7.1 SUMMARY

The urban social mosaic of a city is a resultant factor of a series of continuous processes both physical and human. Interaction between the natural process and the man-made processes is the major determinant in shaping the ecological structure of any city. Every community is composed of a mosaic of many diverse areas, each with its own type of people, institutional activities, physical characteristics, standards of life, social norms and traditions. They together form a natural area. Sometimes these natural areas are in contrast with one another. At other times the differences are relatively less. These areas are not the result of plan or design, but come into existence as part of emerging pattern of city growth. The ecological structure of a city is relatively simple during the early stages of city growth. As the city increases in size, it develops from a small nucleus into a complex of many units each different from the other.

As the size increases, the complexity of the city ecology also increases. Different groups tend to segregate themselves on the basis of certain homogenous demographic and socio-economic characteristics. As a consequence there emerges a distinct residential pattern.

The social area analysis is a technique developed for the purpose of providing a broader framework to the analysis of
residential segregation within a given city. The analysis is done by means of examining the underlying dimensions of urban society. This approach was first developed by Shevky and Williams (1949) and used in their study on Los Angeles. Later, it was further developed by Shevky and Bell (1955) in their study on San Francisco. Social area analysis classifies census divisions according to three basic constructs—economic status or social rank, family status or urbanisation, and ethnic status or segregation.

The urban social areas reveal socio-economic, ethnic and housing characteristics. Their spatial structures and areal differentiation highlight the prevailing social conditions. The social area analysis owes its genesis to the ecological approach of the Chicago school which provided the theoretical base for the understanding of the social and spatial organisations located within cities.

A review of related literatures suggest that though a sizeable literature exists on this subject, yet such studies on Indian cities where social problems are the recurring themes specially in the big cities are relatively rare. In this light, such a study on a Indian city is a social need. One such study has been done on Delhi in 1971 (Brush: 1986). The relevance of present study lies on the need to understand the recent changes occurring in the ecological structure of the city. The present study helps in comprehending the spatial patterns of complex socio-economic and residential characteristics.
This research work is an effort to study the socio-economic and residential characteristics of Delhi, a Metropolitan city. Delhi has been a city of immense historical importance. It has passed through a long evolution to attain its present form and size. Several factors - natural, political, social - have operated in the course of its evolution. The urban social mosaic which is visible in the city today is the product of these factors. This mosaic reflects the inequalities and differences of Indian society. Population groups of different types have a high degree of homogeneity within them. They constitute an identifiable residential area within the city. These areas which emerge on the basis of similarity of residential and socio-economic characteristics are also tested as 'social area'.

The present research attempted to study the social areas of Delhi Metropolitan City. It addressed a few specific questions:-

- Do urban social groups manifest spatial variation of residential segregation?
- Are residential areas specific to one or another set of social and economic forces?
- Does residential differentiation reflect upon the social and economic problems?
- Does urban environment specific to a particular group influence it in terms of residential segregation?
To answer these questions, the following seven objectives were attempted to be achieved:

1. To trace the origin and evolution of Delhi into a metropolitan city.
2. To study the city structure in terms of demographic, economic, social, ecological and residential characteristics.
3. To understand city dynamics in terms of redistribution of population and its internal mobility.
4. To identify the dimensions of residential differentiation and their characteristics.
5. To identify social dimensions and their spatial distribution.
6. To produce identify social areas on the basis of similar socio-economic and residential characteristics.
7. To observe whether the sub areas have concentric or sectoral pattern of distribution.

In the process of answering the research problem, the study tested the following four hypotheses:

Hypotheses

1. Social areas are primarily the outcome of traditional norms associated with religion, caste and nativity.
2. The guiding norm for the formation of social areas is the socio-economic (education, income and occupation) homogeneity of the group.
3. Urban environment influences the choice of residential locality which in turn governs the formation of social areas.

4. Variations in the socialisation process determine the residential differentiation which result in social areas.

The concept of social area was operationalised by using a number of variables. The broad concept of social areas was broken down into relatively smaller concepts of social groups, residential segregation, socio-economic forces and urban environment. The variables selected to identify further the scope of the concept included demographic, socio-economic and residential characteristics of population. Migration and internal movement, housing quality, and physical and social interaction were also used. The research design developed for the present work incorporates both secondary as well as primary information. It has been organised at three levels: macro where the city as a unit has been examined; meso where the charge level study has been done; and micro, where the sample population has been studied. The macro-level analysis was based on secondary data available for the city as a unit. The meso level analysis was also based on secondary data. However, the unit of analysis is census charge which numbered 117 in 1971 and 123 in 1981. The micro level analysis was done on the basis of sample population of 400 households.

Regionalisation of Delhi on the basis of secondary data on demographic socio-economic and residential characteristics helped in selecting the sample population. By using 'Composite Index' technique all the selected variables were ranked. The
cumulative scores obtained by each charge were further ranked to compute the Composite Index for each charge. On the basis of these ranks all the charges were divided into 5 categories: very high (core), high (peri-urban), medium (neo-peri-urban) low (periphery) and very low (rural fringe). From core and periphery, one each, and from periurban, neo periurban and periphery, two charges each were selected. Thus, in all 5 charges formed the area for the selection of sample population. From each of these charges, 50 households each were selected. Thus a total of 400 households were selected.

The primary data was thus collected from an already identified population on the basis of secondary data with the help of a questionnaire schedule.

To meet the first objective a socio-historic profile of Delhi was sketched. Delhi has been a city of historic importance. It grew from a fairly unknown settlement to the seat of Moghal and then of British. The Delhi of today has been erected on the remnants and ruins of several other cities. Located between 28° 25' and 28° 23' North latitude and 76° 50' and 77° 22' East longitude, it adjoins the states of Haryana and Uttar Pradesh. The legends describe it as 'Indraprastha' the city of Pandavas of the great epic 'Mahabharata'. The name seems to have emerged from Diadala, a legendary place near Indraprastha.

During the Hindu rulers, the city was of little importance. Believed to have been founded by the Tomaras, it gradually gained prominence by the time of Muslim advent. It reached the peak of its glory during the Moghal rulers. It further
grew in the years that followed the British rule. It became a seat of political activities during the freedom struggle. The independent India was administered from here. Modern Delhi sprawls across all the earlier Delhi that had grown and decayed during the past centuries. The population of Delhi was estimated to be 1,50,000 in 1803. It grew to 1,60,279 persons in 1868 to 9,370,45 persons in 1991 of which 8,427,083 persons were in urban areas and 9,433,92 were in rural areas.

The density of population has been on the increase - from 6,518 in 1951 to 9,758 in 1981. The sex ratio has also been increasing from 798 in 1981 to 831 in 1991. As a nodal centre, Delhi attracted many migrants. The post-independence period saw an influx of refugees from across the border. There were three major languages - Hindi, Urdu and Punjabi spoken by the people of Delhi. The major religions followed by them were Hinduism, Islam and Sikhism. Thus, from an anonymous settlement as described in legends. Delhi grew up into a metropolis.

A City forms a part of the city region within the city system. Various components of the structure need to be analysed within a common conceptual framework. Understanding spatial morphology, demographic, socio-economic, socio-spatial and technological structure help in identifying one city from another. Delhi has been identified as a dual city. Comprising of a modern or south-western sectors and the 'traditional' indigenous town, the ecological structure of Delhi, like most of the historical cities, is more complex than simple. To examine the extent to which the
pattern of ecological structure follows a classical model, spatial distribution of selected variables related to demographic, socio-economic residential, migration, physical and social interaction aspects were analysed on the basis of secondary and primary data.

The secondary data was accessed at charge level for the years 1971 and 1981, and the population characteristics were examined. As regards density, the inner core of the city comprising Chandni Chowk and the adjoining area had the highest density of 69,147 persons per square kilometer in 1971 and 67,653 persons per square kilometer in 1981. Away from the core, the density gradually decreased. Most of the census towns, which are located in the periphery, had low density. Over the decade, most of the congested and sparse areas remained the same. Change occurred in the intermittent zone particularly the urban fringe. Bhalaswa Jahangirpur had the highest sex ratio of 1009 females per 1000 males while cantonement area had the lowest of 612 females per 1000 males in 1971. Shankar Road, adjoining the Cantonment area, had the highest sex ratio of 913 females per 1000 males in 1981 and Darya Ganj had the lowest of 641 females per 1000 males. Over the decade, the sex ratio increased in the trans-Yamuna area. This is generally attributed to the immigration and movement of the family members to this part of the city to join the male members who migrated or moved earlier.

In 1971 Kotla had the highest dependency ratio, 4.77 persons per worker and Samepur, the lowest. The corresponding figures for
1981 were 4.00 in Narela and 2.00 in Minto Road. Both sex ratio and dependency ratio have strikingly similar pattern. This emphasises the need to increase female work participation. The higher concentration of scheduled caste population was in the peripheral area. Nai Sarak recording the lowest 0.71 per cent in 1971. The census town Pul Pehlad had highest concentration and Shadipur Depot had the lowest in 1981. The distribution pattern did not change much during 1971 and 1981.

As regards the workforce, in 1971, the highest and the lowest was in Cantonment i.e., 63.83 per cent, and Wazirpur about 38.00 per cent. In 1981, Darya Ganj recorded the highest, about 64 per cent while Narela, the lowest, about 43 per cent. Over the decade, increase in the male work participation is evident. Female work participation in 1971 was highest in Bindapur. It was due to the emergence of small industrial units in the vicinity. Jaffarabad and Kotla had negligible female work participation. In 1981 Harsh Vihar recorded the higher percentage of women worker, over 18 per cent. Jaffarabad continued to contribute very small proportion. Over the decade, the peripheral area experienced more changes as compare to the core.

In 1971, highest male literacy was recorded in Brig Hoshiar Singh Marg (86.42 percent) while Bindapur had the lowest (12.42 per cent). In 1981, too Brig. Hoshiar Singh marg continued to have highest male literacy (88 percent). The lowest was recorded in Pul Pehlad Pur (36.02 per cent). Over the decade, the literacy rate improved for the males as well. Shankar Road, nearer
to the city core had highest female literacy in 1971 as well as in 1981. The area recorded 76.6 per cent and 82.1 per cent respectively for the two time points. The lowest in 1971 was recorded in Kotla 1.71 percent. The corresponding area in 1981 was Pul Pehlad recording over 11 percent. There has been a remarkable increase in female literacy over the decade.

The study also attempted to examine the residential structure. Understanding the urban mosaic of a city calls for studying the spatial arrangement of places, particularly the dwelling units also. The land use patterns of a city determine its residential patterns. By the end of the first decade of this century, land use had become more differentiated. The process of planning the city with the core in Connaught Circus had started. The city size was then small so the specialisation of land uses occurred within a short walking distance of the city core. Main line of residential differentiation was on the basis of income, occupation and nationality. Movement of the new upper classes towards further north initiated the first important reorientation of residential areas. This was primarily a response to population and commercial expansion in the city core. The then existing residential areas altered drastically in response to these forces.

The need for space was encountered by crowding and more intensive land use and by suburban expansion. The refugees from the then East and West Pakistan clustered in Karol Bagh and Kingsway Camp in North and Chittaranjan Park in South. The upper class suburbs transformed into middle class area which was inhabited
mostly by skilled workers. Established residential areas in the city core gave in to the business pressure. The upper class residents departed while the refugees entered.

The DMC and NDMC were set up in the due course. Despite the efforts of these two bodies, crowded and unsanitary dwelling units mushroomed in many parts of the city to house the poorer population. Laws governing housing and squatting were more strictly observed by these two bodies. Suburban expansion continued. Crowding and deterioration of the central residential districts intensified the tendency of the population to spread outward. In the later years after independence, when the economy of the nation was a little stabilised, construction of residential units for various income groups was taken up.

Several factors conditioned the landuse changes. The most important factors in explaining the sustained movement from the core to peripheral areas, particularly for low and middle income families, was the search for better shelter and more satisfactory environment. Housing generally remains costly in relation to income and quality of dwelling. Therefore, neighbourhood preferences are the major force that create the patterns of residential differentiation. They invoke economic differences between groups, housing affordability, preferences for different neighbourhood, social and ethnic composition and location of place of work. This was revealed by the analysis of census data on residential density measured by housing density, household density and crowding index for the two time points - 1971 and 1981.
The highest housing density was observed in Paharganj, 11044 houses per square km. and the lowest was recorded in Nangloi Sayyed 21 houses per square km. in 1971. Sadar Thana had the highest, about 12000 houses per square kilometre and lowest in Rajokri (81 houses per km. in 1981). The city core recorded the highest density. Over the decade, there has been an increase in the housing density. While in 1971 a clear distance decay pattern was evident, in 1982, as one moved from the core to the periphery, two distinct regions - one each in north and south emerged.

The nuclearisation of family is evident from the fact that on an average one dwelling unit had one family. However, in the peripheral areas particularly the census towns, it was as high as 3.0 while in the upper class South Delhi area of Safdarjung Airport, Narela and Chattarpur recorded 1.26 households per house in 1971. Census Town Pehladpur Banger had highest household density, 2.11 households per house, while Shadipur had the lowest, 1.01 households per house. Over the decade, the household per house has reduced. In 1971 the core has low household density. In 1981 a mixed pattern emerged. Such a pattern emerged as a consequence of pressure on housing accommodation and affordability together with the changing urban structure ushering in the nuclear family norm. As regards crowding, in 1971 the highest was recorded in Bhalaswa Jahangirpur, over 7 persons per household. The lowest was recorded in Tigri, 4 persons per household. In 1981, Bazar Sitaram recorded highest, 6.41 persons per household and Pul Pehlad recorded lowest, 3.77 persons per household. Over the decade the city core became
more crowded particularly the northern part. The Southern 'New Delhi' had crowded sectors.

Thus, it is evident that despite expansion of city in almost all directions, there had been an increase in residential density as well as crowding. This has been particularly because much of the increase had been contained within the already existing residential zones in the core on the one hand and the accelerated construction of residential colonies in the peripheral area on the other.

For the purpose of identification of the sub areas ranking procedure was adopted. The indicators of demographic and socio-economic and residential variables were ranked to obtain the scores for each indicator and cumulative scores for each of the variable. The cumulative scores of demographic, socio-economic and residential variables were aggregated to derive the Composite Index on the basis which the sub areas at the meso level were delineated. The spatial structure of the three variables and the sub-areas were represented cartographically.

The present study used primary data as well. A field survey was conducted to obtain information on demographic, socio-economic, migration and movement, housing, physical and social interaction characteristics. Selection of the field area was meticulously taken up. It was seen that the locality was representative of the charge in which it was located. The distance from the core, type of housing colony, viz. government or private or development authority, self financing scheme or others were
Considered in the Delhi metropolitan City. A total of 400 households were interviewed during September - December 1989. The questionnaire contained various themes on population characteristics and housing dealing with age, sex, marital status, education, religion, caste, language, income and occupation. Information on migrant status, reason for migration, links with the native place, physical interaction for educational, marital, commercial, recreational and religious facilities and social interaction in terms of interpersonal relations, social functional and matrimonial links were also collected.

The data thus obtained were analysed using statistical and cartographic techniques to identify the components of the urban social structure. The data were processed for tabulation and statistical analysis on DEC Vax-11/780 VMS V4.2. The SPSS package was used to derive the cross tabulations and compute factor analysis. The secondary data on demographic, socio-economic and residential characteristics which was used for identifying the sub areas, was also used to identify the factors of urban social areas. The units of observation were the census charges and towns of 1981 counting 123 in all. The factor analysis produced output matrix of descriptive statistics for each variable, factor loadings or correlation of variable with factors on our factors, eigen values indicating the percentage of variance explained by the factor and factor scores for each unit of analysis.

The socio-economic structure was demarcated by plotting the scores obtained by the four factors. Their spatial distribution
was examined by plotting the factors 1 and 2 in different combination of positive and negative scores.

Factor 1 which explained 24.3 per cent of variance was strongly and positively associated with literacy. A strong negative association was evident with scheduled caste population. It was therefore, labelled as 'social status'. It was high in the city core, the Western part comprising of Jail Road, Delhi Milk Scheme, New Rajinder Nagar and the Southern part comprising Basant Nagar, Rao Tula Ram Marg, Vivekananda Marg and Chiragh Delhi. Factor 2 explained 20.6 per cent variance and showed a high positive association with population density and housing density. It was negatively associated with female workforce. This factor was therefore labelled 'congestion'. The trans-Yamuna area showed high congestion while the western part showed low congestion.

Factor 3 explained 14.3 per cent of the total variance and showed positive association with workforce. A strong negative association with sex ratio and dependency ratio suggested its labelling as 'activity'. Parts of the city core, the industrial area in the south eastern part, services in the south central showed high scores on this factor.

Factor 4 explained 9.6 per cent of variance and had high positive association with housing density and crowding. It was negatively associated with sex ratio and dependency ratio. It was labelled as 'crowding' and showed a pattern similar to Factor 2 congestion. The trans-Yamuna area has more crowding as compared to the western part and the rural fringe.
Integration of Factors 1 and 2 for spatial structure of urban social areas demarcated 4 zones (a) positive scores on both factors 1 and 2 (F1+ and F2+), that is, high social status and high congestion; (b) positive score on Factor 1 and negative on Factor 2 (F1+ and F2-), that is, high social status and low congestion; (c) negative score on Factor 1 and positive on Factor 2 (F1- and F2+), that is, low social status and high congestion; and (d) negative score on both Factors 1 and 2 (F1- and F2-), that is low social status and low congestion.

The cross classification of economic structure and the spatial distribution of factor score combination delineate four urban areas: (1) Upper Class (2) Upper Middle Class, (3) Lower and Mixed Class and (4) Rural Fringe. The city core was characterized by middle and lower class. South of the core area were the lower and mixed class zone along the river. The western part was characterised by its west is commercial and governmental zone. Further west upper middle was lower and mixed class zone of the city core. In the east and the north of the core too was lower class zone. The rural fringe zone was in the north and the north west and extended in the peripheral area beyond 20 km.

The factor analysis of the primary data extracted 12 factors which together explained 63.7 per cent variance. For the purpose of analysis first few factors with factor loading ±0.1 and above were considered.

Factor 1 explained 12.3 percent of variance and was highly associated with migration related variables and was
therefore labelled 'migration'. Factor 2 explained 9.9 percent variance and was highly associated with occupation and income factor. Factor 3 explained 6.6 per cent variance and was highly related with age and marital status and was, therefore, labelled socio-demographic factors. Factor 4 explained 4.9 percent of the total variance. It was highly associated with distance travelled for education and marital status, former being positive and latter being negative. It was therefore, labelled as 'education'. Factor 5 explained 4.8 per cent of variance and was highly associated with recreation variables. It was therefore labelled 'recreation'. All the four factors were ranked on the basis of the Factor score ±1.0 obtained by the households of the sample population.

Panchkuian Road showed rural fringe characteristics with low level of education and low congestion. In the sample population derived from this charge economic factor (Factor 2) emerge most important. Pankha Road had lower and mixed class characteristics evident from low social status and high congestion. Socio-demographic factor emerged most important for the households selected from this charge. Greater Kailash, Chattarpur and Kalyan Puri were categorized as charges with rural fringe characteristics. However, the sample population of Greater Kailash and Kalyan Puri scored highest on migration (Factor 1) making it most important among rest of the factor. In Chattarpur, socio-demographic (Factor 3) emerged as most important. Vivekanand Maarg had upper-middle class characteristics and in the sample population migration was the most important factor. Alipur has lower and mixed class
characteristics while socio-demographic factors as most important.

7.2 CONCLUSIONS

Several conclusions are drawn from the present research. The city of Delhi has evolved gradually over a period of time. The most important role in determining its shape, size and structure was played by the politico-administrative authorities - right from Lal Kot to Shahajanabad to New Delhi. The city grew continuously in population size and geographical space. With growth, the complexity of the city structure also enhanced. The political upheavals like the partition of 1947 further contributed towards shaping its structure. The residential differentiation became evident as an issue of interest. The areas of residential differentiation were identified. The present study has categorized the city in four such areas marked by upper class, upper middle class, lower and mixed class and rural fringe. There are three separate upper class population zones. The traditional merchants and people with high status in old Delhi, the new upper and middle class merchants are the diverse elites of the South city. Population of lower and mixed confined to the city core and peripheral sectors have rural population fringe. There are inner zones of upper class concentration and other sectors of upper class expansion. In the inner zone, more than the upper classes moving the lower classes are away from the centre. Administratively restricted site of the city core has contributed towards the maintainance of high population density and compact urban
development. The outer zones are developing in sectors because of the accessibility of transport corridors to meet their day to day needs. The city reflects the traditional preference of the elite to central residence location while the current suburban grow towards the peripheries, resembling the western cities. The study in its modest attempt to understand the urban social areas has revealed that the residential areas are also socially differentiated. Each urban social area has its characteristic features by which it is identified. They have specific social and economic problems to deal with. The urban environment of each social area is specific to it and influences the residential segregation.