GROWTH AND SOCIO-SPATIAL STRUCTURE OF THE CIVIL AREA IN CATONMENT TOWNS: A CASE STUDY OF JALANDHAR CANTONMENT (PUNJAB)

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Cantonment towns are a product of British colonial urban development in India. As a unique settlement type, these are characterised by their special function status as military enclaves with an urban municipal status (being governed by a Cantonment Board), 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 known as the Cantonments Act (currently the Cantonments Act of 2006).

Cantonment towns although form an integral component within the settlement fabric of India, 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.

Objectives

The main objectives of this study were to (i) trace the evolution of cantonment towns in India, analyse their characteristics of distribution, and socio-economic attributes of their population in terms of general trends from 1961-2001 and spatial pattern of their distribution in 1961 and 2001; (ii) explain the trends in population attributes of Jalandhar Cantonment during 1961-2001, and the characteristics of adult population of its Civil Area; (iii) analyse spatial pattern of growth, changes in landuse and characteristics of the existing morphology of the Civil Area of Jalandhar Cantonment, and examine the impact of separate administrative rules on the morphological parameters; and (iv) describe the socio-spatial structure of population in the Civil Area of Jalandhar Cantonment.

Database and Methodology

This study incorporates data drawn from both secondary and primary sources,

which were 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 Published documents such as gazetteers, Census of India publications; and unpublished documents with the Cantonment Board formed the secondary sources of data.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 (mostly proportions and concentration index) were employed for analysing data, which were represented through choropleth maps to capture the spatial patterns of individual attributes. Broadly, this case study combined exploratory and analytical approach for understanding growth and socio-spatial structure of the civil areas of cantonment towns in India.

Organization of Material

The study comprises of six chapters including the introduction and summary and conclusions. The three out of the remaining four core chapters are sub divided into sections, each covering a specific theme and has its own sources of data and research methodology. The introductory chapter presents theoretical background of cantonment towns, review of literature, objectives and research methodology. It also provides an overview of the location and regional setting of the study area, i.e. Jalandhar Cantonment.

The second chapter is divided into two sections, the first of which dwells upon the historical evolution of cantonment towns in India and their distribution. The study identified three stages in the sequential establishment of fifty three out of the fifty nine cantonment towns in India (as per Census of India 2001) from 1765 AD to 1900 AD. The remaining six cantonments were established in the twentieth century. This chapter also brings to fore the present distribution of cantonment towns in India, which conforms within the administrative jurisdiction of nineteen States, with their maximum number in Uttar Pradesh and regional concentration in the strategic northwest, north and west. Further, a majority of the cantonments were sited along or in proximity of river courses, particularly in the northern plains.

The second section of Chapter 2 deals with the population attributes of cantonment towns, *viz.* distribution of population according to size class, growth of population, sex ratio, literacy, workers, Scheduled Castes and Scheduled Tribes. The study employed Karl Pearson's method of finding correlation coefficient among the population attributes for 1961 and 2001. T test was used to identify the levels of significance of these relationships. The spatial patterns of distribution of these attributes have been presented through maps pertaining to 1961 and 2001.

The third chapter focuses on population attributes of the study town, i.e. Jalandhar Cantonment. The first section of this chapter studied five socio-economic attributes of population, *viz.* growth of population, sex ratio, literacy, workers and Scheduled Caste population in terms of the numbers, proportion, decadal growth and percentile change in successive decades during 1961-2001. The trends have been shown through line graphs.

The second section of this chapter analysed the socio-economic attributes of adult population in the Civil Area in terms of its distribution, sex ratio, age structure and type of family. For the purpose of analysis, concentration index was calculated for age structure (between 18-34 years, between 35-59 years, and 60 years and above) and type of family (joint and nuclear family). The spatial distribution of each attribute at *mohalla* level was presented through choropleth maps based on the division of the Civil Area into four categories, *viz.* high, moderately high, moderately low and low.

The fourth chapter deals with the growth of morphological structure of the Civil Area, and has been divided into three sections.

The first section pertains to the types and phases of building activities during 1907 and 1998, for which the Proceedings of the Cantonment Board were consulted to generate data for sanctioned building applications. Choropleth maps were used to depict spatial pattern and phases of building activity within different *mohallas* of the Civil Area.

The second section of fourth chapter is on the changes in landuse (1939 and 2007). The data were sourced from ownership records (1939) and assessment registers (2007). Field surveys were carried out during 2009 for substantiating the secondary data. 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 third section of fourth chapter dealt with the existing morphology of the Civil Area. This was primarily based on field work conducted during 2009, which involved personal interviews with residents, observation, and documentation of specific attributes for analysing two elements of existing morphology, *viz.* the street pattern and building form. The only secondary source of data was the assessment registers for 2007, which were consulted for the Annual Rental Value (ARV) of individual houses for determining the types of residential areas (2007). The study revealed that the street system 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 fifth chapter deals with the identification and distribution of social groups within the Civil Area of Jalandhar Cantonment during pre-Independence and post-

Independence periods. The data for studying the socio-spatial structure in the pre-Independence period were collected from the ownership records. Three main religious groups which were identified, *viz.* Hindus, Muslims and Sikhs have been studied in terms of the distribution of ownership of plots in *mohallas*. The data for studying the existing socio-spatial structure were collected from the Voter's List. Additional information was gathered through informal interviews with the locals for identifying and ascertaining caste identities. Six groups were identified, *viz.* Scheduled Castes and Backward Castes, Trading Castes, *Khatri,* Sikhs*, Brahmin* and Others. The concentration index of these social groups (both pre-Independence and post-Independence) was calculated in order to understand the distribution of each of these in different *mohallas* of the Civil Area.

The sixth chapter of the thesis presents summary and conclusions. The study found the mode of establishment of cantonment towns, nature of their function and their administration under a separate set of regulations has helped to preserve a uniqueness of urban form which is their characteristic feature across India and is illustrated through the Civil Area of Jalandhar Cantonment. The elements of morphology and socio-spatial structure of the Civil Area of Jalandhar Cantonment developed within the purview of regulations, but evolved within the emergent socio-economic and political events. Finally, the study points out certain issues concerning the civil areas of cantonment towns, such as occupancy rights over land, building bye laws, sanitation, civic amenities and infrastructure which need further investigation.