CHAPTER II
LITERATURE REVIEW AND FORMULATION OF HYPOTHESIS

2.0 LITERATURE REVIEW

The changing concept of social areas has greatly affected the method of analyses in urban geography. Most of the urban geographers refer to the current urban problems as ecological problems. Urban ecology has evolved to encompass the total environment of the city in which it studies the elements of its structure, identifies the patterns which they form and attempts to understand the relationships which exist. Cities offer various dimensions to the ecologists. They include the study of external expressions of ecological interrelationships as reflected in the distribution of cities, their internal structure and composition; changing sky-line, alternating land uses and patterning of urban landscapes. Urban Ecology is understood as the total environment of the city inclusive of its physical and man-made structure. The patterns are formed by the elements (demographic, social and economic) of its structure and the interrelationship between them.

In this section, the chronological development of ecological approach to urban studies is being examined to understand the concept of social areas. A distinction has been made between studies which have been conducted on cities outside India and those within India.
2.1 DEVELOPMENT OF ECOLOGICAL APPROACH

Initially the term ecological approach was primarily applied to the physical sciences. Its theoretical origin in social sciences may be traced back to the work of Park (1925) on cities which was an early stimulus to urban ecology. Park believed that the patterns and relationships evident in a city could be paralleled by land use and people in the cities. The fundamental principle derived was the concept of competition. It is human nature to compete for limited space and for access to the most desirable location for one’s residence and business activities. Formulation of social areas was in process long before it was examined by the Shevky-Bell model of social area analysis which got recognition in 1955. The progress started from the traditional ecological theory. In different plant communities one specie exerts a dominant influence which controls the environmental conditions and in turn encourages or discourages other species. Similarly the Central Business District (CBD) exercises control over the functional use of the land in the other parts of the city. (Park:1925) The traditional ecological studies can be categorised into three basic types as follows:

a) Morphological Approach
b) Social Area Approach
c) Factorial Ecological Approach

a) Morphological Approach

Those that deal with the concept and principles derived
from plant and animal ecology to the analysis of human community largely based on the concepts of competition, dominance and succession. The pioneering works include that of Park (1925), Burgess (1925) and McKenzie (1925) which lay emphasis on Concentric Zone model. The social areas have been identified through the classical models (Burgess: 1925; Hoyt 1939; Harris and Ullman : 1945) which metamorphosed into more recent multivariate studies over a period of time. The morphological approach encompasses the three basic ‘Classical’ models of spatial patterning. These models are: concentric zone model, sector model and multiple nuclei model.

i) The Concentric Zone Model:

This model was developed by Burgess (1925) after studying the land use and social characteristics of Chicago in early 1920s. He divided the city into five concentric landuse zones which not only described the pattern at a particular point in time, but also represented the successive zones of urban expansion.

The first or the innermost zone was the ‘central business district’ (CBD), characterised by all types of economic activities, office, bank, recreation, wholesale and retail business and the warehouses. The second zone termed as ‘zone in transition’, was characterised by poor residences and an inner factory belt. The third zone was labelled the ‘zone of independent working men’s homes’. It contained the working class people who could move out of the second zone. The fourth zone was entitled the ‘zone of better residence’ and comprised of single family dwelling units with
spacious yard and owned by middle class native population. The fifth and the outermost zone was the 'commuters' zone' lying on the periphery, outside the legal boundary of the city. It consisted of a ring of small towns and villages. They primarily were dormitory suburbs, with very little industry or employment of their own.

The underlying mechanism that generated these distinctive zones was called the 'process of invasion and succession'. The prime characteristic of the classical ecological approach to urban structure, as represented in this model, was to utilize a biological analogy, whereby different social groups analogous to plant species, compete for space in the city (Timms: 1971). Different social groups dominate different parts of the city forming 'natural areas' (Zorbaugh: 1929). The actual process of invasion and succession, by which a natural area came to be dominated by a new group, was divided into a series of stages. Migrants from a different social group would penetrate a neighbourhood. They were usually upwardly mobile and often had higher incomes than the established population. The initial stage of penetration was followed by invasion of large numbers of new groups which replaced members of old groups. Next was succession or consolidation stage, in which the original minority group became the majority group. Fourth and final was a piling up stage, which entailed a stabilization of the area in terms of its domination by the new group (Johnston: 1971).

This model faces criticism for not considering the dissimilarity between the competition in human world and the
biological world. Residential neighbourhoods are not merely the areas of competition between social groups, as implied by biological analogy, but they also represent certain symbolic qualities (Bassett and Short: 1980). It has been argued that the model underestimates the importance of sentimental attachments (Firey: 1945). Despite criticism, the model has been supported by Blumenfeld (1949), Alonso (1960), Wingo (1961), and Smith (1962). It helps in understanding the process involved in social area formation.

ii) The Sector Model

Hoyt (1939) suggested that social areas within cities could be summarised in terms of sectors rather than zones. He formulated the model on the basis of what was first speculated by Hurd (1924). Unlike Burgess (1925), who based his work on one city Chicago, Hoyt examined 142 cities of United States and concluded that socio-economic status varied primarily in a sectoral fashion. On the basis of rental patterns, he postulated that the CBD remains in a circular form and the residential area of similar socio-economic status tends to extend in sectoral fashion towards the fringe. He made a few observations concerning these sectors. First, the most highly valued residential areas were located in sectors on one side of the city, and at times extended beyond the city centre. Second, the intermediate rental areas were often found on either side of the highest rent areas. Third, the low rent sectors were frequently found on the opposite side of the city to
the high rent sectors. The direction and location of these sectors were influenced by a variety of factors:

1. The high class areas tended to grow outward along major transportation routes.
2. They showed a tendency to grow towards high ground that was free from the risk of flooding.
3. They tended to extend toward the homes of the leaders of the community.

Hoyt’s model has been extensively criticised for the very definition of sectors which remains ambiguous. The term has been used for areas that vary in size from single blocks to whole quadrants of the city. Also the leaders of the community have not been made very explicit (Timms: 1971).

In terms of the underlying process responsible for producing these spatial patterns, Hoyt suggested a mechanism known as the ‘filtering of housing’. The same mechanism played a role in the outward expansion of Burgess’ zones (Berry and Horton: 1970). This concept suggests that as a housing unit deteriorates, its price decreases and it is made available to lower income groups. Thus indicating a downward grading of rent from periphery to the core. Housing units close to city centre, occupied by high income group filter down and are occupied by middle or eventually lower income groups. However, the sentimental attachments (Firey: 1949) to the older section of the city interrupt this trend. Johnston (1971) conceptualised a ‘four stage’ process of filtering of
housing. First, a small number of in-migrants from a different social group would penetrate a neighbourhood. These in-migrants were usually upward mobile, and sometimes even had higher incomes than the established population. Second, this initial penetration was followed by an invasion stage, in which large numbers of the new group replaced members of old group. Third, there was a succession or consolidation stage in which the original minority group became the majority group. Finally there was a filling up stage, which entailed a stabilization of the area in towns of its domination by the new group. This mechanism of invasion and succession has been supported by scholars like Yeates (1965), Jones (1960) and Smith (1962).

iii) The Multiple Nuclei Model:

This model was postulated by Harris and Ullman in 1945. The basic idea of this model is that the land use pattern is not shaped by a single nucleus. Instead, a number of separate nuclei around which the land use concentrates are responsible for it. Such a pattern reflected a combination of four factors. One, certain activities require specialised facilities like accessibility, waterfront and land etc. Two, certain activities group together because they profit from cohesion. Three, certain activities are detrimental to each other such as industrial and high rent residential districts. Four, certain activities cannot offer the high rents of the most desirable cities. This model is the least structured of the three basic models on the zonation and urban land
use. It recognises that the city is not restricted to one single core to form the CBD. There are a number of nuclei around which land uses of similar types are concentrated. The CBD is not necessarily located at the geometric centre of the city, but may be located off to one side. Around each nuclei zones develop in response to advantages offered by that particular district (factor one) or the inability to use more expensive locations (factor four). This model does not include succession as an integral part, unlike the other two models. But it does allow for the areal growth of each of the zones and of entire urban area.

b) Social Area Approach:

The second group deals with the studies that primarily analysed the physical features of specific natural areas which are characterised as social, economic and demographic elements. (Wirth : 1938; Zorbaugh : 1926).

An alternative to morphological analysis evolved in the form of Chicago School which developed the concept of natural areas. The basic concern was to segregate people and their business activities into relatively homogenous entities termed as 'natural areas'. Zorbaugh (1961) defined it as a 'geographical area characteristics of the people who live in it.' It was a higher order concept than morphological area, for its definition included physical and cultural feature. The strongest validation for the natural area studies was precisely this rich and detailed examination of the texture of urban life. Nevertheless, there were

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also shortcomings in the treatment of natural areas. The studies inclined towards the central sections of the city where unambiguous lifestyle and ethnic territories were contained within large areas of industrial and transportational land uses. The studies reflected that most residents have a far more localised view of neighbourhood than the natural area, so for them it may not be a meaningful perceptual unit (Suttles: 1972). As geographers had earlier built up classificatory schemes of natural regions on the basis of one or a few key indicators, such as climate or land form, so also ecologists have reduced the natural area to one or several diagnostic key variables. This resulted in the loss of the distinctively human character of place and the tendency to generate typologies which, though suited to a specific academic purpose, created regions that were often less recognisable as lived places (Ley: 1983).

The natural areas identified spatial units that were expressions of physical land use as well as social occupancy. Its demarcation was intuitive and boundaries ill-defined. Continuous attempts were made to improve upon them. Regionalisation procedure became more formal, using diagnostic variables to describe such characteristics as land value or ethnic status. The focus shifted from the personality of places to the classification exercise and to the spatial relations of social areas. While ecological areas were a working guide for a particular problem and were considered no more than an analytical convenience (Hatt: 1946), the natural areas were considered 'real' (Zorbaugh: 1961). However, the later
researchers have claimed a reality status for their ecological
districts.

The social area approach attempts to provide a broader
framework for the analysis of ecological structure within the
cities by examining the underlying dimensions of urban society.
This approach was first developed by E. Shevky and M. Williams
(1949) in a study of Los Angeles and was later elaborated on by
Shevky and Bell (1955) in a study of San Francisco. The analysis
is based on three basic constructs concerning the changing nature
of modern society, change in the range and intensity of relations,
differentiation of function and increasing complexity of
organisation. These constructs are supposed to summarise the
important social differences between the census tracts. The three
constructs can be listed as: (a) Economic status or social rank, (b)
Family status or urbanisation, (c) Ethnic status or segregation.

Shevky and Williams used the terms social rank, urbanisation and segregation while Shevky and Bell modified them as
economic status, family status and ethnic status.

The term social area was originally used to describe a
cluster of census tracts in social rather than geographical space
(Shevky and Williams: 1949; Shevky and Bell: 1955; Anderson and
Bean: 1961). The later use of this term implied a contiguous
territorial unit. It is generally accepted that social area
analysis represents a logical framework for the analysis of urban
residential differentiation (Van Arsdol, et.al.: 1958; Anderson
and Egeland: 1961; Herbert: 1976). In spite of this, several strong attacks were launched against this theory and its application. Hawley and Duncan (1957) criticised the theory on its failure to explain why residential area should be homogeneous or why should they differ from each other. There is no strong justification, too, for using the three constructs (Ley: 1983). Udry (1964) finds the theory lacking in explanation as to how a theory of social change can be translated into a static typology of residential differentiation. In fact the exercise done by Shevky and Bell generated a lot of research to study whether the three dimensions used by them were separate indices of areal differences and whether the individual variables were closely related to the relevant dimension of the theory. While Bell's (1955) own work provided support for the dimensional model, others discovered some variations which were explicable in terms of different social environment of the sample cities (Arisdol, et.al. 1958). Anderson and Egeland (1961) concluded from their study that socio-economic structure varies sectorally and family status in concentric form. Mc Elrath (1962) inferred from his study that economic and family status are both concentric and sectoral. Commenting on social area analysis, Berry (1972) said that though the exercise started with a simple investigation of segregation, advanced technology had now laid bases for a spatial model of internal structure and socio-economic pattern of cities with an understanding of their traditional nature. This ushered in the factorial ecological approach.
c) Factorial Ecological Approach

The third type of studies dealt with coding observable social phenomena such as crime rates, mental disorders (Clifford et. al. 1925, Faris and Durham : 1939). The early classification of social areas was dependant on a few key variables and lacked a theoretical base to justify the use of these variables. Shevky and Bell (1955) sought to meet this shortcomings by using multivariate classification procedure emerging from a theory of social areas which they claimed was developed prior to the method itself. They viewed social areas as comprising of persons with similar social positions in the larger society. It is not bounded by the geographical frame of reference as is the natural area. Social area analysis permits comparative examination of social trends in space between cities and through time.

As a research procedure, social area analysis has become virtually redundant by technological advances. Recent studies of socio-economic structure of urban areas have been extended to include much wider range of variables than the six proposed by Shevky and Bell (1955). This approach became popular during 1960s and was used by many scholars (Willhelm: 1964; Rees: 1971), and was introduced by Sweester (1965). The term 'factorial ecology' referred to study the ecological differentiation of residential areas in urban and metropolitan communities.

The late nineteenth and the early twentieth century were the formative years of social sciences. It was around this time that the urban studies first developed (Berry and Horton: 1970).
Cities emerged as important issues to be researched upon. Though the emergence of urban studies dates back to the Greek philosophers, it owes its present status to the research done in past forty years. Much of the pre-twentieth century work was primarily concerned with the themes of location, size and shape of the cities. The initial findings were subjective, descriptive and dependent more on the observations (Booth 1902; Hurd : 1903; Massert : 1907, Blandchard: 1911). The succeeding years brought the criticism of the framework of site and location (Aurousseau: 1924, Crowe : 1933). In the mean time traditional ecological studies emerged on the scene of urban research. Human ecologist made an enthusiastic and productive endeavour in the realm of ecology during 1920s and early 1930s. The Chicago School of Urban Ecology hastened the evolution of urban studies. Some of the monumental works include that of Burgess (1925) and Mackenzie (1933). In his pioneering work, Park (1925) developed the idea of order and analysis of towns. He studied the land use and social characteristics of Chicago to develop the concentric zone model. He not only described the pattern at a particular point of time, but also represented the successive zones of urban expansion. The mechanism that generated these zones was called the process of 'invasion and succession'. Different social groups dominated different parts of the city forming 'natural areas'. By this process a natural area which was characterised by social, economic and demographic elements, came to be dominated by a newer group. This was elicited in the works of Zorbaugh (1926; 1929) and Wirth
(1938). Some studies confined themselves to the coding of observable social phenomena such as crime rates, mental disorders (Faris and Durham: 1939). Refuting the Concentric Zone model, they inferred from their study of 142 cities of United States that socio-economic status varied primarily in sectoral fashion. The residential areas of similar socio-economic status tends to extend in sectoral fashion towards the fringe while the CBD remains in a circular form. Attempts were also made to identify social areas through sectoral model (Hoyt: 1939) which suggested that residential differentiation within cities could be summarised in terms of sectors rather than zones.

The period between 1937 and 1945 witnessed a sharp criticism of both its theoretical framework and its empirical generalisations. The theoretical ecological concepts were strongly criticised by Alihan (1938) who pointed out inconsistencies in the use of natural area and gradient which she considered as mutually exclusive concepts. Gettys (1940) found a sense of bias in their description which was initially drawn by their strong dependence on analogies drawn from the organic ecologist. He proposed that attention should be focussed upon the description, measure, analysis and explanation of the spatial and temporal distribution of social and cultural data. This led to a majority of scholars to discover a number of weaknesses in the traditional ecological approach. Firey (1945) provided the most concise fundamental and most widely recognised empirical criticism. He identified that sentimental and symbolic elements of place could construct the
ecological systems which were governed by competition and rational allocation of land uses. It was postulated by Harris and Ullman (1945) in their multiple nuclei model that there was not one but many nuclei to shape the land use pattern. Hatt (1946) revealed weaknesses in the traditional ecological theory and questioned the overall validity of this approach.

In his paper on landuse in Boston, Firey (1949) emphasised on the role of sentimental attachments in determining the residential land use pattern. It interferes the preposition of downward grading of rent from periphery to core once the building became old. Around this time, appeared the work of Shevky and Williams (1949) on Los Angeles. The term 'social areas' was introduced for the first time to denote the concept. Their work provided a broader framework for the analysis of ecological structure within the cities by examining the underlying dimensions of urban society. The model was further supported while studying the concentric circles of urban growth (Blumenfeld:1949).

After the wave of criticism in the late 1930s and early 1940s various theoretical statements emerged by the 1950s. The prominent work produced was that of Unwin (1950) who made a distinction between cultural and sub-cultural levels of society. Around the same time Hawley (1950) made an attempt to delineate the scope of human ecology which has been treated as the starting point for most of the ecological studies of the recent years. Till then little attention was given to the characteristics of social areas. A majority of what has appeared was morphological studies. Hawley’s
analysis postulated that the basis of an ecological organisation was differentiation. It was assumed that with differentiation, there could be no organisation. It was based not only on physio-psychological traits, age, sex and race but also on territorial differentiation. This work revived the ecological approach. The social area model propounded by Shevky and William (1949) was later elaborated by Shevky and Bell (1955). An attempt to understand the city structure was made by studying the rent differentiation over space. It inferred that rent reduces as the accessibility to the city centre decreases (Isard: 1956).

Social area analysis model gave a new impetus to urban geography. Isard's (1956) premise of inverse relationship between the distance from the city centre and rent was examined and established once again (Berry, et. al.: 1959). Hawley's theoretical exposition was carried further by Duncan and Schnore (1959) who provided a framework of ecological organisation. They added empirical dimensions to the ecological approach which greatly helped scientific analysis of urban structures and functioning of urban communities. The aspects of land values and urban growth were also incorporated with the publication of research papers of urban land market (Alonso: 1960, 1964). Thus, another stream was being collaborated in urban geography (Jones: 1960; Anderson and Engel: 1961, and McElrath: 1962) along with the thrust on land economics (Wingo: 1961) and urban patterns (Smith: 1962). The ecological theory proposed that Social Area Analysis was found to be deficient in explaining as to how a theory of social change can be
translated into a static typology of residential differentiation (Udry 1964). It has been tested to confirm that as the housing stock in each zone (sector) ages, it is occupied by a succession of lower income group (Yeates : 1965). The technological advances have extended to include much wider range of variables than what is proposed in the model which became popular during 1960s. This approach differs from social area analysis in two ways: one, large number of variables can be used and two, greater emphasis is placed on spatial patterns associated with those dimensions. This ushered in theoretical revolution in urban geography. The advent of location theory and technical revolution sparked off quantification in urban geography, as a consequence of which there was a growing overlap between human ecology and modern urban geography.

Since the Chicago Sociological School proposed the first interpretation of the urban internal differentiation, studies on social areas within the city have multiplied, accumulating empirical evidences as well as theoretical prepositions. The mechanism of 'filtering of housing' played an important role in the outward expansion of city. This concept suggests that as a housing unit deteriorates, its price decreases and it is made available to lower income groups (Berry and Horton: 1970). In continuation with the further research in sectoral model of the city structure, the very definition of sectors was criticised. The term has been used for areas that vary in shape and size (Timms: 1971). Further
research on social areas via factor analysis was conducted by Berry (1971), Johnston (1971) and Herbert (1972). This resulted in the sharpened techniques of investigation and provided the basis for a scientific explanation of cities. Attempts were made to introduce new theories and frame new laws to make the explanation of events more rational and logical. Sophisticated models were propounded as urban geography entered a new era of rationalising the subject matter of urban studies on the basis of new philosophies, new concepts, new methodologies and applications.

The methods of factorial ecology have been applied widely to cities in almost every continent (Alihan : 1938; Caplow : 1949; Dotson and Dotson: 1954; Gist : 1957; Brush : 1962; Sweester : 1965; Abu-Lughod : 1969; Berry and Rees : 1969; Murdie : 1969; Herbert : 1973a; Ward: 1975; Weinstein and Pillai : 1986). Several studies have been done to explain the socio-economic structure of cities, for example, in India, historical city like Pune and Sholapur (Gadgil : 1945, 1952; Sovani : 1956), Hyderabad (Iyengar: 1957, Alam: 1965), Baroda (Malkani : 1957), Calcutta (Ghosh : 1961), Lucknow (Mukherji and Singh : 1965), Bhopal (Malhotra : 1964), Delhi (Rao and Desai : 1965), Planned city like Ahmadabad (D'Souza : 1968; Gillian : 1968) and other metropolitan cities (Prakasa Rao and Tewari : 1979; Arunachalam: 1981; Prakasa Rao et.al.: 1986). Although many of them were replications applied to available data (Mitra : 1963; Hwang and Murdock: 1982). Nevertheless, this approach offers a widely accepted technique to
identify the underlying determinants of intra-urban residential patterns as well as provides a series of indices of value for further study of ecologies.

The procedures of factorial ecology involve assembly of data matrix. It should be kept in mind that since principal component analysis and factor analysis usually operate on matrices of product moment correlations, the data should meet the requirements of these correlation like linearity of relationship (Poole and Farrell: 1971).

Majority of the studies conducted so far, irrespective of the location and cultural context, show the generality of three dimensional model propounded by Shevky and Bell as the basis to residential area differentiation. Thus, there can be no doubt that socio-economic status, family status and ethnic status are consistently the major determinants of 'where people live', irrespective of the degree of institutional intrusions to the processes of residential location (Herbert and Johnston: 1978).

Widespread continuing use of factorial ecological approach indicates its acceptance for studies of intra-urban residential differentiation (Bell: 1958; Moor and Mitterbach: 1966, Schnore: 1977, Hwang and Murdock: 1983). It suggests basic patterns of differentiation and can be used for generating further hypotheses concerning the mechanisms producing the patterns and processes of neighbourhood change. Despite its potential, the methodology faces criticisms on certain accounts (Hunter: 1971; Johnston: 1971). Firstly, it is not clear to what extent the
results are dependent on the particular research design employed. Use of units other than census tracts would affect the result. Type of factor analysis and the kind of rotation done also tends to change the result. Even within a given type of factor analysis, various problems are associated with the interpretation and labelling of those factors (Palm and Caruso: 1972).

Secondly, factorial ecology is a purely descriptive form of analysis, as it fails to identify the processes that result in the social areas. To understand the processes, residential mobility is investigated within different frameworks of invasion - succession of individual choice, operations of urban housing markets, real estate agents and financial institution. Though a traditional explanation is offered in terms of social ecological processes and individual consumer preferences for residential differentiation, Harvey (1974) emphasised on the pivotal role played by financial and governmental institutions.

Finally, the social areas identified by factorial ecology do not always constitute cohesive communities. They may be uniform regions, but not necessarily functional regions. In other words, they are relatively homogeneous with respect to certain specific variables such as income, education and family size, but they might not be characterised by a high degree of internal interaction. This has been measured in terms of activity patterns associated with the workplace, friends and clubs (Everitt: 1976).

Despite such criticisms, these socially uniform residential neighbourhoods have a distinctive role to play in urban
society. They create an environment that reinforces the ideological orientations of dominant neighbourhood group and help children to socialise in mutually acceptable ways. They also help sustain cultural homogeneity and symbolise the social status of their inhabitants (Form: 1957; Herbert: 1973b).

This approach has three major goals. One, to apply the concepts of plant ecology (invasion and succession) to the analysis of urban neighbourhood, two, to provide detailed description of 'natural areas' or social areas within cities and, three, to investigate the relationship between these social areas and various kinds of social pathology (Berry and Kasarda: 1977). This technique has extended the scope and flexibility of urban ecology. It does not depend upon any theoretical assumption such as that of Shevky and Bell (1955). It enables the user of this technique to alter the data to make generalisation that may subsequently be translated into concept and postulates for the theory rather than being forced to work along traditional path through concepts chosen by social area analysis as well as other approaches (Hunter: 1971; Rees: 1971; Yadav: 1986). In recent years urban typologies have been devised mainly to provide analytic frameworks for the study of the social structure of the large American cities (Johnston: 1976; Berry and Kasarda: 1977; Boal, et.al: 1978; Tobin: 1987; Morgan: 1980). It was only later that subjective and quantitative analysis of the city structure was taken up in India (Brush: 1962; Weinstein: 1976; Dutt: 1983; Prasad: 1986; Tewari: 1986; Racine: 1990; Mehra: 1991). Utilizing
the liberty offered by the factorial ecology approach, Tryon (1955) based his work on 'cluster analysis' to study the San Francisco Bay Region. Scores for the three dimensions of 'Family Life' (F), 'Assimilation' (A), and 'socio-economic Independence' (S) (FAS) were derived for each census tract. These represented weighted mean standardised scores of several population and housing variables. Profiles of F.A.S. scores provided the basis for describing configurations of the populations and housing variables among the cluster of census tracts to identify socially significant sub areas within a city. Tryon's study had not formulated the dimensions earlier, it was the product of analysis of variables.

In analysing an ecological complex, ecologists refer to population not only by its individual traits but also include mobility, size, replaceability and interchangeability which show an attempt of a population to adapt to changing environmental conditions. A majority of contemporary ecologists have tried to focus their attention on explaining interrelationships among demographic, environmental, technological and organisational variables within a social system (Kasarda: 1971, 1972a; 1972b; 1974, Sly: 1972, Schwirian: 1974, Frisbie and Boston, Jr.: 1975; 1977).

A lot of criticism of ecological principles appeared during the late 1930s and 1940s. Attention was directed to uncovered spatial correlations. A number of weaknesses were discovered in traditional ecological approach when Burgess' model of urban growth was applied to Chicago. Theodorson (1961) incorporated
some aspects of cultural facts of urban society into ecological approach. Despite the laudable objectives ecological approach witnessed sharp criticism of both its theoretical framework and empirical generalisations during 1938 and 1945. The decade of 1940s was a dark period. Urban geography witnessed conceptual transformation when Shevky and Williams' paper appeared in 1949. The works of Hawley (1950) and Duncan (1950) on human ecology as a theory of community structure revived the approach. Shevky and Bell (1955) further strengthened it. Duncan and Schnore (1959) also supported this approach. The works of Shevky and Williams (1949) and Shevky and Bell (1955) provided a broader framework for the analysis of ecological structure. They based their analysis on three major constructs of economic status or social rank, family status or urbanisation and ethnic status or segregation. While studying the social areas of Chicago (Bell: 1958), family status emerged as a locational factor for 83 per cent of suburban migrants. However, till then, little attention had been given to the characteristics of social areas. A majority of what had appeared was morphological studies (Park, Burgess and McKenzie: 1925; McKenzie: 1933) which lay emphasis on concentric zones. However, studies on the cities of Rome (McElrath: 1962) and Helsinki (Sweester: 1965) indicated that both concentric and sectoral patterns were evident if economic as well as familial determinants were considered. Anderson and Egeland (1961) concluded that economic status was primarily distributed within sectors while family status exhibited concentric pattern. Jones (1960) analysed
the ecological structure of Canberra and replaced the traditional dimensions by demographic structure, ethnicity and age of the area, Murdie (1969) concluded from his study on Metropolitan Toronto that economic status tends to be distributed sectorally, family follows concentric pattern and the ethnic status tends to take a form of cellular structure created by a combination of sectoral and concentric arrangement.

Outside the morphological approach, attempts to understand city structure through land value differentials stated that rent reduces as the accessibility to the city centre decreases (Isard: 1956; Berry et al.: 1959). To a large extent, the analysis of social areas has had a great deal of emphasis on the economic determinants of location (Wingo: 1961, 1962; Alonso: 1964). Some of the later studies focussed on the socio-economic factors like proximity to the city centre, to place of work and the residential value (Anderson: 1960; Beverly: 1964).

By the end of 1960s, the ecological approach towards the understanding of social areas was so developed that further research found itself concentrating on specific aspects of segregation which lead to the formation of social areas. An attempt is being made to understand these areas in the subsequent paragraphs.

2.2 ASPECTS OF SOCIAL AREA FORMULATION

a) Social Aspect

"The most pervasive feature of urbanisation today and
the principal source of internal dynamics of urban systems is segregation of land uses and activity systems of income groups, family types and ethnic and racial minorities" (Berry: 1973). It is this segregation which creates a mosaic of social areas in the city. Human ecologists have expended considerable effort in developing efficient classifications of urban regions resulting from this segregation. The phenomenon is as old as the city itself. The pre-industrial city was marked by varied degrees of social segregation. In Europe and Middle-Eastern cities, the Jewish Ghettos were the most pronounced features of segregation. The other foreign traders also formed their own urban enclaves, while cultural segregation followed linguistic and religious divisions (Smailes: 1986). In the cities of New Orleans (Lewis: 1976) and Charleston (Radford: 1979) residential areas were defined by social class which consisted of income, status and racial characteristics.

b) Economic Aspect

One of the initial descriptions of class segregation is usually ascribed to Fredrick Engels. In his review of housing patterns in Manchester in the 1840s (Engels: 1958), he interpreted urban land form to understand the social realities and identified four landscape units - the commercial district at the core, the major radial thorough fares lined with shops which brought middle class commuters to work, an inner zone of working class housing and an outer zone of middle class residence. His description was consistent with his contemporaries though the conditions in other
cities were not well known. The occupational segregation was prominent in Chicago (Duncan and Duncan: 1955a). By the end of the century, London exhibited series of residential zones. In some areas, heterogeneous composition of population was dominant while in some other areas vertical mixing remained common. Segregation by place of employment rather than social class was also experienced in some cities (Warner: 1962; uyeki: 1964; Booth: 1967, Wheeler: 1968). Class segregation was prevalent in early Victorian cities (Ward: 1975). Another study stated that socio-economic segregation increases with city size (Morgan: 1976), though, of late, mixing has been evident. Employees grouped around the place of work, leading to some occupational mixing (Muller and Graves: 1979). Analysis of Leeds in mid-nineteenth century revealed low levels of segregation. Only the wealthiest and the poorest showed concentration among their own class (Ward: 1980).

c) Ethnic Aspect

A sizeable share of American population being comprised of immigrants, the residential structure of North American cities has been stratified by ethnic and social class considerations. An important factor influencing the social areas is the family status. It emerged as a very important locational factor (Bell: 1958). As regards segregation, Americans are divided more in terms of ethnic affiliation than that of class or occupation (Duncan and Lieberson: 1959). The immigrants belonging to particular nationality, ethnic group settled in segregated quarters. The
minority communities chose cheap rental districts closer to the city core which generated more employment opportunities. Segregation was mostly voluntary, governed by kinship and friendship bonds. The ethnic neighbourhood acted as the port of entry permitting a gradual adjustment for immigrants through maintenance of religious customs, culture and language (Ley: 1983).

The inner-most zones were not considered favourable for rearing up children (Michaelson: 1971). In a study of the black districts of south Los Angeles, a clear concentration of young families in a zone peripheral to original core of ethnic settlement was found. It also showed a gradient towards smaller households with proximity to the core (Roseman, Christian and Bullamore: 1972).

d) Demographic Aspect

The demographic characteristics of a city influences the residential mosaic of the city in terms of age, sex, structure and family status. McElrath (1962) and Sweester (1965) elicited through their studies that economic status and family status are variables which distribute the population both sectorally and in concentric fashion. This was concluded from the studies of Rome and Helsinki. The study on Canberra also lay emphasis on demographic area (Jones: 1965). The Population Council under the aegis of the Demographic and Health Survey Programme has been conducting studies in various countries. Development as a measure to control fertility has been identified by a good amount of

Issues regarding redistribution of population, urbanisation and poverty have also been discussed (Rodgers: 1989; Mukherjee: 1988; Kosinski and Elahi: 1991) in the context of city structure.

Together with socio-economic status, family status and ethnic status, lifestyle variations also influence the residential structure. Neighbourhood may be identified on the basis of leisure time activities, institutions etc. This is a particular feature of inner city neighbourhoods undergoing middle class resettlement in the larger metropolitan areas (Winters: 1979).

The Industrial revolution generated a new set of principles governing the distribution of residential areas. The steady expansion of the commercial and industrial activities of the urban core caused pressures for higher density use of elite areas either for housing or commercial and industrial sites.

Residential segregation is consequence also of government policy. Planning objectives are oriented towards zoning map for the purpose of enforcing land use and social homogeneity. Its purpose has been to preserve the investment and maintain the quality of life by checking the unauthorised encroachment of land.
2.3 APPROACHES TO THE STUDY OF INDIAN CITIES

Studies related to the ecological approach for the study of Indian cities have by and large followed the work done in and for the western cities. Therefore, characteristics peculiar to Indian cities have been identified as deviations from the existing models of city residential structure (Gist : 1957; Brush : 1962).


a) Urban Sprawl

The ecological approach to the Indian cities grew from the simple studies conducted on various cities to understand their structure and pattern of geographical expanse, composition of population and their characteristic features. The urban social mosaic of a city is influenced by the demographic characteristics of the population. Therefore, these studies may be considered as the preliminary investigations which directed the ecological
Influx of population was considered as a factor responsible for expansion of a city, as in case of Delhi (Bopegamage: 1957, 1959). Most of the studies were limited to an overview of the city structure (Mitra: 1963; Mohsin: 1964). It was later that the role of immigrant in city expansion was recorded (Gore: 1970, Bulsara: 1970).

The characteristics and norms of the metropolitan economy in and around Calcutta (Sen: 1961; Kar: 1963), Howrah Conurbation as an urban sprawl (Bagchi: 1966) and the other studies on Calcutta like that of Bose (1965) and Sinha (1978) provided a deep insight to the ecological framework of the city. An exhaustive study incorporating demographic characteristics, economic activities, infrastructural facilities was conducted on Hyderabad by Alam and Khan (1972) Land-use planning of Poona (Jadav and Kulkarni: 1967), Bombay (Mayur: 1975), Delhi (Chaudhuri: 1975) were also studied. Various aspects of the settlement pattern of Delhi Metropolitan Region (Nangia: 1976) and its changing land use pattern, residential landuse and landuse conversion (Bor Gowda and Mahadev: 1977, 1981, 1992) were examined. Immigrants to a city were once again established as a factor responsible for growth of city, and for carving out the social areas (Yadav: 1979). The rural urban fringe also formed an important aspect of the study of Indian cities, as in case of Patna (Sinha: 1980), Agra (Kabra: 1980) and Delhi (Srivastva: 1976). A study of Bhopal suggested relevant land use planning (Kumar: 1980). Economic aspects of Bombay (Phadke and
Sita:1981), development process of Hyderabad (Gopi:1981) and land use of Ahmedabad (Wadhwa:1982) were also examined.

The environmental aspects have been studied in much diverse context. Desai (1980, 1982) and Weinstein and Pillai (1986) studied the core city of Ahmedabad to examine the sensitivity and adaptability of the residents in different environmental problems. The flood hazards of eastern UP (Kayastha:1980), the human adjustment to power crisis in Calcutta (Nag:1980) and the role of cognitive processes in perceiving the elements of a part of Calcutta city (Saha:1982) are other studies which addressed the ecological problems through environment. Some studies also emphasised sociological issues (Singh:1983; Majumdar:1983). In a study by Verma (1984), the growth and transformation of a major metropolitan region, Bombay-New Bombay was analysed. It also examined the interaction between the city, and its social processes, the major thrust was towards the urban ecological planning of the new city.

In his paper on Bombay and Delhi, Brush (1986) analysed changes in geographical patterns of growth in the two cities based on factor analysis. He demonstrated that there are inner zones of old upper-class concentration and outer sectors of recent upper-class expansion in both the cities. The urban core retains features which reflect traditional preference of the elite for central locations, while recent peripheral growth parallels the western city.

In continuation of Firey’s (1945) attempt to answer why
Indian cities do not conform to western models, Weinstein (1986) suggested that local cultural views, ethnic and caste loyalties, traditional segregation principles, neighbourhood desirability and norms of intensive land use appear to be among the most prominent subjective elements influencing ecological structure in Indian cities.

Smailes (1986) observed and identified the dualism in the structure of the Indian city - the indigenous city and the British annexes. Compared with the native city, the annexes were all though in varying degree, organised and regular, spacious and sanitation with building arranged according to their functions (Irving: 1981).

b) Socio-economic Approach

The study on Indian cities reveal that people belonging to similar socio-cultural religious and economic backgrounds tend to segregate from those outside their group. The research paper of Gist (1957) on Bangalore city is generally accepted as the first ecological commentary on an Indian city. This study showed caste emerging as one of the oldest basis of residential segregation in India and was found to be still effective even after decades of independence in a study on Lucknow (Mukherjee and Singh: 1961). The ecological structure of the Indian cities is distinct from those of the west in that usually the best buildings of residential areas in or near the central core are inhabited by Brahmins and the other high castes. The lower castes inhabit the
peripheral areas living in their own separate clusters. Manzoor Alam (1965) in his study of residential areas of Hyderabad and Secunderabad discarded totally the applicability of the classical theories of Burgess (1925) and Hoyt (1939). He suggested the following morphological regions:

1. central city: fully developed,
2. middle city: completely built up, and
3. the outer city: partly built up.

Most of the cities conform to this classification.

A number of studies highlighted economic variables as an important locational factors in identifying social areas. The role of industrialisation in organising and modifying the residential structure was exemplified through the study of cities like Bombay (Prabhu: 1956), Secunderabad (Iyengar: 1957), Baroda (Malkani: 1957), Bhopal (Malhotra: 1964), Gorakhpur (Mukherjee and Singh: 1965), Calcutta (Sen: 1961, Bose: 1968).

c) Residential Structure Approach

While exploring the spatial structure of Indian cities, Brush (1962) concluded that density of population in Indian cities declines consistently from city centre outwards. Much of the work on Indian cities did not attempt to conceptualise the internal structure of the cities till the work of Berry and Rees (1969) which interpreted classical and modern elements in context of social geography of Calcutta. In another study Berry and Spodek (1971) explored the comparative ecology of Ahmedabad, Bombay,
Kanpur, Madras, Pune and Sholapur. Ahmedabad, Kanpur and Bombay showed the arrangement of higher socio-economic status tending towards the centre of the city while lower status farther out. It strengthened the proposition that the ecological structure of Indian cities is converging on the model of an industrial metropolis. The cities had complex mixture of trends towards both greater degree of modernity and greater degree of tradition. An account of Madras city (Weinstein: 1974) suggested that the households with the higher socio-economic status tend to locate in a concentric zone closed to the bazaar and the second highest status people live farthest away from the bazaar whereas the low status people are located in a similar fashion at distances increasingly closer to the bazaar from the most distant.

A study on Bangalore city (Prakasa Rao and Tewari: 1979) analysed the extent to which the pattern of ecological structure of the city follows the classical models. The study revealed that city did not have simple, 'rich core' and 'poor periphery' of the classical model. It had middle class city core and both high status and low status periphery. This supported Alam (1972) and further strengthened the rejection of classical models for Indian cities. Stemming from the Sjoberg (1960) typology of cities, pre-industrial, industrialising and industrial is a study on the city of Kanpur (Chandra: 1977). On the basis of a comparative analysis of three neighbourhoods, the study developed a tentative model of Indian urbanism. The study shows that continuous growth of
technology contributes to an acceleration of pace of industrialisation, leading to job expansion and occupational mobility. They in turn support the inmigrant to prolong their possibility to settle down in the city permanently. This leads to rise in the socio-economic status, and increase in formal participation in voluntary organisations. It also expands the areas of informal participation beyond the boundaries of collectivities like caste, kin and family. The study also reflects that even the upper class, permanently settled residents exhibit informal and to a certain degree formal participation in caste, kin and family.

It was around this time that the ecological approach found firm grounds. One of the initial users of this approach Rajagopalan (1962) attempted to understand the social areas of Bombay. He is widely accepted as a strong supporter of this approach. His efforts to popularise it resulted in many remarkable studies. So on an ecological commentary on the city of Chittarayan (Mohsin: 1964) appeared. It examined the dynamics of issues like growth pattern and typology of a community in an industrial setting. Nearly a decade later, attempt was made via factor analysis to study the social areas of Bombay (Kosambi: 1971) and later again by cluster analysis method (Nissel: 1979). Another study (Joshi: 1981) established that Bombay approximates to the model of 'rich core and poor periphery' like most Indian cities reversing Burgess' model. In her study on the suburbs of Ahmedabad, Sengupta (1988) concentrated on the suburban population morphology, their socio-economic characteristics and behavioural
pattern, that is, life style and behaviour, interaction pattern and their problems.

Thus, much of the literature cited shows above that the residential structure of the Indian cities is not so much governed by the industrialisation processes as the persistent traditional ties. Also evident through several other studies are the functions, employment structure and the influx of people as responsible factors in determining the residential structure of a city. Most of the existing literature lay emphasis on the demographic, economic, social and landuse pattern of the cities. Some examine the development process and the environmental issues. The identification of social areas is still a field which needs much to be worked upon.

2.4 CONCEPTUAL FRAMEWORK

A city is a part of a regional system, which in turn is a part of national urban system. A city system has intra-city, city region and inter-city dimensions (Hoselitz:1955, Berry:1972). City structure is complex and comprises of physical and human landscape, population distribution and economic activities (Berry and Horton: 1970). These are inter dependent and interact with each other. The sub systems of the structure like social, economic, demographic political and administrative are interrelated in a complex way (Johnston: 1976). A common conceptual framework is required for a comprehensive understanding of the processes and patterns underlying the city structure.
The complex city structure varies from the core to the periphery. It differs in terms of physical configuration, land use pattern and population composition and characteristics. Households with similar socio economic status and land use tend to cluster at different locations within a city. Historical, social, economic, administrative, and often political factors determine the location of such spatial patterning. Residential differentiation or the social areas are often the consequences of functional priority of the city. Around the central business district (CBD) evolve other land use patterns which highlight the social and economic characteristics of urban neighbourhood (Rees: 1971). The neighbourhood characteristics involve education, income and housing types and are highly correlated. The residential houses vary according to income, occupation and education. Also, often at times, a particular ethnic group, will reside in a segregated part of the city. Thus the internal structure of the city is the result of many processes. The literature reviewed in the preceding section suggests that a number of analytical approaches have been made by the social scientists in search of an explanation to the dynamic internal structure of the city. These can be named as follows:

1. Morphological approach
2. Social Area approach
3. Ecological approach

Morphological approach seeks to identify distinctive regions in the city according to the functions of tangible land use types. It emphasises on the architectural rather than social fabric.
of the city. Thus limiting its usefulness for the researcher of residential segregation and social areas thereby. The morphological approach has three classical models of internal structure of the city. The concentric zone model (Burgess: 1925) studies the spatial patterning by dividing the city into five concentric landuse zones. It describes the pattern at a given point of time and represents the successive zone of urban expansion. The sector model (Hoyt: 1939) suggests that social areas within cities can be explained in terms of sectors than zones. The underlying process responsible for producing these spatial patterns was known as 'filtering of housing'. The same mechanism explained the outward expansion of the zones of Burgess' model. Harris and Ullman (1945) postulated the multiple nuclei model which suggested that the land use pattern was not shaped by a single nucleus. The landuse concentrated around a number of nuclei. This model was the least structured of the three models on the zonation and urban landuse.

Away from the idealised situations, in reality, there are aspects of all these models present in most cities (Northam: 1979). The concentric zone model may have fitted before the advent of the automobile. Today, some of these pattern may persist as parts (or arcs) of concentric zones. The other patterns may owe their genesis to the arcs provided for in the sector model befitting the land use patterns of the modern city with transportation arteries radiating from the CBD.

The multiple nuclei model is also exemplified in the modern city. Spontaneously or administratively imposed segregation
of land uses into specific districts offers advantages to the land users in that district. It may therefore be inferred that no one pattern of ecological structure or social areas is common to many cities. Most of them represent a composite pattern of urban land use, still zonal in nature.

The social area approach provides a framework for the analysis of ecological structure. Developed during 1949-55 by Shevky, Williams and Bell the model is based on three basis constructs related to the changing nature of the city. The constructs, social rank, urbanization and segregation, summarise the important social differences.

According to Shevky and Bell (1955) the basic premise underlying social area analysis is that the city cannot be understood in isolation from the overall society of which it is a part. The social characteristics of urban life must be investigated within the context of social characteristics of society at large. Thus residential differentiation within cities has its origin in the changing social differentiation of society.

The development of society leads to modernisation resulting in increasing 'social scale' whereby the social and economic interchanges within the society enlarge in terms of both range and intensity (Peach: 1975; Yadav: 1986). In social area analysis increasing societal scale is also held to be synonymous to the growth of an urban - industrial society (Timms: 1971). Economic dependency increases due to specialization of the labour force and improvements in transportation technology, and these changes result
in new pattern of social differentiation. The increasing diversion of labour develops an occupational status system. This system becomes the basic element of social stratification in industrial society. The family becomes less important as an individual economic unit, and there is a weakening of the traditional organisation of the family. The improved transportation technology results in greater mobility and the associated increased freedom of choice in terms of place of residence within the city leads to a greater sorting of the population and the segregation of various ethnic and racial groups. Therefore, an increase in societal scale tends to socially differentiate people within cities according to economic status, family status and ethnicity and those three social constructs provide the criteria for differentiating social areas within cities.

These constructs were originally operationalised by using six different variables - occupation, education, fertility, women at home, single family dwelling units, minority groups. The seventh variable rent, was omitted because of the influence of rent controls. It was incorporated to measure economic status. The first two variables measured the economic status in terms of changing intersectoral division of labour. The next three measured the family status in terms of the declining role of the household as an economic unit. Finally, the ethnic status was measured by the variable 'minority groups' and reflected upon greater population mobility and concentration. On the basis of their scores on each of the social area constructs, the census tracts
were classified into a series of social area types to depict the social space. The vertical and horizontal axes represented urbanisation and social rank respectively. The social space was partitioned into 16 cells (social areas) by dividing the two constructs into four intervals. The distance between the census tracts within the social space can be thought of as representing 'social distance', rather than physical distance (Herbert: 1972). Census tracts falling in the cells denoting high values for both urbanisation and social rank would obviously be similar with respect to these two dimensions and have short social distance, despite their relatively large physical distance. Therefore, the term social area was originally used to describe a cluster of census tracts in social rather than geographical space.

Social area analysis is a versatile form of urban regionalisation. It has been used both as a tool for constructing a typology and as a first step in an ecological analysis. (Timms: 1971). Despite the criticism, it has made its place as a classificatory technique appropriate for the study of modern city particularly when the inherent problems of the regionalisation schemes are known. The classificatory scheme of Shevky-Bell model is present in Figure 2.1.

Factorial ecology, the offshoot of social area analysis supports this conclusion. Since mid 1960s factor analysis techniques have been profusely used for urban classification (Rees: 1971, Johnston 1976). The method provides a mathematically rigorous technique for constructing urban social areas. It
CLASSIFICATORY SCHEME OF SHEVKY-BELL MODEL

Fig. 2.1

(Based on Shevky and Bell: 1955)
constructs a number of factors or components that provide an
efficient description of a far longer list of diagnostic variables
drawn from the census. Each factor represents a set of highly
intercorrelated cluster of diagnostic variables. The versatility of
factorial ecology has led to its increasing popularity as a method
of urban regionalisation.

This approach differs from social area analysis in two
ways: one, a large number of variables can be used and two, greater
emphasis is placed on spatial patterns associated with those
variables. This approach helps in exploring the relationship
between the variables by multivariate correlation and
classification techniques. In this technique variables are reduced
to smaller number of factors which are associated with some
variables of similar character (Hunter: 1971; Palm and Caruso:
1972; Clark et.al.: 1974; Davies: 1978).

The ecological research did not take a single line of
action. The critical and substantive convergence have taken place
among the social scientists on the fundamental issues of urban
ecology. The ecological research encompasses and interfaces various
disciplines which are interested in urban studies.

The recognition of segregated social areas and distinct
land use zones led to developing general descriptive models of the
city’s spatial structure. The three classical models of land use -
concentric zones, sectoral and multiple nuclei have by and large
improved upon the previous model. They are fairly compatible models
to assess the internal structure of the city. Recent classificatory
approaches to residential land use have permitted some reconciliation of the Burgess-Hoyt Controversy. Each schema was developed from different criteria, Burgess using social and demographic variables and Hoyt mapping rent surfaces. The development of multivariate classifications of social areas has permitted the implications of these different criteria to be assessed more fully.

The foregoing discussion suggests that different approaches to study the city structure are instruments used to identify the social areas through the classical models which over a period of time have metamorphosed into more recent multivariate techniques. The development of ecological approach to the social areas in context of the present work is represented in Fig. 2.2.

Emanating from the foregoing literature review are some hypotheses elaborated in the following section. They have been tested through the proposed research design in order to address the research problem.

2.5 PRESUMPTIONS AND HYPOTHESIS:

1. **Urban Social groups have particular spatial manifestation:** India is an urbanising society. Most of the urban dwellers have their roots in the villages. Therefore, early socialisation is primarily guided by the norms of religion and caste. This in turn, gets reflected in the Urban social groups and in their residential patterns. Each social group can be spatially separated according to a variety of characteristics both social and economic. Social
DEVELOPMENT OF ECOLOGICAL APPROACH

Social Area Analysis: Stages of Development

Stage 1

Urban Ecological Approach
-R.E. Park (1925), E.W. Burgers (1925)
-R.D. McKenzie (1933), R.E. Park (1936)

Stage 2

Morphological Approach
(a) Concentric Zone Model: E.W. Burgers (1925)
(b) Sector Model: H. Hoyt (1939)
(c) Multiple Nuclei Model: C.D. Harris and E.L. Williams (1945)

Stage 3

Social Area Approach
- Economic Status or Social Rank
- Family status or Urbanization
- Ethnic Status or Segregation
-E. Shevky and M. Williams (1949)
-E. Shevky and W. Bell (1955)
-M.D. Van Arsdol et. al. (1958)

Stage 4

Factorial Ecological Approach
(a) Cluster Analysis: R.C. Tryon (1955)
- Family size (F), Assimilation (A)
- Socio-economic endurance (S)

(b) Factor Analysis
- Social variation
- Economic Differentiation
- Residential Segregation
-F.L. Sweester (1955)
-P.H. Rees (1971)
-R.J. Johnston (1976)
-B.S. Morgan (1976, 1979, 1980)
-J.E. Brush (1986)
-G.A. Tobin (1987)

Fig. 2.2
groups can be, and generally are, identified with their corresponding residential areas and vice versa. Therefore, each group is actually a manifestation of the spatial variation of residential segregation.

Hypothesis

Social areas are the outcome of traditional norms associated with religion, caste and nativity.

2. Social and economic forces combine to create the mosaic of residential areas:

   Urban social structure is more complex than it appears to be. It comprises of objects, activities infrastructure and land. The sub systems of the structure include social, economic, demographic, political and administrative dimensions. All these entities in the structure and sub structure are inter-dependent and interactive among themselves and with their environment. In this process of inter-dependence and interaction, populations get shifted out according to criteria such as social class, caste, religion, race and income, producing slums, middle class localities and posh areas. Therefore, a residential area is specific to one or the other set of social and economic forces.

Hypothesis

The guiding norm for the formation of social areas is the socio-economic homogeneity of the group.
3. **Urban Social Groups and their residential differentiation reflect upon social and economic problems:**

The process of socialisation is deep rooted in the traditions norms and customs which an individual inherits. Each social group has its own set of norms. In their spatial distribution, it emerges in the form of residential segregation. For instance, one part of an urban area, for example a metropolis, may be visualised as breeding social diseases like crime and delinquency. The social groups associated with this area may be recognised as socially deviant. There are groups which consider the segregation of children from different economic and social group unadvisable and a hinderance for the overall growth of the child and thereby the society. For some other groups this segregation may be essential to maintain a particular life style. Such differences in the social group point at the disparities and inequalities.

**Hypothesis**

Variations in the socialisation process affect the residential differentiation and hence influence the formation of social areas.

4. **The environment specific to a social group influences it in terms of residential segregation:**

Concentration of population in cities has gained wide recognition as an issue of concern. It has lead to several associated problems like that of urban size and high density leading to social problems. Considering the contrast between the
rural cohesive community and urban impersonal life, social disorganisation becomes a matter of discussion. In most of the cities closed community pockets can be identified and clear cut social groups are found. Thus, a new entrant to a city opts for a residence where he can find the roots or traces of his socio-cultural affinity. Even after years of entering the city, he works towards the change of residence to a more socially and economically viable place.

**Hypothesis**

Urban environment influences the choice of residential locality of a city which in turn governs the formation of social areas.

In all, the four hypotheses which are tested state that the social area are formed on the basis of traditions which form certain homogenous groups. The socio-cultural characteristics and the urban environment also influence the formation of social areas. A thematic perception of the formation of the social areas in the light of the foregoing hypothesis is presented in Figure 2.2. The present chapter gives an account of the literature related to social area analysis. The development of ecological approach is traced by reviewing the work in this field. The literature reviewed suggests three approaches—morphological, social areas and factor analysis approach to the ecological studies. It also helps in formulating the research hypotheses. In the subsequent chapters, these hypotheses have been tested thereby seeking answer to the research problems.
THEMATIC PERCEPTION OF SOCIAL AREAS

Fig. 2.3