INTRODUCTION
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Geography is the study of areal differentiation and areal association of the phenomena of earth. Earth is an inseparable part of organic whole. The symbiotic relationship of the phenomena is too complex to understand. To find out the laws inherent in its harmony of nature one has to look into the segment of earth or part of it. Thus the idea of regional concept comes in to being. In the initial stage, the analysis of regional phenomena was not so complex to understand because the interaction of man in environment was very simple. But gradually and slowly the pace of industrialisation, commercialisation, liberalisation and globalisation has brought radical transformation in their relationship to such an extent that becomes too dynamic and complex. The most significant aspect of regional studies is to identify region based on certain criteria under definite boundaries for planning and development. Some time it is happened that the movement of consumers and consumerable goods do not follow the range of goods because of improved socio-economic conditions, developed accessible infrastructure and social amenities and facilities. Therefore, the regional planning based on administrative boundary is not as much applicable as it had been considered earlier. To find out the ground reality of region regarding the functional behaviour of service centres and consumer’s behaviour, an empirical observation is highly needed.

In common parlance planning is a device to achieve developmental goals aiming at the implementation of several specific targets. Planning is formulated for and implemented in a particular region. It is primarily a way of thinking about social and economic problems. Planning is oriented predominantly towards the future and is deeply concerned with the relation of goals to collective decisions, and strives for comprehensiveness in policy and program. Planning is mainly designed to overcome the variety of regional problems relating to the distribution of developmental resources in an unorganised manner leading to the regional imbalances of socio-economic development. For the planning purposes, existence of administrative boundary of a region is imperative to collect data and for the implementation of developmental plan. The objective of the attainment of balanced regional development has been a pride of place in planning for regional development. The idea of balanced regional development has been mooted as a
corrective process to eliminate the variations in the degree of socio-economic development in different parts of the country. Such variations are manifested in per capita income, employment pattern, living standard, household expenditure, extent of saving, education and social progress. The variations are attributed to the existing physico-cultural and socio-economic diversities in the region. Any processes of development in such a region will not response uniformly instead of creating imbalance in the development subsequently, bear the burden of regional disparities.

The problem of regional disparities is not new thing, it is as old as the British colonial period in India. During the British regime resources were allocated and industrialisation was made only in coastal areas like Calcutta (Kolkata), Bombay (Mumbai) and Madras (Chennai) for their easy accessibility by sea way transportation from their home country. Such industrialisation in certain pockets in the country led to the coming out of regional disparities. Again, the brain drain and resource drain led to intense regional disparities in the socio-economic development.

The attainment of balanced regional development has been one of the main aims of Indian planning. After independence, at the beginning of planning in India, it was centralized being formulated at the centre by planning commission for the entire country. Such centralized macro-level planning contributed to further wide regional disparities in socio-economic development. Macro level planning is also known as sectoral planning as different sectors were given greater emphasis. Up to 1970s, sectoral macro-level planning approach could not achieve success at reducing the mass poverty, unemployment and inter and intra regional disparities and human group disparities in the country. Such failure was consequent upon the ignorance of evaluating the local needs and local resource base of the backward regions and backward sections of the society. Macro-level sectoral plans promote only those regions where infrastructure was available for development but regions lacking such infrastructure did not attract growth impulses consequently, remained socio-economically backward. As a result regional disparities in socio-economic development became more intensive with time.
The Fourth Five Year Plan (1969-74) marked a historic departure from centralized plan to district level plan. Consequently, the idea of decentralization of Indian planning process has come up and the idea of micro-level regional planning got emphasized. During the Fourth Five Year Plan it was suggested for the experimental studies on growth centres. Further, district level plan was decentralized into block level plan during the Sixth Five Year Plan (1980-85). Such decentralized planning process was an attempt to collect village requirements. But no serious attempts were made at regional level.

In view of the diverse problems in India relating to failure in target achievement of macro-level planning, rapid growth of population, rising prices, there is an urgent need of micro-regional planning in the country to overcome these problems and to achieve the goal of balanced regional socio-economic development. The need for micro-level planning or grass root level planning arises to take care of what sectoral plans failed to accomplish.

The micro-level planning is mainly concerned with the Integrated Area Development for those areas which are underdeveloped due to lack of certain social and economic activities prerequisite for development. The setting up of socio-economic and institutional framework is not sufficient for achieving growth and development unless they are dispersed spatially and linked properly. The basic socio-economic functions prerequisite for development should directly and indirectly be integrated. In such an approach all the major functions like, education, health, transport and communications, agro-economy, industry, credit and marketing should be integrated. Some functions like education performs at various levels, i.e. primary school is the lowest level followed by high school, college and university. Since the settlements are found in hierarchical pattern, higher order functions should be located at higher order settlements while lower order functions at lower order settlements. The idea of integrated area development suggests a framework of decentralizing the socio-economic functions by locating them in appropriate settlements.

Malda district- study area is socio-economically one of the lagged behind districts in the state of West Bengal. It is inflicted with dire socio-economic and cultural disparities at district and block level as well. Regional disparities are
caused by the unplanned distribution of socio-economic amenities and facilities. However, the government provided facilities for the development of agriculture, education, medical, transport and communication which are neither located at appropriate settlement nor are sufficient to keep pace with the alarming growth of population. Subsequently, mass of illiteracy, poverty, unemployment becomes the common features of the region. The district accounts for 24.78 percent growth of population during 1991-2001 against the state average 17.77 percent. Of the total population, 7.32 percent live in urban centres in the district against the state average 27.97 percent. During 2001, district has registered the literacy rate of 50.28 percent, rural literacy rate of 47.76 percent and female literacy rate of 41.25 percent while that of 68.64 percent, 63.42 percent and 59.61 percent have been recorded in the state respectively.

Existence of sharp regional disparities in the levels of socio-economic development is an important feature of lower developed region like Malda district. For the purpose of reducing the existing problems and to achieve the goal of balanced regional socio-economic development, an attempt has been made to formulate a micro-level planning model.

The significance of the study lies to the fact that it enables to understand the local resource base, local needs and demands. District and block administrative unit has been taken as the unit of study for the convenience of planning purposes because of the availability of data and most of the assessment and implementative decisions are taken by the district administrative authorities. The analysis of levels of socio-economic development at block and gram panchayat level attract greater attention of planners towards achieving the goal of balanced regional development. The delineation of complementary region of central places helps in estimating the adequacy and inadequacy of existing facilities within the region. No doubt, the identification of functional gaps (ratio of functions between complementary region and district as a whole) helps planners and policy makers to determine the required number of facilities and their optimal location in achieving balanced regional socio-economic development. The present study provides a base for diagnostic planning model to reduce the existing disparities pertaining to socio-economic development.
WORK REVIEW

Studies on planning for regional development using suitable tools, techniques and models are inspired by the pioneering works of Von Thunen (1826)\(^7\), Christaller (1933)\(^8\) and Losch (1944)\(^9\). Most of the Indian geographers and social scientists pertaining to geographical studies are based on the derivative ideas of aforesaid scholars.

On the basis of philosophical essence of Christaller’s central place theory, Wanmali (1970)\(^10\) studied the hierarchy of central places and delineated their complementary region using socio-economic indicators. A report of 'pilot project' of the Ford Foundation (1973)\(^11\) studied settlement planning for integrated area development with geographical approach.

Dahiya (1982)\(^12\) adopted suitable models to analyse the direct and indirect effects of specified combination of policy instruments and constraints on several important aspect of economic behaviour like distribution of income and alleviation of poverty. Rao (1983)\(^13\) tried to estimate the composite index of agricultural development at taluk level based on the technique of ‘Principle Component Analysis’. Sundaram (1985)\(^14\) based on holistic approach studied the socio-economic conditions and suggested that the countries like Malaysia, Indonesia, Thailand, Philippines and India experiences vast inter-regional disparities in resource development. Sita and Phadke (1985)\(^15\) tried to identify the major trends of research in Indian settlement geography which appear to have emanated from the central place theory to understand the functional hierarchy of settlements. Tiwari (1985)\(^16\) based on the technique of composite index, attempted to assess the existing scenario of inter-state disparities in the levels of development in India in temporal perspective and suggested to assign top priority for infrastructural development to remove it. Rao (1985)\(^17\) attempted to analyse the extent of inter-state disparities in development measured in terms of per capita state domestic product. Maithini (1986)\(^18\) used the principle of Christaller’s central place theory to formulate a micro-level planning for socio-economic development. Rai (1988)\(^19\) adopted Mather’s model of mean spacing and ‘Nearest-Neighbour Index’ to study the spatial distribution of existing socio-economic facilities and tried to formulate a micro-level plan for the socio-economic development in rural areas. In order to
formulate a micro-level planning, Babu (1988)\textsuperscript{20} made an endeavor to estimate the population threshold of socio-economic facilities, centrality score of central places and spatio-functional gaps of facilities and finally, recommended required socio-economic facilities to overcome the inadequacy of existing facilities.

Samuel (1996)\textsuperscript{21} based on composite index of ratio of population and facilities made an effort to assess the efficiency of infrastructure services and examined the levels of socio-economic development. Rao and Babu (1996)\textsuperscript{22} adopted factor analysis method to assess the relative levels of socio-economic development and tried to identify the effective factors leading to socio-economic disparities across the region.

Besides the above works in the field of planning for regional development recorded in different books, some scholar's contributions are also found in different journals of academic excellence.

Deshmuk (1970)\textsuperscript{23} studied various aspects of planning for socio-economic development and he, on the basis of Karl Pearson's technique of coefficient of correlation tried to assess the causal relationship between the size of population and socio-economic facilities. In view of the problem of micro-level planning for integrated area development, Pathak (1971)\textsuperscript{24} emphasized on the importance of growth centres as economic growth foci through which growth impulses could be injected for area development. Wanmali (1972)\textsuperscript{25} carried out a study on settlement system and tried to use the technique of correlation of coefficient to establish the fact that the clustering of services is the function of population distribution among the settlements of different size. Reddy (1972)\textsuperscript{26} viewed the process of economic growth that involves the structural changes in the economy as well as concurrent changes in economic activities which suggests for the policy decisions relating to the location of activities, flow of benefits and the spatial functional linkages of economic activities in order to achieve the socio-economic development in the region. Rao (1977)\textsuperscript{27} attempted to estimate the composite index of development of towns of different size class in order to identify the potential growth centres and finally suggested that the lower order town centres should be given first priority for planning purposes. Soen, Kipnis and Tamir (1977)\textsuperscript{28}, on the basis of 'Principle Component Analysis' technique tried to examine the levels of social development
in Northern Thailand and delineated homogenous regions for planning purposes. Finally, he arrived at the conclusion that, very large size and the heterogeneity of northern region made it necessary to subdivide into smaller units for formulation and implementation of developmental plan.

During 80's, a number of works in this field were contributed. Amani and Ansari (1982)\(^{29}\) used standard statistical techniques to analyse the existing pattern of settlement and tried to correlate them with the levels of regional development. Routray (1984)\(^{30}\) analysed the socio-economic conditions and suggested for various approaches for development of backward district. Betal (1984)\(^{31}\) on the basis of statistical techniques i.e., co-ordinates of mean centre, standard distance and location quotient attempted to analyse the regional pattern of concentration of population and socio-economic facilities. Finally, he derived a composite index of all facilities to examine a correlation between the concentration of facilities and population in the districts under study. Zutshi (1988)\(^{32}\) identified the existing service regions based on the spatial linkages of socio-economic and administrative functions, and tried to formulate a planning model for socio-economic development suggesting their optimal location.

Rai and Singh (1990)\(^{33}\) estimated spatio-functional gap as the ratio of functions between complementary region and study area for integrated rural area development. Singh and Singh (1990)\(^{34}\) attempted to identify the existing functional gaps in the locations of socio-economic activities in different settlements. Keeping in view the significance of developmental planning process in developing countries like India, Mishra, Mishra and Shukla (1991)\(^{35}\) conducted an empirical observation to evaluate the adequacy and inadequacy of existing social infrastructure facilities and examined the requirements of facilities in order to promote its economic growth as well as social development. Finally he recommended the optimal location of social facilities to attain the overall regional development at grass root level. Sharma and Sharma (1993)\(^{36}\) are of the opinion that the development blocks being not very close to the village are not ideal units for the formulation and implementation of developmental plans at grass root level therefore, the cluster of villages with a focal point may be considered as a basic and viable unit micro-level planning. Keeping in view, he attempted to identify the
central places, their spatial distribution and complementary region, and lastly proposed a planning policy to achieve balanced regional development at village level, so that maximum people can share its fruits. Singh (1994)\textsuperscript{37} adopted the criteria of students in a class that appears to be conducive for a single teacher and minimum needs programme of Seventh Five Year Plan for the setting up of new educational and medical institutions respectively, for their easy and better accessibility to the people for all round regional development. Sharma, Tripathi and Gupta (1995)\textsuperscript{38} tried to derive the coefficient of development of each social indicator and estimated composite index of development to examine the magnitude of disparities in the levels of social development. Mishra and Mishra (1996)\textsuperscript{39} analysed the spatial pattern of medical facilities and assessed their adequacy in accordance to the growth of population and their needs, and finally proposed a spatial plan to eradicate the problems of rural health and hygiene, so that the people of the rural areas may also contribute to accelerating the process of rural development and socio-economic transformation. In view of the importance of district level planning or planning from below in order to overcome the existing disparities in socio-economic development, Joshi (1998)\textsuperscript{40} attempted to highlight the position of the level of development of each sixty-three district in each selected indicators at two points of time i.e., 1980-81 and 1991-92. Dadibhavi (1998)\textsuperscript{41} in order to assess the regional disparities in socio-economic development between North-Karnataka and South-Karnataka, used per capita income as a measure of development which sometimes become fail to reflect the fact. To overcome this deficiency, on the basis of Principle Component Analysis, he estimated the composite index of development for each district under study. Saxena and Sahoo (1998)\textsuperscript{42} examined the impact of major infrastructures on output, income and employment generation on the economy in Kanpur.

Pawar and Lokhande (2000)\textsuperscript{43} analysed the spatial distribution of market centres and correlated it with the demographic and agricultural determinants. Mallikarjun (2000)\textsuperscript{44} used (i) simple averaging method, (ii) taxonomic method and (iii) principle component method to estimate the composite index of development and to highlight the regional disparities in socio-economic development. Durai, \textit{et al.} (2000)\textsuperscript{45} expressed an idea that in the developing countries like India, where
majority of the population lives in rural areas and depends on agriculture, rural roads act as catalyst for development of village as well as enhancement of inhabitant's life style. Mazumdar (2001) using the multi-variate technique tried to analyse the impact of social infrastructure like education and health on the quality of life in particular and socio-economic development as a whole and viewed that social infrastructure are more effective than physical infrastructure in the socio-economic development of a region. Borbora and Mahanta (2002) viewed agrarian sector had been the main reason for extreme regional variation in the levels of agricultural production in Assam. Nagia and Ahluwalia (2003) made an attempt to arrange the urban settlements in hierarchical order on the basis of their composite centrality score. He estimated the centrality score based on types and number of existing functions provided by the settlement. Bharkar and Bhargava (2003) carried out a study to examine the extent of disparities of infrastructure in Rajasthan. Pawar and Lokhande (2004) analysed the spatial distribution of market centres and examined their relations with area, population of inhabited villages and net sown area to focus on the role of market centres on the levels of socio-economic development. Lokhande and Pawar (2004) on the basis of Prakash Rao's modified method and Reilly's modified breaking point method, tried to delineate the service area of market centres to observe the served, poorly served and unserved areas. Ahmad and Ali (2005) used standard statistical techniques to analyse the spatial pattern of settlement distribution in term of their size, spacing, concentration and dispersion and tried to establish the fact that the spacing is the function of size of settlements. Ali (2006) attempted to analyse the spatio-temporal variations of agricultural crop productivity consequent upon the physico-cultural and socio-economic determinants and finally made a suggestive remark for the development of agriculture. Palanithurai (2006) evaluated the efforts made by the state government in the initiation of the panchayat level planning for the development at grass root. Hassan (2007) adopted 'Principle Component Analysis' and Composite Index methods to examine the regional inequalities in the infrastructural, industrial and agricultural development. Yasenovskiey and Hodgson (2007) are of the opinion that the patrons always travel to the closets facility and that distance minimization best serves them. They
tried to combine the concepts and methods from hierarchical spatial system, spatial interaction modeling and location-allocation modeling to derive optimal hierarchical facility system. They finally presented a new model that incorporates a spatial choice interaction model attributing attendance and benefits to facility size, distance and neighborhood accessibility. Debapriya and Mohanty (2008) comprehended the importance of education and health care facilities in the quality of life of people and tried to evolve a sound statistical methodology to measure the regional imbalances in the levels of educational and health care development.

OBJECTIVES OF THE STUDY

The objective of the present study is to examine the existing central place network and to identify their complementary regions with dependent population and area. For balanced regional development important objectives are as follows;

i) to examine the physico-cultural and socio-economic factors affecting the spatial system of settlements,

ii) to analyse the spatial variation of the settlement in terms of size, spacing, concentration and dispersion,

iii) to analyse the spatial patterns of socio-economic facilities,

iv) to measure the levels of regional disparities pertaining to socio-economic development at district and block level both,

v) to identify the level of central places and its hierarchical arrangement,

vi) identification of spatio-functional gaps of central places based on the delineation of complementary region, and

vii) to propose a diagnostic planning model to achieve balanced regional development in the study area till plan period 2021.

HYPOTHESES

The following hypotheses have been formulated to infer the ground reality and also to give a specific direction to the problems in the present study;

i) spacing is the function of size of settlements,

ii) availability of socio-economic facilities is the function of size of population of settlements,

iii) centrality score of central places is directly proportion to its population,
iv) centrality score of central places is positively correlated to its dependent population and dependent area.

**DATA BASE AND METHODOLOGY**

The methodological principles adopted for the study is based on primary and secondary sources of data obtained from conducting field survey and visiting various offices and agencies such as Geological Survey of India, Bureau of Applied Economics and Statistics- West Bengal, Office of the Census of India, Office of the District Irrigation and Agriculture, District Library, District Head Post Office, Office of the District Animal Resource and Development and National Library- Kolkata. All the statistics are meant for the year 2001.

The secondary data have been used to analyse the spatial organisation of settlements, distribution of facilities and to arrange the central places in hierarchical order at district level whereas the primary data have been used to delineate the complementary region and to identify the spatio-functional gap of facilities.

Both the qualitative and quantitative methods have been used in the present study.

Physico-cultural and socio-economic factors have been described as a background to examine and assess their impact on the organisation of settlement system and their hierarchical development as well as regional disparities pertaining to socio-economic development.

To examine the distribution and spatial variation of settlements and socio-economic facilities standard statistical techniques like 'Nearest-Neighbour Index', 'Mather's model of mean spacing, Gini's technique of coefficient of concentration has been adopted.

- The model of Nearest Neighbour Analysis (N-N Index) is;

\[
R_n = \frac{d_0}{d_e}, \quad \text{and} \quad d_e = \frac{1}{2\sqrt{N/A}}
\]

Where, \( R_n \) = Nearest Neighbour Index,
\( d_0 \) = mean observed distance of nearest neighbour settlements,
\( d_e \) = mean expected distance of settlements,
\( N \) = total number of settlements,
\[ A = \text{total area of the study region.} \]

**N N Scale:**
- \( R_n = 0 \) is clustered pattern,
- \( R_n = 1.0 \) is random pattern and
- \( R_n = 2.5 \) is uniform pattern.

- **Mather's model of Mean Spacing** is as follows:
  \[ D = 1.0746 \sqrt{\frac{A}{N}} \]
  Where, \( D \) = theoretical distance between points or settlements in hexagonal arrangement, or mean spacing in unit length.
  \( A \) = area of given region
  \( N \) = number of settlement in a given region
  1.0746 = Spacing constant.

- **The rule of computing 'Gini's Coefficient of Concentration'** is as follows:
  \[ Gi = \frac{1}{N} \sum_{i=1}^{10,000} (x_i,y_i+1)-(x_i+1,y_i) \]
  Where, \( x_i \) = the cumulative percentage distribution of attribute \( x \).
  \( y_i \) = the cumulative percentage distribution of attribute \( y \).
  \( N \) = the number of observations.
  \( Gi \) = Gini's Coefficient Ratio.

  **Scale of Gi Ratio:**
  - \( Gi \) = Zero, is uniform distribution
  - \( Gi \) =1.0, is highest concentration.

  The causal relationship between dependent and independent variables has been analysed using Karl Pearson's technique of correlation of coefficient and linear regression technique. In order to test the hypotheses and to find out the level of significance of their correlation student's 't' test technique has been used.

  Regional disparities in the levels of socio-economic development have been examined using Z-score or standard score technique. In this method each variable has got standardised. The scores measure the departure of individual observations, expressed in a comparable form. Based on the composite mean Z-score the index of development of each component areal unit has been estimated.
• The model of Z-score method is as follows:

\[ Z_i = \frac{X_i - \bar{X}}{\delta} \]

Where, \( Z_i \) is the standard score or Z-score of ith variable,
\( X_i \) is the individual observation,
\( \bar{X} \) is the mean of variable, and
\( \delta \) denotes standard deviation.

• The model of Composite Mean Z-score is thus,

\[ C.S. = \frac{\sum Z_{ij}}{N} \]

Where, \( C.S. \) refers to the Composite Mean Z-score,
\( Z_{ij} \) is Z-score of an indicator j in block i, and
\( N \) is the number of variables.

Productivity of each crop has been computed based on current price index announced by the Gov't of India in order to give the same weightage of each one. The value of each crop viz., food grain crops and commercial one have been standardised using mean and standard deviation technique to delineate the productivity region.

Median Population Threshold (MPT) of each facility has been estimated using modified 'Reed-Muench' method. The value of facilities is obtained by assigning arbitrarily weigtage value 1 to the lowest order facility and next to it is obtained by dividing their MPT by the lowest MPT value of facility. The centrality score or functional gravity of central place is the representation of total weightage value of facilities provided by the central place. Based on the functional gravity, the central places have been arranged in hierarchical order using mean and standard deviation (\( \delta \)) technique. Mean value has been taken as standard limit below of which all central places fall in lowest order of hierarchy and above the mean value addition of the value of \( \delta \) respective hierarchical orders of central places are made.

The complementary region or hinterland of central places has been delineated using the quantitative technique of V.L.S. Prakash Rao and empirical observation pertaining to the movement behaviour of consumer to the respective
central place of the region.

- Mathematical equation of method devised by V.L.S. Prakash Rao is as follows;

\[
S.I. = \frac{TCA}{C} \\
R = \sqrt[ ]{\frac{TCA}{C}}
\]

Where, \( S.I. \) = Sphere of Influence of central place (in sq. km.), 
\( TC \) = Total Centrality score of central place, 
\( A \) = Total area (Sq. km) of the study region, 
\( C \) = Total centrality score of all central places, and 
\( R \) = Radius of circle indicating the sphere of influence (in km.)

The spatio-functional gap of facilities between the complementary region and the study area as a whole has been determined using simple arithmetic technique viz., ratio of population between the complementary region and whole of the district is divided by the ratio of the composite facilities of the complementary region and the study area. The spatio-functional gap of facilities of all complementary regions has been identified based on the projected population of 2021 of each settlement of the case study area.

- The rule of computing spatio-functional gaps is as follows;

\[
R_{ij} = \frac{P}{P_i} \times \frac{F_i}{F}
\]

Where, \( R_{ij} \) = relative level of function between complementary region and study area, 
\( P \) = the population of study area (Malda district) as a whole, 
\( P_i \) = the population of central place and its complementary region, 
\( F_i \) = total centrality score of ith function of central place and its complementary region, 
\( F \) = total centrality score of ith function of Malda district as a whole.

When the ratio of functions within the complementary region to the study region as a whole is more than 0.1, the area is supposed to be adequately served, while the ratio is less than 0.1, area is inadequately served. Again, the ratio highly near to ‘0’ indicate higher functional gap while ratio moving from ‘0’ to 0.1 explain functional gap is reducing.
• The model of computing projected population is as follows;

\[ PP = P_1 + (r \times t) \]

\[ r = \frac{(P_2 - P_1)}{10} \]

Where, \( PP \) = projected population,

\( P_1 \) = population of base year

\( P_2 \) = succeeding year of base year

\( r \) = annual increase of population between two consecutive years

(i.e. \( P_1 \) and \( P_2 \))

\( t \) = time interval between the base year and the year of which projected population would be estimated.

**SPATIAL UNITS OF STUDY**

The unit of study of the present analysis is at macro, meso and micro level for the regional planning for socio-economic development. The administrative units like district, block, gram panchayat and village are considered for the analysis of necessary attributes. Aspects like, land use pattern, cropping pattern, decadal growth of population and settlements (1901-2001), changing sex-ratio (1901-2001) and changing literacy rate (1971-2001) have been analysed at district level. The levels of socio-economic development based on distribution of socio-economic facilities have been estimated at the block level as well as gram panchayat level. Finally, the diagnostic planning relating to the determination of optimal locations for required facility has been proposed at village level (micro level) grass root level.

**CHAPTER SCHEME**

In view of the aforesaid problems, objectives and methodological principles the present study has been organised under the following chapters.

The entire research work is divided into eight chapters. In an introductory part, selection of area and topic, importance and significance of the study, work review, objectives of the study, hypotheses, data base and methodological principles are given.

*Chapter-1* contains theoretical concept of regional planning and development
Chapter-2 presents an account of physico-cultural and socio-economic characteristics of geographical dimension of the study area. The explanation of all these attributes is made to assess their effects on the spatial organisation and evolution of settlement system.

Chapter-3 explains the analysis of spatial variations of settlements in terms of area, population, size, spacing and concentration using standard statistical techniques. It further deals with the causal relationship between mean spacing and mean size of settlements.

Chapter-4 contains an analysis of spatial distribution of socio-economic facilities in the district.

Chapter-5 deals with the analysis of existing regional imbalances in the levels of socio-economic development at the district level. The levels of development of each variable viz., education, health, communication and transportation, market-electricity-drinking water, agro-economy, finance and veterinary and recreational development has been examined. The overall levels of regional disparities taking into account the composite index of all said variables pertaining to socio-economic development have been examined at block level. The analysis helps in ranking the component areal units in term of index of development.

Chapter-6 describes the basic concepts of central place theory and measures the Median Population Threshold (MPT) of each facility. Based on the computed MPT a certain weightage value has been assigned to each facility and composite of weightage score of all functions rendered by a settlement referred its centrality score. It further deals with the arrangement of central places in hierarchic order on the basis of centrality score. It also explains the nature and extent of relationship between the availability of socio-economic facilities and distribution of population among the size group of settlements and another relationship between centrality score of central places and their total population.

Chapter-7 deals with the spatial analysis of settlements, socio-economic facilities and levels of socio-economic development at gram panchayat level in Harishchandrapur-II block (pilot study area). It further deals with the analysis of spatial interaction and organisation of central places in the case study block. Based
on the consumer's movement to a particular central place to obtain the goods and services to sustain their needs, the complementary region of each central place have been delineated. A causal relationship between centrality score of central places and their dependent population and dependent area, has been quantified with simple correlation and linear regression technique.

Chapter-8 examines the existing spatio-functional gap of each function in 2001 and likely to exist in 2021 based on the projected population of the year 2021. It also proposes a diagnostic planning model suggesting required number of facilities and their optimal location in the pilot study area to achieve balanced regional socio-economic development in the district keeping pace with estimated increase of population till 2021.

Last part presents the summary of findings and conclusion for balanced regional development at micro-level in the district.
REFERENCES


