CHAPTER-I

INTRODUCTION

1. Introduction

1) Topic and the Region: The topic selected for the present thesis is settlement structure and process of Regional Development. While the terms settlement and region are commonly used and understood in geographical studies, the term structure, process and development need to be elaborated. The dictionary meaning of term structure is the manner of organisation, the term process refers to 'the gradual progress or manner of acting,' and the development means 'a gradual unfolding or growth or evolution.' Hence, while the first two words, that is settlement structure, refer to the arrangement of settlement in terms of the criteria selected, the process of regional development refers to the manner in which the regions have been growing or evolving. The manner in which a region grows or evolves is invariably reflected in the various parameters of settlement structure viz. spatial distribution, growth, functions, hierarchy, interactions etc.

The present study is to analyse the variations in settlement structure with the process of Regional Development in the backward area of Bundelkhand in India. This study aims at the identification of the
region of Bundelkhand, understanding its regional economy, settlement structure and nature of interaction and the nature of relationship as exists between the settlement hierarchy and the levels of regional development.

The persistent and marked differences in the levels of development achieved by various regions in the country have received considerable attention from Government and scholars and as such various policy and promotional measures have been devised to tackle the problems of backward areas. The problems of backward areas are the problems of the appropriate utilisation of resources within the region for its development. This has, however, received only partial and uncoordinated attention in India.

According to Myrdal,¹ to develop a backward region one has to evolve a deliberate policy intervention to neutralize the backwash effects. This intervention has to be made while the economy is still in its developmental stage, for unless regional equilibrium is achieved at this stage it will be far more difficult to achieve later on and the economy may not be able to achieve its regional development goals.

BUNDELKHAND
ADMINISTRATIVE DIVISIONS

REFERENCE

REGIONAL BOUNDARY

STATE BOUNDARY

DISTRICT BOUNDARY

TENSIL BOUNDARY

BLOCK BOUNDARY

HEADQUARTERS DISTRICT

TENSIL

BLOCK

Fig-1
Bundelkhand lies between 23\degree 25'N to 25\degree 27'N and 77\degree 40'E to 81\degree 34'E. Administratively, it covers the districts of Jhansi, Lalitpur, Jalaun, Hamirpur, Banda of Uttar Pradesh and Chhatarpur, Tikamgarh, Datia, Bhind (Lahar Tehsil), Gwalior (Bhand Tehsil) and Shivpuri (Karera and Pichhore Tehsils) of Madhya Pradesh. The region has a population of 6.43 million (1971) with an area of 512,288 square kilometres. Bundelkhand (fig. 1) although blessed by nature for its rich mineral wealth remains one of the backward parts of the country economically. The density of population is very low, i.e., 135 persons per square kilometre. The low rate of literacy, high concentration of scheduled castes, low level of urbanisation in the region has given rise to the problem of acute unemployment. The economy of the region is agrarian. About 85 to 90 per cent of the region's product originates from agriculture sector. The yield per hectare of net area cropped is as low as Rs.1.08 thousand compared to 2.01 thousand of the constituent States of Uttar Pradesh and Madhya Pradesh. By 1974-75, only 21.2 per cent of the cropped area could be brought under irrigation. The intensity of cropping is only 107.8 as compared to 133.6 per cent for the two States. The average fertiliser consumed per hectare of cropped area is about 4.5 kilograms compared to the states' figures of 17.88. Per hectare consumption of power in agriculture is 4.00 units as against 36.82
units for the state. The compound rate of growth in food grains has gone down from 1.88 to 0.40 per cent from 1951-61 to 1961-75 as against the average states figures of 0.8 to 1.70 per cent. The production in manufacturing sector during 1973-74 was of the order of Rs. 10.84 crores which is less than five per cent of the total production of the region.

The region is also not well served with roads, power and communication etc. The road density is about 100 kilometres of area as compared to 130 kilometres per thousand square kilometres in the States. The percentage of villages electrified by March 1975 was 17 compared to 28.31 in the two States combined. Goods and services are also very inadequate in this region. Hospitals per unit of population are too low and are concentrated mostly at Jhansi.

Thus it becomes clear that Bundelkhand region is very backward from all angles and hence needs special consideration.

11) Literature Survey: The problem of settlement structure has been viewed in terms of regional and general studies in India. In terms of regional study of settlement structure the contributions of Sharma (1972)²

Sinha (1973), Nangia (1976), and Singh (1979) are important. Sharma's study on the Settlement Geography of an Indian Desert provides a comprehensive analysis of various aspects of settlements. The study deals with the distribution, occupational structure, hierarchy and transformation of settlement in Western Rajasthan. Finally it has been concluded that environmental determinants play a decisive role in understanding the structure of settlements. The role of technological development is insignificant. Sinha's study on the Settlement Geography of Chhota-nagpur region largely covers the types, patterns of settlements, evolution and growth of settlements in a predominantly tribal area. The impact of recent industrialisation in the structural changes of settlements have been analysed. Nangia analysed the patterns of rural settlements in Delhi Metropolitan Region. This study is an attempt towards the delimitation of the structural zones in Metropolitan Region and identification of the patterns and intensity of interaction.


between metropolis and its region for selected goods and services. R.Y. Singh's study on the Malwa Region deals with the rural habitat system of one of the most anciently settled parts of India. Within the 'trio-form' of analysis 'histogenesis, morphogenesis and spatial vision' - particular attention has been drawn to the cultural ecology of the region. In terms of general studies of the settlement structure, the contributions of R.C. Eidt, K.N. Singh, R.P.B. Singh and R.L. Singh are important. The works of R.C. Eidt, K.N. Singh and R.P.B. Singh on "Man, Culture and Settlement" is an anthology of 35 papers dealing with the intimate relationship of man with his environment and evolution of diverse characteristics in different environs of the world. Later on R.L. Singh and R.P.B. Singh studied the Transformation of Rural habitat in Indian perspective. This study analyses the concept and essence of transformation of Indian rural habitat, understanding of spatial organisation of settlements and finally the relevance of indigenous system of settlement.


The studies which attempt to provide available framework and rationale for development are summarised here. Asok Mitra's study on Regional Development in India (1961) is based on Census data and economic data. He used ranking method for analysing the relative position of the districts. He identified four levels in development viz. very high, high, medium and backward. Pal and Subramanyan (1966) explained the need for greater emphasis on regional development in case of Indian Planning. Their study reviews economic situation of the country taking district as a unit for planning. Variables selected are mostly socio-economic. Nath (1970) elaborated the issue by making distinctions in economic inequalities along with aerial uneven development. By analysing the two components of growth, Nath concluded that balanced growth of regions in the country can be achieved through regional development strategy. Schwartzberg's (1971) study is normative in approach and analyses spatial dimensions of regional development.


in India based on the empirical and secondary sources of information. It identifies areas of backwardness and relative development. Prasad (1974)\(^2\) critically evaluates the existing pattern of spatial growth and regionalisation and suggests an alternative model for development. Bhat's (1973)\(^3\) study makes a departure from methodology to conceptualisation. An attempt has been made in this study, to formulate some of the basic concepts keeping in view the development philosophy and the economic condition in the country. Finally the role of micro-level area planning is suggested to achieve success at grass root level. Reddy's (1974)\(^4\) work on regional development is a detailed analysis of multi level plan process and the possible areas of similar approaches which might possibly lead to a balanced development in various geographic regions of the country. Chattopadhyay and Rasa (1975)\(^5\) developed


an analytic frame to explain the processes behind inequality and development. Authors have critically evaluated the existing measures of inequality and development and finally have outlined the suitable indicators for growth. A comprehensive work on this line was carried out by Misra, Sundaram and Rao (1974). The study attempts formulations of a new strategy based on the experience of a detailed field work carried out in three economic regions viz. Agricultural, Industrial and Tribal. The study attempts a critical evaluation of Indian planning under various plan periods and explains that the Gandhian concepts were not given due weightage in planning. Finally a new strategy (modified growth pole theory) is suggested as a measure for development in India. Rasa and Kundu (1978) have attempted a study related to broad groups on the spatial dimensions of regional development in India. This work is based on a time series (1960-61 and 1970-71) comparative analysis of 108 indicators composed through principle component


17. Moonia Rasa and Amitabh Kundu, "Spatial Dimensions
analysis. The authors conclude that India is heading towards the development of under development resulting into increasing inequalities and disparities in the levels of development in the various parts of the country. S.M. Alam and G.R. Reddy (Ed.)\textsuperscript{18} explained the socio-economic problems behind development in South and South East Asia. On the basis of these problems recommendations have been made for balanced regional development in this part of the world. Deshpande, Arunachalam and Bhat (1979)\textsuperscript{19} have analysed the role of a metropolis in developing its hinterland. The study deals with the interaction and resulted hierarchy in South Kolaba - Bombay region. Rao and Tewari (1979)\textsuperscript{20} analysed the role of structure of Indian Metropolis taking Bangalore metropolis as a case study. Authors have analysed growth pole and the role of growth impulses in generating employment in productive sectors (agriculture and industry). Having assessed the degree of interdependence and resulted development, planning for accelerated development has been suggested.


Most of these studies have aimed at determining various levels of hierarchy and change in terms of morphological and functional structure of the settlements. These studies are temporal with their functional associations over space. Following these studies, an attempt has been made to understand the relationship between the settlement structure and the process of regional development as the two appear to be highly related as revealed by the existing literature.

2. Attributes of Settlement Structure and Process of Regional Development:

The attributes of settlement structure refer to the spatial distribution, growth, functions hierarchy, linkages (through commodity flows) and mobility (through migration and tourism).

Process refers to the gradual progress or manner of acting by which something develops or is brought about. Development is a stage in growth or evolution. The spatial arrangement of human activities at any point of time is the net result of relative strength of these processes. The process may lead to the evolution of a few large urban centres which function as growth focus leaving large tracts of hinterland undeveloped. On the contrary, if concentration process is counter-balanced by an equally strong injected dispersion process, human
activities are dispersed in a large number of small and medium sized centres in such a way that people have easy access to the facilities available. Regional development has continued to be interpreted as intra-regional development designed to solve the problems of particular regions. It has, however, not been regarded as a means to achieve the rapid national development. The study refers to the manner in which a phenomena is arranged in time and space. Regional development variables selected to identify economic regions are agriculture, live stock and forestry, urban-industrial, transport and communication and public services.

3. Sources of Data

Both secondary and primary sources have been tapped to collect the statistical information required to study this problem.

1) Secondary Sources: The analysis of relief and drainage is based upon the 1:253440 topographical sheets of survey of India (1:253440 scale), of geological structure upon the maps and memoirs of geological survey of India and of soil upon "Land and Soil" by S.P. Raychaudhary. The data regarding rainfall, temperature and humidity have been taken from the respective tables of the meteorological department. The facts regarding the historical indicators are based upon texts belonging to various historical
The maps and other informations about Bundeli dialect have been taken from the Grearson's "Linguistic Survey of India," vol. IX. The data on caste is collected from the General population tables of United Provinces of Agra and Oudh and Central India Agency of 1931. Data on economic, demographic and settlement indicators have been taken from the district Census handbooks (P.C.A.) of 1961 and 1971.

Data on the economic variables for 1960-61 and 1970-71 have been obtained from the district Census hand books of the respective years. Data regarding cropped area, net irrigated area, geographical area, number of tractors used in agriculture, cropped area - under commercial crops, number of college and school students, number of post and telegraph offices, number of registered vehicles and length of roads have been collected from the statistical abstracts of each district. Data regarding the number of workers in registered factories have been taken from the Chief Inspector of Factories and Boilers U.P. and M.P.

21. Major source material of the historical indicators are the following texts.
A. Cunningham, Geography of Ancient India.
Abul Fazal, E. Allami, "Ain-i-Akbari" Translated in English by W. A. Zarrat.
Gazettes of Bundelkhand and Population reports of pre-independence India.
Figures of the workers in registered factories relate to December 1, 1971. Data regarding number of beds, medical doctors in hospitals have been obtained from the Directorate of health, U.P. and M.P. Data regarding railways and electricity consumption have been obtained from "Sankhykey Roop Rekha 1971" (District Handbooks of each district).

Data regarding planning projects have been taken from the year books of the states 1971 (U.P. and M.P.) and annual reports of Planning Commission. The archeological and tourist information about the places is based upon the data on archeological monuments.

Data regarding social facilities have been taken from the District Census handbooks (town and village directory) of 1971. Data about number, density, growth and functional structure of settlements have been collected from the District Census handbooks (Primary Census abstract) of 1961 and 1971.

The study of linkages is based on the information supplied by the Railway Board and RITES (Rail India Technical and Economic Services) regarding the movement of commodities through railways and highways. While data on commodity-flow through railways (1973-74) is available for all stations of the region (70 railway stations and 5 railway out agencies), data for highways (1977-78) is only for 4 nodal points (Jhansi, Ait, Banda
and Chhatarpur). The information regarding the mobility is based on the data of tourist inflow and immigration. The information regarding tourist inflow is based on the tourists' statistics by the Department of Tourism, Government of India 1977-78. The information regarding human migration (1971) is based on the unpublished data collected from the office of the Registrar General Census of India.

ii) Primary Sources: The primary data has been collected from the field survey carried out during the summers of 1978 (April to August) in 105 villages of the region. In all 525 families were interviewed. The village schedules were filled with the help of officials and responsible persons of the village (such as Pradhan and Sarpanch etc.).

iii) Sources of Map: The base map has been prepared with the help of toposheets of the survey of India. The maps are prepared for physical and cultural indicators. Thematic maps based on statistical information relate to the locational and areal units and have been integrated to highlight the facts relating to the structure of settlement and aspects of regional development.

4. Methodology

The quantitative and cartographic methods have been used to present the facts and data. Attempts have been made to modify a few of such methods and also to introduce
a few new ones to explain the problem in its better way.

i) Statistical Methods: Statistical methods of mean, standard deviation, correlation coefficient, regression including stepwise regression, weighted value index, composite scores, lorenz curve (Gini's coefficient) and principle component analysis have been used.

ii) Quantitative Methods: Quantitative techniques like nearest neighbour distance, rank-size rule and chi square tests etc. have been used in this work.

iii) Cartographic Methods: Cartographic data used to represent and prepare maps in the text are isolines, graphs (simple and log both), boundary girdles, choropleths and categorisation of data into various classes. Class interval has been selected with the help of break points.

iv) Computer and Mechanical Aides: Computer (E.C.-1020 B) has been used for the computation of data at various stages of analysis and Fortran IV language has been used in the application of statistical techniques (e.g. correlation, regression and stepwise regression and principle component analysis).

v) Scheme of Analysis: Three approaches have been used in the analysis to interpret the facts and data.
a) Systematic: The first is systematic approach. Here the entire region has been considered as an aggregate whole (one unit) and the characteristics of the attributes of settlement structure and process of regional development have been analysed.

b) Regional: Second approach is regional. Under this, characteristics of regional development are identified in the micro or macro regions as identified in chapter 2.

c) Field Study: The third is the field study approach. This approach is used to relate the field observations with the interpretation of secondary data and maps.

5. Scope and Plan of the Study:

This study which primarily deals with the observation of the characteristics of the attributes of settlement structure and the process of regional development, has been arranged in seven chapters. Chapter 1, Introduction, deals with the terms and concepts used, survey of literature, scope and methodology, sources of data and maps and the plan of the study.

Chapter 2 relates to the problem of Delimitation and Regionalisation of the study area. This chapter is divided into two main sections. Under section I, problem of delimitation of Bundelkhand has been discussed and under section II, a scheme of the sub divisions of the region has been worked out by taking some formal and some functional indicators.
Chapter 3 is devoted to the study of Regional Economy in Bundelkhand. This chapter is divided into two sections. The first section deals with the economic structure and on its basis broad regions are identified. In the second section, the level of regional development in thus identified regions, has been worked out on the basis of certain economic, social and demographic indicators.

Chapter 4 relates to the study of Settlement Structure of the region. It is devoted to the analysis of spatial distribution, growth, functions and hierarchy of settlements in three economic regions, i.e., agro-pastoral, agricultural and agro-industrial regions as identified in the previous chapter.

Chapter 5 is devoted to the study of interactions in Bundelkhand. This chapter has been divided into two sections. First section, deals with linkages based on commodity flows and second deals with the mobility based upon migration and tourist flow into the region. Both forms of interactions have been analysed under the heads of Systematic and Regional.

Chapter 6 deals with the results of the Field Study. In this chapter, study carried out in the chapters on Regional Economy, Settlement Structure and Interactions has been substantiated through field study
approach. The field data has been analysed under two sections. In the first section, a systematic account of variables selected has been given under the heads of economy, settlement structure and interactions. In the second section, above mentioned groups of variables have been analysed within the three regions viz. agro-pastoral, agricultural and agro-industrial. Finally chapter 7 deals with the Summary of the observations made in the text and general conclusions derived from the study.