CHAPTER I

INTRODUCTION
PHOTOGRAPH 1

The following plate shows the main tower of Govindarajaswamy Temple in the foreground, with the town of Tirupati spread all around it. The imposing quartzite hills of Tirumala are visible in the background.
The term Land use is the expression of human activity - social, economic and cultural. It is also dynamic in nature, altering over space through time, whereas Land values are reflections of land use, in terms of monetary value. In accordance with changes in landuse, land values also show variation. Land values are highest where land usage is more intensive or vice versa. The use, which can afford to pay the high land values remain, whereas less intensive and less affordable uses, move to peripheral locations. The present study is centred around this relationship of landuse and land values, in the context of a fast growing medium sized Indian town Tirupati.

The objective of the study is to emphasize on the role played by the land use in determining the land value and in turn how the land value dictate the land use. Besides the study also investigates the inter-relationship among those variables which are intricately linked with the landuse - land value structure.
THE STUDY AREA

The area selected for the study is the town of Tirupati, in the state of Andhra Pradesh, a southern state of India (fig.1.1) The town has had a phenomenal growth in recent years, mainly due to its religious and educational activities. The town owes its origin to the shrine of Sri Venkateswara, popularly known as Lord Balaji, who is worshipped by the Hindus as an incarnation of Sri Vishnu - one among the trinity - Brahma, Vishnu, Siva. This shrine is located in the adjacent Tirumala hills. The origin and growth of the town has been in proportion to the religious activities and the flow of pilgrims who visit the shrine daily. In this context, the town offers an interesting perspective of study for landuse and land value changes. Hence the selection of Tirupati as the study area.

RELEVANCE OF THE STUDY

The study of interdependance of landuse and land values has great relevance to the field of urban planning. The landuse - land value structure is viewed in the context of the total urban development system. The urban policy envisaged or urban development plan being implemented or any development project being executed tends to disturb the existing landuse and land value
structure. Hence a prior understanding of this vital relationship should be of immense help and vital necessity to urban landuse planners and policy makers.

Though the present study is empirically concerned with only one town, the methodology evolved can be applied with further refinements to study a cross-section of similar towns in India. The structural relations obtained thereby may be used to present a comparative picture from which inferences may be drawn for policy recommendations. The methodology adopted is simple and flexible, so that depending on the purpose, limitations and areal specifications, necessary modifications are readily available.

**REVIEW OF LITERATURE**

Urban studies are popular among social scientists in India. Till about the 1970's studies on urban land use in Indian cities tended to be descriptive and without a clear conceptual framework. In the authoritative Indian Council for Social Science Research (ICSSR) publication entitled "Survey of Research in Geography" Gosal\(^1\) lists a sizeable number of studies devoted to the internal structure of small and large urban places, and notes that they are usually confined to a description of broad functional zones. An exception to be made, the work of John Brush\(^2\), which analyzed a large number of those urban studies and gave

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details of local land use and drew generalizations on the configurations of functional areas in terms of major types of urban places.

From the 1970's onward, there have been remarkable changes in the approaches adopted by various urban researchers. Inspired perhaps, by the noted lack of conceptualization in the study of urban socio-spatial patterns, a definite search began with the aim of finding concepts and theories to enable scientists to explain the observed patterns of residential land use.

The major economic value of the physical fabric of the city is sufficient to warrant an important place for the study of urban form as a field of research. Schluter\textsuperscript{3} in his paper, published in 1899, has been credited as the first to stress the importance of the townscape in geography. German speaking scholars made formative contributions during the inter-war period. However, the influence exerted on geography by American scholars have been profound. Initially, studies of the physical fabric of a town was of relatively minor interest in America as pointed out by Miller\textsuperscript{4}. The change came up since the 1920's. A major source of inspiration has come from the Chicago school of human ecology i.e. the urban landuse models. These were developed first by Burgess\textsuperscript{5} (concentric zone theory), Homer\textsuperscript{6} (sector theory) and Harris and Ullman\textsuperscript{7} (multiple nuclei theory) and at a later stage by (~social area~)

\begin{itemize}
\item Schluter O (1899) "Bemerkungen zur Sied lungs geographie" Geogr.Z 65-84.
\item Miller J.R (1973) "The Physical morphology of urban places: a selected bibliography"- Council of Planning Librarians Exchange Bibliography, 389, U.S.A.
\item Burgess E.W,(1925) "The growth of the city: an introduction to a research project" in R.E Park& EW Burgess ed "The city" (Chicago)
\item Hoyt,H (1939) "The structure and growth of residential neighbourhood in American cities"(Washington).
\end{itemize}
analysts) Shevky and Bell. As such these models have been taken to function as the conceptual rationale of descriptive urban studies in India. These studies often overlooked the wealth of differences between American and Indian cities as only a few social scientists like Raju observed.

The 1970's and 1980's did see the birth of a large number of urban studies, which in one way or another used the hypothesis of a "Chicago school" type model as a base to explain the configuration of types of landuse in a specific city. In this manner, patterns of landuse in cities such as Hyderabad (Manzoor Alam 1976), Mysore (P.D.Mahadev, 1975), Poona (S.B.Sawant 1978), Shahdara (R.C.Gupta, 1985), Allahabad (J.Sahai 1980) and several others have been studied. The authors have started by assuming that any of the landuse models would typify the landuse pattern in Indian cities, then subsequently accepted or rejected the hypothesis. In a similar vein the social area analysis has been attempted for Calcutta by BJL Berry. As the emphasis on ecology became marked to explain the physical fabric of towns, there arose an increasing trend to explain landuse through economic variables. It was in the beginning of the 19th century, that David Ricardo presented a treatment of agricultural rent which is still the foundation of most present day theory. Ricardo pointed out that the most fertile lands are the first to be put to use, and the less

11. Ricardo D(1817) On the principles of Political Economy and Taxation
fertile ones, are put to use as the demand for agricultural products increases. A few years later, J.H. Von Thunen\textsuperscript{12} developed the theory of location differential rent more fully. Viewed briefly, the rent at any location is equal to the value of its product minus the production and the transport costs. Early economists had little to say on urban land. However, Alfred Marshall's\textsuperscript{13} analysis concerned with profit making landuses, such as retail stores and manufacturing plants, emphasized the importance of location within a city.

Since 1920's, the field of land economics also developed a considerable quantity of literature. It was Hurd\textsuperscript{14}, who was the first to deal with the inextricably bound up relationship of land value and land use. He adopted the principles propounded for agricultural land to an urban setting. According to Hurd\textsuperscript{15}, "economic rent is based on superiority of location only" and "any utility may compete for any location within a city, and all land goes to the highest bidder".

These ideas have remained basic to the mainstream of land economics. The major restatement took place in 1926 by Haig\textsuperscript{17} who emphasized the three way relation of rent, transport costs and location which are inter-dependent.

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\textsuperscript{12}J.H. Von Thunen (1826) Translated version is available in Losch's "The economics of location (1954)". The Isolated state"
\textsuperscript{13}Marshall Alfred "Principles of economics" (London 1916).
\textsuperscript{14}Hurd R.M. (1924) Principles of city land values (New York).
\textsuperscript{15}Hurd R.M. (1924) Principles of city land values (New York).
\textsuperscript{17}Haig M. Robert "Towards an understanding of the Metropolis" Quarterly Journal of Economics 40, 421-423 (May 1926).}
\end{flushright}
Ratcliff noted "the utilization of land is ultimately determined by the relative efficiencies of various uses in various locations". He followed further enquiry into the uses of land and said, "efficiency in use is measured by rent paying ability." This argument can be used in the derivation of the city structure closely similar to that proposed by Burgess. It was Alonso and Wingo who pointed out that the operation of urban land market is rather more complex than its agricultural counterpart. Then followed several empirical works by land economists supporting the general nature of the "land value surface" and the "bid rent curves" propounded by Ratcliff. Hoyt worked on Chicago and developed his sector theory. Seyfried worked on Seattle and obtained significant correlations in between land values and distance from the city centre. Knos gives similar evidence in his study of Topeka, Kansas city where values are found to decline inversely with the reciprocal of the distance from the city centre while they varied directly with the direction of growth within the city. Sectoral variations in land values have been studied in Chicago again by Ratcliff.

22. Hoyt Homer (1939)
Berry and Tennant\textsuperscript{25}. They have indicated relationship between local peakings on the value surface and relative importance of major intersections. Studies on Chicago by Yeats\textsuperscript{26}, hypothesized six variables in a multiple regression model to explain variations in the value surface of the city.

The general theory of land rent put forward by urban economists is a deductive argument with premises which are purely measurable economic factors. It is more closely associated with pure economics rather than to the reality of the city. However, it was this school of thought which introduced the all important variable of land value and delineated its role in determining landuse. Geographers till then had largely ignored the role played by land value in shaping the urban fabric. Today, any study of landuse would remain incomplete if not correlated with land value.

\textbf{METHODOLOGY AND DESIGN OF STUDY}

The methodology adopted in the present study is as follows:

- To trace the genesis of the town of Tirupati and the specific reasons of its origin. For this purpose, the study of mythological literature, ancient scriptures, temple inscriptions and historical maps and records have been adopted.

\textsuperscript{26} Yeates M.H. "Some factors affecting the spatial distribution of Chicago Land Values 1910-1960" Economic Geography Vol.41, 1965, 57-70
- Tracing the evolution of the town of Tirupati - from its origin to the present day. This is recorded from maps and information maintained by the Tirumala Tirupati Devasthanams Board (T.T.D.) and the Tirupati Municipality.

- Analysing certain relevant demographic features such as population density, population growth over the study period, population potential etc., which appear to have a direct bearing on the landuse-land value structure.

- Analysing the pattern of landuse change over the study period.

- Analysing the pattern of land value change over the study period.

- Following the models of the land economists (Yeats, Knos, Seyfried etc.), testing for the degree of association, percentage of variation which can be explained for and the average amount of error committed by using each variable to explain the land value structure. These are done through linear and multiple regression models, variance analysis and partial correlation models.

- Spatial distribution of residuals to locate the area where the equation performs with reasonable accuracy and where it over estimates the land value pattern.

- Summary of finding and policy recommendations. Scope for further research.
LIMITATIONS IN THE STUDY

The non-availability of organised and accurate data has been a major constraint in carrying out the present study. Land values are recorded in the Department of Stamps and Registration. Annual valuation takes place, and the new prices are recorded in the registers and made available to the public. However, these official prices are a far cry from reality. Various critical areas were spot checked to know sale prices in land transactions at dates corresponding to those of the official records. These investigations revealed that assessed valuation deviates from market valuation by 50 to 60 per cent. This difference between market prices and assessed values has had to be incorporated into the present study.

Landuse data has been available on a wardwise basis from official sources. However, a sample survey is conducted and, data is collected on landuse for all the 134 locations, for the purpose of multiple regression. The data on the number of people working in tourism, transport and educational sectors are not available separately. These workers are grouped together under the heading of Tertiary workers. The break up of this work force could have made it possible to include these factors as variables in the multiple regression model.