SUMMARY AND CONCLUSION
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Since inception, Indian planning has been centralized being formulated at the centre for the entire country. It is also known as sectoral planning because such planning is formulated for different socio-economic sectors like, education, health, power, transportation and communication, etc. Such sectoral planning approach could not achieve success in reducing the poverty, unemployment and inter and intra regional and human group disparities in the country. Sectoral plan ignores the evaluation of resource base, local needs of backward regions and backward sections of the society, rather it promotes only those regions where infrastructure was available for development. However, the regions lacking such infrastructure did not attract growth impulses and consequently remained socio-economically lagged behind. Such situation led to the emergence of regional disparities in socio-economic development, which become more intensive with time. The idea of decentralization of Indian planning process has come up in recent time and got decentralized to state level planning. During Fourth Five Year plan (1969-74), emphasis was given on district level planning. Further it 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 such situation, adoption of micro-level planning approach is imperative to overcome the existing problems and to achieve the goal of balanced regional socio-economic development in the country. The need of grass root level planning arises to take care of what sectoral plans failed to accomplish.

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. However, the government has provided facilities for the development of agriculture, education, medical, transport and communication which are neither located at ideal settlement nor sufficient to keep pace with the alarming growth of population. Subsequently mass illiteracy, poverty, unemployment are common features of the region. The district lies within the latitudinal and longitudinal extension of 24°40' 20" to 25°32'08" North and 87°45'50" to 88°28'10" East respectively. According to the census of India 2001, it
accounts for a total population of 3,290,468 persons distributed among 1646 settlements including five urban centres.

Both qualitative and quantitative methods have been used for the analysis of primary and secondary data in the present study. ‘Nearest-Neighbour Analysis’, Mather’s model of mean spacing and Gini’s coefficient of concentration techniques have been adopted to analyse the spatial organisation of settlements and socio-economic facilities. Z-score and composite mean Z-score techniques have been used to examine the regional imbalances in the levels of socio-economic development. To carry out the different steps of planning process, basic concepts of central place model devised by Christaller (1933) have been followed. Median Population Threshold (MPT) has been estimated on the basis of ‘Reed-Muench’ method and central places have been hierarchically arranged based on centrality score of central places. Complementary region of central places has been delineated on the basis of primary information relating to consumers travelling behaviour to a respective central place to obtain goods and services. Spatio-functional gap of each facility have been estimated as the ratio of function between complementary region and district as a whole. Karl Pearson’s technique of coefficient of correlation, student’s ‘t’ test and linear regression technique has been adopted to examine the causal relationship between dependent and independent variables as well as to test the hypotheses.

The goal of micro-level planning is achieved by providing adequate facilities to the settlements at economically accessible, socially desirable and environmentally sustainable. Therefore, analysis of spatial organisation of settlements is important for the formulation of planning. The analysis of spatial organisation of settlement exhibits an uneven distribution of settlements in the district. Bamangola block has recorded highest density of settlements i.e., 6.8 settlements per 10 sq. km. but lowest average size of settlements i.e., 1.46 sq. km. per settlement. However, Manikchak block has recorded lowest density of settlements i.e., 2.3 settlements per 10 sq. km. but highest average size of settlements i.e., 4.39 sq. km per settlement. Therefore, an inverse relationship between density and average size of settlements has been observed in the study area. A wide variation in the distribution of population among different size group of settlement exists in the district. While, large number of small size settlements accommodates lesser population, few number of
bigger size settlements accommodates larger population. For example, 11.48 percent of settlements having population less than 250 persons in each accommodate only 0.87 percent of population of the district, while 2.19 percent of settlements having population more than 10,000 persons accommodate more than 20 percent of population. Highest i.e., 30.11 percent population are accommodated in the settlements of population size group 2000 to 4999 persons. The Gini's coefficient of concentration ratio of 0.580 reveals that population is somewhat disproportionately concentrated at few bigger size settlements in the study area. Settlements in the district are located at 1.58 km. apart from each other, while highest (2.25 km) and lowest (1.30 km) spacing among settlements have been recorded in Manikchak and Bamangola blocks respectively. Correlation (r) value 0.5379 at 13 degree of freedom significant at 5 percent level infers the fact that spacing is the function of settlement or bigger size settlements are located at higher distance from each other.

Existing 45 socio-economic facilities have been taken into consideration for the study and have been classified into 12 main categories. Among them, each primary school serves 1730 persons. Gini’s coefficient ratio of 0.096 reveals that the settlements having electricity for domestic purpose are quite uniformly distributed among each size group of settlements in the district. However, Gini’s ratio of 0.978 of the distribution of soil testing centre, sub-division office and district headquarter indicate their disproportional concentration at single point or it reveals quite clustered distribution. The analysis through the cumulative frequency curve exhibits that, higher gap between the frequency curves (curves of settlements having facility and all inhabited settlements) is observed among the small size group of settlements. However, the gap subject to decreases with the increasing size of settlements. It reveals that, due to the unplanned allocation, smaller size settlements are lacking of facility more than the bigger size settlements.

The analysis of levels of socio-economic development reveals wide regional disparities within the district as well as block boundary. Harishchandrapur-II is single block lies under the low level of development in each socio-economic sector i.e., education, health, communication and transportation, market, electricity and drinking water, agro-economy, finance and veterinary, and recreation. After estimating the composite mean Z-score of all socio-economic facilities, Harishchandrapur-II block
has been identified as socio-economically least developed one followed by Kaliachak-III. English Bazar block stood at first rank in socio-economic development followed by Chanchal-I, Bamangola, Harishchandrapur-I and so on. Wide regional disparities in socio-economic development have been recorded even within the administrative boundary of least developed block. In Harishchandrapur-II block, Sultan Nagar gram panchayat has attained lowest index of socio-economic development followed by Malior-2, while Bhaluka relatively stood at first position. In view of the ranking of blocks, first preference should be given to Harishchandrapur-II block for the formulation and implementation of planning model, however allocation of facilities should be started with Sultan Nagar gram panchayat.

To overcome the above problems i.e., unplanned allocation of facilities in an unorganized manner among the size group of settlements and regional disparities in the levels of socio-economic development, and to achieve balanced regional development keeping pace with growth of population, Christaller’s Central Place concept (1933) has been adopted as a tool of planning. His concept is based on certain assumptions relating to isotropic land surface. Since it is difficult to find such an area, basic philosophical ideas of his theory have been adopted instead of complete model to carry out the different steps of planning for balanced regional development in the district.

The Median Population Threshold (MPT) of each facility has been estimated on the basis of ‘Reed-Muench’ method which is complex but authentic, logical and mathematically sound. This method seeks to find out the location of entry point or population threshold below the limit of which all settlements lacking the function while above of the limit all settlements possess the function being considered. MPT of each facility is not same, rather varies depending on their importance. Higher order functions have higher value of MPT and vice-versa. The computed MPT ranges from 361 persons of electricity for domestic purpose facility being lowest to 161,500 persons of each soil testing centre and district headquarter facility being highest. MPT of facility simply implies that any settlement with MPT is supposed to sustain the location of it. Corresponding to the Median Population Threshold, each facility has been assigned certain functional weightage. The causal analysis reveals that the distribution of population and socio-economic facilities among the size group of
settlements in the district are positively correlated \( (r = 0.958) \) and significant at 1 percent level at 5 degree of freedom. Their positive correlation accepts the hypothesis, availability of socio-economic facilities is the function of population distribution among the size group of settlements. It may be ascertained that large number of people are concentrated at bigger size settlements mainly due to the higher availability of facilities there, and it is contrary to the smaller size settlements.

On the basis of criteria for the identification of central places, 361 central places have been identified and they have been arranged into six hierarchical orders on the basis of their functional importance or centrality score. The analysis reveals that 274 central places with centrality score less than 236.09 are considered under first order i.e., lowest order of hierarchy, while 71 settlements are included in second order, 11 settlements in third order, 03 settlements in fourth order, 01 settlement in fifth order and rest 01 settlement in sixth order i.e., highest order of hierarchy. It has been observed that the centrality score of central place is positively correlated to their total population \( (r = 0.867) \). It accepts the hypothesis that, the centrality score of central places is directly correlated to its population and infers the fact that people are tend to concentrated at the central place where higher important facilities are exist.

Each central place provides goods and services to its population and the population of its surrounding settlements while dependent population offers demand for goods and services. Consequently, an interaction is emerged between the central place and its dependent settlements. To analyse such an interaction, Harishchandrapur-II block has been taken for pilot study. In the block, 15 first order and 06 second order central places have been identified. The area over which such an interaction is emerged is known as the complementary region or zone of influence of the central place. The complementary region of each central place has been delineated on the basis of both quantitative method as well as empirical observation. In the quantitative approach, the complementary regions have been delineated based on the mathematical equation devised by V.L.S. Prakash Rao (modified method). Due to some drawbacks associated with the circular form of complementary regions according to mathematical equation complementary region of identified both first order and second order central places have been delineated on the basis of empirical observation. Using both methods, it has been observed that the settlements of Sultan
Nagar gram panchayat i.e., Hulaspur, Chhatrak, Monaharpur, Jayrampur and Bildaha do not come under the zone of influence of any central place in Harishchandrapur-II block. The people of these settlements moves to the central place that lies outside the study block to obtain goods and services. People of Hulaspur, Chhatrak and Monaharpur travels to Tulshihata (third order central place) and people of Jayrampur and Bildaha travels to Bhatol (first order central place) of Harishchandrapur-I block.

The analysis of spatial interaction and organisation reveals that, among the first order central places, Daulat Nagar serves highest population i.e., 15671 persons and covers highest area i.e., 19.61 sq. km. in 2001 and it is also estimated to serve highest population i.e., 20371 persons in 2021. However, lowest population and area i.e., 4422 persons and 4.11 sq. km. respectively are served by Gaushpur central place in 2001, while it is estimated to serve lowest population i.e., 6344 persons in 2021. Among the second order central places, Uttar Kumedpur serves largest population i.e., 52491 persons in 2001 and estimated to serve largest population i.e., 68491 persons in 2021. It has been observed from the empirical study that the second order central places by providing first order (lowest order) functions with lower market range makes first order complementary region and then subsequently second order complementary region. Therefore, lower order complementary regions come under the nesting pattern of higher order complementary region. The causal analysis reveals that, the centrality score of central places is positively correlated to their dependent population ($r=0.741$) and dependent area ($r=0.742$). It may be ascertained that, the central places of higher functional importance attract a large number of population from longer distance and it is contrary to the central places of lower functional importance.

The estimation of dependent population and dependent area is important to examine the spatio-functional gap (ratio of function between complementary region and district average) that reveals the adequacy or inadequacy of existing functions within the complementary region of central place. At the first order hierarchy, there are 21 complementary regions (excluding complementary regions of Bhatol and Tulshihata central places that lie outside the case study area) in Harishchandrapur-II block. These complementary regions provide existing 14 first order functions of which dispensary and tap water facilities are very rarely available to the people of the
block. Dispensary is available only in two complementary regions i.e., Sultan Nagar and Talbhakuria while tap water is available in three complementary regions i.e., Bhaluka, Sultan Nagar and Khanta.

The analysis of spatio-functional gap of first order functions in 2001 reveals that, in the block only four complementary regions are adequately served by primary school while rest 19 complementary regions are inadequately served. 12 and 09 complementary regions are served adequately and inadequately by middle school facility respectively. 08 complementary regions show better standard (functional ratio more than 1) of secondary school facility while among rest 13 complementary regions Daulat Nagar is inadequately served and 12 regions are not located with this facility. Regarding branch post office facility, 14 complementary regions show better standard, 04 below standard (functional ratio less than 1) and rest 03 are not having this facility. In the block, not a single settlement have telephone facility within the complementary region of Malipakar and Jagannathpur central places, while 12 and 07 complementary regions show better standard and below standard of this facility respectively. 05 complementary regions show better standard of pucca road facility while 11 regions are inadequately served and rest 5 regions are not having this facility. Only 03 complementary regions are adequately served by electricity for domestic purpose, while 08 complementary regions are adequately served by electricity for agriculture. Regarding the facility of fertilizer distribution centre, only 05 complementary regions show better standard, 09 regions have recorded below standard and rest 07 are not having this facility.

The spatio functional gaps of second order functions in 2001 reveals that among 06 existing second order complementary regions, 03 regions are adequately served while rest regions are inadequately served by higher secondary school and primary health centre facilities. 04 and only 01 service areas are adequately served by agricultural seed distribution centre and commercial bank facility respectively. However, not a single complementary region shows better standard of daily market facility. Only 03 service areas show better standard of each public library and free reading room facility while rest service areas have recorded below standard.

The spatio-functional gaps of both first order and second order functions have been examined to be recorded till 2021 on the basis of projected population of each
settlement in the pilot study area. The analysis reveals that, due to estimated growth of population the functional gap of each function is estimated to be increasing that suggests requirement of new more facilities in addition to existing number. The analysis also reveals that, due to less increase of estimated population in the complementary region than the average increase in the district till 2021, the functional gap is estimated to be reduced in 2021 than that in 2001. Such a condition is estimated to have happened in the complementary region of five central places i.e., Sadlichak, Mashaldaha, Malipakar, Talbangrua and Talgachhi in the block.

To achieve a balanced regional socio-economic development, a diagnostic planning model has been proposed, which comprises two folds planning action i.e., first, estimation of required facilities to fill the functional gap, second, identification of optimal new location for proposed facilities.

The analysis reveals that, to keep pace with growth of population and to achieve balanced regional development, as many as 37 primary schools, 04 middle schools, 01 secondary schools, 19 dispensaries, 03 branch post offices, 12 fare bus stops, 35 fertilizer distribution centres, 03 agricultural credit societies and 01 periodic market have been proposed in addition to existing units in Harishchandrapur-II block till the plan period 2021. The analysis also reveals that, 10 more inhabited settlements have been recommended for telephone facility, 19 settlements for pucca road facility, 29 settlements for electricity for domestic purpose, 15 settlements for electricity for agriculture and 08 settlements for tap water facility in addition to existing facilities.

On the basis of assessment of MPT of facility, nearest neighbour distance, accessibility and connectivity of settlement the optimal new location for proposed facilities have been identified so that maximum people can avail facilities within minimum distance. It is exhibited after determining the optimal location of proposed facilities that Datian settlement (J.L. No. 139) of Sultan Nagar gram panchayat has been identified as the best location of as many as 12 new more facilities. Monaharpur settlement (J.L. No. 117) has been identified as the best location of 09 new more functions i.e., primary school, middle school, primary health sub-centre, dispensary, branch post office, fare bus stop, pucca road, tap water and fertilizer distribution centre. Both the settlements will become central places with high functional importance if all the proposed facilities are provided till the plan period. Therefore,
people of these settlements and its surrounding settlements would not depend on the central place that lies outside the case study block. Subsequently, the problem of regional imbalances and inequalities will be solved by the year 2021.

The proposed plan has been formulated as a pragmatic model to eliminate the existing problems and problems likely to exist till 2021. If this model is adopted by the regional planners and policy makers, the areas would be developed in balanced form.

Regional planners, policy makers and government are suggested to adopt such a bottom-up approach planning for entire district in the same way and the same process to eliminate regional disparities that macro level planning approach could not achieve.