10. CONCLUSION

The preceding analysis, based primarily on a quantitative processing and mapping of census data during the present century, has revealed many different facets of urbanisation in West Bengal. The conclusions arrived at, on the basis of the findings of the different chapters, may be summarised as follows:

Levels of urbanisation in West Bengal reflect the uneven urban pattern characteristic of the state. Thus wide regional disparities are evident from the concentration of the more urbanised districts in one particular area, namely the south eastern part of the state and the occurrence of comparatively low levels of urbanisation over remaining parts. The entirely urban district of Calcutta which forms the nerve centre of the zone with moderate to high levels of urbanisation, obviously shows the highest level of urbanisation in the state throughout the period under review. Again, analysis of temporal variations shows that levels of urbanisation remained almost static during the pre-Independence period. It is only after Independence that changes in levels of urbanisation began to occur, as for example the movement of Twentyfour Parganas and Barddhaman from moderate and low levels to high and moderate levels respectively.

A study of the different processes responsible for the accelerated pace of urbanisation since 1961 shows that urban growth in the state is significantly influenced by the processes of migration and commercialisation. Industrial development, especially that of large and medium scale industries, played a minor role as an urbanising process during 1961-71. Thus during this decade West Bengal appears to have experienced urbanisation without industrialisation, a trend often considered typical of the developing world. However, the influence of industrialisation on urban growth increased considerably during the decade 1971-81. In this context, a comparison of residuals of urban population growth on the different independent variables considered to represent the above-mentioned urbanising processes with the district-wise levels of urbanisation (identified earlier) in the corresponding decades leads to the conclusion that less than predicted urban...
population growth usually occurs in districts with very high or very low levels of urbanisation and districts with moderate levels of urbanisation may show wide variations depending on the independent variable considered and the decade under review.

Analysis of the spatio-temporal patterns of the spread or dispersal of urban centres in West Bengal during 1901-81 indicates clearly the tendency towards a spatial concentration of urban centres in the neighbourhood of Calcutta since the beginning of the present century. Therefore, the Hugli Industrial Belt comprises the most urbanised zone in the State, with the towns being located on either bank of the river Hugli with Calcutta as their focus. Further evidence of this concentration is provided by the fact that the districts of Haora, Hugli and Twentyfour Parganas (which together contain almost all the constituents of the Calcutta Urban Agglomeration) account for more than two-fifths of the total number of urban units in the State. It is also noticeable that the rate of emergence of new urban centres accelerated in this zone during the post-Independence period so that the original ribbon like development along both banks of the River Hugli has spread further eastwards and south westwards in the Twentyfour Parganas and Haora districts respectively. However, there has been comparatively little extension in a northerly direction since 1961 when Kalyani and two other urban centres of Nadia district were included in the Calcutta Urban Agglomeration. Again, westward extension, further into Hugli district has also been lacking until 1971. It is only during the most recent decade that several new urban centres have emerged in this district. Spread of urbanisation to the other parts of the state has occurred very slowly. It is only during the most recent decade that a secondary zone of urban concentration, centred at Asansol and Durgapur, has clearly emerged in the western part of Barddhaman district. The influence of this zone of urban concentration is seen in the northwestward shift of the mean point of urban population during 1971-81. There are no other areas of urban concentration comparable to the above-mentioned ones but several new additions, especially in areas away from the Calcutta Urban Agglomeration (as for example in the northern districts like Darjiling, Jalpaiguri
and Maldah), during 1981 seems to indicate the possibility of a more dispersed pattern of urbanisation in future.

The uneven pattern of spatial diffusion of urban centres has obviously resulted in the inverse size-spacing relationship so that large urban centres are located in close proximity to each other while smaller ones show a dispersed pattern of distribution.

It is interesting to note that while the inverse size-spacing relationship does not show any signs of change even during 1981, the pattern of spacing of urban centres in terms of nearest neighbour analysis appears to reflect the effects of urban growth in the more remote corners of the state in recent decades. Thus the earlier trend of a clustered pattern for larger towns and a perfectly random pattern for small ones have been replaced by a nearly random pattern for the former and a partly random partly clustered pattern in the latter.

A study of urban growth in West Bengal during 1901-81 shows that both urban population as well as number of urban centres showed only a nominal increase during the first two decades of the 20th century and many of the towns recorded a decline of population. This was a natural outcome of the epidemics of 'Burdwan fever', influenza and so on suffered by the state which not only resulted in considerable loss of human life but also disrupted the economy of urban as well as rural areas. The decades 1921-41 showed definite improvements and urban growth gained momentum especially during 1931-41. This was partly a result of improved control over epidemics and partly due to the impetus for industrialisation created by the World War II which began in 1939. The next decade was crucial in India's history and prevailing conditions were favourable for rapid urbanisation. In West Bengal, urbanisation during this decade was primarily a result of the influx of displaced persons from across the border after partition of Bengal rather than of any other reason. During the post-Independence period, urban growth accelerated further so that both components of urban growth are increasing at a rate faster than that predicted by the computed curve. However, considerable regional variations from this general trend are also noticeable. In certain parts of the state, as for example in Bankura and parts of
Medinipur district, the stagnating trend of the earlier decades continues to persist.

Further analysis of these two components of urban growth in the different size classes reveals that larger towns are growing faster than the smaller ones in both respects. This is especially true of the first two decades of the post-Independence period.

A comparison of unified growth rates of urban population and number of urban units in the districts during 1901-81 shows that a high growth in the former is usually associated with a high growth rate in the latter. This is not surprising since analysis of decadal growth of urban population reveals clearly that extraordinarily high decadal growth is more often linked to the emergence of new urban centres rather than increase in the population of existing ones. A further comparison of decadal growth rates with the levels of urbanisation shows that a high level of urbanisation does not necessarily imply a high rate of urban growth in the recent decades. Thus, more urbanised districts often show lower decadal growth.

A study of urban size-relationship in West Bengal re-establishes the undoubted primacy of Calcutta, the premier city of the state. Urban size-distribution in the state shows considerable deviations from the ideal-rank-size rule throughout 1901-81 and it seems most likely that the prevailing primate distribution will persist in the near future.

Functional classifications of urban centres in West Bengal reveals that the spatial distribution of different functional types of urban centres reflect the nature of urbanising processes responsible for their development. Industrial functions are dominant in two specific areas, namely the Calcutta Urban Agglomeration and the Durgapur-Asansol region. But in the former, other important functions consist of service and commerce and in the latter mining and transport. This is a natural outcome of the fact that urbanisation in the former zone is related to the development of trade and commerce and the establishment of light industries while in the latter, urbanisation is a direct result of the development of heavy industries and coal mining activities. Again
dominance of commercial and service functions over remaining parts of the state reflects the fact that outside these two zones, urban centres have primarily grown up either as trade centres for surrounding rural areas or as centres of administration. Dominance of small scale industrial functions is usually seen in towns located in districts like Murshidabad, Nadia and Bankura which are characterised by a low level of urbanisation at present but have an urban history which goes a long way back. Urban centres in these districts have been traditionally associated with cottage industries like handloom textiles, handicrafts and so on.

Attempts to relate urban functions with the population size of urban centres reveal an inverse relationship between the variables with respect to the broad threefold classification of urban functions into primary, secondary and tertiary categories. However, further analysis of the relationship in terms of a more detailed breakup of functional categories (based on the ten industrial categories of working population) shows clearly that there is no significant relationship between the variables. The contradictory nature of the results obtained above obviously indicates a need for further investigation into the relationship using a more restricted definition of the term functions so that it refers only to a range of tertiary activities performed within an urban area.

Analysis of urban landuse in Asansol and Chandannagar reveals that the development of functional zones within these cities reflects their respective origin as well as present functional characters. Asansol originated as a transport node located in the midst of a mining area and continuing dominance of the transport function is indicated by large areas devoted to this function in the central part of the city. Development of a commercial zone also in the central area indicates increasing importance of this function, since Asansol serves as a focus of commercial activities for the newly emerging urban centres in this part of the state. A contrasting picture is presented by Chandannagar, a residential satellite of Calcutta. This city originated as a trade centre of the French and vestiges of former French occupation may still be seen. At present the most important function of the city appears to be residential so that this function occupies largest areas.
Commercial zones are usually confined to narrow ribbon like developments along or at the meeting point of important transport lines. Administrative functions show a central location indicating that the city is an important centre of administrative activities.

A study of different aspects of urban demography in West Bengal makes it possible to conclude that a high level of urbanisation is usually associated with a higher proportion of adult population as well as a high level of literacy. Analysis of changes of both variables during 1961-81 indicates significant improvements over time. On the other hand, inspite of considerable improvements in recent decades, West Bengal is still characterised by one of the lowest urban sex ratios of the country. There are, however considerable regional variations from the average figure and analysis shows that low sex ratios are characteristic of the more urbanised and industrialised parts of the State like the Calcutta Urban Agglomeration and the Durgapur-Asansol region.

Analysis of population density gradients in the selected cities shows that with the exception of Chandannagar, spatial distribution of population in the cities conform to the general model of negative exponential decline of density with increasing distance. In addition, a comparison of the density gradients obtained for Calcutta, Kharagpur and Asansol reveals that the 'b' values decline with increasing areal extent of the urban centres. Thus, it is possible to conclude, in accordance with Clark's views, that the b value provides a measure of the spread of cities. Study of the temporal variations of the gradient for Calcutta during 1951-81 further indicates an overall decline of the gradient over time.

Delineation of the metropolitan region of Calcutta with respect to the other million-plus cities of the country by the gravity model, establishes beyond doubt the overwhelming importance of Calcutta in the national urban scene. The zone of influence of Calcutta may be seen to extend far beyond the state boundaries and cover entire northeastern India, nearly whole of the states of Bihar and Orissa and a sizeable part of eastern Madhya Pradesh.
It may be remembered that a final objective of the present work was to investigate the general statement that 'urbanisation in West Bengal is not only lopsided but also regionally imbalanced' and its applicability to the urban scene of the state during the recent decades. Investigation into the different facets of urbanisation in West Bengal (especially the results of analysis presented in Chapter 2, 4, 5 and 6) has assembled considerable evidence in favour of the above statement. Therefore, certain aspects of the summary of conclusions presented above may now be used for the purpose of establishing the unbalanced nature of urbanisation in the state since the beginning of the 20th century and its persistence to the present day.

The lopsided nature of urbanisation in West Bengal relates to existing spatial disparities which are in turn related to the effect of the disproportionately large population size of Calcutta, the premier city. Therefore, arguments in favour of the above statement may be restated as follows:

1) The more urbanised districts are located in close proximity to each other in the south eastern part of the State since the beginning of the present century.

2) The four districts of Calcutta, Haora, Hugli and Twentyfour Parganas together have always accounted for the largest share of urban population as well as number of urban units in the state. Even as recently as in 1981 these districts together accounted for 68.28% of the state's urban population and 46.74% of the total number of urban centres in the state. This may be contrasted with the urban situation in other parts of the State. The northern districts of Darjiling, Jalpaiguri, Koch Bihar and West Dinajpur together accounted for only 6.81% of the urban population and 11.68% of the number of urban units in the state during 1981. A similar situation may be seen in the south western districts of Puruliya, Bankura and Medinipur which together accounted for 6.36% of the urban population and 11% of the number of urban units in the state during the same decade. The most remarkable feature is that despite the dispersed industrial policy followed in the post-Independence period, there has been very little
change in the respective proportions during the period under review.

iii) A study of spatial diffusion provides irrefutable evidence in favour of an unbalanced spatial pattern of urbanisation in the State. The single most important zone of concentration of urban centres throughout the period under review is found to be located within the Calcutta Urban Agglomeration. At the turn of the present century this zone contained 26 out of a total of 76 urban centres in West Bengal. This figure has risen to 107 out of a total of 291 in 1981 showing that this zone is still expanding. While it is true that the Asansol-Durgapur zone has emerged as a secondary zone of urban concentration especially in the last decade, it is in no way comparable to the former.

iv) The inverse size-spacing relationship of urban centres also highlight the uneven pattern of urbanisation in the state, since such a relationship is entirely a result of the fact that most of the large urban centres of the state are located in close proximity to each other within the Calcutta Urban Agglomeration. The fact that such a relationship has persisted throughout 1901-81 provides ample evidence of the continuing unbalanced nature of urban growth in the State.

v) Study of urban growth in terms of increase in the number of urban centres and urban population once again points towards the lopsided nature of urbanisation, since the analysis clearly indicates that the larger urban centres are growing at the expense of the smaller ones. The larger size categories generally show high rates of growth while small towns appear to be decaying or stagnating. In recent decades the process of stagnation of small towns appears to have been arrested, but at the same time, growth of Class I cities appears to have continued unabated.

vi) The unbalanced nature of urbanisation in the state is also indicated by the lack of conformity of urban size-distribution in the state to the ideal rank-size rule. It is seen that the urban size
relationship in West Bengal comes closest to primate distribution and the actual population of Calcutta has usually been much greater than the expected population. Besides, the population of Haora, the second largest city of the state, is less than one fourth of that of Calcutta and the population of all the larger towns and cities are much less than expected in terms of the ideal rank-size rule. Evidence provided by increasing 'b' values [obtained from the computed equation $P_i = a(i)^{-b}$] indicates that it is most unlikely that an ideal rank-size rule will be obtained in the near future.

vii) Finally, a most significant argument in favour of the persisting nature of an unbalanced urban pattern in the state is provided by a study of the composite index of urbanisation in the districts. The value of the index for Calcutta is much higher than that of the remaining districts indicating a significant breakpoint between Calcutta and the other districts. Even districts like Twentyfour Parganas, Haora and Hugli where a significantly high proportion of the population is urban have been unable to catch up with Calcutta in the recent decades.

On the other hand, during the last decades, efforts towards a more dispersed pattern of urbanisation in the State appear to be showing positive results. Such trends towards a more dispersed and balanced urban pattern in future are slowly becoming perceptible, as for example emergence of several new urban centres in the comparatively remote parts of the state, emergence of two Class I cities (Siliguri and Balurghat) in the northern districts during 1981, increasing importance of the Asansol-Durgapur region of urban concentration, reversal of the spacing pattern of urban centres in different size classes (in terms of nearest neighbour analysis), declining share of the state's urban population in Calcutta (the figure has declined from 45.73% in 1941 to 22.88% in 1981) and the declining value of percentage deviation of expected and actual population of Calcutta with respect to the rank-size rule.
However, such trends have just begun to emerge and it is too early to accept them as valid evidence against the more obvious pattern of unbalanced urbanisation in the state. Therefore, in view of the above discussion it seems reasonable to accept the validity of the statement that 'urbanisation in West Bengal is not only lopsided but also regionally imbalanced' as a true picture of the urban landscape of the state up to the most recent decade.

In the light of the above conclusion, it may be said that the present work has made an attempt to fulfill the objectives outlined in the first chapter and bring out the salient characteristics of the patterns and processes of urbanisation in West Bengal viewing the state as a whole and with an emphasis on the quantitative approach. However, it is readily admitted that further investigations are possible, even necessary in some cases such as the size-functional relationship of urban centres and the delineation of the metropolitan region of Calcutta, to name a few. Thus, the preceding analysis may be said to have suggested several possible fields of research into the urban scene of West Bengal and the most important among these seems to be a detailed study of the different aspects of the faintly discernible trend towards the possibility of a more balanced urban pattern in the state in future.