CHAPTER 6
SUMMARY AND CONCLUSIONS

Cantonment towns are a product of colonial urban development. The emergence of cantonment towns as a unique settlement type is characterised by their special function status as military enclaves, planned layout and systematic internal structure based on functionality of space, segregated social spaces based on class distinctions, an indigenous bazaar or civil area and their administration through a separate set of regulations for the preservation of healthy and sanitary living conditions conducive to military discipline, health and well being.

From methodological viewpoint, the colonial period has provided several interesting themes for analysis related to socio-economic, morphological and cultural impact on the settlement system in India. Cantonment towns form a unique component of this period, but have been sporadically studied, mostly as adjuncts of the native city and rarely as a composite whole or in terms of their two distinct sub-parts. This geographical study was undertaken to fill this gap by focussing on the Civil Area of Jalandhar Cantonment in the State of Punjab in India.

This study incorporates eclectic methodologies to present data from both secondary and primary sources, analysed temporally over considerable period (earliest being 1846) and spatially at different scales from macro–India level to micro level–mohalla and house level. Published documents such as gazetteers, Census of India publications; and unpublished documents, viz. archival records, proceedings of the Cantonment Committee and Board, ownership records, assessment registers and voter lists formed the secondary sources of data. Information gathered through field observations and informal interviews with army officers, officials at Cantonment Board and residents of the Civil Area generated primary data which contributed towards the interpretation of data from secondary sources as well as also authenticating it. Appropriate statistical tools were employed for analysing data, which were represented through choropleth maps to capture the spatial patterns of individual attributes. By incorporating two scales of analysis, the study aimed to bring forth generalizations pertaining to cantonment towns as a unique settlement type in India in terms of their historical evolution during the British period, the attributes of their population, viz. growth, sex ratio, proportion of literates (total, male and female), workers (total, male and female), Scheduled Castes
The historical establishment of cantonment towns is traced from trading posts called factories, which created the first nucleus from where defence as a specific function was performed during the early seventeenth century. The separate quartering of troops in cantonments evolved from tents arranged according to a regular plan in late eighteenth century to planned settlements comprising the military area and its bazaar strictly demarcated in accordance with the General Orders of the Commander-in-Chief in 1806. Three stages were identified in the sequential establishment of cantonment towns within the territorial expansion of British Empire in India, which involved the process of amelioration of territories through conquest, treaties and alliances. Five cantonments were established in the first stage of expansion of Presidency territories (1757-1800), nineteen cantonments in the second stage of expansion through cession and control over territories (1801-1818), and twenty nine cantonments in the third stage of consolidation (1819 onwards). The remaining six cantonments were established in the twentieth century, including two after India gained Independence; after which the policy of establishing cantonment towns was abandoned as military stations acquired the role of permanent and exclusive military enclaves sans the urban municipal status and the civil area.

The present distribution of cantonment towns in India conforms within the administrative jurisdiction of nineteen States, with their maximum number in Uttar Pradesh (13) and regional concentration in the strategic northwest, north and west. The geographical location of cantonment towns conformed to the suitability of site in terms of defence and trade. A majority of the cantonments (24) were sited along or in proximity of river courses, particularly in the northern plains. Another significant aspect was the siting of cantonment towns near pre-existing towns, which resulted in their additional function as transport nodes, and the subsequent development of defence establishments within them. The establishment of cantonment towns at new sites,
mostly on hill tops or ridges was the most novel development in the settlement system in the nineteenth century.

Even after more than two centuries of the establishment of the first cantonment town, their basic functional character related to defence has not only remained largely undiluted but has consistently shaped their different population attributes. The distribution of population in cantonment towns was found to be highly skewed as the large sized cantonments have progressively formed an increasing share (from 36.52 per cent in 1961 to 60.56 per cent in 2001) of the total population of cantonment towns. The share of medium sized cantonments declined from 53.37 per cent to 37.36 per cent, and that of small sized cantonments declined from 9.11 per cent to 2.07 per cent during the same period. The size of population of cantonment towns was found to be inversely and insignificantly related to most of the socio-economic attributes of population, however, large sized cantonments displayed relatively balanced sex ratio, low proportion of total, male and female literates and workers, but high proportion of Scheduled Castes. Broadly, the population size of cantonment towns reflected the geo-strategic importance of their location and functional status in the administrative hierarchy which determined the combatant (male) component in the population of cantonment towns. The civil area population, accommodation facilities for families of military personnel and an increasing female employment in defence and its ancillary activities contributed to a large presence of females in their population.

The decadal growth of population of cantonment towns was sluggish, below national urban average and recorded a fluctuating trend during 1901-2001. This was related to their function, i.e. defence involving frequent en mass movement of troops. Only two successive decades, i.e. 1931-41 and 1941-51 stood out in recording high growth of population of 29.07 per cent and 42.88 per cent respectively. A general lack of stability in the growth of population reflected in its weak associations with all population attributes except those in which male population has overbearing reflection, viz. total and male workers. A few generalizations which emerged are: (i) large sized cantonments contributed significantly to numerical increase in population; (ii) cantonments located in highly urbanized regions tended to record faster and more consistent growth. Only in a few instances, such as Ambala and Agra, a very high negative growth of population was associated with an excision of a part of their civil areas; (iii) spatial patterns of growth of population reflected emerging regional strategic
importance, as cantonments in the northwest and north recorded high growth of population and those in the west and south recorded low and negative growth during 1991-2001, a pattern which was nearly opposite during 1951-61; (iv) periods of slow down in population coincided with functional requirements of stationing of troops in their operational areas, and was evident in a concomitant improvement in the sex ratio of cantonment towns. The reverse is true of periods of increased growth of population which were characterised by lowering of sex ratio.

Cantonment towns were marked by a persistent deficiency of female population as evident from very low (between 525 and 798 female per thousand males) and below national urban average sex ratio during the last century. The trends in sex ratio of cantonment towns increased and declined intermittently under the influence of recurrent movement of male population, but recorded an overall improvement by 93 females per thousand males during 1961-2001. The development of a residential environment conducive for family type living in the military area and an increase in civil area population contributed towards an increase in sex ratio. Regional contrasts in sex ratio of cantonment towns were quite distinct as cantonments in south and west recorded high values and therefore, more balanced sex ratio as compared to those in strategic north and northwest, whose large combatant component led to low sex ratios during periods of their stationing in individual cantonments and alternatively, increased sex ratios during periods of their movement to operational areas.

The levels of literacy in cantonment towns were considerably high as compared to the national urban average, and ranged between 55.52 per cent and 74.42 per cent among total literates, between 66.88 per cent and 80.09 per cent among male literates, and between 38.51 per cent and 67.00 per cent among female literates in successive decades during 1961-2001. These recorded a consistently increasing trend during this period. Relatively high literacy rates in cantonment towns were attributed to their basic function of defence mandating specific levels of educational attainment at entry level, its consequent trickling down effect on the family, facilities for school education and the location of regimental and training centres. Very strong positive and highly significant relationships between total, male and female literacy rates in 1961 and 2001 were spatially evident in higher literacy rates in cantonments in northwest, south and west as compared to those in north, east and central India. Their spatial patterns broadly
corresponded with regional characteristics, but cut across population size of cantonment towns.

Cantonment towns were characterised by above national urban average proportion of total workers (36.30 per cent to 38.66 per cent) and male workers (53.06 per cent to 60.38 per cent), but lower proportion of female workers (between 4.82 per cent and 9.52 per cent) during 1961-2001, which reflected their primary function of defence and domination of males in the workforce. The strength of troops, movement of male population, location of defence establishments and civil area population determined the trends and patterns of workers. The relationship between workers and male workers was found to be the strongest, positive and highly significant in both 1961 and 2001. Cantonment towns located in the geo-strategic northwest, west and south recorded high to very high proportions of total and male workers, whereas those in north and east recorded low to very low proportions. The spatial pattern of female workers in cantonment towns revealed a clear-cut, traditional regional divide of high to very high proportion of female workers in southern, central and western India, and their very low proportions in northwest and north along the Indo-Gangetic plains.

A high proportion of Scheduled Castes in total population (12.47 per cent to 16.80 per cent) was recorded by cantonment towns in different Census decades during 1961-2001. Fifty two out of fifty nine cantonments consistently recorded above national urban average proportion of Scheduled Castes, which attest to the historical association of this social group with the army as service providers as well as caste based regiments. The Scheduled Caste population residing in the civil areas added regional dimension to their distribution, as cantonments in the north and central India recorded high to very high proportion of Scheduled Castes as compared to those in the northwest and east; and cantonments in the west emerged as areas of high proportion of Scheduled Caste population in 2001.

The Scheduled Tribes consistently formed an increasing but an insignificant proportion of less than two per cent in the total population of cantonment towns during 1961-2001. The spatial pattern of their distribution was marked by their very high and high proportions in an almost contiguous west to east belt extending through central India, and clusters of their low to very low proportions across north and northwest.
Among the broader **generalities of population attributes of cantonment towns**, two distinctions can be made, i.e. one set of population attributes bears the imprint of functional character of cantonment towns, **viz.** growth of population, sex ratio, proportion of total and male literates and workers, and the second set of socio-economic attributes, **viz.** proportion of female literates, female workers, Scheduled Caste and Scheduled Tribe population and family type living have been influenced more by the civil area population.

The overall regional patterns of population attributes mainly followed geo-strategic location of cantonment towns with a persistent importance of northwest, west and north as compared to the more inland locations in central, southern and eastern India. Of the geo-strategically located cantonment towns in the northwest, **Jalandhar Cantonment**—a Corps Headquarters- an operationally important and high in administrative hierarchy of the army, stands out as a noteworthy case. It typically demonstrated the functional character of cantonment towns through a fluctuating trend in its population attributes in response to movement of troops. Jalandhar Cantonment recorded broad similarities of its population attributes with those of cantonment towns only in 1961 and 2001; whereas its trends were at variance from the general trends due to lower proportions of combatant component in the intervening decades during 1971-91.

Jalandhar Cantonment recorded high positive and nearly similar growth of population only in the base (1961) and terminal (2001) years i.e. 27.99 per cent and 28.59 per cent respectively. In the intervening decades, the trends in growth of its population remained negative. It continued to remain a medium sized Class III urban settlement and the only cantonment in this size class to record negative overall and male growth and the lowest growth of female population during 1961-2001. As compared to other cantonment towns, Jalandhar Cantonment had one of the lowest sex ratio, proportion of female workers and Scheduled Caste population in 1961 and 2001, but has been among the highest in proportion of total, male and female literates and total and male workers. Fluctuations in its male population contributed to consistent declining trends in proportion of total literates, male literates, total workers and male workers during 1961-91, but mostly increasing trends in proportion of female literates, female workers, Scheduled Castes and very high sex ratios.

**The Civil Area of Jalandhar Cantonment** comprises of thirty three **mohallas of Sadar Bazaar (Mohalla 1 to 32 and Outside Mohalla), besides BI Bazaar, RA Bazaar and**
The socio-economic attributes of adult population in the Civil Area in terms of its distribution, sex ratio, age structure and type of family revealed an influence of duration of occupancy, functional character of the mohallas, type of residential areas and socio-economic status of the resident population. The distribution of adult population in the Civil Area showed wide variations ranging between 11.11 per cent and 0.33 per cent. The adult population was spatially concentrated in BI Bazaar, RA Bazaar and southern parts of Sadar Bazaar, which together contained nearly half the total adult population of the Civil Area. Residential crowding was associated with intensively built up area mostly comprising small sized plots in low castes dominated mohallas. An opposite trend was observed in northern and central parts, which coincided with low building intensity in the former and commercial landuse in the latter.

The average sex ratio of adult population as well as the lowest sex ratio within the Civil Area, i.e. 940 and 770 females per thousand males respectively were higher than the overall sex ratio of 699 females per thousand males recorded in Jalandhar Cantonment, which reveals the nature of function being an important determinant of gender composition of the population. The spatial pattern of sex ratio of adult population showed high sex ratio (more than 1000 females per thousand males) in northern mohallas and eastern periphery of Sadar Bazaar, which was associated with the old age group of 60 years and above, and the prevalence of joint family system. Low and moderate sex ratio were associated with younger age groups, areas with commercial and residential-cum-commercial landuse and comparatively late occupancy areas. The age-wise distribution of adult population revealed a broad base, with the highest proportion (46.03 per cent) comprised by young population in 18-34 years age group. Their marked concentration in mohallas located along the periphery was associated with new occupancy of these mohallas by the displaced population in post-Independence period and fairly high proportion of nuclear families. In comparison, a very high concentration of adults in 35-59 years and 60 years and above age groups was found in relatively older settled mohallas in central and northern parts.

The family structure within the Civil Area revealed not only a predominance of joint family comprising 60.50 per cent of all families, but also its prevalence as the most pervasive family type in all mohallas with more than fifty per cent of the families residing in them. This spatial pervasiveness of joint families in the Civil Area defied
any definite association with type of occupancy and social composition of the residents. They were found to be associated with the older settled mohallas in central parts as well as relatively later settled mohallas in the northern parts of Sadar Bazaar; and across social groups including the Brahmins, trading castes and the Sikhs. The Scheduled Castes and Backward Class dominated mohallas and some of the resettled mohallas in comparison displayed moderately low concentration of joint families. The joint family system was found to be deeply embedded in socio-economic imperatives of the Civil Area due to administrative regulations against subdivision of plots.

The growth of morphological structure of the Civil Area is situated within the administrative, social and economic context and is unlike that of an evolved town. The planned physical layout, a non-expanding spatial extent defined by individual mohallas and administrative regulations controlling different aspects of socio-economic activity of the Civil Area contributed to uniqueness of its morphological structure. The built up area of mohallas evolved through granting of sanctions for different types of building activities and landuses, and almost entirely comprised the old grant properties given before 1889. A regulated mechanism for internal development of the Civil Area through an infilling of a pre-defined layout, in successive stages of building activities within individual mohallas was in contrast to the organic evolution through accretion and incremental development of traditional towns.

This study identified a cycle of building activities which operated at the lowest level of urban fabric, i.e. a house and involved cyclic progression from grant of site to rebuilding of the house. Building activity within the Civil Area included seven types, of which six building activities, viz. sanctions for land for building, building, alteration, addition, addition and alteration, and rebuilding formed a part of the cycle of building activity which completed at least one round in the early settled central parts of Sadar Bazaar prior to 1907. The seventh building activity, i.e. unauthorised construction, emerged as the most dominant with one third of the total sanctions during 1907-1998. The other main building activities during this period included addition and alteration, rebuilding and addition.

Three distinct phases of building activities were identified, viz. Pre-municipal (1907-1924); Post-municipal and pre-Independence (1925-1947); and Post-Independence. These were characterised by: (i) predominance of rebuilding and concentration of building activity in early occupancy as well as later occupancy mohallas in the first
phase; (ii) rapid expansion and addition in the building stock in the second phase related to governmental sanction for construction of upper floors to buildings. This resulted in an overwhelming number of sanctions (2400) for residential use in old, central parts and densely populated areas; (iii) predominance of unauthorised building activities in the third phase. It was the most distinctive building activity in the erstwhile Muslim dominated mohallas in western and southern parts of Sadar Bazaar and involved Muslim evacuee properties resettled by displaced families belonging to Hindu and Sikh communities. The overall sanctions for building activities during the study period showed a spatial correspondence between high number of sanctions for building activities and duration of occupancy, and a higher number of sanctions in the older settled parts. A shift in large scale building activity to mohallas dominated by the low castes was also discernible.

Landuse within the Civil Area emerged within the background of a combination of norms aimed at checking uncontrolled increase in building intensity and the consequent overcrowding of the Civil Area, to maintain such sanitary conditions which would not impinge upon the soldiers’ physical and moral well being. These norms included: (i) restriction on expansion in built up area; (ii) regulation of building activities through sanctioning of grants; (iii) specification of landuse for land parcels and therefore, determining the location of different uses; (iv) restriction on conversion of use of buildings; (v) restriction on reconstitution of plots by subdivision; (vi) construction of buildings up to two floors; and (vii) at least 25 per cent of the total plot area comprising open space. These norms were specified at individual plot level rather than at mohalla level, which resulted in lack of functional specialization of a particular mohalla, although all the plots comprising a mohalla together rendered a dominance of a particular landuse over the other.

Ten categories of landuses were identified in the Civil Area, viz. residential, commercial, residential-cum-commercial, religious, educational institution, recreation, administrative, vacant, streets and others. The status of the Civil Area as the residential-cum-commercial hub of the resident civilian population contributed to exceptionally high proportion (more than 95 per cent) of all the plots and buildings under residential, commercial and residential-cum-commercial uses. Like the case in other towns, residential landuse in the Civil Area typically formed the most dominant use, and constituted the inner parts in individual mohallas. It was characterised by a dominance
of small sized plots, high intensity of residential buildings, and an overwhelming proportion (91.50 per cent) of self occupied buildings suggesting a low incidence of migration. The residential building stock registered an insignificant increase of 52 units during 1939-2007. This is related no scope for additional areal expansion within individual mohallas due to an intensely built up area, and restriction on physical expansion in the limits of the Civil Area. The horizontal space constraint led to vertical extension of buildings to more than two storeys, which is in contravention of the two storey norm.

The location of commercial activity propelled and determined the settlement process of the Civil Area, which showed no distinct nucleation around one specific socio-secular or institutional element. Commercial landuse was the second ranking landuse, which was concentrated in only a few mohallas and associated with its earliest development along the main arterial road, Phagwara Road and the sub-arterial road, Patel Road. Its extension along the second arterial road, i.e. Hardayal Road was related to rapid building activity in the post-Independence period. A relatively small increase in the number of commercial units (117 units) was recorded during 1939-2007. It remained the predominant use in Mohalla 22, but declined in Mohalla 11, 14 and 21. It emerged as a predominant use in Outside Mohalla due to large scale building activity over vacant sites, and as a significant use in Mohalla 9 due to conversion from residential to commercial use.

Residential-cum-commercial landuse formed an insignificant 1.93 per cent of all the plots in 1939, but emerged as the third ranking landuse in 2007 comprising 16.45 per cent of all buildings and recorded a significant increase by 595 units during 1939-2007. It replaced residential use along the arterial and sub-arterial roads in the overwhelmingly residential mohallas of northern part of Sadar Bazaar and interspersed residential and commercial uses along street front in other parts. A dual use of the same building served the purpose of residential use since provision for housing remains the most basic need in view of restriction on expansion of the Civil Area as well as the built up area. The accrual of financial gains from the same premises led to the use of building for commercial purposes.

The Civil Area also comprised landuses such as educational institution, religious structures, recreation, administrative which comprised very low and insignificant proportions in the total. Among these, the most discernible change was related to
religious structures. The religious landscape of Civil Area altered significantly, both spatially as well as socially due to large scale cross border movement of people during the Partition of the country in 1947. The numerical dominance of Muslims as being next only to the Hindus during the pre-Independence period was reflected in the numerous mosques which dotted the Civil Area. None of these except the Idgah exist today. Their conversion into other religious structures such as temples and gurudwaras is one of the most perceptible changes of the post-Independence period, and the cultural continuity of the Hindu and the Sikh symbols is a concomitant outcome.

Broadly, the Civil Area revealed a high intensity of buildings (comprising all landuses) in central parts of Sadar Bazaar and BI Bazaar and RA Bazaar, and lower building intensity towards northern and eastern periphery. The older and early occupied parts were found to be associated with high intensity of buildings. The changes in intensity during 1939-2007 were brought about by the operation of socio-economic processes through inheritance, sale and purchase of property, which are conventional corollaries in successive occupancy. Four types of changes in plots in the Civil Area were identified, viz. subdivision, consolidation, subdivision-cum-consolidation and new plots. These respectively formed 66.22 per cent, 20.32 per cent, 12.18 per cent and 1.28 per cent of all the changes in plots. Absence of large vacant land for further development resulted in an insignificant increase in new plots (25). On the other hand, restriction on lateral expansion in the limits of the Civil Area contributed to a large number of subdivisions of plots (1294 out of total of 1954) particularly involving residential use, primarily for offsetting the growing pressure of population and increasing number of families. Vertical subdivision mostly involving small sized plots was another feature of subdivision. Changes in plots involving subdivision and consolidation resulted in a change in the use of buildings from residential to commercial and residential-cum-commercial.

Considering the nature of economic processes that operate within an urban entity, a strict adherence to rules forbidding change in use of plots and their subdivision is neither expected nor found to be operational in the Civil Area of Jalandhar Cantonment. Interestingly, therefore, a majority of the properties within the Civil Area continue to stand in the name of original owners, including those of Muslim evacuee properties. Further, changes in plots upon inheritance cut across socio-economic strata as most of the low class mohallas which are characterised by small sized residential plots also
recorded high number of changes. Consequently, the overall building intensity and internal crowding within individual *mohallas* and houses increased manifold and impinged upon the basic civic amenities.

Among the different elements of morphology, the **street system** of the Civil Area with its planned and grid iron pattern stands in contrast to unplanned and amorphous street pattern found in several cities in India. It comprised the third highest area under all uses in the Civil Area indicating its importance as the most basic element of morphology. The street system of the Civil Area is distinguished by four types of street segments, *viz.* arterial roads, sub-arterial roads, *mohalla* streets and *mohalla* lanes. The existing street pattern highlights four aspects: (i) continuation of original layout of streets in large parts of the Civil Area; (ii) no alteration in the number of arterial and sub-arterial roads, except intensification of commercial and residential-cum-commercial uses along them; (iii) a proliferation of lower order street segments, with highest increase in *mohalla* lanes in the post-Independence period, which were associated with new occupancy and increased habitation in southern parts of *Sadar Bazaar*; (iv) physical differences in *mohalla* lanes according to the area through which they pass, with wider, better maintained segments in high class residential areas and relatively narrow, poorly maintained in low class areas.

Broadly, the **layout of the Civil Area** showed a close integration between the built space and streets resulting in compactness, and the street system structured with numerous *mohalla* lanes, fewer *mohalla* streets and very few sub-arterial roads. Individual *mohallas* encompassed within this street system are characterised by a few large building blocks mostly dominated by small to medium sized plots across the Civil Area, whereas large sized plots characterise a few *mohallas*.

The lowest level of intra-*mohalla* space in the Civil Area, i.e. individual buildings, featured elements of traditional ground plan found in cultural hearths of the residents of the Civil Area and reflects transference of building forms from the indigenous evolved towns into the planned entity. The traditional house evolved in a controlled manner as regulated by building bye-laws which did not permit traditional features, either created high structural densities or impinged upon internal hygiene conditions, especially related to ventilation and sanitation. The **spatial organization of the traditional house** illustrates the socio-cultural norms of functionality, privacy and inter-personal
interactions. The inner open courtyard held prominence in a traditional house as other functional elements such as the rooms, kitchen and veranda were located around it. Elements of traditional architectural design such as latticed windows of the hanging balcony, intricately carved doors and windows reflect the socio-economic status of the owner. The residential-cum-commercial house represented an influence of economic forces in shaping the basic layout of a house and showed a few departures from the traditional single function residential house plan in terms of the non-existence of the baithak, deori and the presence of a specified area for carrying out commercial transactions.

The residential structures in the Civil Area are gradually getting transformed with the modern residential house increasingly modifying the traditional built form, either through rebuilding or renovation. The modern residential house reflected changing perceptions of space, from the traditional multifunctional to mono-functional divisions; and from open space to enclosed space. The presence of bedroom, dining room, drawing room and an absence of courtyard and inner veranda attest to structural transformation of residential house in the Civil Area.

The types of residential areas within the Civil Area depicted traditional spatial pattern evidenced in many cities in India, with high class residential areas in the centre, low class on the periphery, and the middle class occupying intermediate locations. The high class residential areas were found to be associated with higher annual rental value, lower building intensities and high caste groups. The low class residential areas comprised mohallas along the periphery, and recorded lower annual rental value, high building intensities, and dominance of low caste groups. The socio-spatial association of low caste groups comprising the Scheduled Castes and Backward Class with low class residential areas located in the periphery of the Civil Area showed consonance with their historical pattern of peripheral locations and physically inferior sites, for maintaining spatial distance between the high and low castes.

The socio-religious composition of the Civil Area was marked by three main religious groups, viz. Hindus, Muslims and Sikhs in 1939. The Hindus were the most dominant religious community who owned nearly two thirds of all the plots in the Civil Area. The Muslims and the Sikhs followed next with ownership over 29.99 per cent and 5.29 per cent of the total plots. The pre-Independence period socio-spatial structure was
characterised by a mixed religious composition in a majority of the mohallas (nineteen), lower number of two community mohallas (twelve) and only a few entirely homogenous single community mohallas (five). The spatial pattern of ownership of plots in 1939 revealed clearly demarcated areas of concentration of the three main religious groups. The Hindus were spatially pervasive in owning plots in the entire Civil Area with high concentration in northern mohallas of Sadar Bazaar as well as Kumhar Mandi and RA Bazaar. The Muslims comprised high concentration in southern mohallas, whereas the Sikhs were concentrated in western and central parts of Sadar Bazaar and formed a buffer zone between the two religious groups.

A second feature of socio-spatial patterning evident from the post-Independence period analysis of family-wise caste data revealed caste based segregation within the Civil Area which is quite similar to traditional social patterning found in many cities in India. Five main caste and religious groups identified in the Civil Area in 2008 include the Scheduled Castes and Backward Class (35.74 per cent), trading castes (22.75 per cent), Khatris (20.13 per cent), Sikhs (9.76 per cent) and Brahmins (9.46 per cent). The concentric square spatial pattern formed by the different caste groups showed a declining caste status from the central areas to the periphery. The spatial exclusiveness of high caste group is reflected by the Brahmins who comprised the lowest proportion of all the families and occupied several central and eastern mohallas of the Sadar Bazaar. These were either absent or had a very low concentration in low castes dominated mohallas in southern parts and other mohallas in the periphery. The spatial patterning of another high caste group, i.e. Khatris, a trading community by occupation, was primarily influenced by the Partition with their large occupancy of evacuee properties in the pre-Partition Muslim dominated mohallas. Their concentration in mohallas traditionally dominated by the Sikhs, i.e. in the west and central parts was related with their close cultural ties with the Sikhs. The concentration of second most dominant caste group, i.e. trading castes, was found in contrast to their expected concentration in mohallas of business and commercial activity. Instead, they were highly concentrated in the northern parts of Sadar Bazaar and their concentration decreased southwards.

Given the planned nature of lay out of the Civil Area, such a social patterning has not evolved on its own but reflects an external control through granting of sites in a manner to segregate the various religious and caste groups. The socio-spatial patterning should
have logically followed the main and the only mode of economic functioning in the Civil Area, i.e. trade and commerce, or a functional or occupational basis rather than on caste basis.

A persistence of this social patterning is expected given a considerable lack of mobility of different social groups from the *mohallas* of their ancestral occupance as well as predominance of joint family system in the Civil Area. The most critical contributory factor is the static physical size of the Civil Area, which has not expanded to include new areas which would be either attractive or lucrative for people to move out of their current residence, thereby bring about change in social patterning within *mohallas*. The most notable change in the socio-spatial patterning was a result of the Partition of the country in 1947. This resulted in the migration of Muslims from the Civil Area and an infilling of their properties and *mohallas* by the Hindus and the Sikhs. Broadly, a continuance of social patterning within a defined and static lay out of the Civil Area is reflective of social inertia.

The mode of establishment of cantonment towns, nature of their function and their administration under a separate set of regulations has helped preserve a uniqueness of urban form which is their characteristic feature across India and is illustrated through the Civil Area of Jalandhar Cantonment. The historical context of establishment of Jalandhar Cantonment and the concomitant setting up of its Civil Area in 1846 in the Bist Doab region of Punjab after the First Anglo-Sikh War, its emergence as an important transit-cum-staging depot in the region, and acquisition of operational role in the strategic northwest together contributed to its distinct population profile. The elements of its morphology and socio-spatial structure developed within the purview of regulations, but evolved within the emergent socio-economic and political events.

From this analysis of growth and socio-spatial structure of the Civil Area of Jalandhar Cantonment certain issues concerning the civil areas of cantonment towns in general and specifically related to their administration have come to light. Foremost among these is the issue of occupancy rights over land which is held by the Government of India, by which it has the power to resume land when required for defence or public purposes or when the buildings are in a dilapidated condition or threatening to cause sanitary problems. This has led to a general apathy among the civilians, impeded the process of urban renewal within the civil area and revenue generation which would
accrue from new constructions. A plausible solution was the provision of converting old grant and leased sites into free hold sites at the prevalent market value introduced in 1976. However, lengthy administrative procedures, inability of the residents to provide documents in support of their claim to the ownership of the structure, and non-compliance to rules governing mutation of property led to a low response from the residents. In view of the restrictive nature of economic functioning and non-diversified economic base of the civil areas, the recovery of exorbitant cost of conversion is another deterrent. Relaxation of norms and short administrative procedures may encourage residents for converting old grant and leased property to freehold property, but would add to already uncontrolled building activity, particularly in large civil areas.

Another concern pertains to rigid and outmoded building bye laws, and restricted land policy which do not allow for an increase in the physical extent of the civil area, individual mohallas and built up space in a house. The inadequacy of space has emerged as a major problem at all the levels within the civil area and resulted in encroachment on vacant land, high building intensity and very high densities of population within mohallas, increased levels of crowding in individual houses, poor sanitation, pressure on civic amenities and infrastructure – in a way defeating the very purpose of establishing separate military enclaves.

Given the uniqueness of varied historical, socio-cultural and regional backgrounds that embody the 59 cantonment towns across India, this broad perspective on issues concerning the civil area needs further investigation and address some of the questions:

1. How can the increasing pressure of population within limited spatial extent of the civil areas be mitigated in order to maintain the levels of sanitation, hygiene and orderliness which characterise cantonment towns?

2. In what manner can the issue of haphazard building activities be addressed in consonance with the evolving needs of the civil areas for residential space?

3. What kind of socio-economic linkages exist between the civil areas of cantonment towns and their immediate hinterlands? How can these be further strengthened in order to expand economic functioning of the civil areas?

4. To what extent cantonment towns, particularly the large cantonments have got integrated within the regional economy?
Broadly, in order to keep cantonment towns as vibrant urban settlements while retaining their identity as special function towns, the building norms need to be relaxed within the ambit of building byelaws, norms for commercial activities need to be regulated within the contemporary economic environment, and civic amenities and other municipal infrastructure needs to be strengthened. Cantonment towns are a unique legacy of our historical past that were never meant to either function as other towns or become as one, whose evolution in a controlled environment governed their physical growth, process of occupancy, building activities, landuse and cultural expression on the landscape.