complex process involves many issues which cannot be understood properly without a multi-disciplinary approach. This brought about a change in the trend of the research work being undertaken in traditional social sciences and hence regional science emerged as a separate branch of social sciences. It is an integrated (multi-disciplinary) analysis of the various factors (political, social, economical, cultural and psychological) affecting the development of a meaningful region or system of regions and provides a "systematic study of the time-space patterns of systems and the ways in which social problems associated with these patterns can be effectively attacked and resolved" (Isard, 1975) through methods of urban and regional analysis. Regional science has influenced considerably the conceptual framework and methods of geographical research particularly in economic geography. It is a common feeling that regional science has "stimulated, prodded and pushed methodological development in geography" (Berry and Hankins, 1963,) and has

"encouraged economic geographers to be more interested in theories of location and economic growth and in their application" (Britton, 1967,).

2.2 APPROACHES TO REGIONAL ANALYSIS

Various concepts and theories have been put forward to examine the anatomy of regions in order to understand the structure and process of regional development. These theories may be grouped under two heads:

- **Non-spatial economic theories and**
- **Theories of spatial development.**

Studies are being conducted to analyze inter-regional and intra-regional variations. An inter-regional approach seeks to explain the differences between the regions, taking regions as a whole. This approach is concerned mainly with growth and change and depends heavily on economic concepts. Development of regional accounts presents a comprehensive picture of the regional economic structure. It provides a detailed picture of the inter-relationships of the major sectors of the regional economy and also provides an insight into regional variations and the underlying factors responsible for them. In recent years, inter-industry relationships in the form of an input-output table, has grown into one of the most widely accepted methods of describing the industrial structure of an economy and linked with other techniques, of predicting changes in that structure. However, regional input-output table presents a comprehensive and ordered picture of the regional economy in a limited way and because of its highly aggregated nature of the activities it becomes difficult to relate the inter-sectoral relationship to the spatial interaction of activities.

Economic structure of the region is basically responsible for the variations in the level of development between regions. **Regional accounts and the input-output tables** provide a descriptive framework of this structure assuming regions to be static which in fact are not. Over the years, economic models have developed which are concerned with the analysis of the regional economy as a whole. There are a series of economic theories collectively known as the regional multiplier theories which seek to explain these changes in the economic structure stressing the inter-relationships among sectors within the regional economy. These

take into consideration the spread of impulses originating in any one sector to all other sectors either directly or indirectly.

The economic base theory is the most simple and therefore looks attractive. It relates changes in total regional employment to changes in basic employment. But the theory has several conceptual and technical problems especially the problem of identifying the basic/non-basic components. Inter-regional trade multipliers are more complex. This multiplier, calculated in money terms, introduces relevant import, savings and taxation factors and throws interesting light on large-scale regional multiplier variation. It is also an aggregated approach abstracting from specific industries and inter-industry linkages. The input-output table can also be used for predictive purposes besides its descriptive role, but a number of procedures and basic assumptions are involved. An early and well-known study is on the impact of the establishment of an Iron and Steel Mill in the Greater New York - Philadelphia industrial region (Isard and Kuenne, 1953,). Data problems are formidable and yet it is one of the most valuable methods of regional analysis.

Short-run changes are less marked and almost all regions experience it. But the long-run growth rate of regions usually measured in terms of output and/or income varies widely. It is generally accepted that regional growth may result from either endogenous or exogenous determinants or a combination of both. Important internal determinants are the factors of production such as land, labor and capital while the major external determinant is the level of demand for region's commodities from areas outside the region. The complexity of this variety of factors makes the formulation of a single, generally accepted and comprehensive regional growth theory very difficult.

Sector theory is the simplest regional growth theory which states that a rise in per capita income in different areas at different times is accompanied by a resource reallocation with a decline in the proportion of labor force from primary to secondary and to tertiary sectors. This specialization provides main dynamism to regional growth. The main criticism of the theory is to the rigid sequence of primary-secondary-tertiary shift. A more recent approach to regional growth explanation is via the use of macro-economic models which are highly aggregated. These theories emphasize on the internal productive capacity of a region and the

factors like capital, labor, natural resources and technical progress which influence them. But regional growth is also influenced by external demand factors in the form of the flows of trade and information.

The export base theory, the inter-regional resource allocation models, and national economic growth models have been adopted in an explanation of the external determinants of regional growth. Export base theory is an application of the short-run static economic base model to long-run dynamic growth situation. The inter-regional resource allocation models assume that factors of production especially labor and capital will flow from low rewarding regions to high rewarding regions. National economic growth models explain rates of growth in terms of exogenous demand factors like investment and exports. All these theories are limited by one-sided approach and high level of aggregation. In this situation, the industrial structure analysis (Leser, 1951; Perloff, 1960; Hemming,1963;Brown,1968;Stilwell,1969)has enjoyed popularity. Although not a growth theory, it does complement the other more formal theories emphasizing the relationship between industrial structure and regional growth and separating out the internal and external elements of that growth. In spite of its weakness, this approach is of considerable practical value in examining variations in regional growth. The centre-periphery theories (Hirschman, 1958; Myrdal, 1957; Friedmann, 1966) with their emphasis on cumulative causation and divergent regional growth provide a valuable insight into the growth process bringing together many of the elements of the other theories. This concept of cumulative causation suggests that inter-regional differences widen as the process is cumulative and the prosperous regions will be more prosperous by attracting more goods, capital and skilled labor.

Thus inter-regional approach tells us a great deal about the links between regions in the national economy. But it does not say anything about what happens within region. Moreover, implicit in this is the assumption that regions are homogeneous, a necessary assumption if we wish to treat the parameters of inter-regional multiplier and trade models as having stable and constant values.

Yet the most obvious feature of the space economy is its non homogeneity and there are agglomerations in economic activity and in population distribution at given locations.

Acceptance of the lack of uniformity in the space economy and its economic significance leads us to the concept of nodes. Region is composed of heterogeneous units (e.g. human population is distributed in cities, towns, villages and hamlets which form a hierarchy of settlements), but these are closely interrelated with each other functionally. These flows do not occur evenly over space. The heaviest flows tend to polarize towards and from the dominant nodes. The functional linkages within regions can be traced from many sources the distribution channels of retail and wholesale goods; intra-regional commodity flows; migration flows; labor catchment areas and journey-to-work patterns. The intensity of functional interaction varies directly with the size or attraction of nodes and tends to decrease with increasing distance from the higher order settlements. Intra-regional approach helps to explain the unevenness of economic activity over space and development of hierarchy of settlements even within the regions.

Industrial location theories (Weber, 1909; Hoover, 1948; Losch, 1940; Isard, 1956; Greenhut, 1956; Smith, 1966) provide valuable insight into the economic structure of regions. The key elements in location theory - transport, labour, agglomeration and market factors set the basic parameters and thus influence the location decision no doubt; but behavioral and institutional factors also pay important roles in such decisions. There are three approaches to industrial location theory - the least cost approach, market area analysis and the profit maximization approach. Each has something to contribute to the general body of theory, but no theory can be accepted as a single general theory for a wide variety of industries and firms. Besides, these are basically theories of the location of firms and cannot properly explain the spatial structure of regions.

Central place theory is probably the most researched and well known model of regional and spatial structure; it is also the most criticised. The notion of this theory is linked with Walter Christaller and his work on the central places of Southern Germany (1933). However, many others have worked on this concept - Dickinson (1934), Losch (1940), Berry and Garrison (1958a), Dacey (1966) and Berry (1967). The theory seeks to relate central places to their hinterlands and defines a central place as a settlement providing services for the population of its hinterland. It is purely deductive theory of a highly simplified and abstract nature and

developed on the basis of much idealized assumptions. The theory relates only to the service element of regional structure, failing to explain distortions in the hierarchy caused by the location of primary and manufacturing industries which tend to group into clusters or agglomerations due to resource localization. It is also static in its approach as it explains the existence of regional spatial structure but fails to explain how that structure has evolved and how it might change over time. Despite the theory's numerous weaknesses and criticisms, empirical studies (Smails, 1944; Brush and Bracey, 1955; Berry and Garrison, 1958; Smails and Hartley, 1961; Carruthers, 1962; Thorpe and Rhodes, 1966; Smith, 1968) lend support to the central place hierarchies. Thus the theory provides a framework for understanding the regional spatial structure and in regional planning a hierarchical system of centres avoids duplication and waste. The application of the theory in the regional planning of some of the developing countries like Ghana (Grover and Huszar, 1964) and Israel (Jackson, 1970) has proved to be useful.

In many regions, the regular central place spatial structure tends to be rather distorted by agglomeration. **Growth pole theory** has been adopted not only to explain such distortions but also a policy tool in regional planning. The basic concepts and subsequent refinements and developments are to be found in the core literature of Perroux (1955); Myrdal (1957); Hirschmann (1958); Boudeville (1966); Hansen (1967) and Alien and Hermansen (1968).

The basic idea of the theory is that economic activity within a region tends to agglomerate around a small number of focal points. Polarization flows will gravitate within a region toward these focal points, with a gradual reduction in the flow density by distance. With the help of minimum critical level of flow densities, a boundary may be demarcated around a focal point which can be described as the growth point.

On this interpretation the spatial distribution of population can be regarded as being organized into hierarchical system of nodes and functional linkages. Stronger the nodal characteristics of the regions higher their growth rates and their levels of economic and social development are likely to be. Regional plans will be more successful if they effectively reinforce the natural nodal characteristics already in evidence in a region.

Owing to their versatility, the theory of growth poles and central places enjoyed a great popularity. But a vast confusion of terminology appears in the literature like growth poles, growth points, growth centres, and deployment poles, central places, service centres, and so on. It is, therefore, necessary to keep the distinction clear between the important terminologies. The term 'growth pole' can be taken to refer to the original concept of Perroux (1955) which focuses on the development of growth poles in economic space without any specific geographical dimension, while the term 'growth centre' or 'growth point" refers to a spatial location. Various writings on growth poles and growth centres suggest three economic concepts and their geographical developments:

- The concept of leading industries states that at the centre of growth poles are large propulsive firms which dominate other economic units. The original geographical location of such industries at certain focal points may be due to several factors - localization of natural resources, man-made advantages (communications or existing service-based central places with infrastructure facilities) or just chance.

- The concept of polarization states that rapid growth of the leading industries will lead to agglomeration economics and other economic units will be brought into the pole of growth. The economic polarization will lead to geographical polarization with the flow of resources and the concentration of economic activity at a limited number of centres within a region.

- The concept of spread-effects states that in time the dynamic propulsive qualities of growth pole radiate outwards into the surrounding space which has been termed as 'trickling down' or 'spread' effects.

These concepts taken together provide a valuable complement to central place theory in an explanation of the regional structure and spatial process of development. It is in this context that the process of regional development should be viewed as a process in functional organization of formal spaces and system of nodes and their tributary areas would constitute the basis of development at different scales of areas and activities.

2.3 REGIONAL DEVELOPMENT STUDIES IN INDIA

Recent trends show that methodology has advanced rapidly and there has been a growing interest in the applicability of theories and skills for the solution of real developmental problems.

Indian studies related to aspects of regional development may be grouped under the following heads - regional surveys, regionalization and topical studies.

Planning in India is both Centralized and sectoral. Plans are prepared by the planning commission at the centre and importance was given to prepare sectoral plans for Agriculture, Industry, Transport and Communications, Health, Education etc. Both at the State and the National levels sectoral planning has dominated all these years and a very limited importance is given to spatial planning. The second Five Year Plan emphasized the need for Regional Planning. The concept of Balanced Regional Development was suggested to reduce regional imbalances in the country and consequently, more attention was paid for the development of backward states through sectoral approach. In the Fourth Five Year Plan importance was given to the district level planning and suggested experimental studies on growth centres. Thus, the problem was recognized but no serious attempts were made at regional level. Except for a few case studies no systematic attempt has been made to prepare and implement plans at the gross root level.

During the 50 years of our planning significant growth has been achieved by all the sectors. However, due to the rapid growth in population, rising prices, the achievements fell very much short of the planned targets. Unemployment, poverty, is still very high in many states.

In the First Five Year Plan priority was given to Agricultural sector and for the Industrial sector in the Second Five Year Plan. In all these plans both Agriculture and Industry have received attention and efforts were made to build up the economy by investing huge amounts on large scale capital intensive technologies for the promotion of industries and development of agriculture. Self reliance, eradication of poverty, reduction of unemployment, and regional imbalances are the main objectives. Gains in each sector are significant in both quantitative

and qualitative terms. However, due to pressing population problems, achievements are not up to the mark. Destitution, poverty and unemployment are still the major problems in India. Both in absolute and relative terms people living below the poverty line both in urban and rural areas form a very large proportion of population. Even in the highly agriculturally developed districts and States the percentages of people below the poverty line in the rural areas are still very high.

Some States with high resource base and infrastructure like the Punjab and Haryana, Maharashtra, Andhra Pradesh etc. have achieved high growth rates and some States like Bihar, Orissa etc. are still lagging behind. While some states are fast developing, others are stagnant. To correct these imbalances Micro level planning is accepted as a cure. The remedy lies in formulating regional plans. According to Gadgil regional analysis concerns with the study of factors

2.4 NEED FOR REGIONAL PLANNING

The need for regional planning arises firstly, to combat growing unemployment problem. As Misra has aptly pointed "Creation of jobs to extra hands in addition to the existing unemployed people is not an easy task without launching regional planning".

Secondly, due to difference in agro climatic conditions, resource base and infrastructure development some pockets have developed more rapidly than others, some States have developed much faster than others. Thus, there are variations in the development of different states and different areas within the states. Further, some metropolitan cities have over developed and facing the problems of urban agglomeration. Urban development problems have provided greatest inputs for regional development in India. As urban problems of Delhi have reached crisis proportions the Government of India has set up a Town Planning Organization in Nov. 1955 to prepare a master plan specifying the optimum directions of growth and expansion for the city. The organization brought out a scheme of developing ring-towns around Delhi to control growing population of the city.

National Planning cannot solve all the problems and planning should be multi-level. While sectoral planning establishes national priorities, multi-level planning corrects regional imbalances and helps to reduce poverty and unemployment. Multi-level planning will have more multiplied effects and in no way does it distort the national priorities. As Sen has pointed out, "Multi-level planning helps in modifying national priorities and reflects the correct state of affairs at the gross roots level"

2.5 PLANNING FOR INTEGRATED AREA DEVELOPMENT

In this context the new concepts of Integrated Area Development has gained wider acceptance. Integrated area development planning requires mainly two types of integration— Functional and Spatial. The functions which are basic for economic development directly or indirectly should be integrated. In this approach all the sectors such as Health, Education, Transport and Communications, Agriculture, Industry Credit and Marketing etc., which are inter-connected in the sense that a change in one sector brings about changes in the other sectors should be integrated. Some of the functions can be performed at various levels. The development of any area is possible only by achieving both spatial and functional integration. Since settlements show a pattern of hierarchy, higher order functions should be located at higher order settlements and lower order functions should be located at lower order settlements It is in this context the concept of integrated rural development becomes relevant and elaborating this idea, Sen states:

"In the context of development when new activities or functions are proposed, the location of such functions becomes extremely important. An appropriate location of a new function may start a chain reaction of development with far reaching effects. An understanding of functional inter-relationships in space, therefore, goes a long way towards the development of an area. This is the idea behind the concept of Integrated Area Development."

2.6 CONTENTS OF THE REGIONAL PLAN

The Regional Plan shall be a written statement and shall be accompanied by such maps, diagrams, illustrations and descriptive matters. The Regional Plan shall indicate the manner

in which the land in the Region shall be used, whether by carrying out development thereon or by conservation or otherwise, and such other matters as are likely to have any important influence on the development of the Region and every such Plan shall include the following elements needed to promote growth and balanced development of the Region, namely:-

- The policy in relation to land-use and the allocation of land for different uses ;
- The proposals for major urban settlement pattern ;
- The proposals for providing suitable economic base for future growth ;
- The proposals regarding transport and communications including railways and arterial roads serving the Region
- The proposals for the supply of drinking water and for drainage ;
- Indication of the areas which require immediate development as "priority areas"; and
- Such other matters as may be included for the proper planning of the growth and balanced development of the Region.

2.7 INTEGRATED DEVELOPMENT OF SMALL AND MEDIUM TOWNS (IDSMT)

2.7.1 INTRODUCTION

The Centrally sponsored scheme of Integrated Development of Small and Medium Towns (IDSMT) was initiated in the Sixth Plan (1979-80). Its main objective has been to slow down migration from rural areas and smaller towns to large cities by the development of selected small and medium towns which are capable of generating economic growth and employment. The IDSMT scheme, by strengthening small and medium towns as regional growth centres aims at reducing migration to large and metropolitan cities.

During mid-term appraisal of the 8th Five Year Plan, certain changes in the existing guidelines for the implementation of the IDSMT scheme were called for on several considerations. These include the enactment of the Constitution (74th Amendment) Act. 1992 and Economic Reforms which emphasize the strengthening of infrastructure and service facilities in growth centres with a view to enhancing their capacity to attract private investment. Accordingly, the existing IDSMT Scheme Guidelines have been revised.

2.7.2 OBJECTIVES

- Improving infrastructural facilities and helping in the creation of durable public assets in small and medium towns having potential to emerge as regional centres of economic growth and employment, thereby reducing the incentives for people belonging to rural and smaller urban areas to migrate to bigger cities and towns for jobs.

- Decentralizing economic growth and employment opportunities and promoting dispersed urbanization while taking due advantage of the functional inter linkages between villages, towns and cities through a regional planning approach.

- Increasing the availability of serviced sites for housing, commercial and industrial uses and promoting the principles of planned and orderly spatial development.

- Integrating spatial and socio-economic planning as envisaged in the Constitution (74th Amendment) Act. 1992 and preparing and implementing Town/City Development Plans.

2.7.3 COVERAGE

DSMT will be applicable to towns/cities with population up to 5 lakhs subject to the stipulation that 1/3rd of the total amount available each year - for the scheme as a whole - will be allocated to towns with less than 50,000 population. Towns are categorised for the purpose of assistance under IDSMT as follows:

POPULATION	CATEGORY
Less than 20,000	A
20,000 - 50,000	B
50,000 - 1,00,000	C
1,00,000 - 3,00,000	D
3,00,000 - 5,00,000	E

2.7.4 COMPONENTS

The components for assistance under IDSMT will include works as per City/Town Development/Maser Plans which may have city town wide significances. An illustrative list is as follows:

- Strengthening of Master Plan road facilities including ring, arterial, bypass/link roads and small bridges
- Site and services
- Development of bus/truck terminals
- Construction/up gradation of Master Plan drains including storm water channels
- Solid Waste Management
- Development of market complexes/shopping centres
- Provision of tourist facilities
- Development of City/Town Parks
- Street lighting for Master Plan roads
- Slaughter houses
- Major public amenities like Gardens, Playgrounds, Marriage halls, Pay and use toilets, etc.
- Cycle/Rickshaw stands
- Traffic improvement and management schemes
- Construction of retaining walls and slope stability measures in hill station towns
- Social amenities, especially for the power sections

2.8 URBAN DEVELOPMENT PLANS FORMULATION AND IMPLEMENTATION GUIDELINES (UDPFI)

2.8.1 URBAN DEVELOPMENT PLANNING SYSTEM AND PROCESS

The 74th CAA demands devolution of planning function to local authorities and involvement of people in the planning decision making process; and administratively and professionally it is expected that the system should provide for a long-term policy plan, a

mid-term comprehensive plan which is further integrated with budgetary process and divided into projects/schemes for implementation, monitoring and review.

2.8.2 REGIONAL APPROACH

As a general principle, it is suggested that plans at the levels higher than the settlements should be regional in nature and contents. Similarly, national and state level plans shall incorporate only those developmental policies and programmes that need to be addressed at that level and also those that come under joint responsibilities of centre, state and local authorities. Accordingly, the recommended urban development planning system consists of a set of the following four inter-related plans:

PERSPECTIVE PLAN	A long term (20-25 years) written document supported by necessary maps and diagrams providing the state government the goals, policies, strategies and general programmes of the urban local authority regarding spatio-economic development of the settlement under its governance.
DEVELOPMENT PLAN	Conceived within the framework of the approved perspective plan, is a medium term (generally five years) plan providing to the people the comprehensive proposals for socio-economic and spatial development of the urban centre indicating the manner in which the use of land and development therein shall be carried out by the local authority and other agencies.
[redacted]	Conceived within the framework of development plan, is a plan containing the details of new and ongoing projects that the local authority intends to implement during the respective financial year and for which necessary fiscal resources shall be mobilized through plan funds and other sources.
PLANS OF PROJECTS/SCHEMES	Conceived within the framework of approved Development Plan/Annual Plan, these are detailed working layouts for execution by a public or private agency

2.8.3 CONTENTS OF A DEVELOPMENT PLAN IN CASE OF SMALL AND MEDIUM SIZE TOWNS

A development plan should contain the following major heads:

- Existing conditions and development issues;
- Projected requirements and assessment of deficiencies
- Development aims and objectives;
- Development proposals;
- Resource mobilization proposals;
- Implementation;
- Monitoring and review.

The Existing Conditions and Developmental Issues should include the following aspects

1. Physical characteristics and natural resources
    a) Location and regional setting. Brief history of development of the town;
    b) Climate;
    c) Existing land use;
    d) Environmentally and ecologically sensitive areas;
    e) Heritage, sites, buildings and areas.

2. Demography
    a) Existing population, migration and household characteristics.

3. Economic base and employment
    a) Formal Sector
        i) Primary: Urban agriculture, mining, quarrying, etc.
        ii) Secondary: Industries, trade, commerce, etc.
        iii) Tertiary: Transport, government and semi-Government service and other services.
    b) Informal sector and urban poverty alleviation, informal trade, Commerce, Transport, Household industries.

4. Housing and shelter (both formal and informal)

5. Transportation

a) Mode of transportation - by road, rail, air, water as the case may be.

b) Network of roads, railways, waterways and their interrelationship with major activity nodes.

c) Transport terminals.

6. Facilities

a) Education

b) Health care

c) Recreation

d) Religious

e) Socio-cultural

7. Infrastructure

a) Water

b) Energy

c) Drainage, sanitation and refuse and solid waste disposal

d) Communication

e) Police protection, fire protection

f) Cremation and graveyards

8. Any special problem areas like disasters (both natural and man-made) prone zones.

9. Resources

a) Fiscal

b) Manpower

c) Land

10. Development management

11. Major development issues

CHAPTER 3

CASE STUDIES

3.1 THE NATIONAL CAPITAL REGION

3.1.1 EVOLUTION OF THE CONCEPT OF NATIONAL CAPITAL REGION

Delhi has been experiencing phenomenal growth of population since 1951 recording decennial growth rate of 52.44%, 52.91%, 52.98%, 51.45% and 47.03% during 1951-61, 1961-71, 1971-81 and 1991-01 decades respectively. One of the main causes for this spurt in the growth of population is migration into the city not only from the adjacent states but also from others such as Bihar.

The growth of population of Delhi has contributed to increasing congestion and shortages of civic amenities. It has been felt that as Delhi grows, its problems of land, housing, transportation and management of essential infrastructure like water supply and sewerage would become more acute.

It was with this concern that the need for planning Delhi in the regional context was felt:

1956-Interim General Plan suggested that `serious consideration should be given for a planned decentralization to outer areas & even outside the Delhi region'.

1961-High Powered Board set up under Union Minister for Home Affairs

1962-Master Plan for Delhi emphasized Planning of Delhi in regional context

1973-High Powered Board reconstituted under Union Minister for Works & Housing

1985-Enactment of the National Capital Region Planning Board Act by the Union Parliament, with the concurrence of the participating States of Haryana, Rajasthan and Uttar Pradesh, NCR Planning Board was constituted.

3.1.2 CONSTITUENT AREA OF NATIONAL CAPITAL REGION

The National Capital Region comprises an area of 33,578 square kilometers (includes the remaining five tehsils of Alwar), covering the states of Haryana, Rajasthan, Uttar Pradesh and the National Capital Territory of Delhi.

NCT Delhi	1,482 square kilometers
Haryana	Eight districts - Gurgaon, Rewari, Faridabad, Sonepat, Rohtak, Panipat, Jhajjhar & Mewat, comprising 13,413 square kilometers
Uttar Pradesh	Five districts - Ghaziabad, Bulandshahr, Meerut and Baghpat & Gautam Budha Nagar, comprising 10,853 square kilometers
Rajasthan	Alwar district, 7,829 square kilometers

Within these districts, the Board has identified several priority towns all over the region for its growth and balanced development. In addition, in order to arrest the migratory population to the region, counter-magnet areas have also been identified for accelerated growth

3.1.3 NATIONAL CAPITAL REGION AT A GLANCE

1. Location Latitude: 27° 03' and 29 ° 29'north
Longitude: 76° 07' and 78 ° 29' east

2. Area (in sq. km.)

	AREA IN SQ.KM.
NCR	33,578
Delhi Sub-Region	1,483
Haryana Sub-Region	13,413
Rajasthan Sub-Region	7,829
Uttar Pradesh Sub-Region	10,853

3. No. of Districts 14

4. No. of Tehsils 66

5. Population 2001 (in lakh) *

AREA	TOTAL	RURAL	URBAN
NCR	370.33	161.99	208.34
Delhi Sub-Region	137.83	9.63	128.20
Haryana Sub-Region	86.89	57.25	29.64
Rajasthan Sub-Region	29.91	25.56	4.35
Uttar Pradesh Sub-Region	115.70	69.55	46.15

* Provisional Source: Census of India, 2001

2. Density of Population (in persons per sq. km.)

	DENSITY IN PERSONS/ SQ.KM.
NCR	1,202
Delhi Sub-Region	9,292
Haryana Sub-Region	651
Rajasthan Sub-Region	357
Uttar Pradesh Sub-Region	1,066

6. No. of Settlements

	URBAN	RURAL
Class-I (100,000 +)	17	-
Class-II (50,000-99,999)	09	-
Class-III (20,000- 49,999)	25	-
Class-IV (10,000- 19,999)	39	-
Class-V (5,000- 9,999)	18	-
Class-VI (Below 5,000)	02	-
TOTAL	**110**	**7955**

8. Metropolitan Cities: Delhi, Meerut and Faridabad

9. Literacy Rate: 72.97%

National Capital Region
Constituent Areas

LEGEND

NCR	———
State	.....
District	.....
Tehsil	———
District H.Q	■
Tehsil H.Q.	o
Counter Magnet Areas	☆

	AREA		
Haryana	Gurgaon, Faridabad, Kundli, Bahadurgarh	Panipat, Rewari, Palwal, Dharuhera, Rohtak	Hissar
Uttar Pradesh	Ghaziabad	Hapur, Meerut, Bulandshahr, Khurja	Bareilly
Rajasthan	-	Alwar, Bhiwadi	Kota
Madhya Pradesh	-	-	Gawalior
Punjab	-	-	Patiala

3.1.4 AIMS AND OBJECTIVES OF REGIONAL PLAN-2001

The objective of the RP-2001 has been to

- relieving the capital city from additional pressures,
- avoid adding new pressures on the capital and
- development of settlements in the NCR to enable them to play there assigned role

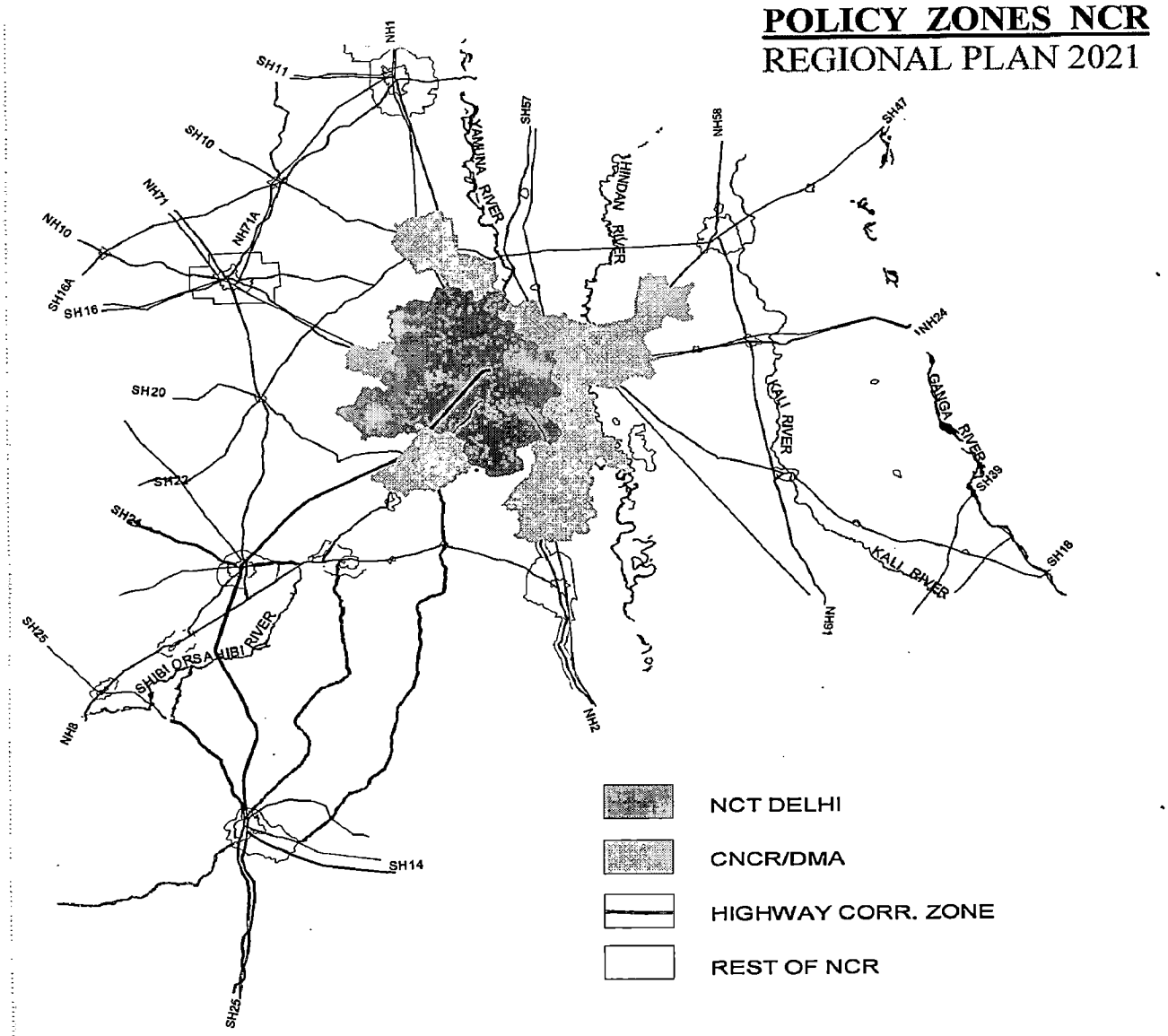
In order to achieve these objectives the Regional Plan proposed 3 policy zones namely NCT-Delhi, DMA and the Rest of NCR. DMA comprised Ghaziabad-Loni and NOIDA in UP Faridabad-Ballabhgarh complex, Gurgaon, and Kundli. Rest of NCR comprised Meerut, Hapur, Panipat, Rohtak, Bulandshahar-Khurja complex and Alwar

3.1.5 AIMS AND OBJECTIVES OF REGIONAL PLAN-2021

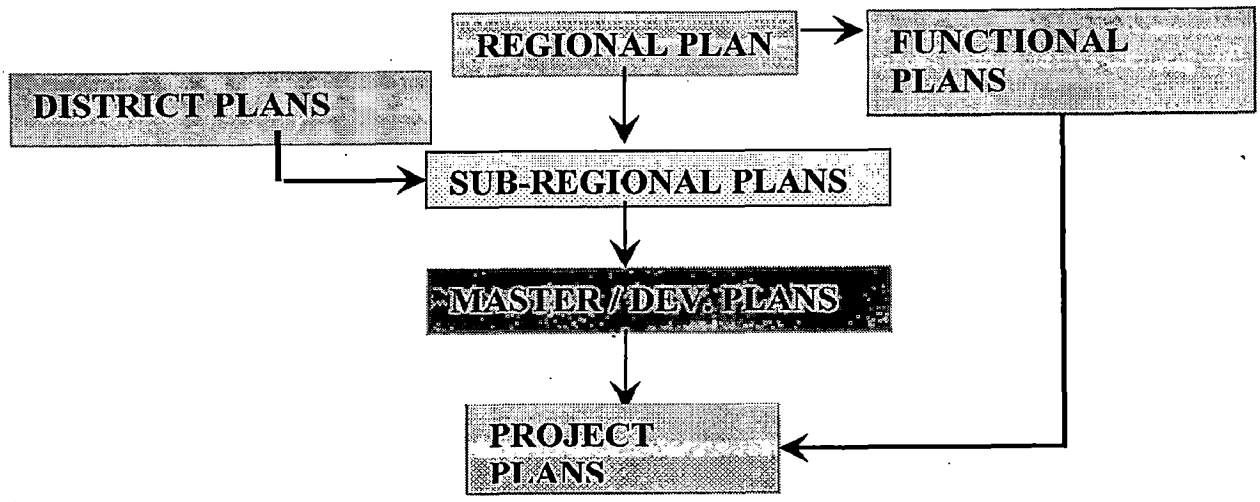
The objective of the RP-2021 has been to

- Providing suitable economic base for future growth by identification and development of regional settlements capable of absorbing the economic development impulse of Delhi.
- To provide efficient and economic rail and road based transportation networks (including mass transport systems) well integrated with the land use patterns, to support balanced regional development in such identified settlements.
- To minimize the adverse environmental impact that may occur in the process of development of the National Capital Region.
- To develop selected urban settlements with urban infrastructural facilities
- To provide a rational land use pattern in order to protect and preserve good agricultural land and utilize unproductive land for urban uses.
- To improve the efficiency of existing methods of resource mobilization and adopt innovative methods of resource mobilization, and facilitate, attract and guide private investment in desired direction.

Keeping the above objectives in view, the RP-2021 has proposed the development of NCR through four policy zones namely- (i) NCT-Delhi, (ii) Central National Capital Region (CNCR), (iii) Highway Corridor Zone and (iv) Rest of NCR



3.1.6 THE PLANNING PROCESS



3.1.7 STRATEGIES FOR DEVELOPMENT OF SETTLEMENT SYSTEM

Strategies for the development of Settlement System would be to harness the growth impulse of Delhi and to integrate the urban & rural functions in the region.

- Development of a well-knit regional settlement system where Delhi and other towns in the region will be allowed to grow within their carrying capacity and development potential as may be determined by their Development / Planning Agencies and to formulate an overall policy for all types of settlements.

- Development of small and medium towns in the region as they are sub-regional centers or service centers. These towns will play an important role in supporting the socio-economic development in their rural hinterland by providing access to the education & health facilities, agricultural extension services and agro-industries linked to local products.

- Rural development would be encouraged by providing facilities and services in appropriate hierarchy which stimulates production and increases income of the rural population, diversify the economy, make villages attractive to live & work and check migration to urban centres. Such centres would be either a Central Village having a population of 5,000 to 10,000 or it may be a Basic Village having a population less than 5,000.

SETTLEMENT PATTERN: Six-tier hierarchical system based on population

HEIRARCHY OF SETTLEMENTS	POPULATION
Metro Centres	10 lakh and above
Regional Centres	3 to 10 lakh
Sub-regional Centres	0.5 to 3 lakh
Service Centres	10,000 to 50,000
Central Villages	5,000 to 10,000
Basic Villages	Below 5,000

Source: National Capital Region, REGIONAL PLAN 2021

Metro Centre

Metro Centres highest in the hierarchy system of settlements will have a population above 10 lakhs. These settlements can act as powerful growth nodes to attract capital functions and activities and help in population dispersal from the National Capital. Because of their special functional status and size, a very high level of physical, social and economic infrastructure better than that in the Capital is required to be developed within these towns/ complexes. This would include efficient intra-urban mass transportation system as well as strong transport and communication linkages with Delhi, other Metro Centres and NCR towns. The respective participating States and their agencies would not only be required to create the necessary infrastructure themselves in these Metro Centres but also facilitate the private sector investment therein.

Regional Centre

It is well-established urban centre in the Region marked by highly specialized secondary and tertiary sector activities and providing job opportunities, which normally cannot be performed by other lower order centres. These centres will be developed for advanced industrial and other economic activities and will have concentration of administrative and higher order service functions, which are expected to exert an increasingly dynamic influence on attraction of investment and creation of conducive living and working environment. Such settlements will have a population ranging from 3 lakh to 10 lakh.

Sub-regional Centre

The Sub-regional Centre shall generally be a medium sized town or intermediate city performing a variety of roles, particularly in promoting and supporting rural development, in achieving a more balanced distribution of urban population and in providing functional linkages between the smaller towns and Regional / Metro Centres. The Sub-Regional Centres are proposed to undertake the urban economic and service functions and provide for infrastructure like transport, power, and water, credit banking, marketing, managerial services, etc. such type of centres will have a population ranging from 50,000 to 3 lakh.

Service Centre

The Service Centre shall be a small town or a large village having linkages with immediate rural hinterlands. These centres would cater to the rural hinterland as agro service centre in the collection and distribution of agricultural goods and services with processing, marketing, warehousing and storage facilities. Service centres will have a population range of 10,000 to 50,000.

Central Village

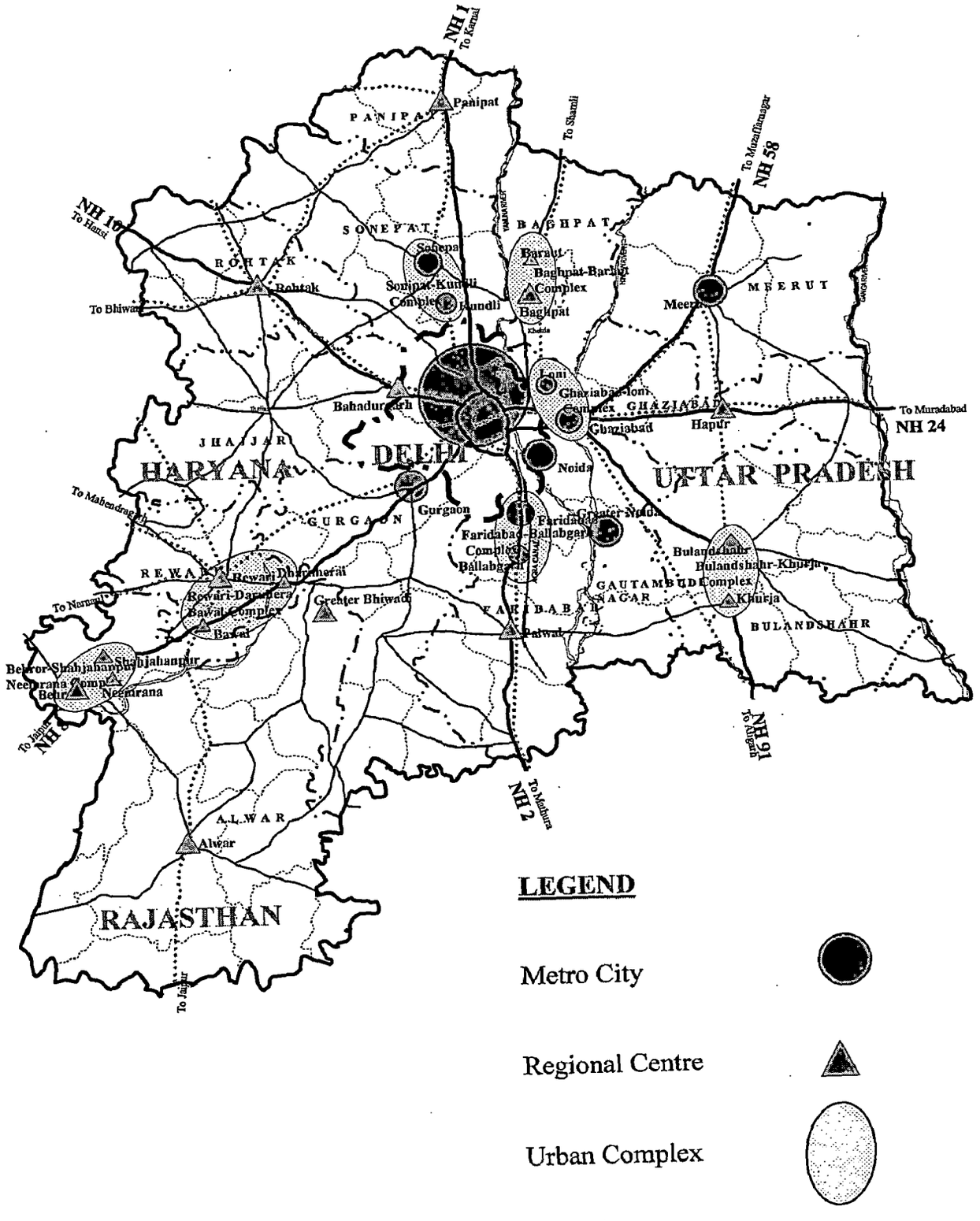
The Central Village is the higher order village with population of 5,000 to 10,000 and having central location and potential for development within its catchment area, with relatively better services and facilities in terms of education, health, communication, accessibility and has the capacity to serve a group of Basic villages. This centre is proposed to provide basic social facilities for population engaged in agriculture and other primary activities.

Basic Village

All other Census villages with population less than 5,000 have been classified as Basic Villages and will be provided with basic facilities like link roads, water supply and electricity, paved streets and low-cost common sanitary facilities as well as the minimum required social infrastructure as per planning norms.

3.1.8 STRATEGIES FOR DEVELOPMENT OF ENVIRONMENT, TOURISM & HERITAGE

- Protection & conservation of good agricultural land
- Land suitability analysis in master/ development plans for landuse allocations
- To increase the area under forest from 4% to 10%
- Environmentally sensitive areas such as forests, wetlands, water bodies etc. to be protected



LEGEND

Metro City

Regional Centre

Urban Complex

Proposed Settlement Pattern-NCR 2021

- Regular monitoring of air, water, noise & land pollution by the respective state pollution control boards
- Protection of identified natural and manmade heritage sites for the protection of bio-diversity and culture
- Development plan to be prepared for the protected areas
- Promotion of tourism as an important source of employment and preparation of tourism development plan

3.1.9 STRATEGY FOR DEVELOPMENT OF TRANSPORT

- To provide linkages amongst metro/regional centres and other settlements in the outlying areas
- To connect metro/regional centres with the capital by an efficient and effective transport network for facilitating faster movement of traffic among such centres and Delhi
- To link the sub-regional centres with efficient transport network
- To directly link other urban nodes having maximum attracting and generating characteristics
- To decongest Delhi roads
- To create a Unified Metropolitan Transport Authority for NCR
- With the growing air traffic the development of an International Airport at a suitable location within the Region to act as an alternative to the existing international airport in Delhi and domestic air terminals need to be considered.
- The Plan proposes Light Rail Transit (LRT) or High Speed Transit System (HSTS) to cater to higher demand of intra-urban traffic for the priority/regional towns having population of more than 5 lakhs with provision for up gradation and appropriate feeder system. Provision for Trolley Buses and Sky Tram System should also be explored.
- Transport Proposal includes Western Peripheral Expressway, Eastern Peripheral Expressway and Ghaziabad-Meerut Expressway

- Four laning of the following road sections: Bahadurgarh-Rohtak-NCR Border (NH 10), Rohtak-NCR Border (NH 71), Ghaziabad-Meerut-NCR Boundary (NH-58), Ghaziabad-Bulandshahar-Khurja-NCR Boundary (NH91) and Gurgaon-Alwar (Old NH-8)

3.1.10 STRATEGY FOR RURAL DEVELOPMENT

- Hierarchical system of rural settlements to be identified in Sub-regional Plans and District Plans
- Development proposals to be incorporated in these plans and accordingly rural settlements to be developed
- Rural settlements to be planned for better amenities
- Promotion of strategic partnership between government, private sector/NGOs for rural development
- Comparatively less developed districts to be identified by the States for priority development
- For Rural Industrialization lower order settlements in the NCR (service centres, central villages and basic villages) have enough localized traditional skills like potteries, handloom weaving, leather work, murtikari, carpet weaving etc., which if properly nurtured can play the role of a vibrant component of the rural economy and provide gainful employment to potential migrants to Delhi.
- In addition, due importance may have to be given to agro-based development in stabilizing the rural economy to stem the flow of migrants from rural to urban areas.

3.1.11 STRATEGY FOR POWER DEVELOPMENT

- Additional 23,344 MW of power to be generated /obtained by 2021
- State governments to arrange for power with power generation companies to make-up shortfall
- Promotion of non-conventional energy sources

- Public private partnership and commercial approach

3.1.12 STRATEGY FOR TELECOM DEVELOPMENT

- Telephone on demand
- Tele-density of 11.5/100 persons in urban areas and 3/100 persons in rural areas by 2007
- Constituent states to provide land and infrastructure to services providers
- High speed data and multi media technology capability in all towns with population greater than 2 lakh. and Telecom coverage in all villages
- Services like tele-conferencing etc. to be at par with Delhi in NCR

3.1.13 STRATEGY FOR IMPROVEMENT OF WATER SUPPLY

- Preparation of integrated regional scheme to augment drinking water supply in the Region
- Construction of upstream reservoirs to store excess water during monsoon for use in lean period
- Augmentation of underground water resources through rain water harvesting
- Protection and reservation of 2-5 percent area under water bodies

3.1.14 STRATEGY FOR IMPROVEMENT OF SEWERAGE

- Sewerage master plans for all towns
- 100 percent sewerage and treatment facilities in Metro and Regional Centres
- All other towns and villages to initially have low cost sanitation
- Land allocations in master plans for such facilities
- 50 percent of the waste water to be recycled for non drinking uses

3.1.15 STRATEGY FOR IMPROVEMENT OF SOLID WASTE MANAGEMENT

- Solid waste management plans for all towns
- Land allocations in master plans/ development plans

- Emphasis on alternative technologies like composting and recycling
- Not more than 50 % of solid waste to be disposed off through sanitary landfill

3.1.16 STRATEGY FOR IMPROVEMENT DRAINAGE & IRRIGATION

- Integrated water resource management for the Region
- Augmentation of water resources through rain water harvesting and recycling/ reuse of treated waste water
- Integrated plan for regional drainage system and drainage master plans at sub-regional/ district level
- Urban drainage system to be designed for maximum rainfall of five years
- No dumping of sewage or solid waste in storm water drains

3.1.17 STRATEGY FOR DISASTER MANAGEMENT

- Vulnerability and risk assessment, prevention, preparedness, response and post disaster management plan for mitigation of the impact of natural hazards: earthquakes, floods, high winds and fire
- Amendments in the respective acts, bye-laws and development control regulations
- Seismic micro-zonation for important settlements and flooding trends for major rivers to be prepared
- Enforcement of national building code to be given priority by the participating States

3.1.18 STRATEGY FOR SHELTER DEVELOPMENT

- Public agencies to act as facilitators
- Reforms for easier acquisition of land
- Housing stock to be increased through foreign direct investment (FDI)
- Joint approach/venture between DDA/GNCTD with the development authorities/agencies of the towns in NCR for provision of housing etc.

3.2 DEVELOPMENT OF MIRZAPUR-SONEBHADRA REGION (U.P.)

The region covering an area of 12,341 sqkms includes 12 blocks of Mirzapur District and 8 blocks of Sonebhadra District. The region though rich in mineral resources has poor industrial structure and poor transport network leading to unbalanced development of the region. Hence the Town and Country Planning Organization Uttar Pradesh identified the region for development. The development plan aimed at

- Planning the Growth Centres in the region within its functional capabilities.
- To assess the existing natural resources and find out potential for development.
- To develop important historical monuments, natural areas of scenic beauty, wild life sanctuary, river fronts etc. for tourists.

3.3 METROPOLITAN DEVELOPMENT OF TWIN CITIES OF HYDERABAD AND SECUNDERABAD

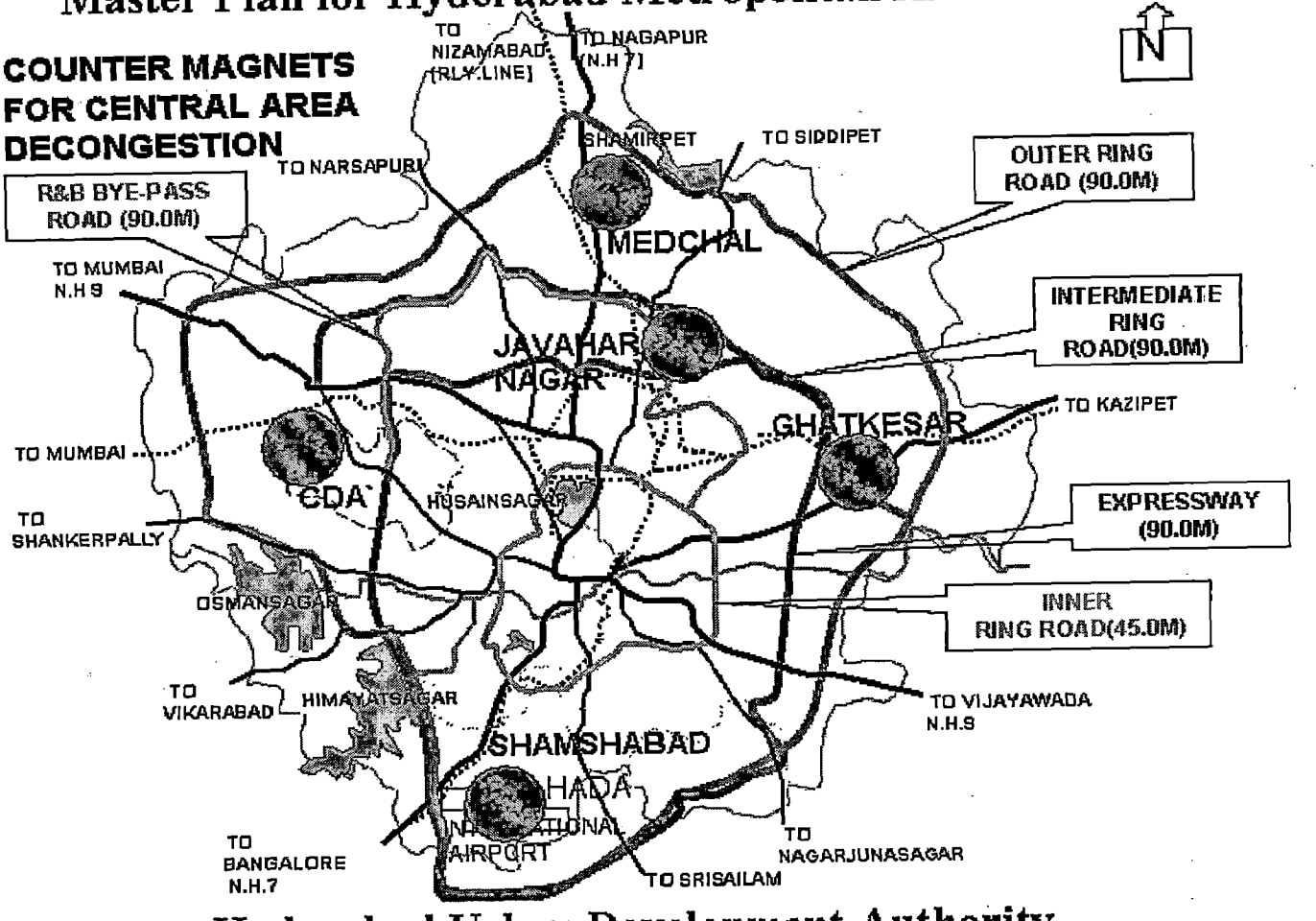
Hyderabad became the capital of the newly formed state of Andhra Pradesh in 1956. Located 650mts above sea level, the physiography of the city is dominated by hills, tanks, forests and rock formations. The city is strategically located on the Indian map blending the cultures of North and South India, National Highway No.7 and 9 passing through it. It is a city of cosmopolitan character embracing people of different religions, languages and races. The city has a number of universities, research and training institutions, including defence, police and administrative academies. Besides major industries both in state and central sectors, it is famous for tourist attractions like Charminar, Qutubshahi Tombs, Golconda Fort, Zoological Gardens, etc.; Hyderabad was founded in 1591 by Mohd. Quli Qutub Shah after the earlier capital city of Golconda became over crowded. As per 2001 census, the population of Hyderabad Metropolitan Area was about 6.5 million, spread over an area of nearly 1864 sq kms. with decadal growth of 29% and ranking 6th in population among the major metropolitan cities in India.

The metropolitan area of Hyderabad was notified under the Andhra Pradesh Urban (Dev.) Act 1975 and termed as "Development Area". This consists of the MCH, 10

municipalities and a vast area under Gram Panchayats. In order to plan for this composite area, the Government of Andhra Pradesh constituted on 2nd October 1975, the "Hyderabad Urban Development Authority". HUDA has prepared two master plans and 20 Zonal Development plans for this area of which one master plan and 18 Zonal Development plans are already notified by law and in force. Hence development of the metropolitan area known as the Hyderabad Urban Development Area(HUDA) (1,864 sqkms) was taken up consisting of the following

S.NO		AREA IN SQKMS
1	The Municipal Corporation Of Hyderabad (MCH)	172.60
2	The 10 surrounding Muncipalities	418.58
3	The 125 Gram Panchayats	1273.69
	AL EX HUDA AREA	1864.87

Master Plan for Hyderabad Metropolitan Area 2020.



Hyderabad Urban Development Authority

3.4 REGIONAL PLAN FOR MUMBAI METROPOLITAN REGION

The present boundaries of the Region encompass a total area of 4355 sq.km. and consists of the following administrative units

1. Mumbai City District;
2. Mumbai Suburban District;
3. Part of Thane District comprising
    a. Thane, Kalyan, Bhiwandi and Ulhanagar tehsils; and
    b. Part of Vasai tehsil.
4. Part of Raigad District comprising
    a. Uran tehsil and
    b. Part of Panvel, Karjat, Khalapur, Pen and Alibag tehsils.

The strategic goal of such regional development management would be to promote and sustain growth with social justice in a resource efficient manner and in consonance with the goals of national development planning. This basic goal can be translated into following specific objectives;

- To facilitate and promote economic growth of the region taking into account its role in the process of national development,
- To improve quality of life particularly of the poor and the deprived,
- To minimize the impact of negative externalities - particularly the adverse environmental impacts - that may occur in the process of economic growth,
- To achieve these objectives improve the efficiency of existing methods of resource mobilization, adopt innovative methods of resource mobilization and facilitate, attract and guide private investment in the desired direction,
- To achieve these objectives, promote effective citizen participation in the process of development through decentralization of institutions.

CHAPTER 4

THE REGION

4.1 AREA CHARACHTERISTICS

4.1.1 PHYSIOGRAPHY

The region forms Part of the Mahanadi delta. The region lies between 19°40' N & 20°45' N longitude and 85°42' E & 86°07' E latitude and covers an area of 2067.49 sqkm. The physiographic setting of the region can be divided into three distinct sub-regions. They are:

i) Alluvial plain
ii) Hilly tract

ALLUVIAL PLAIN

The alluvial plain forms the major part of the Region spreading over four blocks of Cuttack Sadar, Bhubaneswar, Balianta and Balipatna. It is bounded by littoral tract on the south and hilly tract on the west. The river Daya is, in fact, the boundary between the plain and the hilly tract. This is a monotonous riverine plain marked by the broad shallow valleys of the river Mahanadi and its other branches, namely, Kathjuri, Koyakhai, Kushabhadra, Bhargavi and Daya. The plain is rising gently northwestward to the foot of Eastern Ghats and has gentle slope towards south and east with no variation in relief as it is quite evident from the drainage pattern. This is the most fertile part of the Region with rich alluvial soil suitable for intensive cultivation. Moreover, due to the presence of extensive network of canal irrigation system and well coordinated embankment system along the main rivers to prevent flooding, pressure on agricultural land has increased manifold by way of double cropping and even triple cropping. Population density and concentration of settlements are relatively higher in this part of the Region. Settlement pattern in the area is generally linear located along the roads and river levees avoiding flood prone areas. The important urban centres located in this plain are Cuttack and Bhubaneswar.

This plain is prone to flooding during monsoon seasons. The construction of the Hirakud Dam has reduced the incidence of flood. However, continuous silting up of all the river beds and formation of sand dunes on the river estuary, due to northwest drift of littoral sand, also cause flood in some areas during monsoon when sea level is high due to tidal wave.

HILLY TRACT

The hilly tract lying in Khurda, Jatani, Barang and western part of the Bhubaneswar block, is confined to the western part of the Region bounded by the Daya River on the east. The hilly tract is an extension of the southern part of the Eastern Ghats. Isolated hills rising abruptly from the plains are the common features of this area. Average altitude of this area is about 100 metres above mean sea level. However, the Barnai hill, located within the Barnai Reserved Forest between Khurda and Jatani towns, has an altitude of 305 metres. The area is drained by Daya River and its innumerable tributaries. Khurda and Jatani are the two important urban centres located in this area, besides a number of villages all along the transportation network. The National Highway No. 5 and the Southeastern Railway main line passing through this area connect Khurda and Jatani respectively. This part of this Region, being located well above the flood level and with good connectivity, is ideal for future industrial development.

4.1.2 DRAINAGE

The Region is drained by Mahanadi and other branch rivers, namely, Kathjori, Koyakhai, Surya, Bhargavi, Khushabhadra and Daya. The river Mahanadi flows from west to east through Cuttack Sadar while other branch rivers are flowing in southerly direction following meandering courses. The Koyakhai, the branch river of Kathjori, after flowing for 19 km in southerly direction is divided into two branches i.e. Bhargavi and Kushabhadra. The Kushabhadra flows towards south east and meets Bhargavi towards south for 10 km before it is again divided into two branches. The river Daya is the branch of Bhargavi and both are flowing south and south easterly directions into the Chilka Lake.

All these rivers are flood prone during monsoon seasons due to the silting up of river beds. They remain dry in other seasons. To control the floods embankments have been constructed all along the rivers.

A large number of tanks used for irrigation and fishing purposes can be seen all over the alluvial plain. Besides, there is a wide network of canal which provides irrigation.

4.1.3 CLIMATE

The Region experiences a tropical monsoon climate with a short dry winter season characterized by oppressive summer, high humidity, low daily range of temperature and moderate annual rainfall. The narrow strip of coast experiences tropical climate with some local variations. The winter season is from December to February followed by hot summer season from March to May. The period from June to September is the monsoon while October and November constitute monsoon transition period.

The temperature continuously increases from the end of February to May with the maximum of 40° C at Bhubaneswar and 39° C at Cuttack. With the arrival of monsoon temperature drops. The coldest month is January with 17°C at Cuttack and 15° C at Bhubaneswar.

The average annual rainfall is 1488 mm. The monsoon arrives in the first and second weeks of June and withdraws in the first week of October. About 74 per cent of annual rainfall is received during monsoon months i.e. from June to September; July being the wettest month.

Relative humidity all over the Region is generally high throughout the year. But it decreases from the shore to the interiors. Predominant wind direction is from north east during October to January and from south west during summer monsoon.

Depressions and cyclonic storms originating in the Bay of Bengal in the pre-monsoon and post-monsoon months are common phenomena in the Region. The cyclone, accompanied with heavy rain and high velocity winds, causes widespread destruction in the areas near the coast. However, the creation of large scale plantation along the sea coast has checked the impact to a greater extent.

4.1.4 SOIL

The Region has alluvial, red, black and lateritic soils. Alluvial soils are mostly found in river valleys, deltaic tracts and along the coastal area. Their composition and texture vary with the geological nature of the catchment area. These soils are riverine alluvial type. Riverine alluvial is found along the river valleys of Koyakhai, Serua, Bhargavi, Kushabhadra and Daya particularly in the Cuttack Sadar, Balianta and the western part of Bhubaneswar block along the Bhargavi river plain. These soils are exceptionally fertile and suitable for paddy cultivations. The degree of fertility decreases gradually according to the distance from the river.

Lateritic soils are found in the northern and western part of the Region particularly in Tangi-Choudwar, Barang, Khurda and Jatani blocks. It is not considered good for agriculture as it is poor in plant nutrients, but it is good for construction purposes, particularly for heavy types of construction.

4.1.5 LANDUSE

Agriculture is the predominant user of land in the Region, occupying about 70 percent the reporting area. Maximum concentration of arable land (over 80%) is in Balianta and Balipatna blocks, which have excellent irrigation facilities due to the presence of extensive network of irrigation canals and tanks. In Cuttack block, which is being drained by the Mahanadi, Kathjuri and Serua rivers, agricultural land is mainly concentrated in the southern part of the block within the river islands. The area between Mahanadi River and Kathjuri River of Cuttack block being urban is heavily built-up. The northern part of the Choudwar block being forested and hilly, arable land is confined in the southern part along the Birupa River. The lower part of Tangi-Choudwar is also built-up due to concentration of industries. In Bhubaneswar block agricultural land is concentrated along the Bhargavi River and rest of the area being urban is heavily built up. In Barang, Jatani, and Khurda blocks, being forested and poor soil condition, agricultural land is confined to few patches along the rivers and streams. Apart from these, a large number of betel gardens can be found in Balipatna all along the Kushabhadra river and irrigation canals.

The study of the satellite data for this Region shows that about 23.5 per cent area of the Region is under forests. Dense forests cover about 11.2 per cent and scrubland covers about 12.2 per cent of the total area of the region. The blocks which are forested are Jatani, Khurda and Choudwar. Northern part of Jatani block has the maximum concentration of dense forests. In rest of the area, forest covers are in patches on isolated hillocks amidst cashew plantation and open scrubs. Much of the forest covers in Khurda and southern part of Jatani have been depleted due to quarrying activities. Immediate attention is required to bring these areas under forest with proper soil conservation measures.

Total built-up land covering 126.12 sqkm constitutes about 6.1 per cent of the total area of the region. Maximum concentration of built-up area is in Cuttack and Bhubaneswar. Small patches of built-up area are found in Khurda and Jatani blocks.

Another major category of waste land, as identified from the imageries, is the barren rocky/ stony waste areas in Khurda and southern part of Jatani blocks which is suspected to have been caused by the widespread quarrying activities. Unless immediate action is taken to control this activity and attempts are made to conserve these affected areas by afforestation or plantation more and more areas are likely to become barren and ravenous which will have serious environmental implications like silting up of rivers beds and making more areas prone to flooding.

Table4.1 LANDUSE

S.NO	LANDUSE		AREA (SQ.KM)	PERCENTAGE
1.	Built-up land		126.12	6.10
2.	Agricultural land	Rabi	208.82	10.10
		Kharif	1205.32	58.30
3.	Forests	Dense	231.56	11.20
		Scrubland	254.30	12.30
4.	Water Bodies	River/Stream/Canal	28.53	1.38
		Lake/Reservoir/Tank	12.40	0.60
5.	Waste Land	Swampy/Sandy	0.41	0.02
	Total		**2067.49**	**100.00**

Source: Directorate of Economics and Statistics, Orissa, Bhubaneswar, 2001

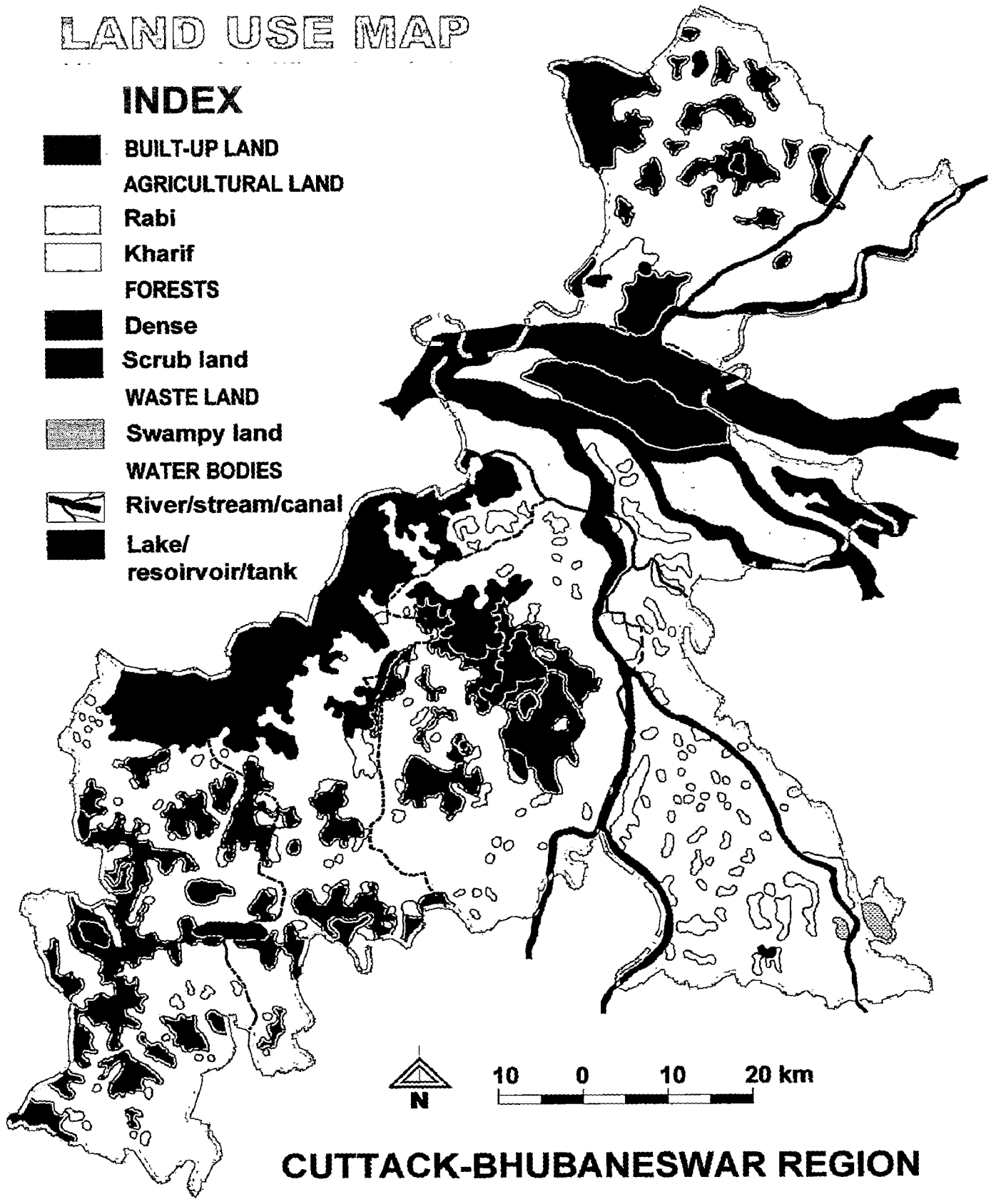


FIG 4.2 LANDUSE MAP OF CUTTACK-BHUBANESWAR REGION

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4.2 DEMOGRAPHIC CHARACHTERISTICS

4.2.1 POPULATION GROWTH TREND

The population of the region has grown from 17.01 lakh in 1991 to 22.04 lakh in 2001; a net addition of 5.03 lakh. The growth rate of population in the region during the decade 1991-2001 was 29.62 percent compared to that of the state's growth rate of 16.25 percent during the same period. The blocks which have recorded the growth rate above the regions average are Bhubaneswar (49.25 %) and Cuttack-Sadar (30.88%). The growth rate of Tangi-choudwar is 20.31%. The least growth rate is in the Balianta block (5.96%). **[Fig-2.1]**

Besides Bhubaneswar, Cuttack Sadar and Tangi-choudwar, Khurda block has recorded a higher growth rate compared to that of the state's growth rate of 16.25 percent during 1991 to 2001.

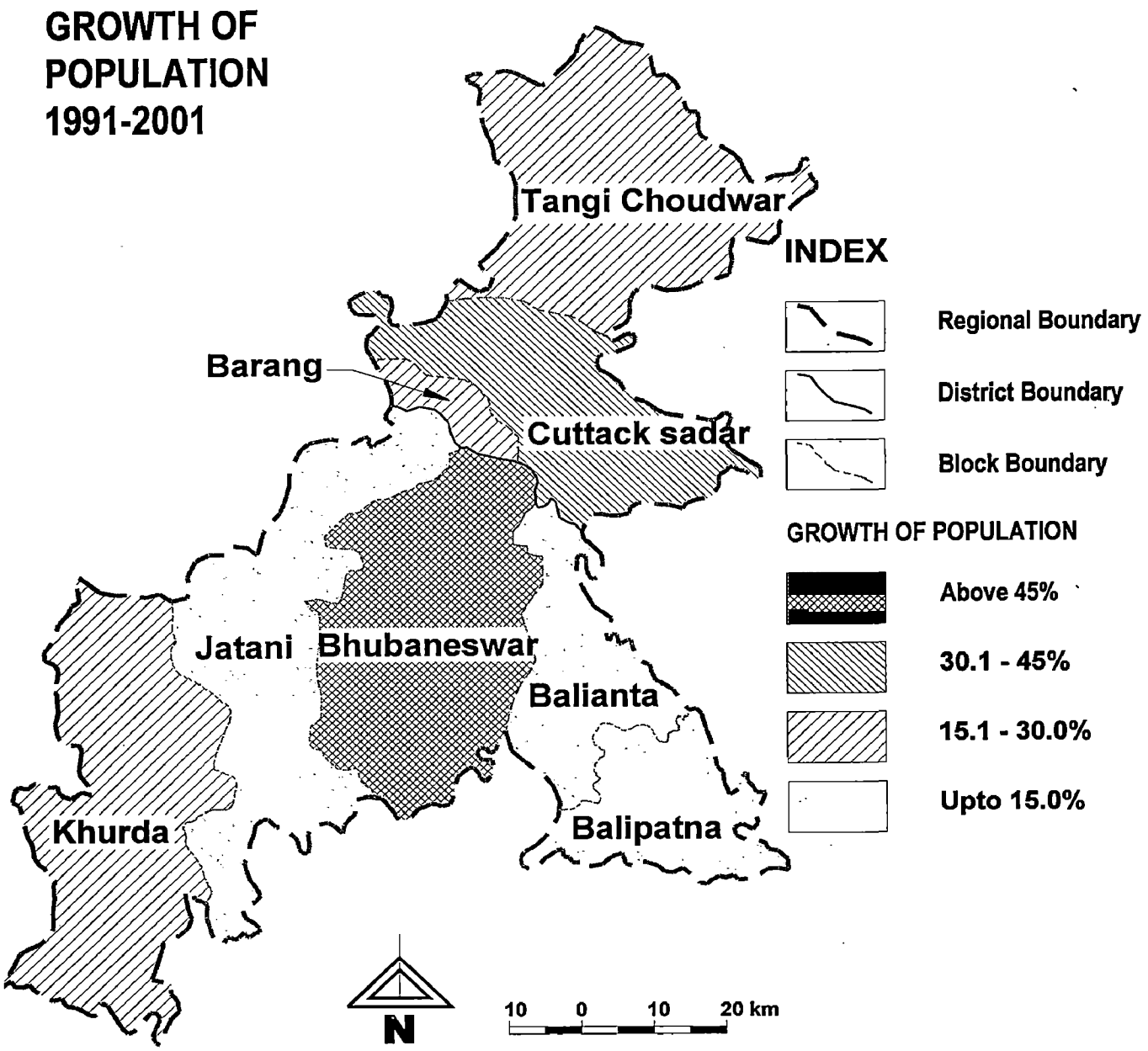
Table 4.2 POPULATION GROWTH RATE FOR THE DECADE FROM 1991 TO 2001

S.NO	DEVELOPMENT BLOCK	POPULATION (1991)	POPULATION (2001)	GROWTH	GROWTH RATE (1991-2001)
1	Cuttack-Sadar	508,363	665,363	157,000	30.88 %
2	Tangi-Choudwar	165,841	199,528	33,687	20.31 %
3	Barang	71,765	84,042	12,277	17.10 %
4	Khurda	135,681	158,030	22,349	16.47 %
5	Bhubaneswar	504,677	753,239	248,562	49.25 %
6	Jatni	124,986	137,318	12,332	09.86 %
7	Balipatna	92,394	104,197	11,803	12.77 %
8	Balianta	97,418	103,227	5,809	05.96 %
	Region Total	**1,701,125**	**2,204,944**	**503,819**	**29.62 %**
	State Total	**31,659,736**	**36,804,660**	**5,144,924**	**16.25 %**

Source: Primary Census Abstract, Census of India 1991, 2001

4.2.2 SPATIAL DISTRIBUTION

Of the 8 blocks, the largest block is Bhubaneswar with nearly 7.5 lakh population which accounted for about 34.16% of the region's population followed by Cuttack-Sadar with about 6.6 lakh (30.17% of the region's population) and Tangi-choudwar 2.0 lakh (9.05% of the -



CUTTACK-BHUBANESWAR REGION

Fig 4.1 MAP SHOWING POPULATION GROWTH RATE IN THE REGION

-region's population). These three blocks together account for 73.38% of the total population of the region.

The region has a higher percentage of urban population (62.74%) compared to the rural population (37.26%), whereas in the state, urban population accounts for 17.43% and rural population 82.57% of the total population of the state. The region is most urbanized in whole of the state.

Balipatna block is completely rural (100%) followed by Barang (89.26%),Balianta (87.69%) and Khurda (75.3%). Bhubaneswar is the most urbanized having 87.19% of urban population followed by Cuttack which has 80.43% of urban population. Jatni and Tangi-choudwar have almost equal share of rural and urban population.

Table 4.3 DISTRIBUTION OF POPULATION 2001

S.NO	DEVELOPMENT BLOCK	TOTAL POPULATION (2001)	RURAL POPULATION (2001)	% OF TOTAL	URBAN POPULATION (2001)	% OF TOTAL
1	Cuttack-Sadar	665,363	130,224	19.57	535,139	80.43
2	Tangi-Choudwar	199,528	126,665	63.48	72,863	36.52
3	Barang	84,042	75,017	89.26	9,025	10.74
4	Khurda	158,030	118,996	75.30	39,034	24.70
5	Bhubaneswar	753,239	96,495	12.81	656,744	87.19
6	Jatni	137,318	79,491	57.89	57,827	42.11
7	Balipatna	104,197	104,197	100.00	0	0.00
8	Balianta	103,227	90,524	87.69	12,703	12.31
1	**Region Total**	**2,204,944**	**821,609**	**37.26**	**1,383,335**	**62.74**
	State Total	**31,659,736**	**26,142,498**	**82.57**	**5,517,238**	**17.43**

Source: District Statistical Handbook, Directorate of Economics and Statistics, Orissa, Bhubaneswar, 2001

4.2.3 DENSITY PATTERN

The overall density in the region is 1066 persons per sq.km (2001) as compared to 203 persons per sq.km. for the state as a whole. The higher density in the region is mainly because of historical growth, fertile agricultural land, and location of big cities, higher concentration of non-agricultural activities like industry, trade and commerce, services and other economic activities. There is, however, a great deal of variation in density of

population within the region. The highest density is observed in Cuttack Sadar with 2534 persons per sq.km. followed by Bhubaneswar (1612). Low density of population in the region has been observed in Khurda (482) and Tangi-Choudwar (559). The developed blocks of Cuttack and Bhubaneswar, due to better infrastructure and higher level of development, have attracted large number of people from the surrounding areas. Scarcity of good agricultural land, presence of floodable area and poor quality of soil in many of the blocks has resulted in low density in the remaining blocks. Migration from these blocks to Cuttack and Bhubaneswar for better prospects may also be a reason for low density in these blocks and higher density in Cuttack and Bhubaneswar.

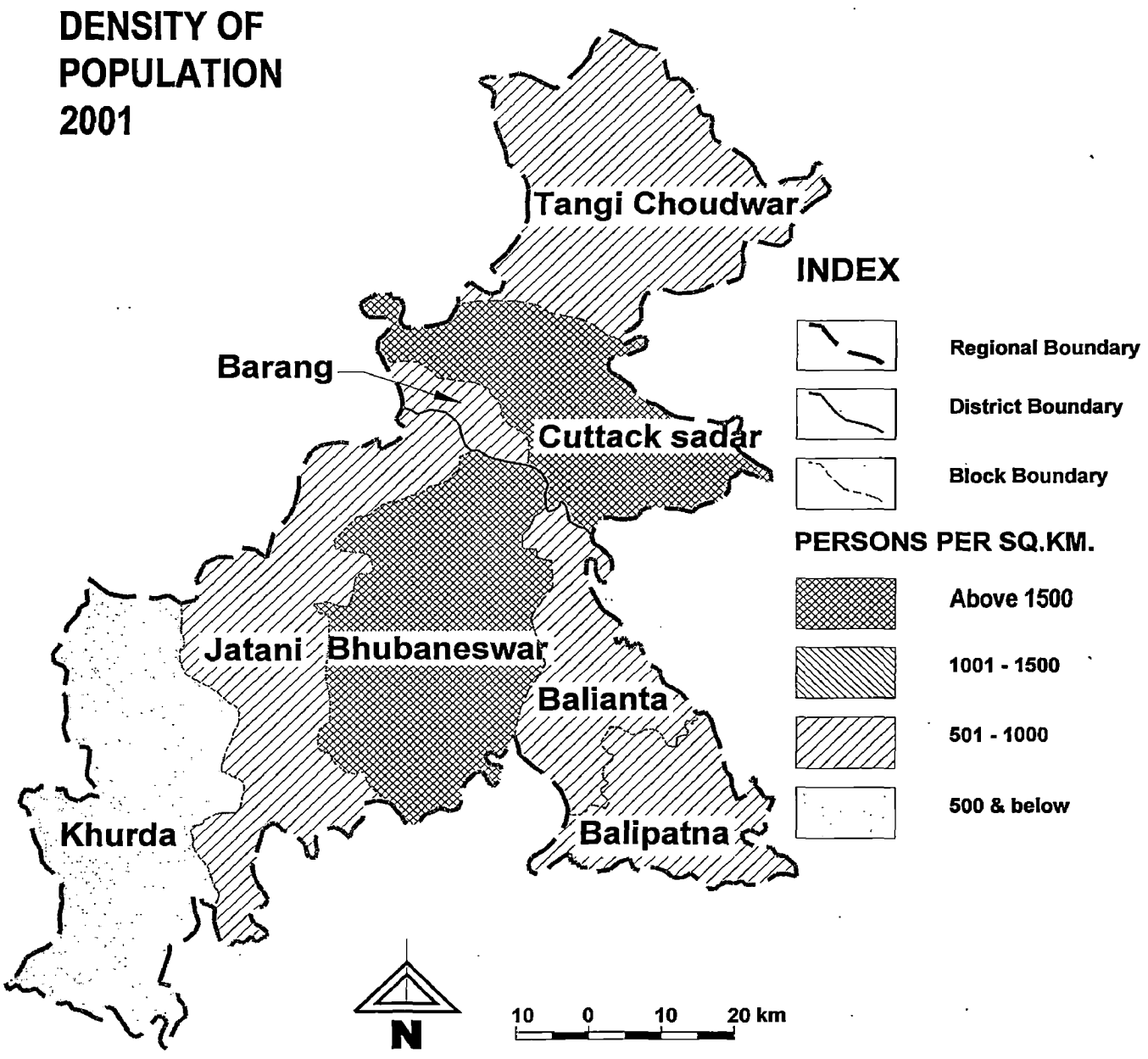
Table 4.4 DENSITY OF POPULATION 2001

S.NO	DEVELOPMENT BLOCK	DISTRICT	AREA (SQ.KM)	POPULATION (2001)	DENSITY
1	Cuttack-Sadar	Cuttack	262.56	665,363	2534
2	Tangi-Choudwar	Cuttack	356.8	199,528	559
3	Barang	Cuttack	125.40	84,042	670
4	Khurda	Khurda	327.60	158,030	482
5	Bhubaneswar	Khurda	467.17	753,239	1612
6	Jatni	Khurda	236.95	137,318	580
7	Balipatna	Khurda	140.80	104,197	740
8	Balianta	Khurda	150.21	103,227	687
	Region Total		**2067.49**	**2,204,944**	**1066**
	Orissa State		**155707.0**	**36,804,660**	**203**

Source: Primary Census Abstract, Census of India, 2001

4.2.4 SEX RATIO

Among the total population of 22.04 lakh in 2001, 11.71 lakh were males and 10.33 lakh were female. The overall sex-ratio in the region as per 2001 census was 882 females per 1000 males compared to the state figure of 972. The Bhubaneswar block has the lowest sex-ratio of 816 followed by Cuttack sadar (887), Tangi-Choudwar(922) and Balipatna (937) in ascending order.The average sex-ratio in the remaining blocks is 956 which is very close to the corresponding state figure. Low sex-ratio in these regions may be due to higher concentration of industrial units, mainly in Bhubaneswar, Cuttack and Tangi-Choudwar blocks which attract a large number of labourers from within and outside the districts and it is



CUTTACK-BHUBANESWAR REGION

Fig 4.2 MAP SHOWING DENSITY OF POPULATION IN THE REGION

likely that large number of male workers migrate particularly from the neighbouring blocks to these industrial centres in search of employment. The blocks which have high density, high degree of urbanization, agricultural prosperity and high population growth rate also attract more immigrants from within and outside the districts. Cuttack and Bhubaneswar may be included in such category.

Table 4.5 SEX-RATIO, 2001

S.NO	DEVELOPMENT BLOCK	POPULATION			SEX-RATIO (females per thousand male)
		MALE	FEMALE	TOTAL	
1	Cuttack-Sadar	352,642	312,721	665,363	887
2	Tangi-Choudwar	103,809	95,719	199,528	922
3	Barang	42,681	41,361	84,042	969
4	Khurda	80,824	77,206	158,030	955
5	Bhubaneswar	414,762	338,477	753,239	816
6	Jatni	70,604	66,714	137,318	945
7	Balipatna	53,783	50,414	104,197	937
8	Balianta	52,784	50,443	103,227	956
	Region Total	**1,171,889**	**1,033,055**	**2,204,944**	**882**
	Orissa State	**18,660,570**	**18,144,090**	**36,804,660**	**972**

Source: District Statistical Handbook, Directorate of Economics and Statistics, Orissa, Bhubaneswar, 2001

4.2.5 LITERACY

The literacy rate of the region in 2001 was 78.3 % compared to the corresponding state figure of 68.3%. The highest literacy rate is observed in Bhubaneswar (87.5%) followed by Jatni (81.4%) and Cuttack (79.9%). The lowest literacy rate is observed in Baranga block (72.9%).

In the rural part of the region literacy rate is lower than that of the urban area. The male literacy is higher than the female literacy.

The region has shown a remarkable improvement in literacy rates compared to the figures in 1991. The literacy rate of the region in 2001 was 78.3 % compared to the corresponding figure of 60.3% in 1991. The male literacy rate in 2001 was 87.1% and female literacy rate was 68.9% whereas in 1991 the corresponding figures were 69.5% and 50.2% respectively.

Table 4.6 LITERACY RATES IN PERCENTAGE, 2001

S.NO	DEVELOPMENT BLOCK	TOTAL	MALE LITERACY	FEMALE LITERACY
1	Cuttack-Sadar	79.9	87.3	72.0
2	Tangi-Choudwar	75.2	84.3	65.4
3	Barang	72.9	83.9	61.4
4	Khorda	78.7	87.7	69.3
5	Bhubaneswar	87.5	91.6	82.4
6	Jatni	81.4	89.3	73.1
7	Balipatna	77.7	88.4	66.4
8	Balianta	73.0	84.1	61.4
	Region Total	**78.3**	**87.1**	**68.9**
	Orissa State	**63.8**	**75.4**	**50.5**

Source: Primary Census Abstract, Census of India, 2001

4.2.6 LEVELS OF URBANIZATION

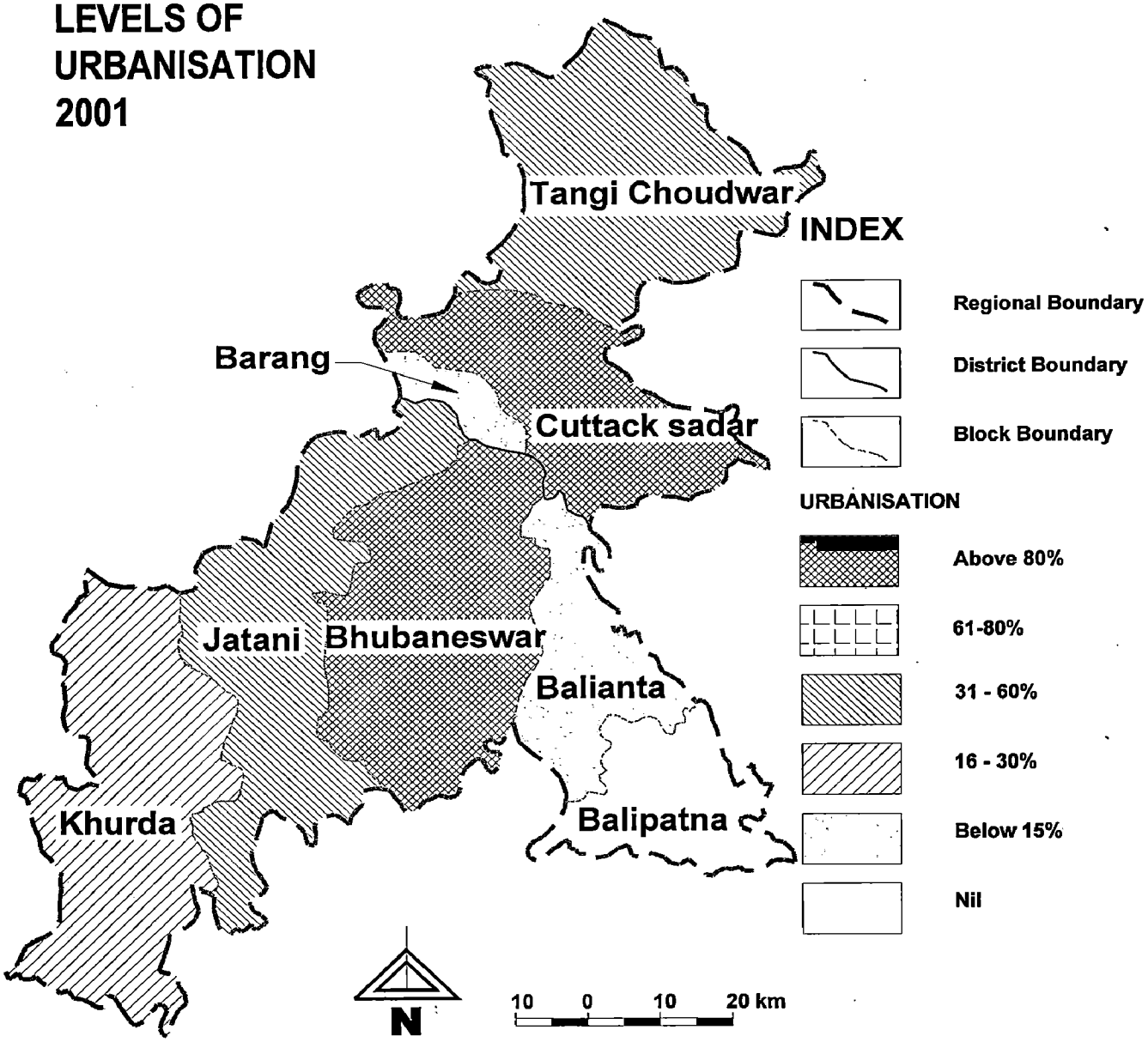
The region has a very high level of urbanization of 62.74% in 2001 as compared to 17.43% for the state. Bhubaneswar has the highest (87.19%) followed by Cuttack sadar (80.43%), Jatni (42.11%), Tangi-choudwar (36.52%) and Khurda (24.70%). Baranga and Balianta have low level of urbanization, below 15%.

Rapid urbanization has taken place in the blocks Tangi-Choudwar and Balianta compared to 1991 figures.

Table 4.7 LEVELS OF URBANISATION

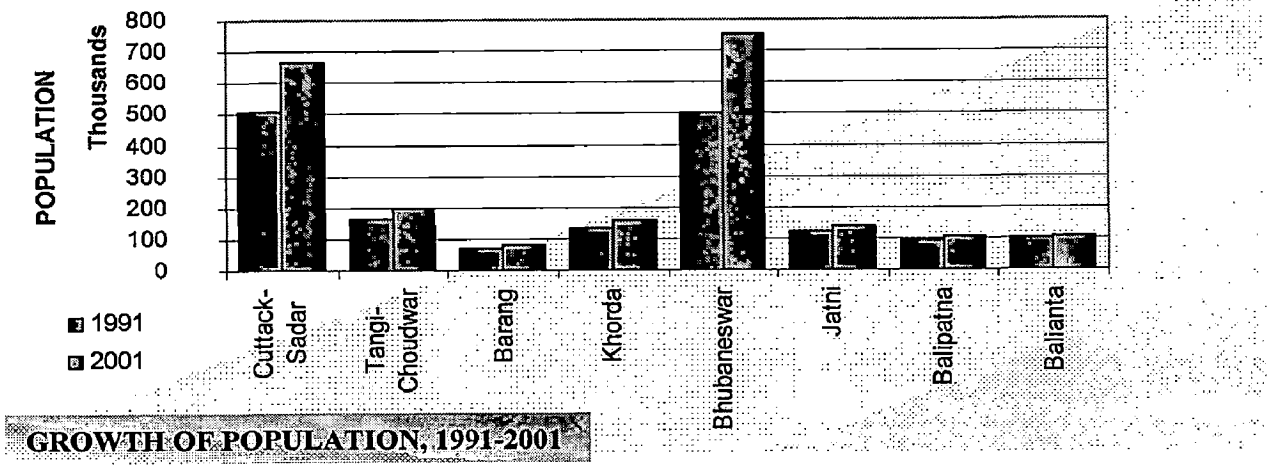
S.NO	DEVELOPMENT BLOCK	URBAN POPULATION (1991)	% OF URBAN POPULATION (1991)	URBAN POPULATION (2001)	% OF URBAN POPULATION (2001)
1	Cuttack-Sadar	408,869	80.42	535,139	80.43
2	Tangi-Choudwar	42,842	25.83	72,863	36.52
3	Barang	0	0	9,025	10.74
4	Khurda	30,591	22.55	39,034	24.70
5	Bhubaneswar	411,452	81.55	656,744	87.19
6	Jatni	50,116	40.10	57,827	42.11
7	Balipatna	0	0.00	0	0.00
8	Balianta	0	0.00	12,703	12.31
	Region Total	**943,870**	**55.48**	**1,383,335**	**62.74**
	State Total	**4,232,455**	**13.43**	**5,517,238**	**17.43**

Source: Primary Census Abstract, Census of India, 1991, 2001

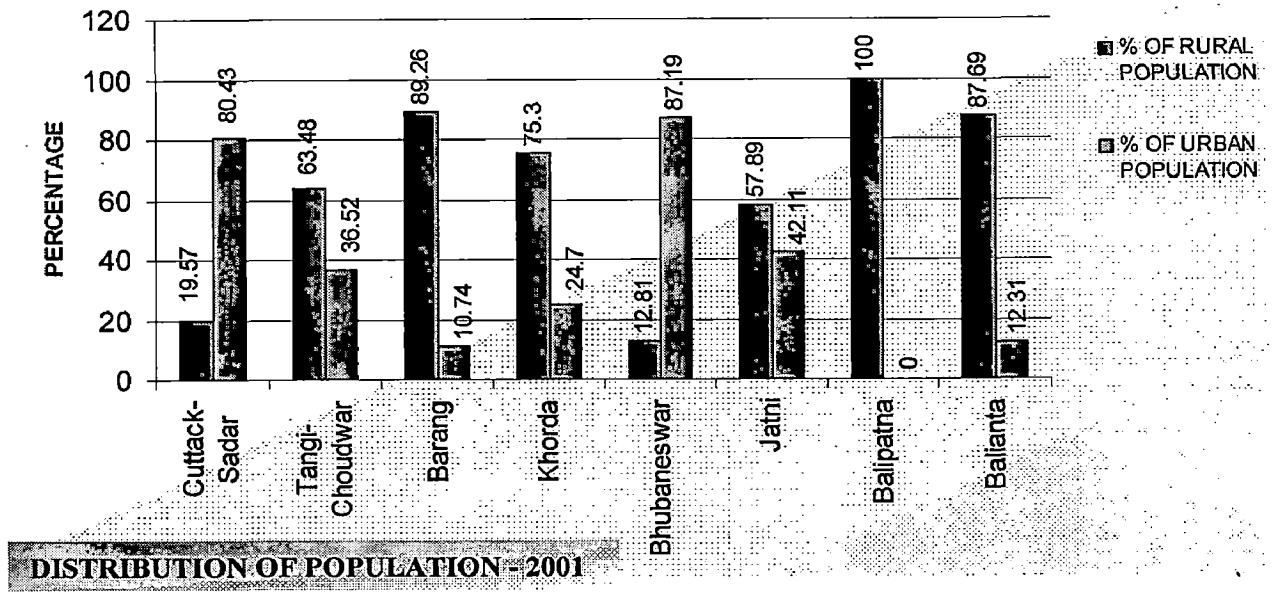


CUTTACK-BHUBANESWAR REGION

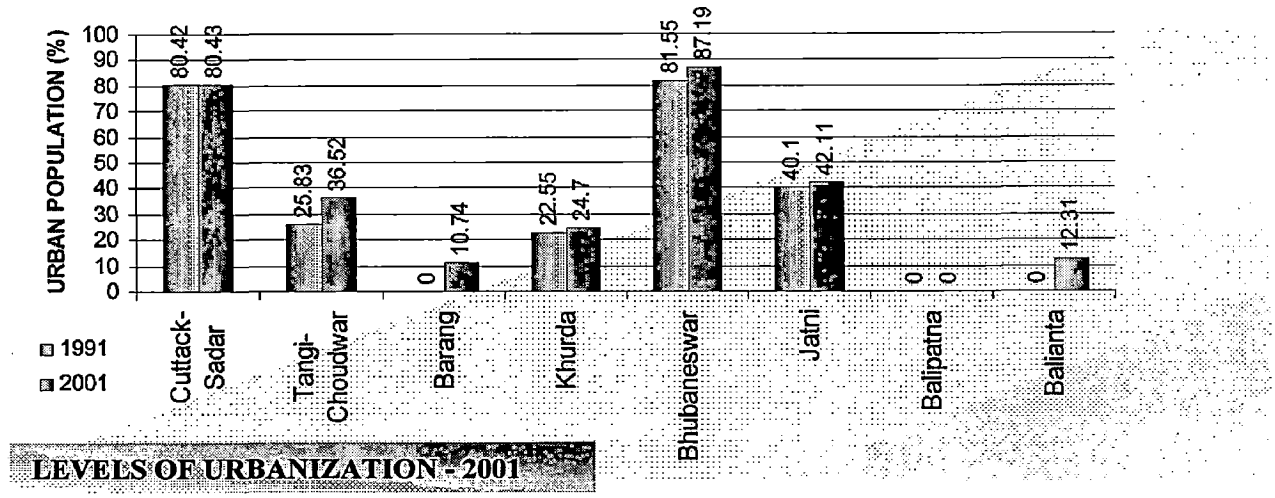
Fig 4.3 MAP SHOWING LEVELS OF URBANISATION IN THE REGION



GROWTH OF POPULATION, 1991-2001

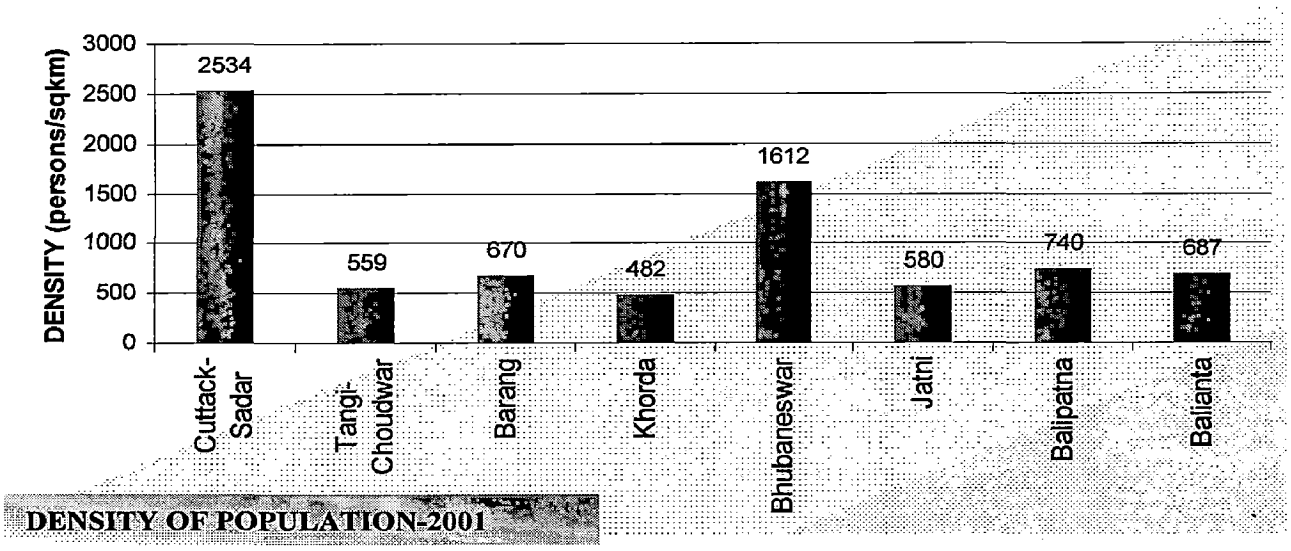


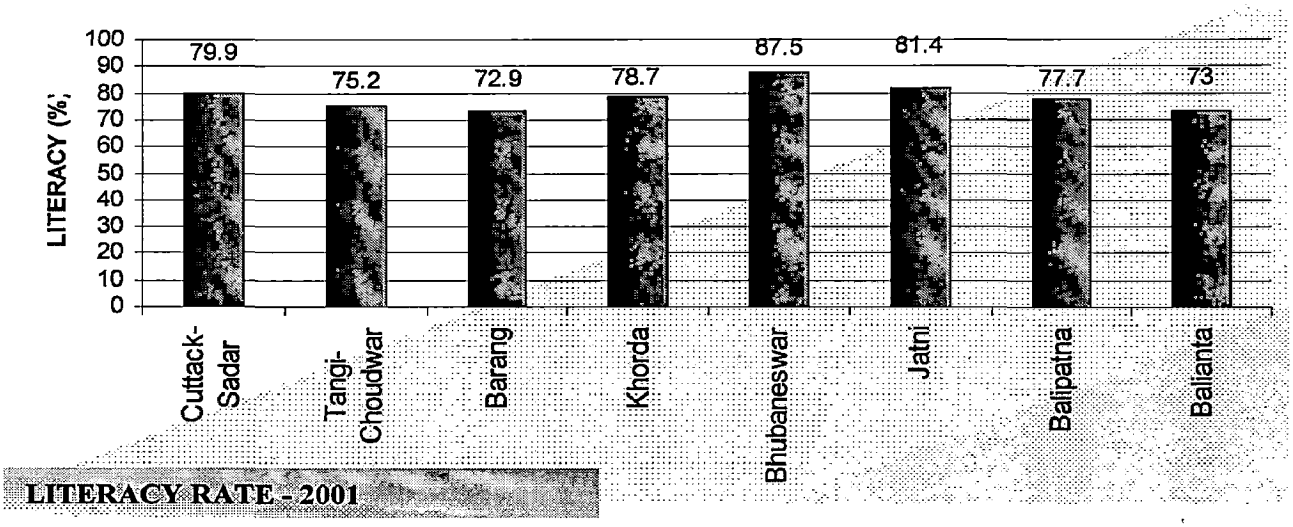
DISTRIBUTION OF POPULATION - 2001



LEVELS OF URBANIZATION - 2001

FIG-4. CHARTS SHOWING BLOCKWISE GROWTH, DISTRIBUTION OF POPULATION AND LEVELS OF URBANIZATION





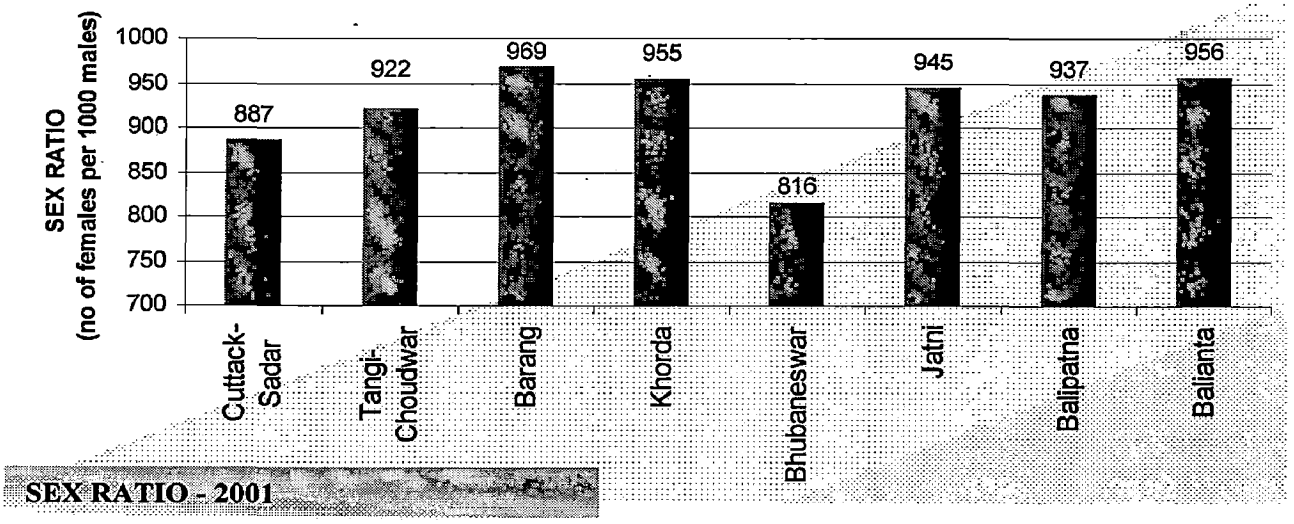


FIG-4. CHARTS SHOWING BLOCKWISE DENSITY OF POPULATION, LITERACY RATE AND SEX RATIO

4.2.7 WORKER PARTICIPATION RATIO

The total main workers in the region are 5.68 Lakh (2001). Out of this 5.02 Lakh are males and 0.66 Lakh are females. The proportion of total main workers to the total population of the region is 25.78% which is slightly lower than the state average of 30.28%. The low ratio in the region may be due to the higher level of urbanization in the region and low female participation ratio of 6.39% compared to male participation ratio of 42.89%. Moreover, there is no mining and forest activities in the region, where substantial male and female workers could be engaged.

Table 2.8 WORKER PARTICIPATION RATIO, 2001

S.NO	DEVELOPMENT BLOCK	TOTAL POPULATION (2001)	TOTAL MAIN WORKERS (2001)	% TO TOTAL POPLN.	% OF MALE WORKERS TO MALE POPLN.	% OF FEMALE WORKERS TO FEMALE POPLN.
1	Cuttack-Sadar	665,363	193,031	29.01	48.09	7.61
2	Tangi-Choudwar	199,528	46,199	23.15	41.00	8.79
3	Barang	84,042	10,459	12.44	21.40	3.20
4	Khurda	158,030	37,663	23.83	42.32	4.47
5	Bhubaneswar	753,239	204,702	27.17	43.10	7.66
6	Jatni	137,318	26,076	18.98	33.84	3.26
7	Balipatna	104,197	29,697	28.50	33.73	4.85
8	Balianta	103,227	20,591	19.94	50.00	6.54
	Region Total	**2,204,944**	**568,388**	**25.78**	**42.89**	**6.39**
	State Total	**31,659,736**	**9,589,269**	**30.28**	**42.89**	**8.73**

Source: Primary Census Abstract, Census of India, 2001

4.2.8 COMPOSITION OF WORKERS

The share of primary sector with 47.85% of the total workers is the highest in the region followed by the tertiary sector with 37.56% of the total workers and secondary sector with 14.56% of the total workers. Though agriculture is still the mainstay of the people of the region, the percentage of total workers engaged in primary sector is much less when compared with the state figure of 73.06 %. Comparatively low percentage of workers engaged in primary sector is due to dominance of tertiary sector and absence of mining and forestry activities in the region.

Among the 8 blocks of the region, Balipatna (73.36%) and Balianta (62.34%) are highly primary sector based blocks. Cuttack and Bhubaneswar have the highest degree of tertiary activities with 65.98% and 63.96% respectively.

Tangi-Choudwar with 20.76% has the highest percentage of workers engaged in secondary sector followed by Cuttack with 19.43%.

Table 4.9 COMPOSITION OF WORKERS SECTORWISE, 2001

S.NO	DEVELOPMENT BLOCK	TOTAL MAIN WORKERS (2001)	% TO TOTAL MAIN WORKERS		
			PRIMARY SECTOR	SECONDARY SECTOR	TERTIARY SECTOR
1	Cuttack-Sadar	193,031	14.49	19.43	65.98
2	Tangi-Choudwar	46,199	53.15	20.76	26.10
3	Barang	10,459	55.67	12.00	32.33
4	Khurda	37,663	58.95	13.59	27.46
5	Bhubaneswar	204,702	19.67	16.37	63.96
6	Jatni	26,076	45.22	9.50	45.27
7	Balipatna	29,697	73.36	7.52	19.12
8	Balianta	20,591	62.34	17.35	20.31
	Region Total	**568,388**	**47.85**	**14.56**	**37.56**
	State Total	**9,589,269**	**73.06**	**3.46**	**23.46**

Source: Primary Census Abstract, Census of India, 2001

The three blocks namely, Jatni, Bhubaneswar and Cuttack-Sadar are much less dependent on agriculture and more on non-agricultural occupations. Cuttack, the commercial capital of the state, and Bhubaneswar, the capital city, are more dependent on industry, trade and commerce, transport, storage and other services. The four blocks Balianta, Khurda, Barang and Tangi-Choudwar depend both on agricultural as well as non-agricultural occupations. Balianta block is excessively reliant on agriculture

ZONE WITH WORKERS BELOW 50% ENGAGED IN AGRICULTURE	ZONE WITH WORKERS BETWEEN 50 -70% ENGAGED IN AGRICULTURE	ZONE WITH WORKERS ABOVE 70% ENGAGED IN AGRICULTURE
Jatani	Balianta	Balipatna
Bhubaneswar	Khurda	
Cuttack-Sadar	Barang	
	Tangi-Choudwar	

4.2.9 POPULATION PROJECTION

Planning for any region is for the population of the region and, therefore, population projections are pre-requisite for arriving at any planning strategy. The population of Cuttack-Bhubaneswar region has been projected keeping in view an accelerated growth for the next decades due to composite effect of urbanization, improved living conditions and improved literacy rates etc.

Geometrical method of population projection will be used to calculate the projected population for 2011 and 2021. The following procedure is followed in geometric projection:

$$Pn = Po\ (1+r)^n$$

Where: Pn = Projected Population 'n' years hence.

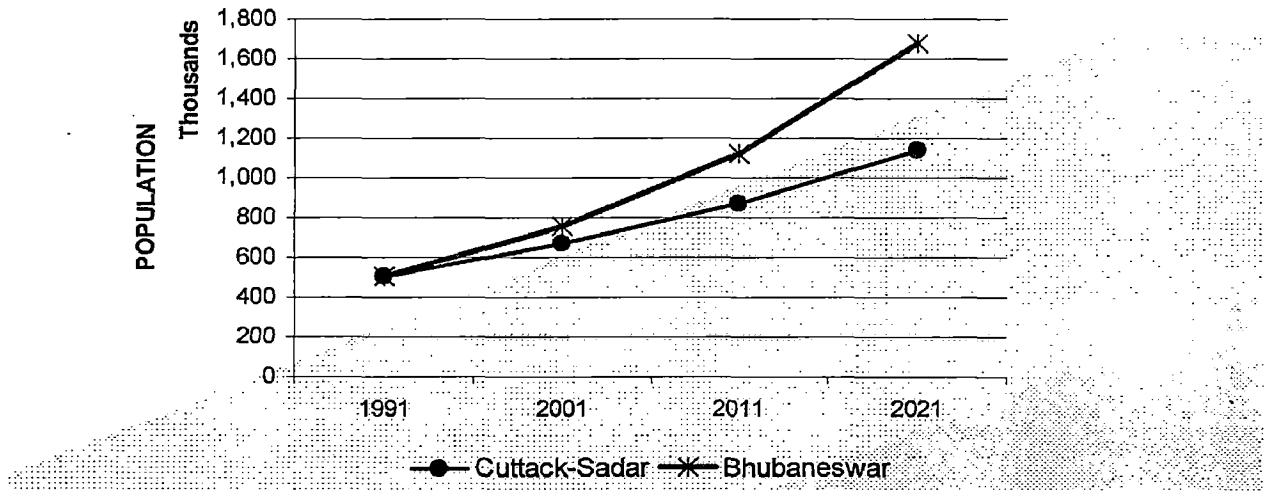
Po = Present Population

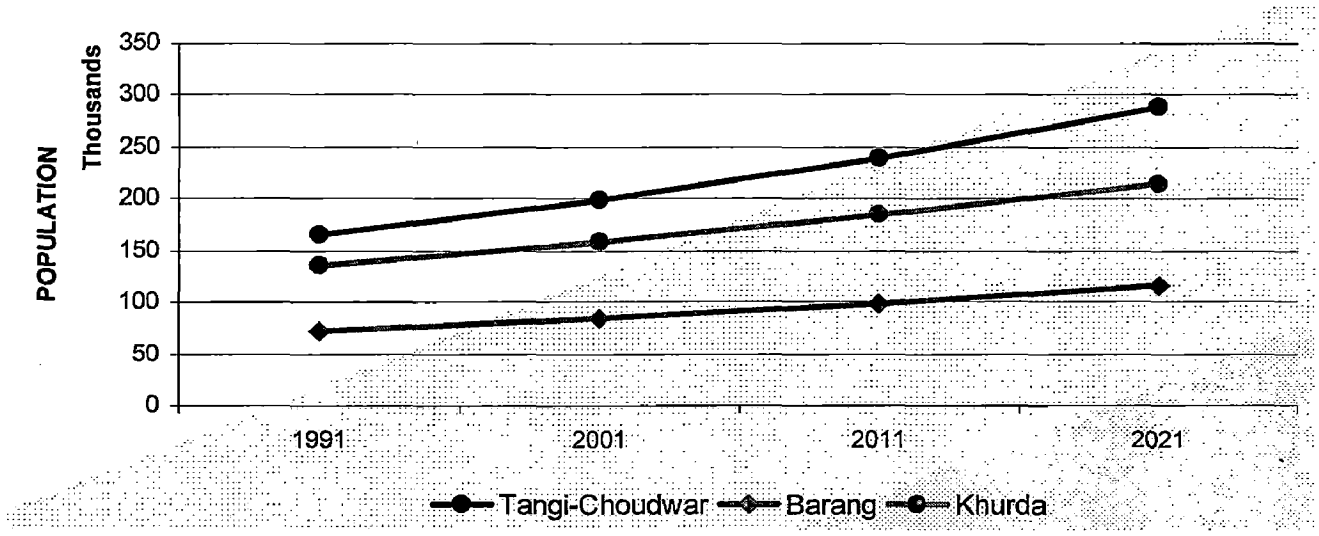
r = Growth Rate

According to G.P. the population growth rates of different blocks varies from 1.05 to 1.5. The projected population of the region in 2011 is 2,895,363 and in 2021 is 3,850,316. Since Bhubaneswar has shown the highest growth rate of 1.5 its population in 2011 is projected as 1,124,222 and in 2021 it is projected as 1,677,920.

Table 4.10 POPULATION PROJECTION FOR 2011 AND 2021

S.NO	DEVELOPMENT BLOCK	POPULATION (1991)	POPULATION (2001)	POPULATION (2011)	POPULATION (2021)
1	Cuttack-Sadar	508,363	665,363	870,850	1,139,768
2	Tangi-Choudwar	165,841	199,528	240,057	288,820
3	Barang	71,765	84,042	98,419	115,256
4	Khurda	135,681	158,030	184,060	214,378
5	Bhubaneswar	504,677	753,239	1,124,222	1,677,920
6	Jatni	124,986	137,318	150,866	165,752
7	Balipatna	92,394	104,197	117,507	132,518
8	Balianta	97,418	103,227	109,382	115,904
	Region Total	1,701,125	2,204,944	2,895,363	3,850,316
	State Total	31,659,736	36,804,660	42,785,669	49,738,633





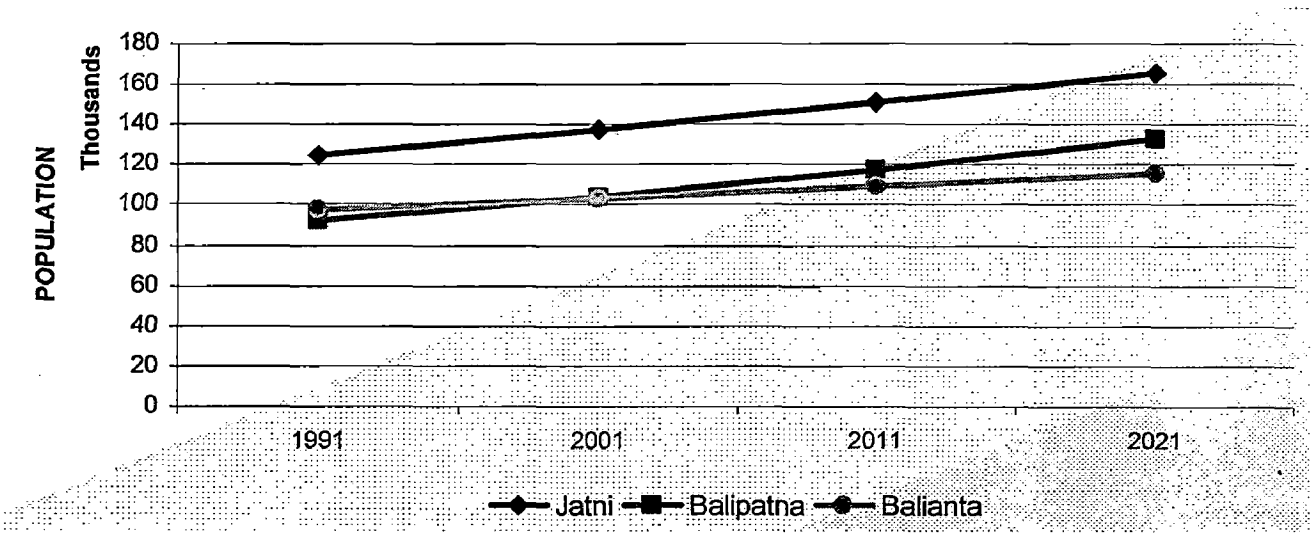


FIG-4.4 GRAPHS SHOWING BLOCKWISE POPULATION PROJECTION FOR 2011 AND 2021

4.3 ECONOMIC BASE OF THE REGION

4.3.1 AGRICULTURE

Agriculture is the most important sector of the economy of the Region and is still considered as the mainstay of the people. About 63 per cent of the main workers in the Region are engaged in agriculture alone, as cultivators (31%) and agricultural labourers (32%). Agriculture is also the greatest user of land (68%) in the Region. Balipatna is an important agricultural block. Above 70 per cent of the total workers in this block are engaged in agriculture alone.

CROPPING PATTERN AND PRODUCTION OF MAJOR CROPS

The major crops grown in the Region are paddy, pulses, oil seeds, fibre (jute, mesta) and vegetables. Block-wise area under major kharif crops and their production is given in Table 4.11. It may be seen from the table that out of a total area of 97,099 hectares under all major crops, paddy alone accounts for about 84 per cent and out of a total production of 2,34,456 tonnes of all crops in the Region, paddy accounts for 58 per cent. It may be seen from the table that in Balipatna block, area under paddy is 93.2 per cent of the total area under all major crops in this block. In other blocks it varies from 75 per cent to 88 per cent. Similarly, production of paddy in Balipatna block is 73.4 per cent of total production of all crops in this block. In rest of the blocks, the production of paddy ranges from 43 per cent to 69 per cent of the total production of all crops.

The second important crop is vegetables which account for 10.9 per cent of the total area under all crops and more than 39.8 per cent of total production of all crops. Potato and onion are the major vegetable crops which are grown in both the kharif and rabi seasons. In all blocks, area under vegetables ranges from 10 per cent to 14.62 per cent of the total area under crops while production of vegetables ranges from 51.33 percent to 56.76 per cent of their total agricultural production. The area under pulses and all other non-cereal kharif crops taken together is less than 2 per cent of the cultivated area throughout the Region and production of these crops is less than 1 per cent of the total production under all major kharif crops.

Table 4.11 AREA AND PRODUCTION OF MAJOR CROPS, 1992-93 (KHARIF)

(Area in hectares and production in tonnes)

S.NO	BLOCK	PADDY		CEREALS		PULSES		VEGETABLES		OTHER NON CEREALS		TOTAL OF ALL CROPS	
		AREA	PRODUCTION	AREA	PRODUCTION	AREA	PRODUCTION	AREA	PRODUCTION	AREA	PRODUCTION	AREA	PRODUCTION
1	Cuttack-Sadar	7,702	14,972	7,774	15,066	71	42	1,120	8,064	148	140	9,113	23,311
2	Tangi-Choudwar	10,700	30,635	11,070	31,010	585	332	1,953	14,061	345	374	13,953	45,777
3	Barang	6,758	12,700	7,180	13,124	140	91	1,200	8,640	140	133	8,660	21,988
4	Khurda	13,710	21,815	14,056	22,066	745	548	999	9,889	270	845	16,070	33,342
5	Bhubaneswar	15,566	19,460	15,672	19,553	137	94	2,584	25,323	104	86	18,497	45,056
6	Jatni	8,821	8,140	8,949	8,238	222	159	1,126	11,153	138	116	10,435	19,666
7	Balipatna	9,854	16,160	9,869	16,170	2	1	632	5,755	65	67	10,568	21,993
8	Balianta	8,703	12,620	8,725	12,634	24	13	992	10,402	62	164	9,803	23,213
	TOTAL	**81,814**	**136,502**	**83,295**	**137,861**	**1,926**	**1,280**	**10,606**	**93,287**	**1,272**	**1,925**	**97,099**	**234,456**

Source: Office of the Deputy Director of Agriculture, Cuttack District (1992) & Khurda District (1992)

HORTICULTURE

Horticulture has an important role in improving the economic status of the growers, removal of malnutrition, protection against diseases, conservation of soil and environment, employment generation and exports.

Coconut, banana and mangoes are the important plantation crops of the Region, both from the point of view of earning as well as for providing gainful employment to a large number of people. The other horticultural plantations of lesser importance are betel-gardens found in Balipatna block, all along the Kushabhadra river and irrigation canals.

Table 4.12 AREA AND PRODUCTION OF MAJOR HORTICULTURAL CROPS, 1995-96

(Area in hectares)

S.NO	DEVELOPMENT BLOCK	COCONUT	BANANA	MANGO	TOTAL HORTICULTURE	% TO TOTAL REPORTING AREA
1	Cuttack-Sadar	NA	NA	NA	NA	NA
2	Tangi-Choudwar	NA	NA	NA	NA	NA
3	Barang	NA	NA	NA	NA	NA
4	Khurda	80 (22.22)	50 (13.89)	230 (63.89)	360 (100)	1.18
5	Bhubaneswar	280 (58.33)	60 (12.50)	140 (29.17)	480 (100)	1.58
6	Jatni	84 (42.21)	30 (15.08)	85 (42.71)	199 (100)	0.92
7	Balipatna	399 (60.09)	35 (5.27)	230 (34.64)	664 (100)	4.74
8	Balianta	297 (66.44)	30 (6.71)	120 (26.85)	447 (100)	3.00

Source: Office of the Deputy Director of Horticulture, Cuttack District (1996) & Khurda District (1996)

ANIMAL HUSBANDRY

Animal husbandry is one of the important sub-sector of agricultural economy and plays a significant role in the rural economy by providing gainful employment particularly to the small/marginal farmers, women and agricultural landless labourers. This sector also provides milk, eggs, meat, hides and skin, dung, bones, hooves and drought power.

The Region has adequate livestock population to meet the needs of its rural and urban population. It has a total number of 5,20,645 livestock (1992), of which cattle alone accounts for 65.6 per cent, poultry 12.1 per cent, sheep 8.7 per cent and goats 11.9 per cent (Table 4.13.). Cuttack-Sadar has the maximum number of cattle followed by Barang, Tangi-Choudwar, Khurda and Bhubaneswar. Buffaloes are, more or less, evenly distributed among all the blocks in the Region and their population is very insignificant. The main reason for this low population of buffaloes may be the scarcity of fodder in the Region. Goat population is maximum in Cuttack-Sadar and Khurda blocks. Pig population is concentrated in Cuttack Sadar, Barang and Tangi-Choudwar blocks of the Region.

Though the Region is fairly good in livestock resources the animal productivity is very low. An important aspect of the livestock development in the Region should be the enhancement of the productivity of milch cattle, development of fodder, improving availability of fodder and seeds, development of pasture land, etc. The State Government has undertaken a number of integrated livestock development programmes to increase production through scientific breeding, better feeding and management practices, with adequate health control and marketing measures.

Table 4.12 LIVESTOCK DISTRIBUTION, 1992

(In number)

S.NO	DEVELOPMENT BLOCK	CATTLE	BUFFALO	SHEEP	GOAT	POULTRY	PIG	TOTAL
1	Cuttack-Sadar	54,556	756	6,737	12,026	9,873	791	84,739
2	Tangi-Choudwar	48,913	761	4,213	5,847	6,937	288	66,959
3	Barang	49,280	1,004	5,172	6,112	7,318	603	69,489
4	Khurda	48,418	1,072	6,629	10,148	13,483	-	79,750
5	Bhubaneswar	48,393	1,209	5,894	9,855	5,198	45	70,594
6	Jatni	38,823	363	4,119	7,516	10,523	51	61,399
7	Balipatna	26,150	610	6,632	5,943	8,149	17	47,501
8	Balianta	27,311	366	6,305	4,678	1,446	108	40,214
TOTAL FOR THE REGION		**341,844** (65.6%)	**6,141** (1.3%)	**45,701** (8.7%)	**62,125** (11.9%)	**62,927** (12.1%)	**1,903** (0.4%)	**520,645** (100%)

Source: Office of the Chief Veterinary Office, Cuttack District (1992) & Khurda District (1992)

FISHERY

As a source of food, fisheries stand almost at par with agriculture and animal husbandry. It is also an important item of export. Inland fishing is also an important activity and is resorted to by fishing communities residing in the ulterior. It is pursued throughout the year in the rivers, reservoirs, and ponds etc. where known varieties of choice fish occur. Inland fish production takes place in fresh water and brackish water resources each type having capture and culture fisheries. The inland fish productions are estimated on the basis of market arrivals of inland fish, water area leased out, value of lease amounts, etc. Cuttack Sadar and Tangi-Choudwar are important inland fishing blocks. The scope for development of inland fisheries in the Region is immense as it has abundant unutilized water. The unutilized water areas can be effectively brought under systematic culture and the production can be raised.

FORESTRY

The Region, with rich agriculture and dense population, lacks in rich forest cover. It has an area of 485.86 sq.km. which accounts for 23.5 per cent of the total area of the Region as against 30.3 per cent for the State as a whole. Bhubaneswar, Tangi-Choudwar, Jatani and Khurda are important blocks having area under forests. Of these, Bhubaneswar, Jatani, and Tangi-Choudwar are very important. Major portion of Chandaka police station and southern part of Tangi-Choudwar are covered by reserved forests composed of mixed forests mainly bamboo and sal. In rest of the blocks, forest covers are in patches on isolated hillocks.

The major forest produce from the Region are timber and fuel wood, bamboo and cane. The Choudwar paper mill gets ample supplies of bamboo from either bank of the Mahanadi. Much of the forest cover in Khurda and southern part of Jatani have been depleted due to quarrying activities leaving behind barren, gullied, ravenous and scrub land.

During the Seventh and the Eighth Five Year Plans much effort has been made towards the integrated development of land, forest and environment. Extensive plantation in degraded forest and waste land was realised to be the only solution to control the environmental degradation and to meet the growing demand for fuel, fodder, timber including industrial wood needs.

4.3.1 INDUSTRY

The Region has made good industrial progress, especially in the last decade. There are, at present, 67 large and medium industries with an investment of Rs. 987.05 crore, employing 19,353 persons. In addition to this Rs. 37.63 crore have been invested in 450 small scale industrial units which have provided employment to 8,582 persons. Also there are a large number of household industries such as handicrafts, handlooms, horncrafts, filigree, applique work etc. which provide employment to large number of people.

The pattern of industrial development in the Region shows concentration of industrial activity in six to seven centres, namely, Choudwar, Cuttack, and Jagatpur in Cuttack U.A., Bhubaneswar, Khurda, Chandaka and Jatani in the newly created Khurda district. Bhubaneswar alone accounts for 41.97 per cent of the total industrial units and 45.79 per cent of the total investment and 33.59 per cent of the total employment in organised industries in the Region. This fast growth of industrial development in Bhubaneswar, especially in the last decade, may be because of centrality of the Capital city, availability of suitable land for industrial development, developed infrastructure and a number of promotional steps taken by the government for the establishment of new industrial units in and around the city. Choudwar an old industrial centre is emerging as a prominent manufacturing centre in the Region in recent times.

INDUSTRIAL ZONES

The major industrial development in the Region is mainly concentrated into three distinct zones, viz: (i) Choudwar-Jagatpur-Cuttack-Barang zone (ii) Bhubaneswar-Chandaka Zone and (iii) Khurda-Jatani zone.

Choudwar-Jagatpur-Cuttack-Barang Zone is an important industrial zone of the Region. Cuttack and its industrial suburb, Choudwar and Jagatpur are the primary ones amongst the four industrial nodes. This industrial node has a large number of large and medium scale industries. They are: a textile mill at Choudwar, established in 1949 with a capacity of 50 thousand spindles and 864 looms. It is a composite mill, and has an annual production capacity of 1,600 bales of cloth and 7,200 bales of yarn. It provides employment to about

4000 workers. This mill is market based. It gets its supplies of raw cotton from the cotton belt located in the Western Peninsula. Cotton spinning mills are also operating at Jharsugudda and Bargah. These cater to the needs of the local market for yarn which is in great demand in western and north-western Orissa with the development of cotton textile weaving at the cottage industry level. The Titagarh Paper Mill at Choudwar is market oriented. This has become possible as it avails itself of the cheap water transport of the Mahanadi. The complex has many other industries like a galvanized tube, steel re-rolling, rice mill and many other medium and small scale industries. Barang is comparatively a small industrial node with only two large and medium units with a total investment of Rs. 19.89 crores and an employment of 1,948 persons. Ceramic glass and refractory unit located at Barang is market oriented industrial establishment.

Bhubaneswar-Chandaka is emerging as an important industrial zone in the Region. A number of large and medium scale industries are located here. Some of the important industrial units are railway carriage repair shop, Indo-Maxwel Ltd. manufacturing soft fruits, boiler piping and accessories, Commander Computer Ltd - a micro processor based computers, Ipicon Watch Co Ltd. manufacturing steel watch cases, Konark Television Ltd. etc.

Khurda-Jatani, is not so significant at the moment but with the growth of transport nodes and the elevation of Khurda town in the district headquarters will give fillip to the industrial development in this area.

SMALL SCALE INDUSTRIES

Like the large and medium industries, the small scale industries are also concentrated in the same centres. The Cuttack U.A. consisting of Cuttack city, Jagatpur and Choudwar has 234 units, which account for 52 per cent of the total small scale industrial units in the Region and provides employment to 3,928 persons. Jagatpur alone with 142 units accounts for about one third of the total number of the small scale units in the Region.

Major items of products of the small scale industries are food, basic metal, metal products, chemicals and chemical products, non-metallic mineral products, paper and paper products,

rubber and rubber products. All these items of products taken together account for 72 per cent of the total number of small industrial units and 73 per cent of the total employment.

INDUSTRIAL ESTATES

There are seven industrial estates located in the major industrial nodes of the Region.

Table 4.13 INDUSTRIAL ESTATES

S.NO	NAME OF INDUSTRIAL ESTATES	NUMBER OF SHEDS DEVELOPED	NUMBER OF SHEDS ALLOTTED AND OCCUPIED
1	Cuttack Town	79.9	72.0
2	Jagatpur (New)	75.2	65.4
3	Jagatpur (Old)	72.9	61.4
4	Choudwar	78.7	69.3
5	Khurda	87.5	82.4
6	Bhubaneswar (Mancheswar)	81.4	73.1
	Total	**78.3**	**68.9**

Source: District Industries Centre-Action Plans, Cuttack and Khurda, 1993 to 1997

INDUSTRIAL ACTIVITIES IN THE INFORMAL SECTOR

In addition to the registered large, medium and small scale industries in the organized sector, a very large number of small scale industrial units are operating in the informal sector which provides employment to a large number of persons. They are handicrafts, handloom, horn craft and cottage industries.

Handicrafts constitute the major household industries in Cuttack, such as filigree works, toy making, bamboo products etc. In fact filigree industry is the pride of Orissa and monopoly of Cuttack. The filigree products are marketed to various parts of the country and to many foreign countries. Filigree industry provides employment to about 4,000 persons.

Handloom is another household industry of the Region. It is one of the most labour intensive industry. In Cuttack alone, it provides employment to more than 700 households.

Horn-craft articles include paper cutter, sticks, combs, pen holders, toy birds and furniture while cottage industries include cane products, jute goods, asan, dari, galicha, and bamboo products. All the articles have good market outside the State.

4.3 TOURISM

4.3.1 INTRODUCTION

The Region is very rich in tourism resources such as historical monuments and sites, antiquities, shrines as well as places of natural scenic beauties. A number of important temples belonging to the distinct Kalinga style of architecture are found near the Region. Among them, the famous Sun Temple at Konark, the temple of Lord Jagannath at Puri and the Lingaraj temple at Bhubaneswar, deserve special mention. The ancient Jain Caves of Udaigiri and Khandagiri are located in the vicinity of Bhubaneswar. Besides these, the Ashokan Rock Edict and the Shanti Stupa at Dhauli, on the banks of the River Daya, the Zoo at Nandankanan amidst the Chandaka forests are also important tourist attractions. The sea beaches at Puri and Konark and the natural beauties of the coastal areas and the adjoining Chilika Lake attract nature loving tourists to the Region. Therefore, the Puri-Konark-Bhubaneswar circuit is referred to as the "Golden Triangle" of tourism because it is the most important area in the State from the point of tourism activities and it has also emerged as one of the most important tourist circuits in India. The city of Cuttack is also another important place of tourist attraction.

4.3.1 TOURIST CENTRES

PLACES OF TOURIST CENTRES IN CUTTACK

Stone Revetment of Cuttack : The river banks of Cuttack are protected by stone revetment, a great engineering marvel of the 11th century A.D. and a remarkable example of ancient technological skill of Orissa.

Barabati Fort : The ruins of a medieval fort with its moat and gate and the earthen mound of the nine-storeyed palace on the bank of the river Mahanadi are noteworthy. Adjacent to the fort are two modern stadiums **Barabati Stadium** and J.N. Indoor Stadium.

Temple of Cuttack Chandi : Being the shrine of the presiding deity of the city, the temple of Cuttack Chandi is normally visited by every Hindu visitor.

Quadam-i-Rasool : A sacred shrine both for the Hindus and Muslims, Quadam-i-Rasool, having a compound wall and towers at each corner has inside three mosques with beautiful domes and a Nawabat Khana (music gallery). It is an object of veneration for Hindus and Muslims alike.

PLACES OF TOURIST CENTRES IN KHURDA

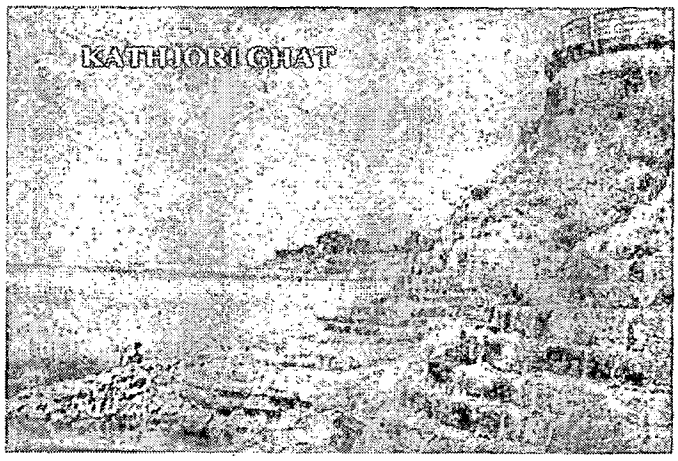
Atri : Located about 13 km. from Khurda has a hot spring. The temple of Hatakeswara (Siva) is situated near-by where Sivaratri and Makar Sankranti festivals are held and are attended by a large number of people. There is a belief that the spring has the miraculous power of removing the curse of barrenness from women. A bathing complex has been constructed by the Tourism Department.

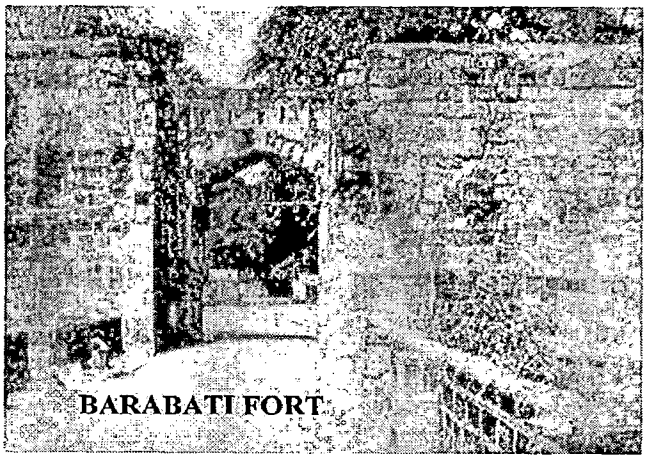
Balipatna : The place is famous for being the birth place of poet Ananta popularly known as Sisu Ananta, one of the Pancha Sakha poets of the 16th century A.D.

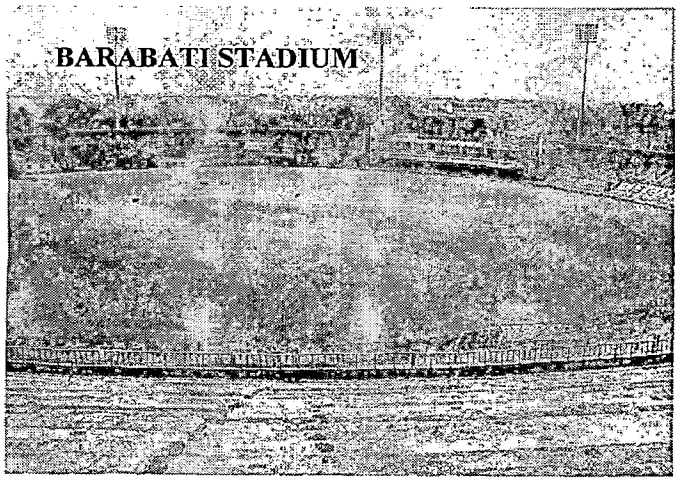
Banamalipur : is an important trading centre in the area of pan or betel leaf. At a distance of about one and half kilometres from Banamalipur the Siva temples of Beleswar and Tribeniswar are situated in the village Bhapur. Every year on the Magha Amabasya day a big fair called 'Tribeni Mela' is held here. On this day in the early morning thousands of people take their holy dip in the river 'Prachi' to wash off sins.

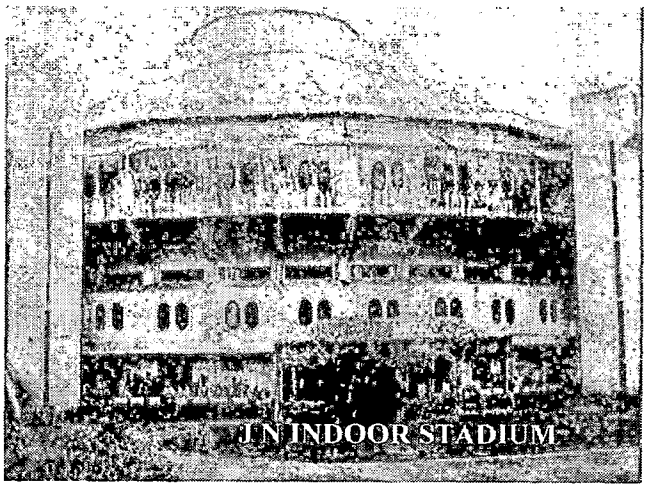
Bhubaneswar : The capital of Orissa also known as city of temples. Important temples are Lingaraj, Mukteswar and Rajarani. The Dauli temple, Khandagiri and Udaigiri caves also attract a large number of tourists.

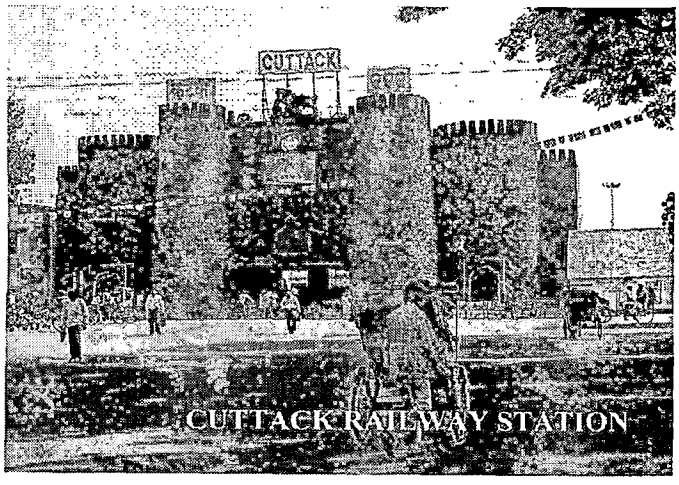
Nandankanan : named after the heavenly pleasure garden of the gods, is a beautiful Biological Park situated in the most natural surroundings of the green forests of Chandaka. A Botanical garden and Zoo having rare species of plants and animals in the world are found here. For the pleasure and pastime of children a Children's train is being run in Nandankanan since August 1971. There is also a museum at Nandankanan in which varieties of forest products and stuffed specimens of animals and birds are preserved.

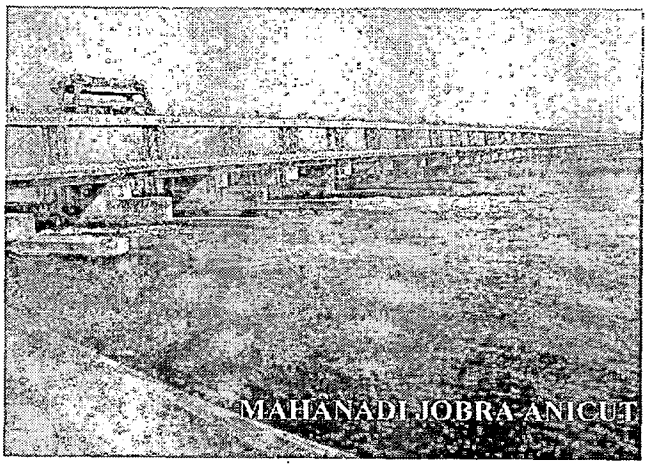


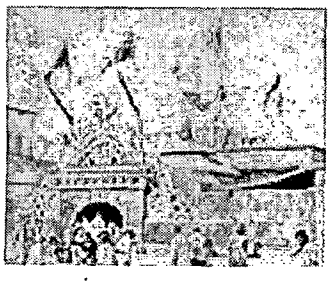


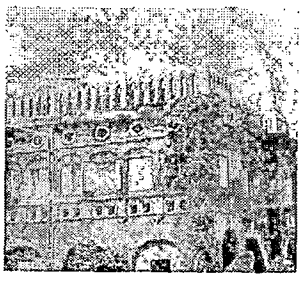


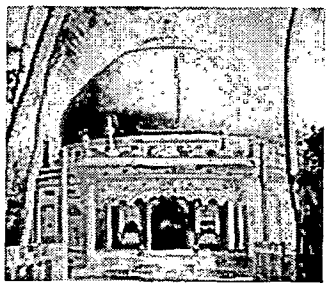












GLIMPSES OF CUTTACK CITY

Sisupal : situated at a distance of 2.5 km. to the south-east of Bhubaneswar is famous for being the site of a ruined fort. The fort, popularly known as Sisupalgarh, probably represents the ancient Kalinganagar which was the capital of Kalinga under Emperor Kharavela of the middle of 1st century B.C.

PLACES OF TOURIST CENTRES AROUND THE REGION

Puri : situated at a distance of 60 Km from Bhubaneswar is the abode of **Lord Jagannath,** literally Lord of the World, Puri is one of the four holy places (Dhams) in India. Located on the shores of the Bay of Bengal, it has one of the finest beaches in the world. This pilgrimage town is also the abode of artisans and craftsmen who produce a wide range of unique handicrafts.

Konark : situated at a distance of 65 km from Bhubaneswar is famous for the marvelous **Sun Temple** built by King Narashima Deva I in 13^{TH} century A.D.

Chilika : Nestling in the heart of coastal Orissa, Chilika is India's biggest inland lake. Spread over 1,100 square kilometers, stretching across the length of the three districts of Puri, Khurda and Ganjam, it joins up with the Bay of Bengal through a narrow mouth, forming an enormous lagoon of brackish water. Dotted with many emerald green islands with colourful names such as "Honeymoon Island" and "Breakfast Island", Chilika is home to a rich variety of aquatic fauna. It is also a sanctuary and winter resort for mogratory birds, some coming from as far as Siberia.

Dhabaleswar : located 35 Km from Cuttack city is a small island in the Mahanadi, the temple of Dhabaleswar is situated on a hillock. Though a new structure, sculptures of 10 / 11th century A.D. are found in the temple premises.

Chandikhol : 40 km from Cuttack city in the lap of thickly wooded hills and by the side of a perennial stream is an extremely ideal picnic spot. The Ashram of Baba Bhairavananda is an added attraction of the place. Adjacent to Chandikhol, Mahavinayak enshrines the five god heads in one Lingam. It is a place of worship for Ganapati.

4.3.1 TOURIST ARRIVALS

Among the domestic tourists, the overwhelming majority are from the neighbouring state of West Bengal. As much as 45.23 per cent of the total domestic tourists in 1992 came from West Bengal. Next in the order of importance are Andhra Pradesh (9.82%), Bihar (9.12%) and Madhya Pradesh (7.29%).

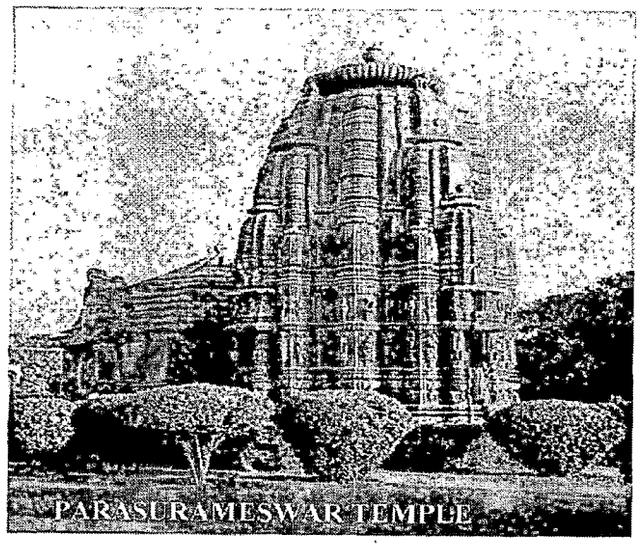
Most of the foreign tourists are from Germany, United Kingdom, France, Japan, Italy and U.S.A. Increasing trends are also recorded from the countries of Australia, Canada, Netherland, Belgium and Switzerland to a considerable extent.

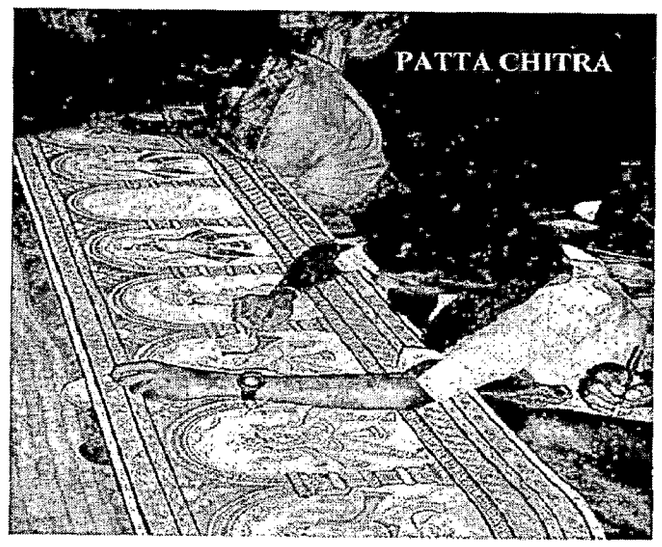
Tourist arrivals in Orissa as well as in the Region, on the whole, are quite evenly distributed throughout the year except in August and September, when the tourists' arrivals are comparatively less. Foreign tourists show distinct preference for winter season. But among domestic tourists May and June months also show minor peaks due to vacation in educational institutions.

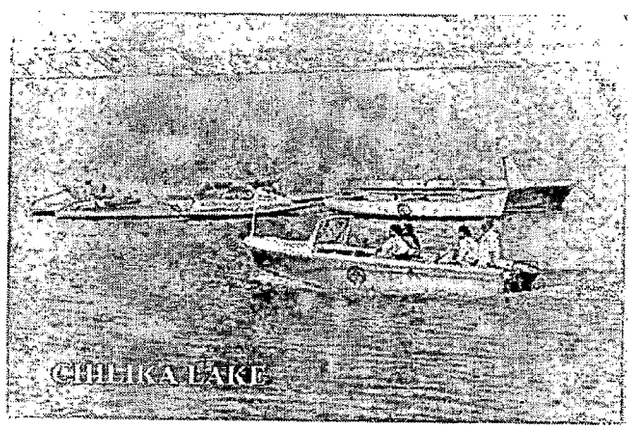
4.3.1 DEVELOPMENT INITIATIVES

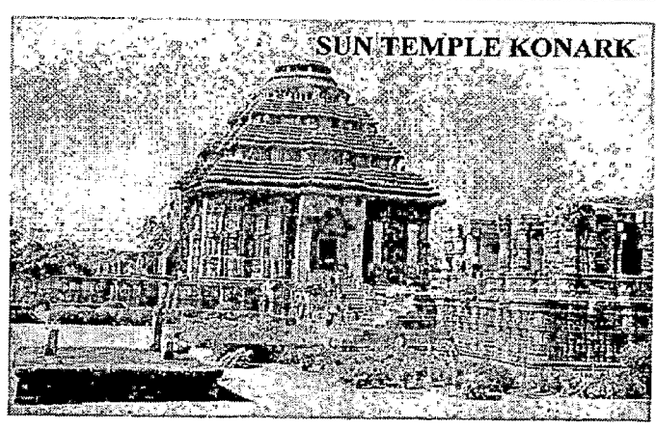
Considering the importance of this area, the Department of Tourism, Government of Orissa, invited a private consultancy agency, the Tata Consultancy Services (TCS), to prepare a plan for tourism development in the State. The plan prepared by the TCS incorporated the plan prepared earlier for the Puri-Konark-Bhubaneswar circuit by the Town Planning Departments of the State Government and the Central Government. The main objectives of the Plan are:

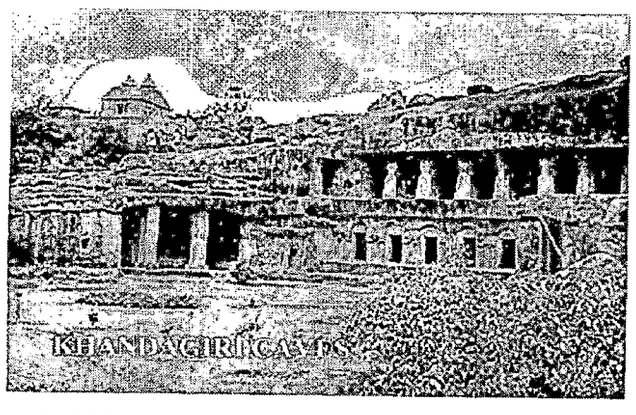
- To evaluate the existing natural and cultural resources within the circuit and to evolve measures for their preservation;
- To provide appropriate infrastructure and facilities for the tourists,
- To provide better tourist management services to enrich the overall visitor experience,
- To define development priorities to facilitate their phased implementation by agencies concerned.

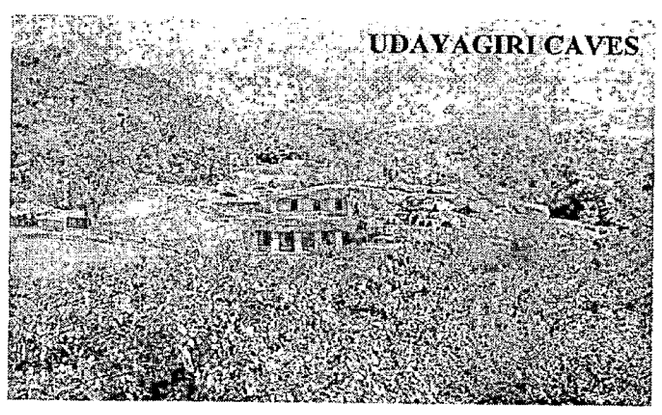

PARASURAMESWAR TEMPLE

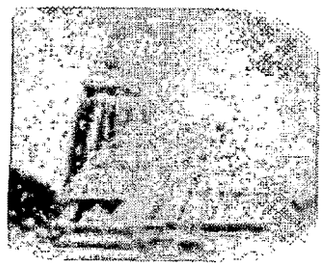

PATTA CHITRA

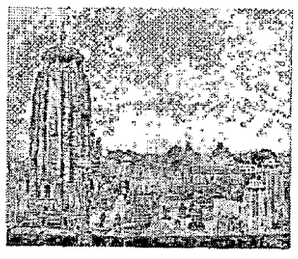

CHILIKA LAKE

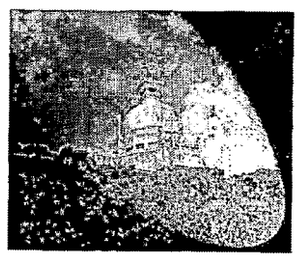

SUN TEMPLE KONARK

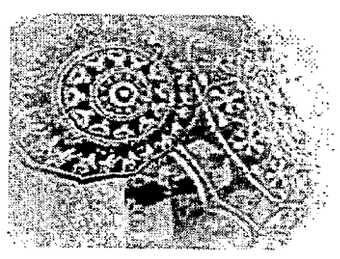

KHANDAGIRI CAVES


UDAYAGIRI CAVES









CHAPTER 5

FIELD SURVEY AND ANALYSIS

5.1 INTRODUCTION

Surveys are carried out to establish the present state of the planning area and indicate the measures for improvements. The regional survey is conducted to investigate the economical, physical and social conditions of the planning area. In general the topics covered are usually related to:

- Communication amenities which includes the means of communication such as roads, railways, airways and waterways along with their inter-relationship.
- Existing land uses
- Demographic characteristics
- Infrastructure facilities such as education, health, administrative etc.

The questionnaires prepared for conducting surveys depends on the planning objectives and the area of study. For identifying the existing hierarchy of settlements in the region and functional and spatial gaps therein and to evolve a well-knit regional settlement system a thorough survey of the available infrastructure facilities at the lowest settlement level that is the village is required. This will help in determining the rank of the settlements after assigning weight age to the various facilities available at the settlement.

In this study questionnaire was prepared based on The village information system has been developed through the Village Index Card Scheme (VICS) in the State which contains the village-wise existing infrastructure with Socioeconomic data in order to facilitate the planners and administrators for taking adequate suitable measures for overall development of the village.

A sample survey for about 100 households was done in various blocks and along with the VICS data that has been collected by Directorate of Economics and Statistics, Orissa at Grampanchayat/Block level with base year 1994-95 has been used for the analysis.

5.2 SOCIO-ECONOMIC

5.2.1 POPULATION

Population study included total population, Scheduled Caste and Scheduled Tribe population and literates. There are a total of 934 villages in the region out of which Tangi-Choudwar block has the highest number of villages (175) followed by Khurda (131), Cuttack-Sadar (124), Bhubaneswar (123), Jatni (111), Balianta (104), Balipatna (88) and Baranga (78). About 34% of the villages in the region have total population less than 500 and 27% of the villages have total population between 500 to 999. There are only 6 villages having population greater than 5000 and Balipatna alone having 4 of them. Pratap nagari in Cuttack block, Bhakarsahi, Banamalipur, Bhapur, and Rajas in Balipatna block and Pratap Sasan in Balianta block have total population greater than 5000. A total of 83 villages in the region are uninhabited. There are only 4 villages in the region, Raghunathpur and Gelapur in Bhubaneswar block, Baindal in Balianta block and Jigiripur in Balipatna block having scheduled caste population more than 90%. Villages having scheduled tribe population greater than 90% are Chandanpur in Tangi-choudwar, Haldiapada in Khurda, Balunka, Krushnanagar and Dahua in Bhubaneswar block. Literacy rate of the region is 78.3% with male literacy of 87.1% and female literacy of 68.9%. Bhubaneswar has the highest literacy rate of 87.5% followed by Jatni (81.4%) and Cuttack (79.9%).

Table 5.1 DISTRIBUTION OF POPULATION AND VILLAGES

S.NO	DEVELOPMENT BLOCK	NO OF VILLAGES	NO. OF VILLAGES WITH POPULATION SIZE						
			<500	500-999	1000-1999	2000-2999	3000-3999	4000-4999	>5000
1	Cuttack-Sadar	124	32	35	42	11	3	0	1
2	Tangi-Choudwar	175	96	38	25	11	4	1	0
3	Barang	78	27	27	16	4	2	2	0
4	Khurda	131	53	39	30	7	2	0	0
5	Bhubaneswar	123	64	27	21	9	2	0	0
6	Jatni	111	56	22	27	5	1	0	0
7	Balipatna	88	32	27	18	5	1	1	4
8	Balianta	104	43	36	15	5	3	1	1
	Region Total	**934**	**403**	**251**	**194**	**57**	**18**	**5**	**6**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

5.2.2 EMPLOYMENT

Employment is the key to the economy of a region. Studies on employment have been done on total main workers, marginal workers and non workers. Total main workers include cultivators, agricultural labourers and those engaged in household industry, manufacturing, processing, servicing and repairs.

Out of the total rural population of 790,648, total workers is 241,157 constituting only 30.5% (total main workers 28.6% and marginal workers 1.9%). The blocks having proportion of workers greater than the region's average are Balianta (33.18%), Balipatna (33.13%), Bhubaneswar (31.30%) and Baranga (31.02%). Around 70% of the total rural population is non workers which indicate that if sufficient employment opportunities are created in the region by government initiatives then there will be higher economic growth in the region. As new industries are coming up in Tangi-choudwar there will be a rise in the working force.

Table 5.2 COMPOSITION OF WORKERS IN THE REGION

S.NO	DEVELOPMENT BLOCK	POPULATION (RURAL)	TOTAL MAIN WORKER	TOTAL MARGINAL WORKER	TOTAL WORKER (% of total rural population)	NON WORKER
1	Cuttack-Sadar	135,639	39,202	1,861	41,063 (30.27%)	94,576
2	Tangi-Choudwar	120,597	34,008	950	34,958 (28.98%)	85,639
3	Barang	72,702	21,074	1,480	22,554 (31.02%)	50,148
4	Khurda	104,578	27,009	2,386	29,395 (28.10%)	75,183
5	Bhubaneswar	93,130	27,672	1,480	29,152 (31.30%)	63,978
6	Jatni	74,710	19,942	1,321	21,263 (28.46%)	53,447
7	Balipatna	91,764	26,616	3,787	30,403 (33.13%)	61,361
8	Balianta	97,528	30,869	1,500	32,369 (33.18%)	65,159
	Region Total	**790,648**	**226,392**	**14,765**	**241,157 (30.50%)**	**549,491**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

Agricultural labourers constitute 31.72% of the total main workers while cultivators constitute 30.82%, persons engaged in household industry, manufacturing, processing and service and repairing constitute only 3.28% of the total main workers.

The highest proportion of cultivators is in Balipatna block (37.69%) followed by Khurda block (37.34%) and Tangi-choudwar (35.27%). The highest proportion of agricultural labourers is in Tangi-choudwar (34.29%) followed by Balipatna (33.85%) and Cuttack-Sadar (32.01%).

Bhubaneswar and Balianta are the only blocks have higher proportion of agricultural labourers compared to cultivators.

Persons engaged in household industry, manufacturing, processing and service and repairing is very less in the region constituting 2 to 5% of the total main workers.

In Cuttack and Bhubaneswar blocks the percentage of workers engaged in others like service Etc. is the highest with 39.42% and 38.48% respectively.

Table 5.3 COMPOSITION OF TOTAL MAIN WORKERS IN THE REGION

S.NO	DEVELOPMENT BLOCK	TOTAL MAIN WORKER	CULTI-VATOR	AGRIL. LABOURER	HIND	OTHER
1	Cuttack-Sadar	39,202	9,996 (25.49%)	12,551 (32.01%)	1,199 (3.03%)	15,456 (39.42%)
2	Tangi-Choudwar	34,008	11,994 (35.27%)	11,660 (34.29%)	1,317 (3.87%)	9,037 (26.57%)
3	Barang	21,074	5,050 (23.96%)	6,000 (28.47%)	493 (2.34%)	9,531 (45.23%)
4	Khurda	27,009	10,086 (37.34%)	7,738 (28.65%)	671 (2.48%)	8,514 (31.53%)
5	Bhubaneswar	27,672	7,391 (26.70%)	8,797 (31.79%)	837 (3.03%)	10,647 (38.48%)
6	Jatni	19,942	6,351 (31.85%)	6,361 (31.89%)	454 (2.28%)	6,776 (33.98%)
7	Balipatna	26,616	10,033 (37.69%)	9,009 (33.85%)	972 (3.66%)	6,602 (24.80%)
8	Balianta	30,869	8,869 (28.74%)	9,699 (31.42%)	1,480 (4.79%)	10,821 (35.05%)
	Region Total	**226,392**	**69,770 (30.82%)**	**71,815 (31.72%)**	**7,423 (3.28%)**	**77,384 (34.18%)**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

5.3 BASIC FACILITIES

5.3.1 INTRODUCTION

The availability of basic facilities and services is the indicator of levels of development. It also indicates the quality of life of the people living in different parts of the Region. Lack of any basic facilities affects the quality of life and economic development. Hence an analysis of the basic facilities is very important both to measure the levels of development and to identify the gaps where improvement can be made. This also helps in identifying the functionality of settlements and nodality at different hierarchies.

The analysis of basic facilities available in the villages has been done on the following heads:

i) **Village infrastructure** which includes facilities like Live stock centre, Veterinary dispensary, Piped water, Well, Tube well, Pond, Spring, Electrification of village, Biogas plant, Sources of irrigation, Wind mill, Solar cooker and Sulabh pumps.

ii) **Medical facilities** like Health Sub Centre, Primary health centre, Family welfare centre, Ayurvedic dispensary, Homeopathic dispensary and Private clinics.

iii) **Educational facilities** like the number of Primary schools, High schools, ME school, Technical Training Institute, Intermediate college and Degree college available in the village.

iv) **Administrative infrastructure** which includes V.A.W centre, R.I. headquarter, B.D.O, Police center, Fair price shop, Post office, Banking institution, Bus stop, Post office, Telegraphic office, P.C.O. and Railway station.

v) **Market** whether weekly or bi-weekly available in the village.

vi) **SSI/Cottage Industries** like the number of Rice mill huller, Oil mill ghani, Carpentary unit, Bell metal unit, Blacksmith unit, Pottery units, Khali making unit, DWCRA unit, Bidimaking unit, Coir works unit, Leather works unit,

Bamboo works unit, Cane works unit, Mattress making unit, Sabai grass unit, Knitting works and other household industries available in the village.

vii) **Agriculture infrastructure** includes Ware houses for food items and fertilizer.

viii) **Economic infrastructure** includes number of Pump set, Power tiller, Tractor, Sprayer and other agricultural implements available in the village. It also includes the number of Pisiculture, Diary, Poultry, Goatery and Piggery units besides Coperative societies, Land development Bank, Milk producer's and Fishermen's society etc. available in the village.

5.3.2 VILLAGE INFRASTRUCTURE

A total of 168 villages (17.6%) out of 934 have livestock centre. The highest number of livestock centres (35nos) is in Tangi-choudwar block followed by Jatni (29nos). In all the blocks maximum number of livestock centres above 80% is within a distance of 5 km from the villages except in Balianta block where they are located within 6 to 10 km.

Artificial Insemination centres are available in 105 villages constituting 11.2% of all the villages in the region. Maximum number of A.I centres are in Tangi-choudwar block (27nos) followed by Jatni block (23nos). Above 70% of A.I centres in Bhubaneswar, Jatni, Balipatna, Balianta and Tangi-Choudwar are located at a distance greater than 10 km. In Barang, Cuttack and Khurda more number of A.I. centres are available at a distance less than 5 km.

Veterinary dispensary centres are available in 102 villages constituting 10.9% of all the villages in the region. Maximum number of Veterinary centres are in Tangi-choudwar block (27nos) followed by Jatni block (23nos). About 75% of Veterinary centres in Jatni block are located at a distance greater than 10 km. In Balipatna, Balianta and Baranga blocks maximum of the centres are within 6 to 10 km whereas in rest of the blocks they are within 5 km distance. In Barang (02), Cuttack (05), Balipatna(05) and Balianta (07) very few number of villages have Veterinary dispensary centres which is inadequate to cater to the population of the livestock.

Piped water is available in 105 villages constituting only 11.2% of the total number of villages in the region whereas Well is available in 885 villages constituting about 95% and Tube well is available in 901 villages constituting 96.5%. Pond/Spring is available in 621 villages constituting 66.5% of the total number of the villages in the region.

881 villages (94.3%) of the region and comprising 92.09 per cent of its population have been provided with electricity. Jatni block has 100% electrification in villages. Within the Khurda block 125 of the 131 villages have the benefits of electricity. 113 out of 123 villages in Bhubaneswar, 81 out of 88 villages in Balipatna, 101 out of 104 villages in Balianta, 113 out of 124 villages in Cuttack, 160 out of 175 villages in Tangi-choudwar and 77 out of 78 villages in Baranga block have been provided with electricity.

Biogas plant is available in 234 villages out of a total of 934 villages constituting 25% of the total number. In Cuttack-sadar 50% of the villages(61 out of a total of 124 villages) has biogas plant . The least number of villages having biogas plant is in Bhubaneswar block 17 out of 123 villages (10.6%).

A total of 72% of the villages in the region has irrigation facilities (673 villages). The various sources of irrigation are canal, lift, dug well, tank and water harvesting structure. Balipatna and Cuttack-sadar have irrigation facilities in almost all the villages (100%). In Khurda block only 39.7% of the villages have irrigation facilities.

Windmill/solar cooker and Sulabh pumps are available in 80 villages constituting only 8.5% of the total villages. Cuttack-sadar is the only block which is devoid of any such facilities. Maximum concentration of Windmill/solar cooker and Sulabh pumps is in Jatni block.

Seven hundred and one (701) villages constituting 75% per cent of all the villages in the region are connected by pucca roads. The populations covered by these roads, works out to eight out of ten persons of the region. The blocks in which 100% of the villages are connected by approach roads are Bhubaneswar and Balipatna. In Jatni only 47.7% villages have approach road.

Table 5.4 TABLE SHOWING DISTRIBUTION OF VILLAGE INFRASTRUCTURE FACILITIES

S.NO	DEVELOPMENT BLOCK	TOTAL NO OF VILLAGES	DISTANCE OF FACILITIES FROM VILLAGE	NUMBER OF VILLAGES WITH VILLAGE INFRASTRUCTURE												
				Livestock Centre	Artificial Insemination	Veterinary Disp.	Piped Water	Well	Tube Well	Pond/Spring	Electrified	Biogas Plant	Irrigation Facilities	W Mill/S. cooker	App. Road	Sulabh Pumps
1	Khurda	131	0-5 km.	93	55	62										
			6-10 km.	30	32	32										
			>10 km.	08	44	37										
Number of villages having the facility				**25**	**20**	**20**	**15**	**123**	**128**	**16**	**125**	**14**	**52**	**15**	**90**	**15**
2	Bhubaneswar	123	0-5 km.	93	18	55										
			6-10 km.	19	28	32										
			>10 km.	11	77	36										
Number of villages having the facility				**20**	**12**	**13**	**15**	**108**	**110**	**86**	**113**	**17**	**99**	**11**	**123**	**11**
3	Jatni	111	0-5 km.	86	24	24										
			6-10 km.	18	00	04										
			>10 km.	07	87	83										
Number of villages having the facility				**29**	**23**	**23**	**23**	**86**	**111**	**88**	**111**	**28**	**56**	**23**	**53**	**23**
4	Balipatna	88	0-5 km.	37	04	27										
			6-10 km.	45	04	46										
			>10 km.	06	80	15										
Number of villages having the facility				**13**	**04**	**05**	**06**	**88**	**80**	**74**	**81**	**17**	**88**	**02**	**88**	**02**
5	Balianta	104	0-5 km.	63	10	29										
			6-10 km.	40	15	58										
			>10 km.	01	79	17										
Number of villages having the facility				**17**	**03**	**07**	**07**	**103**	**101**	**87**	**101**	**20**	**98**	**03**	**96**	**03**

5.3.3 MEDICAL FACILITIES

The region has very inadequate medical facilities. Barely 171 villages (18.3%) have any sort of medical facilities for a rural population of 790,648. The region has Health sub centres in 128 villages (13.7%), Primary health centres in 95 villages (10.2%), Family welfare centres in 101 villages (10.8%), Ayurvedic dispensary in 87 villages (9.3%), Homeopathic dispensary in 92 villages (9.8%) and Private clinic in 115 villages (12.3%).

Higher order facilities like hospitals and dispensaries are mostly located in urban areas. However, a few of these are also available in strategically located villages and serve the Region better. Rest of the basic medical facilities is spread throughout the Region depending upon the density of population and levels of development.

Tangi-choudwar and Jatni are having better medical facilities compared to other blocks followed by Khurda and Bhubaneswar blocks. Above 80% of villages in Tangi-choudwar, Jatni and Baranga have Health sub centres within 5 km radius. Above 90% of the villages in Balianta block and 74% of villages in Tangi-choudwar have Ayurvedic and Homeopathic dispensaries outside a radius of 10 km. About 82% of the villages in Cuttack-sadar and 55% of villages in Jatni, Tangi-choudwar and Baranga have Private clinics within 5 km. distance.

The presence of specialty hospitals in Cuttack and Bhubaneswar city has created an imbalance in the distribution of medical facilities in the region. Not only people from other part within the region but also people from all over the state come to avail medical facilities in these two cities.

No definite pattern or hierarchy of settlements has been followed in locating different levels of health facility in the Region. The existing distribution of health facility does not follow accessibility criteria and the size of settlements. To provide uniformity in the distribution pattern many more settlements are to be identified in hierarchical order for locating health facilities of different levels along with other facility. Information on the quality of health facility, provided at different levels is not available. Therefore, actual qualitative assessment of facility is not possible.

Table 5.5 TABLE SHOWING DISTRIBUTION OF MEDICAL FACILITIES

S.NO	DEVELOPMENT BLOCK	TOTAL NO OF VILLAGES	DISTANCE OF FACILITIES FROM VILLAGE	DISTRIBUTION OF MEDICAL FACILITIES					
				Sub Health Center	Primary Health C	FWC	Ayur. Dispensary	Homeo. Dispensary	Private Clinic
1	Khurda	131	0-5 km.	70	31	74	25	38	64
			6-10 km.	45	43	45	44	48	50
			>10 km.	16	57	12	62	45	17
Number of villages having the facility				**20**	**13**	**20**	**15**	**17**	**17**
2	Bhubaneswar	123	0-5 km.	24	37	24	51	30	49
			6-10 km.	26	18	30	33	17	31
			>10 km.	70	68	69	39	76	43
Number of villages having the facility				**11**	**13**	**11**	**13**	**12**	**12**
3	Jatni	111	0-5 km.	94	37	85	34	36	68
			6-10 km.	17	19	26	19	17	41
			>10 km.	00	55	00	58	58	02
Number of villages having the facility				**29**	**24**	**29**	**25**	**25**	**23**
4	Balipatna	88	0-5 km.	38	39	40	24	24	40
			6-10 km.	34	34	34	16	14	34
			>10 km.	16	15	14	48	50	14
Number of villages having the facility				**02**	**02**	**03**	**01**	**02**	**04**
5	Balianta	104	0-5 km.	41	33	33	05	08	39
			6-10 km.	35	39	38	03	01	38
			>10 km.	28	32	33	96	95	27
Number of villages having the facility				**08**	**08**	**07**	**05**	**07**	**10**
6	Cuttack-Sadar	124	0-5 km.	76	58	39	06	35	101
			6-10 km.	28	38	43	22	31	21
			>10 km.	20	28	42	96	58	02
Number of villages having the facility				**10**	**03**	**01**	**00**	**02**	**11**
7	Tangi-Choudwar	175	0-5 km.	142	107	67	33	34	95
			6-10 km.	19	46	73	13	12	49
			>10 km.	14	22	35	129	129	31
Number of villages having the facility				**35**	**29**	**27**	**26**	**25**	**34**
8	Barang	78	0-5 km.	75	19	18	05	02	43
			6-10 km.	03	24	25	04	02	13
			>10 km.	00	35	35	69	74	22
Number of villages having the facility				**13**	**03**	**03**	**02**	**02**	**04**
	REGION TOTAL	**934**		**128**	**95**	**101**	**87**	**92**	**115**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

5.3.4 EDUCATIONAL FACILITIES

The Region has adequate educational facilities considering the size of population. It has a total number of 43 colleges, 283 high schools, 459 middle schools, 3 medical colleges, 15 engineering colleges, 2 polytechnic and 18 adult educational centres. These facilities serve about 13.83 Lakh urban populations and 8.21 Lakh rural populations scattered in 934 villages. Most of the higher order facilities which serve the entire region are located in the urban areas particularly in Cuttack and Bhubaneswar.

There is overall improvement in the educational facilities in the Region in the last one decade (1991-2001). In 1991, more than 75 per cent of the villages had educational facilities as compared to 68 per cent in 1991. As per 2001 Census, more than 93 per cent of the Region's population has direct access to some short of educational facilities as against 90.81 per cent in 1991. Of 934 villages, 702 villages (75.12%) have primary school facilities, 259 villages (27.79%) have middle school, 180 villages (19.27%) have high school, and 06 villages have technical training school, 12 villages have intermediate college and 08 villages have Degree College. Most of the high and middle schools have primary school facility. Since information on number of teachers per school, enrolment, school buildings etc. are not available, qualitative assessment of the existing educational facilities is not possible.

Block-wise distribution of educational facilities in rural areas show that Cuttack Sadar, Barang and Jatani have more than 90 per cent of the villages having these facilities; Tangi Choudwar, Khurda, Bhubaneswar, Balipatna, have 80 to 92 per cent villages with educational facilities, Balianta, block has less than 80 per cent.

Facility-wise distribution shows that Balianta has the highest percentage of villages (93.18%) with primary school followed by Balianta (92.30 %), Bhubaneswar (83.73%) and Cuttack Sadar (80.64%). In terms of middle school, Balipatna has the highest percentage (38.63%) followed by Cuttack Sadar (33.88%). So far as high school is concerned, Bhubaneswar has the highest of 28.45 per cent of villages having high school while Tangi-choudwar has the lowest (13.14%).

Khurda, Jatni, Balipatna, Balianta and Baranga blocks do not have any technical training institutions. There is no intermediate college in Jatni and Balipatna blocks. Degree college is not present in Jatni, Balipatna and Tangi-choudwar blocks.

Over all educational facility in urban areas is somewhat better. The educational facilities in the rural areas, as per the population norm, appear to be adequate. However, in terms of physical distribution, there are few deficit areas. Location of high school facility does not follow the hierarchy of settlements or accessibility criteria.

Table 5.6 TABLE SHOWING DISTRIBUTION OF EDUCATIONAL FACILITIES

S.NO	DEVELOPMENT BLOCK	TOTAL NO OF VILLAGES	1=total no. of schools 2=total no. of villages	DISTRIBUTION OF EDUCATIONAL FACILITIES					
				Primary School	M.E. School	High School	Technical Training Institute	Intermediate College	Degree College
1	Khurda		1	88	38	28	00	03	02
		131	2	82	38	26	00	03	02
2	Bhubaneswar		1	103	36	35	02	01	01
		123	2	103	36	35	02	01	01
3	Jatni		1	66	29	16	00	00	00
		111	2	65	29	16	00	00	00
4	Balipatna		1	115	40	18	00	00	00
		88	2	82	34	15	00	00	00
5	Balianta		1	116	29	18	00	03	02
		104	2	96	29	17	00	03	02
6	Cuttack-Sadar		1	117	43	31	03	02	02
		124	2	100	42	31	03	02	02
7	Tangi-Choudwar		1	175	33	23	01	01	00
		175	2	117	33	23	01	01	00
8	Barang		1	65	18	17	00	02	01
		78	2	57	18	17	00	02	01
	REGION TOTAL	**934**		**702**	**259**	**180**	**06**	**12**	**08**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

5.3.5 ADMINISTRATIVE INFRASTRUCTURE

Out of a total of 934 villages in the region there are 188 villages which has Village Angan Wadi (VAW) centre constituting 20.12% of the total villages. Tangi-choudwar block has the highest number of villages having VAW's (36) followed by Jatni (32) and Khurda (28). However percent Jatni leads with 28.8% of its villages has VAW's followed by Balipatna with 27.3% and Khurda with 21.4%.

RI Head Quarters are present in 142 villages constituting 15.2% of the total villages in the region. Tangi-choudwar has the highest number of RIHQ (34) followed by Jatni (28). There are total 77 BDO (block development office) in the region however Cuttack-sadar has no BDO office.

85 villages in the region has police station with Jatni having the highest number 23 followed by Tangi-choudwar with 22.

There are total of 74 villages having fire station and 23 villages in Jatni and 22 villages in Tangi-choudwar have such facilities.

About 47% of the villages have Fair Price Shop. A total of 438 villages have Fair Price Shops. In Cuttack-sadar 108 villages out of a total 124 has Fair Price Shop constituting 87% of the total villages.

There are a total of 101 villages having Post office and Sub-Post office and 207 villages having Branch Post office. Cuttack-sadar has no post office.

104 villages have banking institution and 89 villages have Telegraph office.

89 villages have railway station and 193 villages have Bus stops. Jatni block alone has 24 villages having railway station. About 63% of bus stops in the region is in Khurda, Jatni and Tangi-choudwar.

176 villages have Public Call Office with Tangi-choudwar having the highest number (42) followed by Jatni (38) and Khurda (38).

Table 5.7 TABLE SHOWING DISTRIBUTION OF ADMINISTRATIVE INFRASTRUCTURE

S.NO	DEVELOPMENT BLOCK	TOTAL NO OF VILLAGES	NUMBER OF VILLAGES WITH ADMINISTRATIVE INFRASTRUCTURE														
			V.A.W Center	R.I. HQ.	BDO	Police Station	Fire Station	Fair Price Shop	Post Office	Banking Inst.	Bus Stop	Branch Post Off.	Sub-Post Off.	Telegraph Off.	Public Call Off.	Railway Station
1	Khurda	131	28	16	14	15	14	64	14	21	43	41	19	17	38	17
2	Bhubaneswar	123	20	18	10	12	10	21	10	14	18	28	11	11	24	12
3	Jatni	111	32	28	23	23	23	72	23	26	38	39	24	24	38	24
4	Balipatna	88	24	11	03	03	01	13	14	03	05	09	03	02	04	01
5	Balianta	104	22	17	03	04	01	28	15	09	18	14	08	03	07	01
6	Cuttack-Sadar	124	21	10	00	02	01	108	00	02	15	23	05	03	18	01
7	Tangi-Choudwar	175	36	34	22	22	22	91	23	25	40	42	26	25	42	30
8	Barang	78	05	08	02	04	02	41	02	04	16	11	05	04	05	03
	REGION TOTAL	**934**	**188**	**142**	**77**	**85**	**74**	**438**	**101**	**104**	**193**	**207**	**101**	**89**	**176**	**89**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

5.3.6 MARKET

The Existing market facility in the Region is very poor. Of the total 934 inhabited villages, only 153 villages (16.38%) have some sort of market facility. Of these, only 73 villages have daily market, 67 villages have bi-weekly market and 13 villages have weekly market. Tangi-choudwar has the highest number of 34 villages with market facilities of which 08 have daily-markets, 23 bi-weekly and 03 weekly market followed by Khurda with 33 markets of which 22 are daily-market. Balipatna and Cuttack-sadar have 07 and 08 markets respectively. The villages of these blocks depend mostly on the nearest towns.

Distribution pattern of market facilities shows that daily market is the most predominant in the Region. The blocks which do not have any urban settlements, the villagers depend more on the rural markets. In large number of villages, where there is no market facility, people have to travel long distances to avail it.

The numbers and physical distribution of the existing market facility in the Region, particularly, the blocks which do not have urban centres and falling within the agricultural belt is far from adequate to provide market facility for the overall economic development. Therefore, there is an urgent need to augment market facility in the rural areas, within the accessible limit, for more balanced development.

Table 5.8 TABLE SHOWING DISTRIBUTION OF RURAL MARKETS

S.NO	DEVELOPMENT BLOCK	RURAL POPULATION (2001)	TOTAL NO OF VILL.	DISTRIBUTION OF RURAL MARKETS (2001)			
				DAILY	BI-WEEKLY	WEEKLY	TOTAL
1	Khurda	118,996	131	22	08	03	33
2	Bhubaneswar	96,495	123	12	01	01	14
3	Jatni	79,491	111	15	05	03	23
4	Balipatna	104,197	88	00	07	00	07
5	Balianta	90,524	104	04	12	02	18
6	Cuttack-Sadar	130,224	124	08	00	00	08
7	Tangi-Choudwar	126,665	175	08	23	03	34
8	Barang	75,017	78	04	11	01	16
	Region Total	**821,609**	**934**	**73**	**67**	**13**	**153**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

5.3.7 SMALL SCALE INDUSTRIES AND COTTAGE INDUSTRIES

The distribution of cottage and household industries shows that most of the villages are having Rice Mill Huller, Carpentry and Blacksmith units. Out of a total of 934 villages' 305 villages have Rice Mill Huller units (32% of the total number of villages), 277 villages have Carpentry units (30% of the total number of villages) and 250 villages has Blacksmith units (27% of the total number of villages).

There are very few villages which has specialized industries such as Sabai grass, Khali making units, Coir works units, Bell metal units, Leather works units, Knitting works etc. a total of 3 villages has Sabai grass units, 6 villages has Khali making units, 11 villages has leather works units, 15 villages has Bell metal units, 17 villages has Knitting works and 20 villages has Oil Mill Ghani units. Balianta block has the highest number of Bell Metal units (108) spread in only 2 villages, and 184 Bamboo works units spread in 22 villages. There are villages which are specialized in certain type of industries. Khurda and Balianta blocks in the region has the maximum number of such units

Table 5.8 TABLE SHOWING DISTRIBUTION OF SPECIALISED HOUSEHOLD UNITS

TYPE OF INDUSTRY	VILLAGE	BLOCK	TOTAL NO. OF UNITS
BELL METAL	Pratapsasan	Balianta	99
	Muktapur	Khurda	40
POTTERY	Mallipur	Khurda	30
KHALI MAKING	Gadahaldia	Khurda	23
BIDI MAKING	Batapuran	Baranga	02
	Ramchandrapur	Cuttack	02
COIR WORKS	Balianta	Balianta	30
	Mallipur	Khurda	12
	Rajahansa	Cuttack	09
LEATHER WORKS	Kanheipur	Tangi-Choudwar	09
CARPENTRY WORKS	Podaput	Khurda	30

TYPE OF INDUSTRY	VILLAGE	BLOCK	TOTAL NO. OF UNITS
BAMBOO WORKS	Endrapal	Balianta	40
	Bhingarpur	Balianta	30
	Jaganathpur	Balianta	25
	Muktapur	Khurda	10
	Kaipadar	Khurda	10
CANE WORKS	Endrapal	Balianta	40
	Bhingarpur	Balianta	30
SABAI GRASS	Daleiput	Khurda	58
KNITTING WORKS	Endrapal	Balianta	35

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

5.3.8 AGRICULTURE INFRASTRUCTURE

Very few villages in the region have Warehousing and Cold storage facilities. Most of these facilities are situated at a distance greater than 10 kms from the village and for some villages the distance is even greater than 80 kms.

64 villages out of a total of 934 villages are having Private Ware house facility for fertilizer and 24 villages have Private Ware house facility for food items.

Cold storage facility is only available in 4 villages of Cuttack-sadar block.

Khurda, Jatni, Balipatna and Balianta blocks do not have any Warehousing or Cold storage facilities.

The highest number of Private warehouses both for food items and fertilizer are found in Tangi-choudwar and Cuttack-sadar blocks.

A total of 36 villages have co-operative warehousing facility for fertilizer and only 1 village has co-operative warehousing facility for food item.

Table 5.9 TABLE SHOWING DISTRIBUTION OF COTTAGE AND HOUSEHOLD INDUSTRIES

S.NO	DEVELOPMENT BLOCK	TOTAL NO OF VILLAGES	1=total no. of units 2=total no. of villages	DISTRIBUTION OF COTTAGE INDUSTRIES													
				Rice Mill Huller	Oil Mill Ghani	Carpentry Unit	Bell Metal Unit	Blacksmith Unit	Pottery Unit	Khali Making Unit	Coir Works Unit	Leather Works Unit	Bamboo Works	Cane Works	Mattress Making	Sabai Grass	Knitting Works
1	Khurda		1	46	00	112	45	55	62	23	15	06	67	04	00	58	03
		131	2	31	00	29	02	22	09	01	03	02	15	01	00	01	02
2	Bhubaneswar		1	41	00	72	00	76	22	00	00	00	14	00	00	00	00
		123	2	30	00	19	00	25	08	00	00	00	02	00	00	00	00
3	Jatni		1	41	02	154	00	72	63	00	02	00	12	00	00	00	00
		111	2	31	02	40	00	34	04	00	01	00	05	00	00	00	00
4	Balipatna		1	47	11	74	07	67	38	00	01	02	15	07	00	00	00
		88	2	35	07	48	02	46	06	00	01	01	03	01	00	00	00
5	Balianta		1	66	00	114	108	90	60	00	31	01	184	93	04	00	38
		104	2	43	00	42	02	44	13	00	02	01	22	05	01	00	02
6	Cuttack-Sadar		1	78	13	112	09	78	93	01	18	07	124	97	59	05	21
		124	2	59	09	42	02	33	23	01	04	03	24	17	19	01	06
7	Tangi-Choudwar		1	70	01	180	47	85	89	20	02	09	34	30	161	02	12
		175	2	47	01	51	07	32	17	04	02	01	08	06	57	01	07
8	Barang		1	42	01	08	00	37	31	00	01	08	35	20	00	00	00
		78	2	29	01	06	00	14	06	00	01	03	07	04	00	00	00
	REGION TOTAL	**934**		**305**	**20**	**277**	**15**	**250**	**86**	**06**	**14**	**11**	**86**	**34**	**77**	**03**	**17**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

Table 5.11 TABLE SHOWING DISTRIBUTION OF AGRICULTURE INFRASTRUCTURE

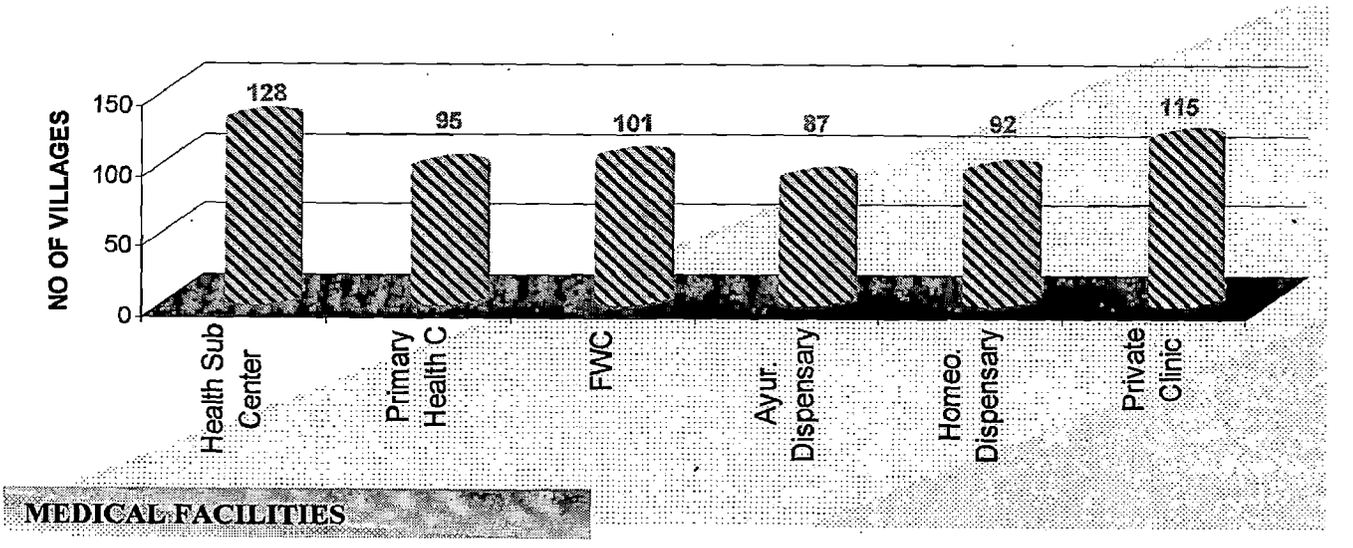
S.NO	DEVELOPMENT BLOCK	TOTAL NO OF VILLAGES	DISTANCE OF FACILITIES FROM VILLAGE	DISTRIBUTION OF AGRICULTURE INFRASTRUCTURE						
				Pvt. Warehouse (Food item)	Pvt. Warehouse (Fertilizer)	Co-op. Warehouse (Food item)	Co-op. Warehouse (Fertilizer)	Govt. Warehouse (Food item)	Govt. Warehouse (Fertilizer)	Cold Storage (Food item)
1	Khurda	131	0-5 km.	11	11	11	11	12	12	00
			6-10 km.	36	36	36	36	36	36	00
			>10 km.	84	84	84	84	83	83	131
Number of villages having the facility				**00**	**00**	**00**	**00**	**00**	**00**	**00**
2	Bhubaneswar	123	0-5 km.	04	92	02	97	02	27	10
			6-10 km.	37	07	37	08	37	10	39
			>10 km.	82	24	84	18	84	86	74
Number of villages having the facility				**00**	**10**	**00**	**12**	**00**	**00**	**00**
3	Jatni	111	0-5 km.	05	06	05	06	05	05	00
			6-10 km.	17	21	21	22	21	21	00
			>10 km.	90	84	85	83	85	85	111
Number of villages having the facility				**00**	**00**	**00**	**00**	**00**	**00**	**00**
4	Balipatna	88	0-5 km.	00	00	00	00	00	00	00
			6-10 km.	00	00	00	00	00	00	00
			>10 km.	88	88	88	88	88	88	88
Number of villages having the facility				**00**	**00**	**00**	**00**	**00**	**00**	**00**
5	Balianta	104	0-5 km.	00	00	00	00	00	00	00
			6-10 km.	05	05	05	05	05	05	01
			>10 km.	99	99	99	99	99	99	103
Number of villages having the facility				**00**	**00**	**00**	**00**	**00**	**00**	**00**
6	Cuttack-Sadar	124	0-5 km.	17	111	04	66	02	19	15
			6-10 km.	42	09	34	34	28	29	26
			>10 km.	65	04	86	24	94	76	83
Number of villages having the facility				**02**	**27**	**00**	**11**	**00**	**03**	**04**
7	Tangi-Choudwar	175	0-5 km.	57	100	21	88	17	50	07
			6-10 km.	21	19	24	27	19	24	31
			>10 km.	97	56	130	60	139	101	137
Number of villages having the facility				**13**	**27**	**01**	**13**	**00**	**03**	**00**
8	Barang	78	0-5 km.	42	06	01	00	02	00	00
			6-10 km.	12	07	05	05	06	04	03
			>10 km.	24	65	72	73	70	74	75
Number of villages having the facility				**09**	**00**	**00**	**00**	**00**	**01**	**00**
	TOTAL	**934**		**24**	**64**	**01**	**36**	**00**	**07**	**04**

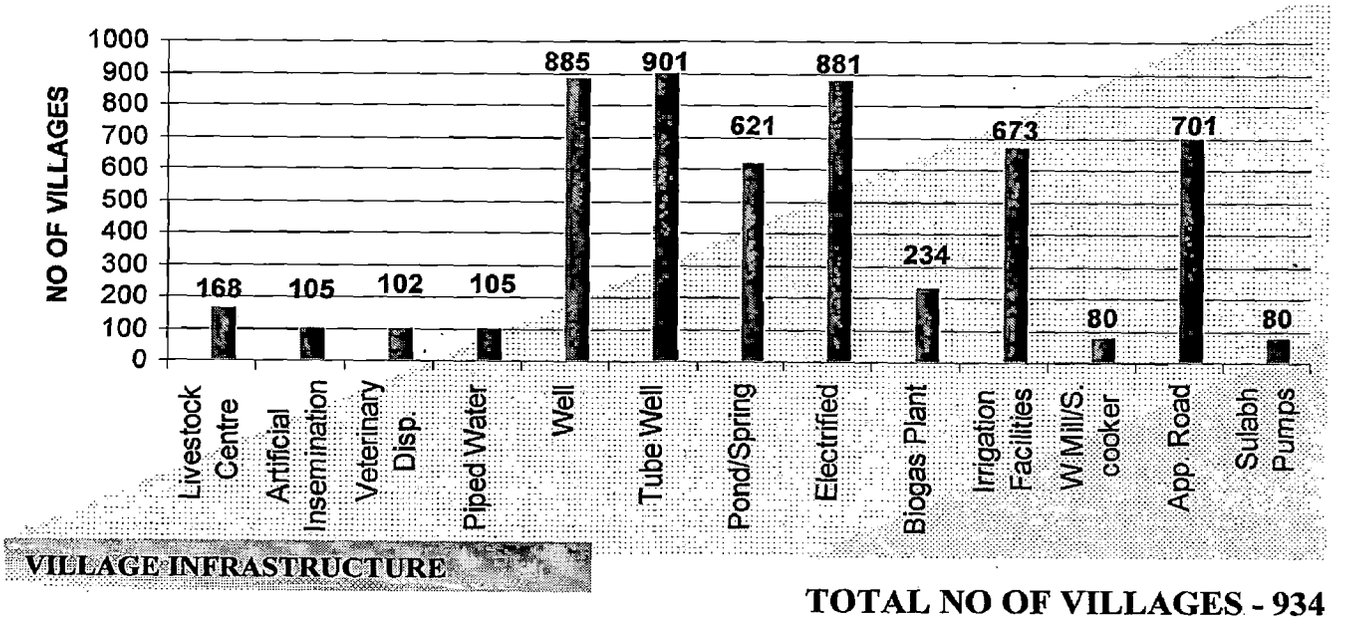
Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa

Table 5.12 TABLE SHOWING DISTRIBUTION OF ECONOMIC INFRASTRUCTURE

S.NO	BLOCK	TOTAL NO OF VILLAGES	1=total no. of units 2=total no. of villages Where facility available	DISTRIBUTION OF ECONOMIC INFRASTRUCTURE													
				Pump Set	Power Tiller	Tractor	[illegible]	Pisiculture Units	Diary Units	Poultry Units	Goatery Units	Piggery Units	Co-operative Scoiety	Milk Producer's Society	Fishermen's Society	Land Dev. Bank	Gramya Bank
1	Khurda		1	218	220	223	221	03	01	03	00	00	33	14	15	14	18
		131	2	117	110	116	116	01	01	03	00	00	33	14	15	14	18
2	Bhubaneswar		1	201	205	214	224	18	12	32	01	00	22	12	12	10	13
		123	2	111	107	103	110	07	04	17	01	00	22	12	12	10	13
3	Jatni		1	98	121	109	107	01	01	11	00	00	34	23	23	23	24
		111	2	63	61	60	62	01	01	08	00	00	34	23	23	23	24
4	Balipatna		1	126	148	134	126	00	00	00	00	00	08	25	02	01	03
		88	2	87	86	87	87	00	00	00	00	00	08	25	02	01	03
5	Balianta		1	147	172	141	161	80	08	42	00	04	10	34	04	02	10
		104	2	102	102	101	102	41	03	21	00	01	10	34	04	02	10
6	Cuttack-Sadar		1	276	05	80	540	106	212	18	07	06	14	02	17	01	07
		124	2	86	05	52	112	39	48	14	02	02	14	02	17	01	07
7	Tangi-Choudwar		1	144	07	46	293	31	53	48	05	00	41	25	32	25	28
		175	2	74	05	35	106	21	28	33	04	00	39	25	32	25	28
8	Barang		1	211	03	23	259	10	14	10	02	00	10	03	04	02	03
		78	2	57	02	16	57	07	13	10	02	00	10	03	04	02	03
	REGION TOTAL	**934**		**697**	**478**	**570**	**752**	**117**	**98**	**106**	**09**	**03**	**170**	**138**	**109**	**78**	**106**

Source: Field Survey and VICS, Directorate of economics and Statistics, Orissa





TOTAL NO OF VILLAGES - 934

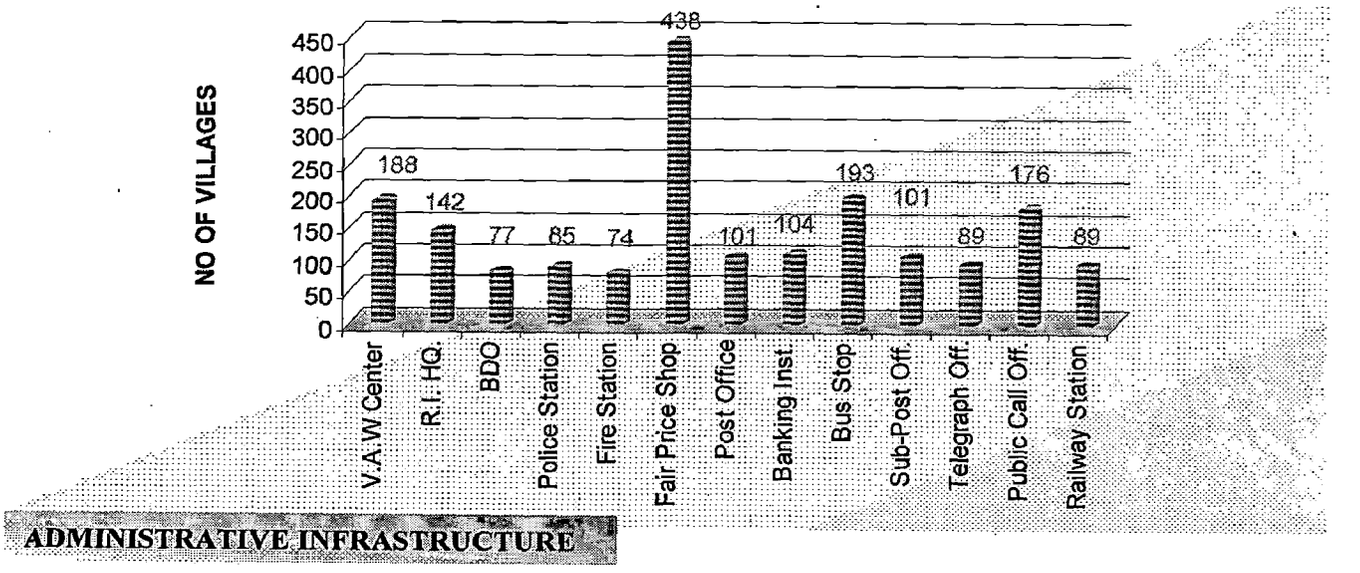


FIG-4.4 GRAPHS SHOWING BASIC FACILITIES AVAILABLE IN VILLAGES

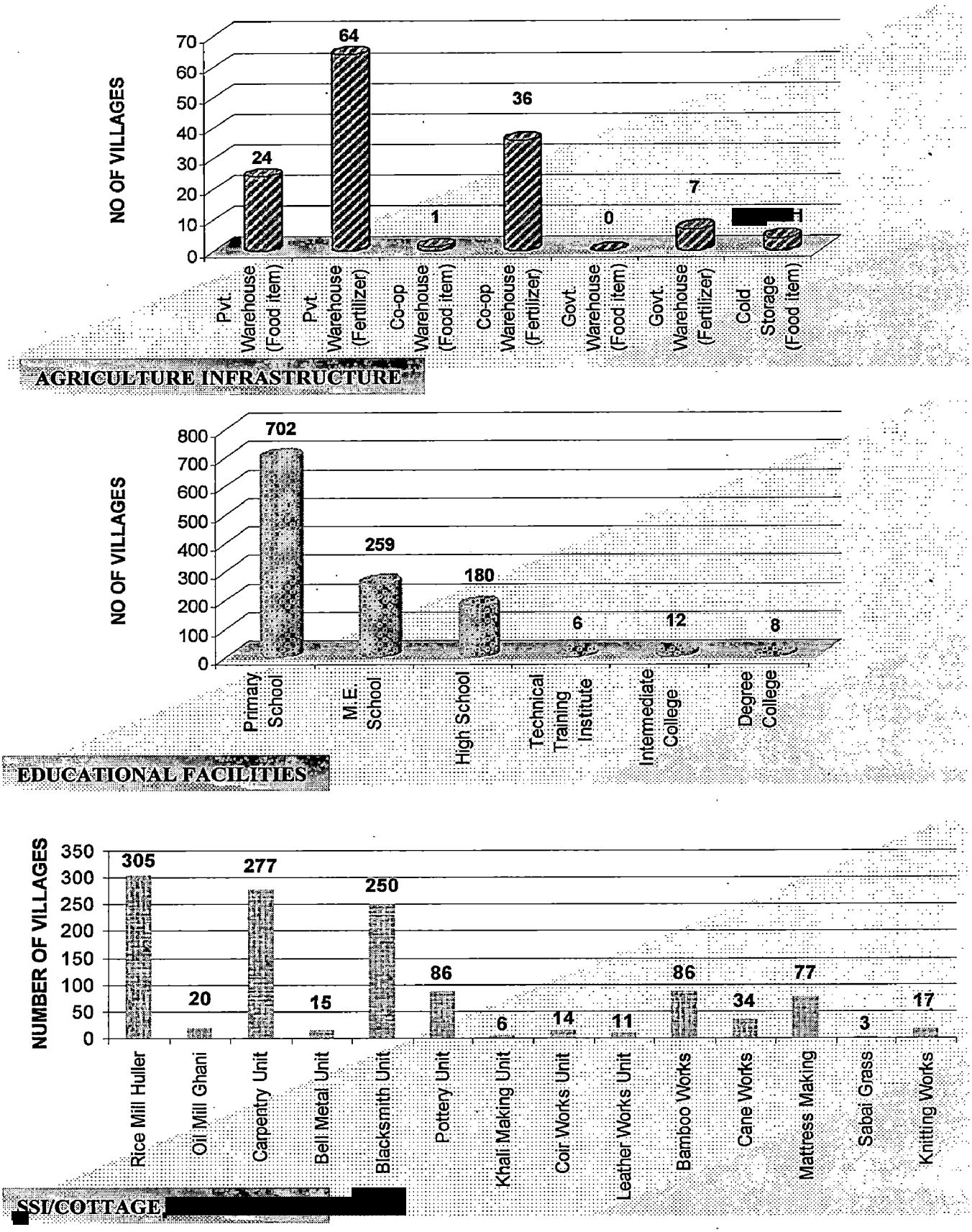


FIG-4.4 GRAPHS SHOWING BASIC FACILITIES AVAILABLE IN VILLAGES

CHAPTER 6

SETTLEMENT PATTERN

6.1 INTRODUCTION

In the Census of India 2001, the definition of urban area adopted is as follows:

a) All places with a municipality, corporation, cantonment board or notified town area committee, etc.

b) A place satisfying the following three criteria simultaneously:
   i) A minimum population of 5,000;
   ii) At least 75 per cent of male working population engaged in non-agricultural pursuits; and
   iii) Density of population of at least 400 per sq. km. (1,000 per sq. mile).

Apart from these, the outgrowths (OGs) of cities and towns have also been treated as urban under 'Urban Agglomerations'. Examples of out-growths are railway colonies, university campuses, port areas, military camps, etc. that may have come up near a statutory town or city. Each such individual area by itself may not satisfy the demographic criteria laid down at (b) above.

As per the census of India 2001, the total population of 2.2 million in the region lives in 934 rural and 12 urban settlements. The urban settlements are distributed in the 7 blocks of the region, while 1 block, namely, Balipatna do not have any urban settlement.

The region has a higher percentage of urban population (62.74%) compared to the rural population (37.26%), whereas in the state, urban population accounts for 17.43% and rural population 82.57% of the total population of the state. The region is most urbanized in whole of the state. The urban areas are mostly agglomerated around the two cities Cuttack, which was the former capital of Orissa and Bhubaneswar, the present capital of the state.

Table 6.1 DISTRIBUTON OF SETTLEMENTS, 2001

S.NO	DEVELOPMENT BLOCK	DISTRICT	RURAL SETTLEMENTS		URBAN SETTLEMENTS	
			1991	2001	1991	2001
1	Cuttack-Sadar	Cuttack	82	124	01	01
2	Tangi-Choudwar	Cuttack	152	175	02	04
3	Barang	Cuttack	76	78	-	01
4	Khurda	Khurda	117	131	01	01
5	Bhubaneswar	Khurda	112	123	01	02
6	Jatni	Khurda	88	111	01	02
7	Balipatna	Khurda	85	88	-	-
8	Balianta	Khurda	101	104	-	01
	Region Total		**813**	**934**	**06**	**12**

Source: Primary Census Abstract, Census of India, 2001

6.2 URBAN SETTLEMENTS

The region has a total of 12 urban settlements in 2001, which has increased from 6 in 1991. Tangi-choudwar has 4 urban centres followed by Jatni and Bhubaneswar which has 2 urban centres each and Cuttack, Khurda, Barang and Balianta have 1 each and Balipatna block has no urban settlements. Size-wise distribution shows that the percentage share of Class I, II and III towns has decreased while share of Class IV, V and VI towns has increased. Bhubaneswar and Cuttack together account 85% of the total urban population of the region. This shows the level of dominance of these two cities in the settlement pattern of the region.

Table 6.2 CLASSWISE DISTRIBUTION OF TOWNS AND POPULATION SHARE, 1991-2001

S.NO	CLASS OF TOWN	POPULATION SIZE	NO OF TOWNS		% OF URBAN POPULATION	
			1991	2001	1991	2001
1	I	1,00,000 >	02	02	86.83	85.48
2	II	50,000-99,999	01	01	05.33	03.95
3	III	20,000-49,000	02	02	07.19	05.91
4	IV	10,000-19,999	-	02	-	02.01
5	V	5,000-9,999	01	04	00.65	02.44
6	VI	< 5000	-	01	-	00.21
		TOTAL	**06**	**12**	**100**	**100**

Source: Primary Census Abstract, Census of India, 1991, 2001

During the decade 1991-2001, although there is an increase in the total urban population in the region from 938,509 in 1991 to 1,383,335 in 2001 by about 47.4%, but the share of urban population by the various classes of towns has shown a decrease in class I, II and III towns. This may be due to the fact that other small and medium towns with population less than 20,000 has shown a rise in the urban population due to faster growth of these towns. Another interesting feature is that there were no towns in class IV category in 1991 however in 2001 there are 2 such towns.

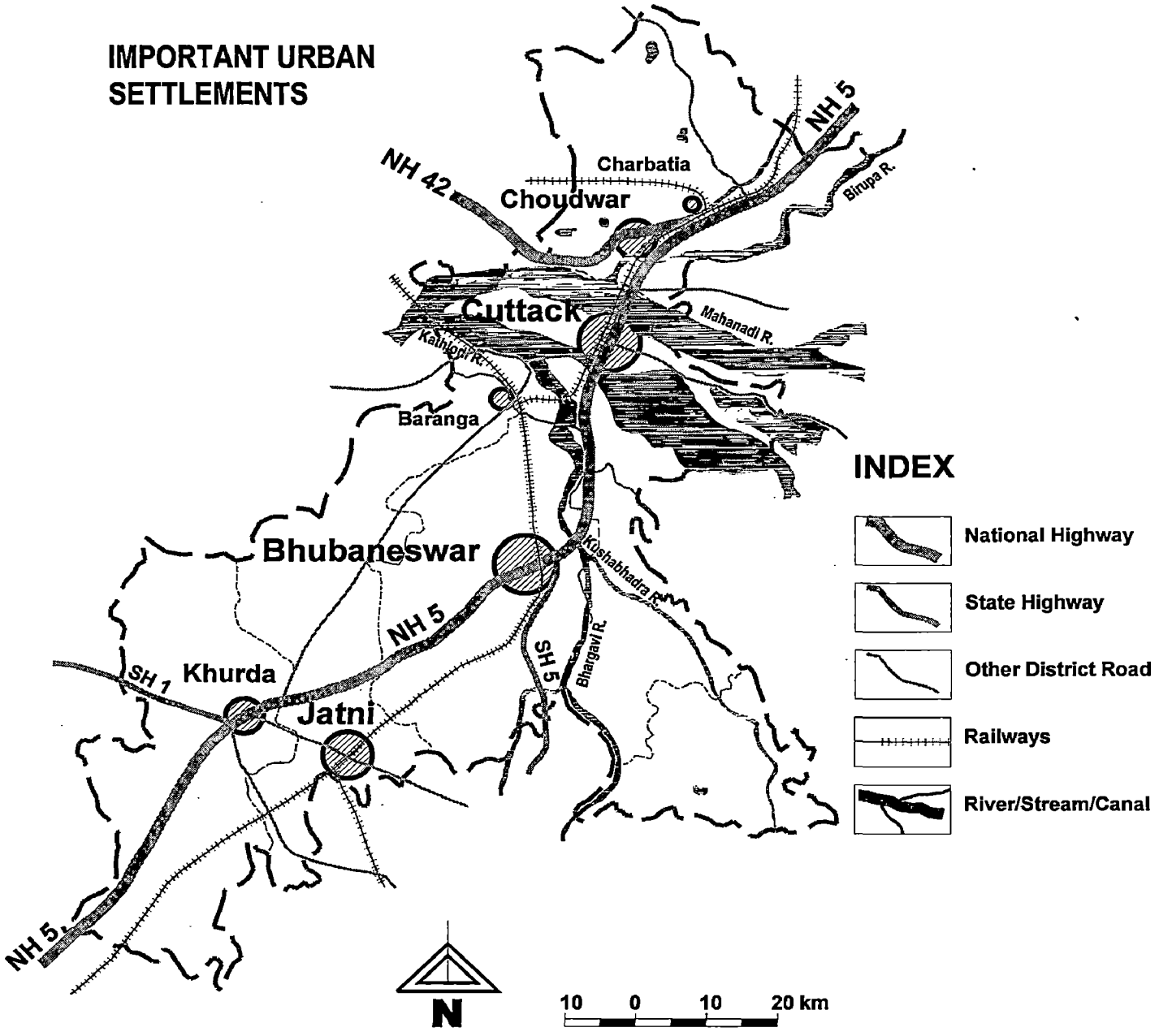
6.2.1 URBAN SETTLEMENT STATUS

Of the 12 towns, 8 are statutory towns- 2 Municipal corporations and 3 Municipalities and 3 Notified area committees (NAC's) as notified by the state government. Bhubaneswar and Cuttack have Municipal corporations; Choudwar, Khurda and Jatni have Municipalities while Baranga, Bhubaneswar, Balianta and Jatani have the Notified Area Committees. Charbatia is a non-statutory Census Towns included in the 2001 census. There are 1 urban agglomeration in the region- Tangi-choudwar UA comprising Cuttack and Choudwar and 1 Industrial Area comprising Choudwar.

Table 6.3 ADMINISTRATIVE STATUS OF URBAN SETTLEMENTS, 2001

S.NO	DEVELOP. BLOCK	URBAN CENTRES	STATUS	POPULATION (2001)	% of TUP
1	Cuttack-Sadar	CUTTACK	Municipal Corporation	535,139	38.6
2	Tangi-Choudwar	CHOUDWAR	Municipality	42,597	3.0
		CHOUDWAR	Industrial Area	9,901	0.7
		CHARBATIA	Census Town	5,232	0.4
		Tangi-Choudwar	Urban Agglomeration	15,133	1.2
3	Barang	BARANGA	Notified Area Committee	9,025	0.6
4	Khurda	KHURDA	Municipality	39,034	2.8
5	Bhubaneswar	BHUBANESWAR	Municipal Corporation	647,302	46.9
		BHUBANESWAR	Notified Area Committee	9,442	0.7
6	Jatni	JATNI	Municipality	54,550	3.9
		JATNI	Notified Area Committee	3,277	0.3
7	Balipatna	-	-	-	-
8	Balianta	BALIANTA	Notified Area Committee	12,703	0.9
	Region Total			**1,383,335**	**100**

Source: Census of India, 2001



CUTTACK-BHUBANESWAR REGION

Fig 6.1 MAP SHOWING URBAN SETTLEMENTS IN THE REGION

6.2.2 DEVELOPMENT OF URBAN CORRIDOR

Town wise distribution of urban population shows that Tangi-Choudwar, Cuttack-sadar, Bhubaneswar, Jatani and Khurda blocks together account for 97.74% of the total urban population. These towns located all along the National Highway-5 and Howrah-Madras main railway line, form almost a contiguous corridor-like urban belt stretching from Choudwar to Khurda over about 357sq.km. of area. The distance between Cuttack and Bhubaneswar is about 30km and this stretch of land is the most important part of the corridor. This corridor like development between these two cities is helped by the availability of vast unutilized government land in the western part of Bhubaneswar city, suitable for urban expansion as being away from the marshy low lying flood plain area of the Mahanadi delta in the east. The expansion around the Bhubaneswar city is the main factor for such development where new developments are taking place on the north and west side of the city up to Khurda and Jatani towns. Similarly, of Cuttack city, further development is taking place towards Choudwar town on the north where land is suitable for urban expansion and towards south-west at Bidanasi triangle.

Rest of the region is a vast rural area with fertile agricultural land forming major part of the Mahanadi delta and low-lying coastal plain. Urbanization is very low or absent in most part of this belt. The region has a very high level of urbanization of 62.74% in 2001 as compared to 17.43% for the state. Bhubaneswar has the highest (87.19%) followed by Cuttack sadar (80.43%), Jatni (42.11%), Tangi-choudwar (36.52%) and Khurda (24.70%). Baranga and Balianta have low level of urbanization, below 15%. Rapid urbanization has taken place in the blocks Tangi-Choudwar and Balianta compared to 1991 figures.

Bhubaneswar and Cuttack combined together contributed a very high growth of urban population in the region over the last few decades, in comparison with other towns in the region. The trend of urbanization of Bhubaneswar and Cuttack has brought a lot of changes in the overall distribution pattern of urban population due to their proximity. The growth pattern shows that most of the economic activities are getting concentrated in this urban belt with little impact on the vast rural areas. As it is more evident from the fact that the rural areas lack basic amenities and causing out migration towards the big cities.

6.2.3 DOMINANCE OF CUTTACK AND BHUBANESWAR

There is a trend towards excessive dominance of Cuttack and Bhubaneswar cities in the region. These two cities dominate the urban system, both demographically and functionally, of not only this region but of the state as well. Cuttack and Bhubaneswar together account for 85.48% of the total urban population of the region and about 21.6% of the urban population of the state.

BHUBANESWAR

Bhubaneswar city, being the capital of the state, is a major centre of administration. It is also an important tourist centre because of its location at the apex of the" Golden Triangle" of tourism. Industries, trade and commerce, education and cultural activities are also quite significant.

Bhubaneswar got its status as a census town in 1951. But in 1971 it upgraded itself into a class I town. Since then the city being the state capital as well center of all types of functional activities have shown the highest trend of urbanization. During 1961-71 and 1971-81 the growth rate was 176.07% and 107.80% respectively. During 1981-91, it has come down to 87.74% which is also much higher than the other towns and the state's average of 51.04%. During the decade 1991-2001 the growth rate has still reduced to 57.29%. Since 1961, the population of the capital city has increased manifold from a very small figure of 38,211 in 1961 to 4,11,542 persons in 1991- a net addition of 3,73,331 in three decades. The population in 2001 has increased to 647,302.

This phenomenal increase is due to the establishment of Central and State government offices, banks, private firms, educational institutions, and setting up of industrial estates in and around the city. After it became the capital of the state in 1956 most of the administrative set-up was shifted from Cuttack to Bhubaneswar. The capital city of Bhubaneswar is often referred to as the 'Cathederal City of India' because of the many temples in the city. A few of them are: Lingara Temple, Mukheswar Temple, Ananta Basudeva Temple and the Rajrani Temple,The Jain and the Buddhist rock-cut caves of Khandagiri, Udaygiri and Dhauli together with Ashoka's rock edict.

Table 6.4 GROWTH OF POPULATION IN URBAN CENTRES OF THE REGION, 1961-2001

S.NO.	TOWN/CITY	POPULATION					POPULATION GROWTH (%)			
		1961	1971	1981	1991	2001	1961-1971	1971-1981	1981-1991	1991-2001
1	**Cuttack (MC)**	146,308	205,759	295,268	403,418	535,139	40.63	43.50	36.63	32.65
2	**Choudwar (M)**	13,487	24,300	32,144	36,877	42,597	80.17	32.28	14.72	15.51
3	**Bhubaneswar (MC)**	38,211	105,491	219,211	411,542	647,302	176.07	107.80	87.74	57.28
4	**Khurda (M)**	12,497	15,879	22,386	30,591	39,034	27.06	40.98	36.65	27.59
5	**Jatni (M)**	16,068	29,804	41,755	50,116	54,550	85.49	40.10	20.02	08.85
	STATE TOTAL	109,650	1,845,397	3,110,287	4,232,455	5,517,238	66.30	68.54	36.08	30.35

Source: Census of India, 2001

CUTTACK

Cuttack, the capital of the state till 1956, is regarded even now as the political, social, and cultural nerve centre of the state. Completing 1000 years of its existence, the city plays an important role as the "commercial capital" of the state, provides good employment potentials and attracts thousands of migrant workers from all over the state.

Apart from its commercial importance this city also functions as the seat of the judiciary because of the location of the Orissa High Court. Government offices like Directorate of Industries, Board of Revenue, Directorate of Printing and Stationery, Directorate of Land Records and Map Publications, Directorate of Technical Education and Training are still functioning in the city. Besides there are many reputed educational institutions like Ravenshaw College, SCB Medical college, Bhubanananda Engineering school etc.

The city is famous for silver filigree works with intricate interwoven wires, horn and brass products. The river banks of Cuttack are protected by stone revetment, a great engineering marvel of the 11th century A.D. and a remarkable example of ancient technological skill of Orissa. The ruins of a medieval Barabati fort with its moat and gate and the earthen mound of the nine-storied palace on the bank of the river Mahanadi are noteworthy. Adjacent to the fort are two modern stadiums Barabati Stadium and Jawharlal Nehru Indoor Stadium. Being the shrine of the presiding deity of the city, the temple of Cuttack Chandi is normally visited by every Hindu visitor. A sacred shrine both for the Hindus and Muslims, Quadam-i-Rasool, having a compound wall and towers at each corner has inside three mosques with beautiful domes and a Nawabat Khana (music gallery). It is an object of veneration for Hindus and Muslims alike.

In other words the city is regarded as political, social and cultural centre of the state notwithstanding the fact that Bhubaneswar is the capital of Orissa. Cuttack has about 32.65% of growth during 1991-20011 which was 40.63%, 43.50% and 36.63%, during 1961-71, 1971-81 and 1981-91 respectively. The population has increased from 146,308 in 1961 to 535,139 in 2001. The increasing population pressure in the city has brought a lot of problems like traffic congestion, detoriation of services and amenities, crime and lack of housing facilities.

6.2.4 SMALL AND MEDIUM TOWNS

A study of eight small and medium towns of the region shows that their zones of influence are largely confined to the sub-divisions, tehsils or development blocks. These towns are chiefly important as sub-divisional centres influencing the agricultural economy and providing services on a limited scale.

JATANI

Jatani, is located at a distance of 19km from Bhubaneswar and 45km from both Cuttack and Puri. It is an important town of the newly formed Khurda district. The railway station at Jatani, better known as Khurda road, was established in 1861 and since then it is functioning as an important railway junction connecting Puri with the rest of the country through the main Howrah-Madras trunk line. One of the divisional headquarters of south eastern railway is located here.

Jatani, with a population of 54,550 in 2001, is a service town, where the tertiary activities provide employment to about 80% of the main workers of the town in 2001. Transport, storage and communication, trade and commerce and services for the salaried income group are the main activities. In 1992, Jatani had 24 industrial units employing 871 persons. The town has more than a thousand commercial establishments which meet the daily requirements of the town as well as its surrounding areas.

CHOUDWAR

Choudwar, predominantly a manufacturing town, is the industrial suburb of Cuttack. It is fast developing into a major industrial center. With the opening up of Mahanadi and Birupa bridge on NH-5, the importance of Choudwar-Cuttack road has increased considerably. Choudwar falls on NH-42 which connects Cuttack to Sambalpur.

Choudwar,with a population of 45,597 in 2001, is a part of Cuttack urban agglomeration and because of favorable location as well as government policy, it will continue to attract industrial activities in future also. At present, a number of large and medium scale units and

some ancillary industries are located; the important ones being paper mill, cotton textile mill, charge chrome alloys, etc. The organized industrial sector provided employment to 7,607 persons in 1992, which was more than 45% of the main workers of the town. Trade and commerce and service groups are other important activities of the town.

KHURDA

Khurda is the district headquarters of the newly created district of the same name. It is also the headquarters of Puri-Khurda Forest division. The town is 11 km. from Khurda Road railway station and 57 km north-west of Puri and 29 km and 60 km south-west of Bhubaneswar and Cuttack respectively. It is a nodal point of road traffic in the region. NH-5 passes through it. State highway connects it with Nayagarh, Daspalla, Phulbani etc. It is connected to Jatani, the nearest railway head, by a major district road.

Khurda is a bi-functional town, with a population of 39,034 (2001). Main functions are administration and services, industries, trade and commerce and agriculture. Khurda is an important centre of handloom industry. The lungi, napkin and sarees produced here have an all Orissa market. There are a few Hindu mathas in Garh Khurda i.e. the old fort area of the town. The civic affairs of the town are managed by a Notified Area Council. Industries provided employment to 2,365 persons in 1992. It is also a center of collection of agricultural produce and distribution of inputs and a market town for an extensive hinterland.

CHARBATIA

Charbatia, a small town with a population of 5,232 in 2001 located in the Tangi-Choudwar development block, is a military air base. It is well connected by rail and road NH-42 and is about 15 km from Cuttack. It has good buildable land but its development is slow because of being a restricted area.

BALIANTA

Balianta is a medium town with a population of 12,703 in 2001 located in Balianta block and managed by the Notified Area Council.

6.3 RURAL SETTLEMENTS

The region has a total rural population of 821,609 persons as per 2001 census distributed in 934 villages. The rural population in 1991 was 752,141. The growth rate of rural population during 1991-2001 was 9.2% which is much lower than the overall population growth rate of 29.62% for the region as a whole.

The villages in the region are generally small in size (below 500 population). This may be, firstly, because most part of the region is located in the highly flood prone Mahanadi delta where land is not suitable for sustaining large villages, secondly, the lateritic and coastal sandy soils having poor agriculture in other parts of the region is not able to sustain large villages. Most of the large size villages are located either in the fertile Mahanadi delta, which are free from flood, or along the river basins, canals and transport network.

Small size villages, with population less than 500, comprise about 43% of the total number of villages in the region, while the low medium size villages (500-1000) and medium size villages (1000-2000) constitute 27% and 21% respectively. Villages with population (2000-3000) constitute only 6% and above 3000 constitute 3% of the total number of villages in the region. The very large size villages having population above 5000 are in Cuttack-sadar, Balianta and Balipatna.

Table 6.5 SIZE-WISE DISTRIBUTION OF VILLAGES

S.NO	DEVELOPMENT BLOCK	NO OF VILLAGES	NO. OF VILLAGES WITH POPULATION SIZE						
			<500	500-999	1000-1999	2000-2999	3000-3999	4000-4999	>5000
1	Cuttack-Sadar	124	32	35	42	11	3	0	1
2	Tangi-Choudwar	175	96	38	25	11	4	1	0
3	Barang	78	27	27	16	4	2	2	0
4	Khurda	131	53	39	30	7	2	0	0
5	Bhubaneswar	123	64	27	21	9	2	0	0
6	Jatni	111	56	22	27	5	1	0	0
7	Balipatna	88	32	27	18	5	1	1	4
8	Balianta	104	43	36	15	5	3	1	1
	Region Total	**934**	**403**	**251**	**194**	**57**	**18**	**5**	**6**

Source: Primary Census Abstract, Census of India, 1991, 2001

6.4 SETTLEMENT PROBLEMS

1. There is excessive dominance of Cuttack and Bhubaneswar, both demographically and functionally, in the settlement system of the region.

2. Other towns are small with limited services to perform over the limited area and lack in promoting and supporting rural development by providing necessary functional linkages between rural and urban areas.

3. Inadequate supply of urban infrastructures, amenities and services in most of the towns.

4. Rural settlements lack in basic facilities like transport linkages, safe drinking water, electricity, health, housing, markets, post and telegraphs which has led to large scale migration from these areas to cities like Cuttack and Bhubaneswar.

5. Locational advantages have played major role in the location of services and facilities rather than the population size of the rural settlements, resulting in the spatial gaps in the distribution of services and facilities.

6. The strong linkages and active interactions between the urban settlements in the Cuttack-Bhubaneswar corridor have started showing signs of emergence of a conurbation (linear metropolis).

7. There is a lack of functional hierarchy. Concentration of activities in Bhubaneswar and Cuttack has constrained the proper growth and efficient functioning of smaller towns in the region, especially the growth of small market towns. This has created a void between the rural settlements and the large urban settlements.

8. At present, the urban influence of smaller towns over rural areas is marginal. These towns are located, by and large, in central places and can be used for the exchange of goods and services. However, due to the lack of infrastructure and low resource potential, these towns are not functioning as growth points.

CHAPTER 7

DEVELOPMENT POTENTIAL AND PLANNING ISSUES

7.1 INTRODUCTION

With a view to developing the socio-economic scenario in rural areas growth centers are being set-up at selected places. Through these centers some of the urban facilities will be made available to the rural masses. Main features of these growth centers will be – a good market, motor-stand with different facilities, piped drinking water supply system, electricity, developed health facilities, drainage, up gradation of the educational infrastructure and a multi-purpose center with training facility. To develop the communication facilities gradually will come tele-communication facilities, post office, bank etc. For this, potential and strength of growth centres has to be assessed.

7.2 POLICIES FOR PROMOTING WELL-KNIT REGIONAL SETTLEMENT SYSTEM

The policies that would govern the settlement pattern in the region are:

1. Development of a well-knit regional settlement system where Cuttack and Bhubaneswar would be allowed to grow within their sustainable limits.

2. Focus on small and medium towns in the region, because such centres can play important role in supporting social and economic development in the rural areas by providing the rural population with access to education and health facilities, agricultural extension services, irrigation offices and agro-industries linked to local products. Development of small and medium towns will also lead to urban expansion within large city regions.

3. Rural development should be encouraged by providing facilities and services in appropriate rural growth centres which stimulate production.

4. Development efforts should be redirected towards integrated spatial development, aimed at the advancement of a coherent system of central places which should interlink the economic and social activities of the people. A spatial system should emerge that is better suited to transmit economic growth and to provide adequate goods and services. The objective of such a development strategy should be two fold. On the one hand, the present urbanization trend, directed mainly at primate cities, should be re-oriented by fostering decentralization of activities and people. Simultaneously, the integration of urban and rural functions should be attained by means of a more balanced and mutually reinforcing system of central places, bringing a series of necessary functions into the actual reach of the rural population.

7.3 PROPOSED SETTLEMENT SYSTEM

Based on the existing system of settlements in the region, their adequacy or otherwise to serve the growing needs of the region, the gaps that exist, the new kind of pattern that is necessary to be established to close these gaps as well to promote development in a rapid manner, an attempt has been made here to evolve a settlement system for the region.

In identifying the various growth centres in the region, it has been aimed at selecting the settlements which are most likely to evolve naturally, because they already possess a certain "growth rating" on account of certain economic, social, cultural and administrative developments. The factors which have been taken into account while selecting the centres both urban and rural are:

URBAN

- **Urban population size and rates of growth**
- **Spatial location**
- **Economic and industrial potentials along with its hinterland**
- **Social and cultural factors**
- **Administrative factors**

- **The present importance of the settlement.** The services that particularly mark the importance of a settlement are the higher order health facilities, secondary education and accessibility etc.

- **The catchment population of the settlement.** The 2001 census population for each village can be grouped with surrounding villages to suggest optimum catchment population.

- **The distance between centres.** Ideally the number and distribution of centres should be such as to ensure that no population concentration is more than 5 km from a centre to ensure accessibility to its services.

- **The communication links to the centre.** Each centre should have easy access to its hinterland and other selected centres.

- **The development potential.** The potential for increased agricultural production in each catchment area and the population for business development in each centre are important considerations.

7.4 HEIRARCHY OF SETTLEMENTS

Spatial development planning would seek to integrate and locate investments in such a way that they not only stimulate economic growth but also contribute to the evolution of an articulated and integrated spatial system capable of more widely spreading the benefits of growth to all areas of the region. Investments would be selected and located to enhance the capacity of various types of settlements, especially towns and cities, to act as service centres and catalysts of growth for rural development.

According to Babarovic (regional planner, Brazil) in India, that "an economic system works best and works in an efficient manner when appropriate linkages are established" among settlements of various sizes and that "the location and provision of missing

infrastructure is a necessary exercise in regional spatial planning". But it is also recognized that articulation and integration of the spatial system alone, although a necessary condition for equitable growth, would not solve the problems of marginality and poverty in economically lagging regions. Other government policies, which often allow exploitation of poor regions and subsistence populations, must also be changed so that the "terms of trade" between urban and rural areas, agricultural and industrial sectors and traditional and modern occupation groups become more equitable.

From the various functional and spatial analyses, five levels of development for the region, three for urban areas, i.e. Regional Centre, Sub-Regional Centre and Market Town and two for rural areas, i.e. Market Centre and Service Centre have been suggested. To identify a set of appropriate services, facilities and institutions needed at each of the five levels of settlement - to meet basic human needs, articulate the settlement system and stimulate resource development.

Regional centre

Performs functions at the apex for a large area. Marked by specialized secondary and tertiary sector activities. Typical features are advanced industrial development and concentration of administrative and higher order services.

Sub-Regional centre

A Sub-Regional centre is generally a medium size town or intermediate city performing a variety of roles, particularly in promoting and supporting rural development, in achieving a more balanced distribution of urban population, and in providing functional linkages between the smaller towns and big towns as well as rural and urban settlements. Its role in decentralization of economic and social activities is also important. The economic service functions such as infrastructure like transport, power and water, credit and banking, marketing, managerial services and training and research are provided in the Sub-Regional centre itself, as industrial activities get localized, whereas in the case of primary sector, the services have to be diffused in the hinterland of the centre. So far as

tertiary services are concerned, these include retail distribution, rural services like health, education, cultural activities, etc. utilities like water, power and transport, administrative services and miscellaneous services. They can reach the population dependent on the primary sector through the Service Towns and Service Centres.

Market Town

The Market Town is a small town having linkages with immediate rural hinterlands. The Market Town in addition to service functions will also have a large scale agricultural market with regulated market principal yard and necessary warehousing and storage facilities. It may also provide for agricultural produce in the form of rice mills, oil mills etc. the production in the primary sector which feeds the secondary sector, especially the agricultural produce pass through the Market Town which in turns get linked with growth points of the secondary sector.

Market Centre

The Market Centre is the potential rural centre having good accessibility, better services and facilities like education and health and has the capacity to serve a catchment population of more than 30,000. This centre is also ideal for locating the sub-yards of Regulated Markets and other basic facilities, communication systems, vocational services and professional skills of lower level. The centre should have easy access to its hinterlands and the Market Towns.

Service Centre

The Service Centre is the next order potential village having relatively better services and facilities in terms of education, health, communication, accessibility and has the capacity to serve a catchment population of 10,000. This centre is proposed to provide basic social amenities and facilities for population engaged in agriculture and other primary activities. Rural Service Centres would contain services and facilities to assemble agricultural commodities for marketing; provide local periodic marketing functions; extend transport access to market towns and larger urbanized centers.

Table 7.1 SERVICES, FACILITIES, AND INFRASTRUCTURE PROPOSED FOR EACH SETTLEMENT LEVEL

S.NO.	GENERAL FUNCTIONS	RURAL SERVICE CENTRES	MARKET TOWNS AND MARKET CENTRES	REGIONAL AND SUB-REGIONAL URBAN CENTRES
1.	**Transport and communication**	Surfaced, all-weather roads	Asphalted, all-weather roads	Concrete highway to major urban centres
		Bus stop	Bus terminal	Bus terminal with major repair facilities
		Regular bus or jeep service to rural collection points	Regular bus or jeep service to rural service and regional urban centres	Regional and interregional trucking and bus services
		Telegraph service	Telegraph-radiogram service	Telephone exchanges linked to major urban centres and market towns
		Postal service	Postal services	Postal distribution centres
			Gas and service station	Gas and service station
			Auto spare-parts retail store	Auto and machine repair shops
				Vehicle and machine spare-part shops
				Railroad, port and air terminals
2.	**Public utilities**	Piped water supply point	Residential piped water supply	Piped water system
		Small water filtration facilities	Residential and commercial area drainage systems	Sewage and drainage system
			Electrical energy station	Electric supply grid
				Waste disposal system

Table 7.1 SERVICES, FACILITIES, AND INFRASTRUCTURE PROPOSED FOR EACH SETTLEMENT LEVEL

S.NO.	GENERAL FUNCTIONS	RURAL SERVICE CENTRES	MARKET TOWNS AND MARKET CENTRES	REGIONAL AND SUB-REGIONAL URBAN CENTRES
3.	**Marketing, trade and shopping**	Periodic market facilities	Daily market facilities	Diversified daily market
		Farm implements and agricultural supply shop	Retail outlets for farm supplies	Distribution outlets and sales offices for farm machines
		Marketing co-operative outlet	Wholesale outlets for farm implements	Farm-supply wholesalers
		Storage facilities	Cold storage and warehouse facilities	Cold storage and warehousing
		General store	Grocery shops	Diversified commercial retail and wholesale establishments
		Milling facilities	Household-goods retail shops	Consumer specialty shops
			Small-scale craft shops	Cottage industry
				Agricultural processing plants
				Agricultural commodity brokers and distributors' outlets
4.	**Industrial and manufacturing**	Small machine repair shops and metal shops	Small-scale consumer goods manufacturing facilities Small machine, implement and metal shops	Rural goods production and distribution facilities
				Commodity processing and packaging
				Small tool and implement production facilities

Table 7.1 SERVICES, FACILITIES, AND INFRASTRUCTURE PROPOSED FOR EACH SETTLEMENT LEVEL

S.NO.	GENERAL FUNCTIONS	RURAL SERVICE CENTRES	MARKET TOWNS AND MARKET CENTRES	REGIONAL AND SUB-REGIONAL URBAN CENTRES
5.	**Education**	Primary schools	Primary schools and High Schools	Primary and secondary schools
		Vocational education facilities	Vocational schools	Specialized vocational training programmes
			Agricultural demonstration facilities	Regional agricultural research station
6.	**Health**	Dispensary-clinic		
		Maternal/child care service	Area health office	Public health offices
			Physicians, dentists	Physicians, dentists, surgeons
			Drugstores	Retail pharmaceutical outlets
7.	**Finance**	Rural bank	Commercial and savings bank facilities	Development and commercial bank branch with savings and loan facilities
		Credit co-operative	Credit co-operatives	Urban and rural credit co-ops
			Rural bank with non-agricultural loan programme	Brokerage firms and Chambers of commerce
			Money lenders	Small industry and business incentive programmes
				Insurance and financial establishments

7.5 HEIRARCHY OF SETTLEMENTS AND CENTRAL FUNCTIONS

The hierarchy of settlement is based on their centrality. This can be described in terms of quality and quantity of central functions performed by the settlement. A central function is by nature, one that is available in a few settlements, yet being availed of by number of settlements. The quality of a central function can be affected by:

i) The number of different types of services offered, and
ii) The level at which they are offered.

The hierarchy of settlements is closely associated with the hierarchy of central functions. The latter can be determined by considering individual central functions and by identifying their component parts. A central function is composed of many sub-functions and thus, within a particular central function it is possible to identify the different levels at which it is being performed.

The concept of centrality when applied to a predominantly rural area has to take note of, among other things, the population size of the place. This often serves as a proxy variable for many existing and potential functions. This is because the larger the population the greater is the present demand for services and also the greater the pull of the place to attract them over time.

7.6 MEASUREMENT OF CENTRAL FUNCTION

Study of the functional hierarchy of urban and rural settlements in the region gives an idea of socio-economic organization under which they are operating. The determination of exact pattern of settlements requires sophisticated mathematical and modeling analysis of data on input and output ratios, inter and intra regional flow of goods and services, growth potential etc. In absence of data on these aspects, a simple empirical methodology has been evolved. In this methodology aim is to bring out the level of disparities between various settlements on the basis of availability of certain common functions.

It is proposed that the levels of functional hierarchy should be given numerical values (score) on the basis of their relative importance. For example, if there is one primary school in a village, it will get say a rating of "one point". As against this, if Cuttack has 30 primary schools it will get a score of 30 points. The next higher level, a secondary school is awarded a value of 1 plus 1 and the third, 1 plus 1, and so on. The numerical value of that level will be multiplied by the quantity of that function at that level, in order to arrive at the centrality of that settlement as far as the function is concerned. It is strictly understood that the low level of functional hierarchy rests under the influence of the next higher level.

For analysis of urban and rural settlements, the centrality of settlements in the Cuttack-Bhubaneswar region was determined on the basis of weightages assigned in accordance of importance of the functions on a 10-point scale and multiplied with the score of that settlement.

CENTRALITY SCORE = SCORE X WEIGHTAGE

Table 7.2 WEIGHTAGE ASSIGNED TO VARIOUS FUNCTIONS

S.NO	FUNCTION	WEIGHTAGE
1	POPULATION	10
2	EMPLOYMENT	9
3	VILLAGE INFRASTRUCTURE	8
4	MEDICAL FACILITIES	7
5	EDUCATIONAL FACILITIES	6
6	ADMINISTRATIVE INFRASTRUCTURE	5
7	MARKET	4
8	SSI/COTTAGE INDUSTRIES	3
9	AGRICULTURE INFRASTRUCTURE	2
10	ECONOMIC INFRASTRUCTURE	1

In order to determine the centrality of settlements detailed score of various functions and sub-functions are given in the following tables.

Table 7.3 TABLE SHOWING THE SCORE AND WEIGHTAGE OF VARIOUS CENTRAL FUNCTIONS AND SERVICES AND FACILITIES

SNO	CENTRAL FUNCTION	SERVICES/FACILITIES/FUNCTIONS	SCORE	WEIGHTAGE
1	**POPULATION**	Total population	**<500 = 1 500-999 =2 1000-1999=3 2000-2999=4 3000-3999=5 4000-4999=6 >5000 =7**	**10**
[redacted]	**EMPLOYMENT**	Total workers =Total main workers + Total Marginal workers (TMW includes Cultivators+ Agricultural labourers+ Household Industry, Manufacturing, processing, servicing and repairs+ Other workers)	**%of total [redacted]**	**9**
3	**VILLAGE INFRASTRUCTURE**	Live stock Centre available in the village A. I. Centre available in the village Veterinary dispensary available in the village Others available in the village Pipe water available inside village Well inside the village Tube Well inside the village No. of Tube Well functioning inside village Pond available in village Spring available in village Village Electrified Biogas Plant inside village Sources of irrigation in village(Canal, Lift, Dug Well, Tank, Water Harvesting Structure) Wind mill available in village Solar cooker available in village Sulabh pumps in village	**If available=1 If not available=0**	**8**

Table 7.3 TABLE SHOWING THE SCORE AND WEIGHTAGE OF VARIOUS CENTRAL FUNCTIONS AND SERVICES AND FACILITIES

SNO	CENTRAL FUNCTION	SERVICES/FACILITIES/FUNCTIONS	SCORE	WEIGHTAGE
4	**MEDICAL FACILITIES**	Health Sub Centre inside village P.H.C. inside village F.W.C. inside village Ayurvedic dispensary inside village Homeopathic dispensary inside village Private Clinic, Allopathic inside village Private Clinic, Ayurvedic inside village Private Clinic Homeopathic inside village	**If, d=0km=2 d<5km=1 d≥5km=0 where d =distance of facility from village**	**7**
5	**EDUCATIONAL FACILITIES**	No. of Primary schools inside the village No. of High school inside the Village No. of M.E. School inside the Village No. of Technical Training Institutions inside the Village No. of Intermediate College inside the village No. of Degree College inside the village	**Rating of PS=1 ME=2 HS=3 TTI=4 IC=5 DC=6 Score = Number X Rating**	**6**
6	**ADMINISTRATIVE INFRASTRUCTURE**	V.A.W,Center Available in village R.I. H.Q. Available in village B.D.O. in the Village Police Station in Village Fire Station in Village Fair Price Shop Available in village Post Office Available in Village Banking Institution in Village Bus Stop Available in Village Branch Post Office Available in village Sub-Post Office in Village Telegraph Office Availlabe in Village Public Call office Available in village Railway Station Available in Village	**If available=1 If not available=0**	**5**

Table 7.3 TABLE SHOWING THE SCORE AND WEIGHTAGE OF VARIOUS CENTRAL FUNCTIONS AND SERVICES AND FACILITIES

SNO	CENTRAL FUNCTION	SERVICES/FACILITIES/FUNCTIONS	SCORE	WEIGHTAGE
7	**MARKET**	Whether Weekly or bi-weekly market in the village available	**Not Available =0** **Available & d ≥ 5km=1** **Available & d < 5km=2** **Available & d =0km =3** **where d =distance of facility from village**	**4**
[redacted]	**SSI/COTTAGE INDUSTRIES**	No Of Rice mill Huller inside Village. No Of Oil mill Ghani inside Village No Of Carpentry unit inside village No Of Bell metal unit inside village No Of Blacksmith unit inside Village No Of Pottery unit inside village No Of Khali making inside village No Of Bidimaking unit inside village No Of Coir works unit inside Village No Of Leather works unit inside Village No Of Bamboo works inside the Village No Of Cane works inside the village No Of Mattress making inside the Village No Of Sabai grass unit inside the village No Of Knitting works inside the village No Of Other cottage, household industry inside village	**Actual no's**	[redacted]
9	**AGRICULTURE INFRASTRUCTURE**	Private ware house - Food item - distance in K.M. Private ware house - Fertiliser- - distance in K.M. Co-operative - ware house - food item -distance in K.M. Co-operative - ware house – fertilizer- distance in K.M. Govt. ware house -food item -distance in K.M. Govt. ware house -fertiliser -distance in K.M. Cold storage-food item- distance in K.M	**If, d >10km=2** **d is 5-10km=1** **d is < 5km=0** **where d =distance of facility**	**2**

Table 7.3 TABLE SHOWING THE SCORE AND WEIGHTAGE OF VARIOUS CENTRAL FUNCTIONS AND SERVICES AND FACILITIES

SNO	CENTRAL FUNCTION	SERVICES/FACILITIES/FUNCTIONS	SCORE	WEIGHTAGE
10	**ECONOMIC INFRASTRUCTURE**	No. of Pump set in village No. of Power tiller in village No. of tractor inside village No. of sprayer inside village No. of other Ag. Implements inside village Pisiculture- Private - no. of units Pisiculture- Cooperative - no. of units Pisiculture- Government - no. of units Dairy units- Private - no. of units Dairy units- Cooperative - no. of units Dairy units- Government - no. of units Poultry units- Private - no. of units Poultry units- Cooperative - no. of units Poultry units- Government - no. of units Goatery units- Private - no. of units Goatery units- Cooperative - no. of units Goatery units- Government - no. of units Piggery units- Private - no. of units Piggery units- Cooperative - no. of units Piggery units- Government - no. of units	**Actual no's**	**1**
		Cooperative Society inside village Private Trader inside village Co-operative Bank inside village Schedule Bank inside village Land Development Bank inside village Milk Producers Society inside village Fishermen's Society inside Village Gramya bank inside the village Other Credit facility inside the Village	**If available=1** **If not available=0**	**1**

7.7 IDENTIFICATION OF GROWTH CENTRES

Based on the above mentioned criteria the hierarchy of settlements is arrived at by adding the weightage to make a composite score for the potential functions of each settlement. A total of 81 growth centres in the region, both for urban (8) and rural (73) areas have been identified for development.

Table 7.4 ANALYSIS OF POTENTIAL GROWTH CENTRES IN THE REGION

GROWTH CENTRES	EXISTING	POTENTIAL	REMARKS
Regional Centres	2	-	Cuttack and Bhubaneswar are existing Regional Centres
Sub-Regional Centres	3	-	Choudwar, Khorda, and Jatani Towns are Existing Sub-Regional Centres
Market Towns	3	5	8 settlements, 3 existing small towns and 5 potential rural centres are selected to perform the functions of Market Towns
Market Centres	-	20	20 rural centres having potentials and better facilities are selected to develop as Rural Market Centres. At present none of the settlement fulfills all the criteria
Service Centres	-	48	118 villages with varied potentials and linkages with their catchment areas are selected to develop as Rural Service Centres
[redacted]	08	[redacted]	81

Based on the above facts following settlements have been designated as Regional Centres, Sub-regional centres, Market towns, Market centres and Service centres.

HEIRARCHY	NO	PROPOSED CENTRES	POPULATION (2001)	STATUS
Regional Centres	1	CUTTACK	535,139	Municipal corporation
	2	BHUBANESWAR	647,302	Municipal corporation

Since Cuttack and Bhubaneswar are the most urbanized areas in the region with population above 5 lakhs each and having all the prerequisites in terms of socio-economic infrastructure, market, transport and communication and market they will serve as Regional Centres in the region. They both are having municipal corporations.

The next lower order urban areas Choudwar, Khurda and Jatni will serve as Sub-Regional Centres. They have a population of around 40,000 each and have Municipalities.

A total of 8 settlements, 3 existing small towns and 5 potential rural centres are selected to perform the functions of Market Towns. Charbatia in Tangi-choudwar and Gopalpur in Cuttack-Sadar are Census Towns and Balianta is Notified Area Council to perfom as Market Towns. Besides the 5 rural blocks HQ Balipatna, Belagachhia (in Baranga Block), Kanapur (in Khurda Block), Mendhasala (in Bhubaneswar Block) and Benapanjari (in Jatni Block) will serve as Market Towns.

HEIRARCHY	NO	PROPOSED CENTRES	POPULATION (2001)	STATUS
Sub-Regional Centres	1	CHOUDWAR	42,597	Municipality
	2	KHURDA	39,034	Municipality
	3	JATANI	54,550	Municipality
Market Towns	1	CHARBATIA	5,232	Census Town
	2	GOPALPUR	5,451	Census Town
	3	BALIANTA	12,703	Notified Area Council
	4	BALIPATNA	2,850	Rural Block (HQ)
	5	BELAGACHHIA	4,536	Rural Block (HQ)
	6	KANAPUR	3,560	Rural Block (HQ)
	7	MENDHASALA	3,085	Rural Block (HQ)
	8	BENAPANJARI	2,517	Rural Block (HQ)

A total of 20 Market Centres and 48 Service Centres have been selected for development in the 8 blocks of the region.

BLOCKS	NO	MARKET CENTRES	N0	SERVICE CENTRES
KHURDA	1	CHATIPUR	1	KAIPADAR
	2	GADAHALDIA	2	BAJPUR
	3	NIJIGARH TAPANGA	3	MALLIPUR
	4	MUKTAPUR	4	PALLA-TOTAPADA
			5	KERANGA
			6	JANKIA
			7	NUAGAON (WILKISAN NAGAR)
BHUB[redacted]AR	1	PATHARGADIA	1	SISUPAL
	2	GOTHAPATANA	2	DARUTHENGA
	3	KAN[redacted]	3	NAHARKANTA
	[redacted]	[redacted]	[redacted]	IN[redacted]
			5	BANKUL
			6	PATRAPADA
JATNI	1	PALASAPUR	1	CHHANAGHAR
			2	ARAGUL
			3	JAMUKOLI
			4	OGALPADA
			5	BADATOTA
			6	GANGAPADA
BAI[redacted]	1	MUKUNDADASPUR	[redacted]	[redacted]
	[redacted]	GARADEIPANCHAN	2	BHAPUR
			3	MAJHIHARA
			4	[redacted]
			5	GU[redacted]
			6	DEULIDHARPUR
			7	RAJAS
BALIANTA	1	PRATAP SASAN	1	JHINTISASAN
	2	BHINGARPUR	2	NAKHARA
	3	BENUPUR	3	HIRAPUR
			4	KAKARUDRAPUR
			5	JAYAPUR
			6	PRATAPRUDRAPUR
CUTTACK-[redacted]	1	BIRIBATI	1	PHAKIRPADA
	[redacted]	KANDARPUR	2	ATHANGA
	[redacted]	[redacted]	3	PRATAPNAGAR
	[redacted]	[redacted]	4	KULASARICHUAN
			5	[redacted]
BARANGA	1	MAHIDHARPADA	1	SUMANDI
	2	DAOHAPATNA	2	MUNDAMOHAN
			3	RAMDASPUR
			4	GUALI
			5	KHALARDA
TANGI-[redacted]	1	GOVINDAPUR	1	SARDOLA
	[redacted]	KANEHIPUR	2	BIROL
		[redacted]	3	BERHEMPUR
		[redacted]	4	K[redacted]
	[redacted]	[redacted]	5	[redacted]
	[redacted]	[redacted]	6	HARIANTA

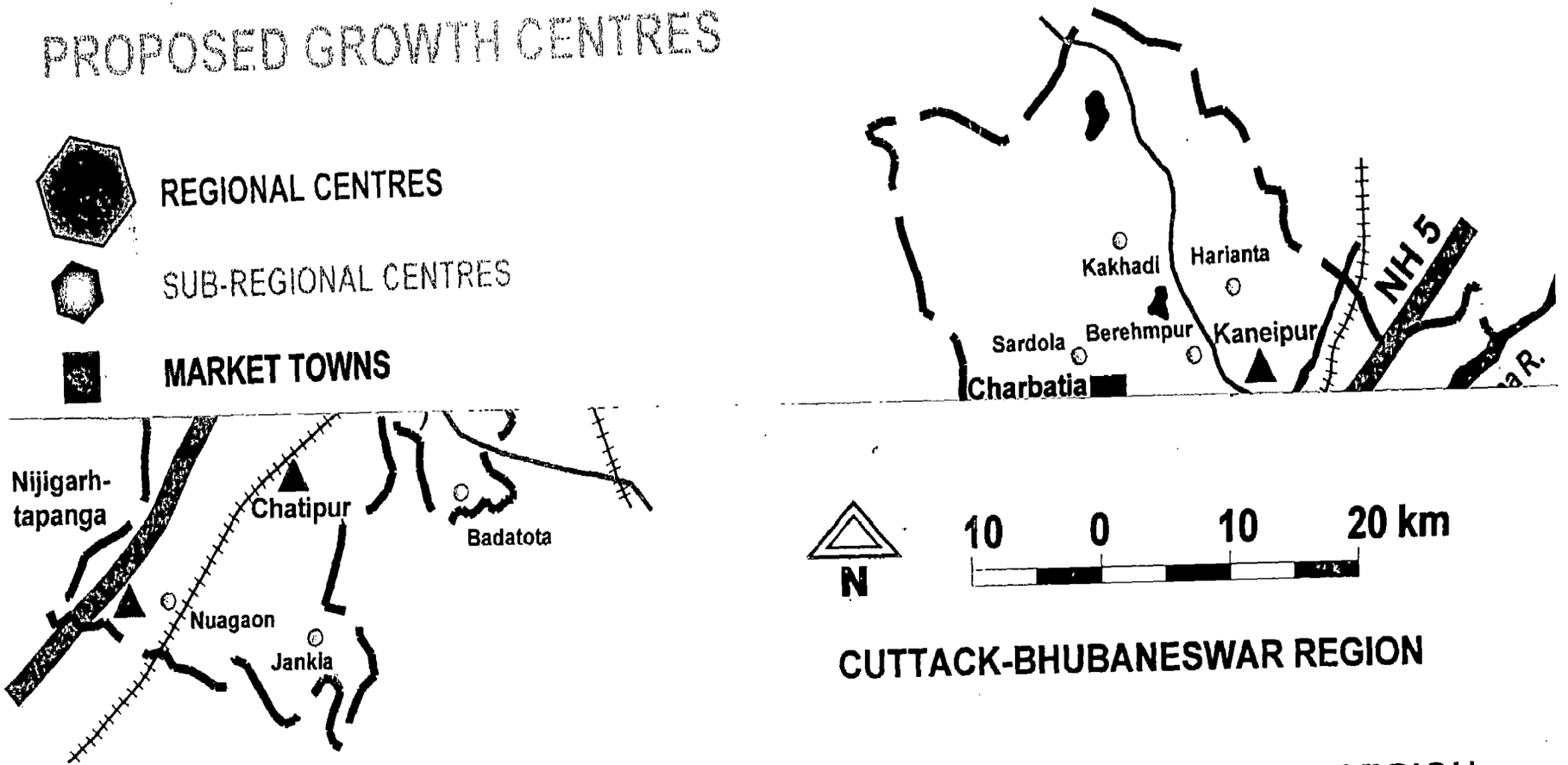


FIG 7.1 MAP SHOWING THE PROPOSED GROWTH CENTRES IN THE REGION

CHAPTER 8

PLANNING PROPOSAL AND RECCOMMENDATIONS

8.1 INTRODUCTION

The Cuttack-Bhubaneswar region being the most urbanized region in the state has enough potential for development. Besides strengthening further the existing growth centres new ones are to be established in gap zones and developed for achieving a balanced development in the region. The missing infrastructure in the identified hierarchy of growth centres has to be developed.

8.2 DEVELOPMENT OF REGIONAL CENTRES

Bhubaneswar and Cuttack have already been functioning as regional centres. They will attract more and more commercial and industrial activities due to availability of infrastructure and investment. Development plans for these centres are already being prepared by the respective development authorities.

8.3 DEVELOPMENT OF SUB-REGIONAL CENTRES

The sub-regional centres, as the counter-magnets of Bhubaneswar and Cuttack, have a crucial role to play in the overall hierarchy of settlements. These intermediate towns have been designated to accommodate the future industrial activities from the regional centres and simultaneously provide necessary support to the market towns visa-vis the rural hinterlands. At present Choudwar, Jatani and Khorda are acting as the satellite towns of Cuttack and Bhubaneswar. Spillover activities as well as the new industrial estates are being located in these centres thus having strong linkages with Cuttack and Bhubaneswar rather than other smaller settlements. Puri has better linkages with the rural hinterlands in terms of rural activities. Khorda being the new district headquarters will need additional services and facilities. Provision of urban services and infrastructures should be augmented in these towns, so that their inadequacy does not act as constraints on their functioning as lead centres in the Region.

Table 8.1 RECOMMENDED SCHEMES FOR SUB-REGIONAL CENTRES

SUB-REGIONAL CENTRES	RECOMMENDED SCHEMES
KHURDA	• Industrial Estates • Housing • Improvement of roads • Shopping Centres • Water Supply • Sanitation • District Office Complex
CHOUDWAR	• Industrial Estates • Housing • Improvement of roads • Shopping Centres • Water Supply • Sanitation
JATNI	• Wholesale Markets • Housing • Improvement of roads • Shopping Centres • Water Supply • Sanitation

8.4 DEVELOPMENT OF MARKET TOWNS

A total of 8 market towns are proposed at least one in each block. All these market towns are proposed to be linked with all the rural growth centres, i.e., Market Centres and Service Centres with good road network and communication system. Therefore, it is also assumed that over the years some of the rural market centres will eventually grow into full-fledged market towns depending upon their potentialities due to strategic locations and provision of better infrastructure facilities. For developing these towns provision of good transport, water supply and electricity is important. Creation of agro-industrial complexes, such as processing, cold storage, warehousing, etc. should come up in smaller market towns with sizeable surplus from the village catchment.

Trade being one of the most important economic activity, existing channels of interaction between small towns and rural areas, and the need for provision of adequate facilities for marketing agricultural produce has been a major motivating force in town development.

Such market centres have sought to provide the farmers with a lot of facilities such as storage, warehousing, credit and other services besides improved and standardized marketing facilities.

As per Orissa Agricultural Produce Market Act, 1956, Regulated Market Committee (RMC) has to be constituted comprising of number of Gram Panchayats. 'Market Area' of each Regulated Market Committee will have one principal yard and number of sub-yards. The principal yards are generally located in small market towns and sub-yards in the centrally located villages. In view of these provisions of the aforesaid Act, it is suggested that all the proposed Market Towns will have the principal yards and the sub-yards will be located in the proposed Market Centres in the rural areas. Principal yards of each RMC should have the following amenities on an approximate 15-20 acres of land:

NO	AMENITIES	NO'S
1	AUCTION PLATFORMS (OPEN)	5
2	AUCTION PLATFORMS (COVERED)	5
3	GODOWNS (400 TONNES CAPACITY)	5
4	GODOWNS (100 TONNES CAPACITY)	20
5	GODOWNS (50 TONNES CAPACITY)	32
6	WAREHOUSING FACILITIES	-
7	COWSHEDS (20' X 60')	2
8	FARMER'S REST ROOMS	20
9	KITCHEN SHEDS	10 ROOMS
10	OFFICE BUILDING	1 BLOCK
11	TRADERS SHOPS CUM GODOWN	4
12	CONSUMER ARTICLE INPUTS	-
13	BANKS	-
14	SEEDS, FERTILIZER AND PESTICIDES DISTRIBUTION CENTRE	-
15	WATER SUPPLY WITH STORAGE FACILITY	-
[redacted]	SANI[redacted]ON FA[redacted]	-
17	NATIONAL GRID GODOWN	-
18	SMALL SCALE AGRO-PRODUCE PROCESSING UNITS	-

Gopalpur and Charibatia towns have the prerequisites like water, electricity, transport facility etc. for functioning as market towns. However, in all the new market towns new addition and up gradation facilities will be required. Existing situations of the proposed market towns and the schemes identified and recommended are given below:

Table 8.2 EXISTING SITUATION OF THE PROPOSED MARKET TOWNS

PROPOSED MARKET TOWNS	BLOCK	POPULATION (2001)	EXISTING FUNCTIONS
CHARBATIA	Tangi-choudwar	5,232	Military air base, good location, rich agricultural hinterland, existing market.
[redacted] UR	Cuttack	[redacted]	Good location, adjacent to Cuttack City and the highway, existing market centre.
BALIANTA	Balianta	12,703	Good location, rich agricultural hinterland, existing market.
BALIPATNA	Balipatna	2,850	Good location, rich agricultural hinterland, better facilities.
BELAGACHHIA	Baranga	4,536	Centrally located, rich agricultural hinterland, collection and distribution centre of agricultural produce, marketing cooperative society.
KANAPUR	Khurda	3,560	Good location, wholesale market for betel leaves.
MENDHASALA	Bhubaneswar	3,085	Locational advantage, rich and prosperous hinterland, agro-based activities, market and service centre, principal yard.
B[redacted]NAPAN[redacted]ARI	Jatni	2,517	Good location, rich agricultural hinterland, better facilities.

In all the Market Towns the following schemes are recommended:

- Principal Yard of Regulated Market Committee (RMC)
- Improvement of existing market
- Improvement of roads
- Shops and vegetable market
- Industrial sheds
- Water supply
- Solid waste disposal

8.5 DEVELOPMENT OF RURAL GROWTH CENTRES

A total of 20 Market Centres and 48 Service Centres have been selected for development in the 8 blocks of the region. The services and facilities being considered are those whose provision can be determined by government action. The important concerns will be education and health facilities and rural infrastructure. However, the private sector will also play an important role in the development of these centres and must be encouraged to support the selected hierarchy by directing investment to the designated settlements.

Table 8.3 RECOMMENDED PRIORITY SERVICES/ FACILITIES IN THE MARKET CENTRES

S.NO	SERVICES/ FACILITIES	RECOMMENDED SCHEMES	COMPONENTS
1	**WATER SUPPLY**	Potable water supply	• Water storage facility • Distribution system for domestic, commercial and industrial establishments
2	**ELECTRICITY**	Electricity supply	• Electricity connection for domestic, commercial, industrial and agricultural purposes
3	**HEALTH**	Primary health centre	• PHC building • Doctors & staff • Medical equipments

S.NO	SERVICES/ FACILITIES	RECOMMENDED SCHEMES	COMPONENTS
4	**ROADS**	Metalled road	• Single lane with hard shoulder road connecting the nearest market town
5	**COMMUNICATION**	Bus stop Post and Telegraph Office	• Sheds with bus bays • Post and telegraph office
6	**EDUCATION**	High school/ Secondary school	• Primary, middle and high school/higher secondary level facility for a catchment population of 30,000
7	**MARKET**	Agricultural regulated market sub-yards	• Auction platforms - 4 nos (20'x60') each • Godown - 10 blocks 14'x20' each • Office block - 800-900 sqft. • Seeds and fertilizer distribution centre • Small scale agro-produce processing units • Agricultural cooperative banks • National grid godown • Cowshed - 1 no. • Rest rooms - 10 nos. • Kitchen sheds - 5 nos. • Approach roads • Tube wells

Similarly, a number of basic facilities are required to be developed in the Service Centres to remove the deficiencies and to distribute these facilities in a balanced way so as to benefit the largest section of the rural population.

Table 8.4 RECOMMENDED PRIORITY SERVICES/ FACILITIES IN THE SERVICE CENTRES

S.NO	SERVICES/ FACILITIES	RECOMMENDED SCHEMES	COMPONENTS
1	DRINKING WATER	Hand Pump	• As specified by the Technology Mission of Rural Development Ministry
2	PUCCA ROAD	WBM road	• WBM road with hard shoulder connecting the market centre
3	EDUCATION	Middle School	• Middle school for a catchment population of 15,000
4	HEALTH FACILITY	Primary health sub-centre	• Provision of new PHS or up gradation of existing lower level health facility.
5	COMMUNICATION	Bus stop Post Office	• Sheds with bus bays • Post office
6	MARKET	Daily Village Market	• Construction of market with sheds and platforms • Improvement of existing market

These guideline lists are applied to the local circumstances in a block; to determine the shortfalls in the existing provision and also the future requirements. Many of the service centre facilities will also be required in other villages, e.g. primary school, primary health centre, primary health sub-centre. The purpose of this list is not to limit their development elsewhere, but to ensure that the first priority is afforded to me service or facility in the selected centres

Table 8.5 PRIORITY DEVELOPMENT IN THE RURAL GROWTH CENTRES

KHURDA BLOCK	
MARKET CENTRES	PRO[redacted]
CHATIPUR	• Primary health centre • Potable water supply • Agri-Regulated Market sub-yard
GADAHALDIA	• Up gradation of dispensary to primary health sub-centre • Potable water supply • Agri-Regulated Market sub-yard
NIJIGARH TAPANGA	• Primary health centre • Potable water supply • Agri-Regulated Market sub-yard
MUKTAPUR	• Potable water supply • Agri-Regulated Market sub-yard
[redacted]	[redacted]
KAIPADAR	• Water supply by hand pump
BAJPUR	• Primary health sub-centre • Water supply by hand pump • WBM road to the nearest market centre • Bus stop • Village market
MALLIPUR	• Water supply by hand pump
PALLA-TOTAPADA	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump • Village market
KERANGA	• Water supply by hand pump
JANKIA	• Primary health sub-centre • Water supply by hand pump • Village market
NUAGAON (WILKISAN NAGAR)	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump • Village market

BHUBANESWAR BLOCK	
[redacted]RE	PROPOSED SCHEMES
PATHARGADIA	• Primary health centre • Potable water supply • Agri-Regulated Market sub-yard • Bus stop
GOTHAPATANA	• Up gradation of dispensary to primary health sub-centre • Potable water supply • Agri-Regulated Market sub-yard
KANTABAD	• Primary health centre • Potable water supply • Agri-Regulated Market sub-yard • Bus stop
KESORA	• Potable water supply • Agri-Regulated Market sub-yard
SERVICE CENTRES [redacted]	PRO[redacted]
SISUPAL	• Water supply by hand pump • WBM road to the nearest market centre
DARUTHENGA	• Primary health sub-centre • Water supply by hand pump • WBM road to the nearest market centre • Bus stop • Village market
NAHARKANTA	• Water supply by hand pump • Village market
INJANA	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump
BANKUL	• Water supply by hand pump • Village market
PATRAPADA	• Primary health sub-centre • Water supply by hand pump • Village market

JATNI BLOCK	
MARKET CENTRES	**PROPOSED SCHEMES**
PALASAPUR	• Primary health centre • Bus stop
SERVICE CENTRES	**PROPOSED SCHEMES**
CHHANAGHAR	• Water supply by hand pump • WBM road to the nearest market centre • Bus stop • Village market
ARAGUL	• Primary health sub-centre • Water supply by hand pump
JAMUKOLI	• Water supply by hand pump
OGALPADA	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump • Village market
BADATOTA	• Water supply by hand pump
GANGAPADA	• Primary health sub-centre

BALIPATNA BLOCK	
[redacted]	**PROPOSED SCHEMES**
MUKUNDADASPUR	• Primary health centre • Potable water supply • Agri-Regulated Market sub-yard • Bus stop
GARADEIPANCHAN	• Up gradation of dispensary to primary health sub-centre • Potable water supply • Agri-Regulated Market sub-yard • Bus stop
SERVICE CENTRES	**PROPOSED SCHEMES**
SANAT	• Water supply by hand pump

BHAPUR	• Primary health sub-centre • Water supply by hand pump • WBM road to the nearest market centre • Bus stop • Village market
MAJHIHARA	• Water supply by hand pump
NARISO	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump • Village market
GUAPUR	• Water supply by hand pump
DEULIDHARPUR	• Primary health sub-centre • Water supply by hand pump • Village market
RAJAS	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump • Village market

BALIANTA BLOCK	
MARKET CENTRES	**PROPOSED SCHEMES**
PRATAP SASAN	• Primary health centre • Potable water supply • Agri-Regulated Market sub-yard • Bus stop • Up gradation of dispensary to primary health sub-centre
BHINGARPUR	• Up gradation of dispensary to primary health sub-centre • Potable water supply • Agri-Regulated Market sub-yard
BENUPUR	• Primary health centre • Potable water supply • Agri-Regulated Market sub-yard • Bus stop
SERVICE CENTRES	**PROPOSED SCHEMES**
JHINTISASAN	• Water supply by hand pump • WBM road to the nearest market centre

NAKHARA	• Primary health sub-centre • Water supply by hand pump • WBM road to the nearest market centre • Bus stop • Village market
HIRAPUR	• Water supply by hand pump • Village market
KAKARUDRAPUR	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump
JAYAPUR	• Water supply by hand pump • Village market
PRATAPRUDRAPUR	• Primary health sub-centre • Water supply by hand pump • Village market

CUTTACK-SADAR BLOCK	
[redacted]	PROPOSED SCHEMES
BIRIBATI	• Primary health centre • Potable water supply • Improvement of existing market • Agri-Regulated Market sub-yard
KANDARPUR	• Up gradation of dispensary to primary health sub-centre • Potable water supply • High school • Post office
[redacted]	PROPOSED SCHEMES
PHAKIRPADA	• Water supply by hand pump • Primary health sub-centre • Post office
ATHANGA	• Primary health sub-centre • Water supply by hand pump • WBM road to the nearest market centre • Bus stop • Village market
PRATAPNAGAR	• Water supply by hand pump

KULASARICHUAN	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump • Village market
ARAKUD	• Water supply by hand pump • Middle school • Primary health sub-centre

BARANGA BLOCK	
[redacted]	PROPOSED SCHEMES
MAHIDHARPADA	• Potable water supply • Agri-Regulated Market sub-yard
DAOHAPATNA	• Up gradation of dispensary to primary health sub-centre • Potable water supply • Agri-Regulated Market sub-yard • Post office
[redacted]	PROPOSED SCHEMES
SUMANDI	• Water supply by hand pump • WBM road to the nearest market centre • Post office • Hand pump
MUNDAMOHAN	• Primary health sub-centre • Water supply by hand pump • WBM road to the nearest market centre • Bus stop • Village market
RAMDASPUR	• Water supply by hand pump • Village market • Primary health sub-centre
GUALI	• Water supply by hand pump • Bus stop • Village market
KHALARDA	• Water supply by hand pump • Village mar WBM road to the nearest market centre

TANGI-CHOUDWAR BLOCK	
MARKET CENTRES	**PROPOSED SCHEMES**
GOVINDAPUR	• Primary health centre • Potable water supply • Agri-Regulated Market sub-yard • Bus stop
KANEHIPUR	• Up gradation of dispensary to primary health sub-centre • Potable water supply • Agri-Regulated Market sub-yard
SERVICE CENTRES	**PRO**
SARDOLA	• Water supply by hand pump • WBM road to the nearest market centre • Primary health sub-centre • Village market
BIROL	• Primary health sub-centre • Water supply by hand pump • WBM road to the nearest market centre • Bus stop • Village market
BERHEMPUR	• Water supply by hand pump • Village market • Up gradation of dispensary to primary health sub-centre • Bus stop
KAKHADI	• Up gradation of dispensary to primary health sub-centre • Water supply by hand pump
BHATIMUNDA	• Water supply by hand pump • Village market • Bus stop
HARIANTA	• Primary health sub-centre • Water supply by hand pump • Village market

8.6 RECCOMENDATIONS

8.6.1 DEVELOPMENT OF AGRICULTURE

i) Agricultural and fallow lands and culturable waste lands in the region can be brought under cultivation. The existing paddy lands shall have to be prevented from being misused.

ii) The extension of cultivation has to be accompanied by intensification of agricultural activities, extension of irrigation facilities and optimum utilization of irrigation potential for enhanced production.

iii) Crop diversification and crop rotation has to be taken up in the region. The paddy lands are used for growing paddy and no other crops.

iv) It is suggested that each Panchayat should have "Farm Product Collection Centre" and regulated markets should be located at suitable locations at least at the block level to serve the farmers better. The development of co-operative marketing should be encouraged especially among small and marginal farmers.

v) Construction and provision of godowns at suitable locations to prevent exploitation by unscrupulous middle men.

vi) The research and extension support of the agricultural university at Bhubaneswar should be strengthened.

8.6.2 DEVELOPMENT OF INDUSTRY

i) The region has conducive environment for industrial growth such as availability of cheap labour, adequate power and water supply, well servered iner and intra-regional transport and communication networks and connected to the Paradeep Port.

ii) No industries should be allowed in intervening areas between Cuttack and Bhubaneswar and between Khurda and Jatani.

iii) Industries of obnoxious type can be located at identified industrial centres of Choudwar, Jagatpur, Baranga and Chandaka with environmental safeguards.

iv) Industrial development in Bhubaneswar and Cuttack development area should be limited to small and medium sectors and free from pollution.

v) Emphasis should be given on growth of transport nodes in the region.

vi) Proper zoning regulations have to be implemented to prevent growth of industries in residential and recreational areas.

8.6.3 DEVELOPMENT OF TOURISM

i) Bhubaneswar-Puri-Konark the well established tourist circuit known as "Golden Triangle" should have more upgraded tourist facilities to attract more tourists in this area.

ii) Government should measures to strengthen tourist infrastructure, transport and other related activities.

iii) Government along with Private participation may develop new as well as existing tourist centres.

iv) Tourism department may assist hotel industries to set up a comprehensive tourist information system.

v) The "Golden Triangle" tourist circuit should be considered as one region for the purpose of tourism activities and, therefore, the estimates of future tourist accommodation facilities should be made for the whole region and be distributed judiciously among the sub-centres considering the demand specific to the area as well as the carrying capacity of the site.

vi) While developing tourist facilities particularly hotels and lodges, it is imperative to take necessary measures such as development of drainage, sewerage, solid waste disposal system, etc. to control the environmental pollution in the tourist centres.

vii) Cuttack is another place of tourist attraction in the Region though it is outside the "Golden Triangle". Apart from some places of archaeological interest in and around the city, Cuttack has very good potential for the development of tourism based on business demands and recreational facilities, especially with water sports etc. Although the Master Plan of the city did not give much importance to the tourism activities, the plan for Bidanasi area proposed the development of a

recreational park in Cuttack near the river. Cuttack is lacking in proper hotel and accommodation facilities. It is imperative to develop proper tourist infrastructure and facilities at Cuttack to further develop tourism activities by providing better recreational, business and convention facilities.

viii) At Bidanasi area a recreational cum cultural complex should be developed along the water front. The complex should have a four star or three star hotel of 300 beds with convention facilities, a cultural centre with auditorium for cultural programmes as well as for the use of institutions and business agencies, a recreational park, a modern amusement park, facilities for water sports, golf course, shopping centre, etc. with proper transport linkages with the rest of the City. The river fronts and canal sides should be properly developed and landscaped. Environmental pollution control measures need to be urgently taken because much of these water fronts are cluttered with unauthorized and slum type development which cause serious pollution to these drainage channels. In other words, a strong focus for tourism development should be developed at Cuttack based on its natural, cultural and commercial cum-business attractions. Otherwise the tourists in future may bye-pass Cuttack and go to Bhubaneswar and other cities.

8.6.4 DEVELOPMENT OF TRANSPORT

A Comprehensive Development Plan for Bhubaneswar city was prepared by the Bhubaneswar Development Authority in 1989. The Plan aimed to develop the city as a centre of administration, institutions and tourism while retaining its traditional character as a temple city.

The Plan proposed several schemes for improving the transportation system in the area of regional and intra-city levels. The main proposals pertaining to regional network were:

i) The National and State Highways between Cuttack, Bhubaneswar and Puri should be upgraded as Express ways with restricted access.

ii) A bye-pass for NH-5 off the Bhubaneswar city should be developed considering the major developments taking place in the northern direction so as to segregate the regional traffic from the local traffic.

iii) The Cuttack-Puri Road i.e. the State Highway No. 8 has become a sub-arterial of the city, between Rasulgarh and Samantarpur. A Ring Road is proposed with the Daya West Canal embankment Road on one side, which will help the through traffic bye-pass the S.H. No. 8.

iv) In addition to the Express way, an alternate link between Cuttack and Bhubaneswar has been proposed by constructing a bridge on Kathjori at Naraj and providing an all weather major road between Banki and Bidanasi.

v) The present airport is being upgraded to accommodate wide-bodied aircraft. However, the present location of the airport is such that it divides the city into two parts and acts as barrier and therefore, considering the future growth of the city as well as of the air traffic, it has been proposed to shift the entire airport complex to a suitable site towards the south-west near Janla.

vi) Proposals have also been made for the improvement of the Intra City Road Network. Proposals have been made to relocate the Central Business District and bus terminal while a new Inter-State Bus Terminus and a truck terminal have been proposed to be developed at Cuttack.

vii) It has been proposed to develop mass transportation in the Bhubaneswar city by using the existing railway line and further developing the related infrastructure and connecting with it a feeder bus service to connect the railway stations with other traffic generating points in all the directions.

viii) Four laning of the Bhubaneswar Cuttack Road is under way which is expected to ease the traffic congestion on this road at least for the near future.

ix) A mass rapid transit system between Cuttack and Bhubaneswar will not only reduce the time but will also release the traffic pressure on the NH-5.

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