PLANNING STRATEGIES FOR HOUSING FOR JAIPUR CITY

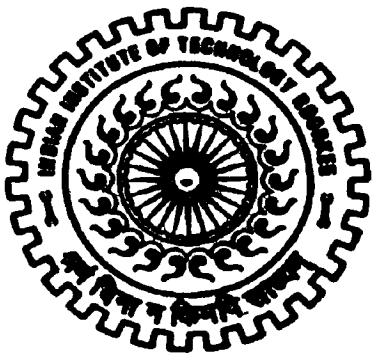
A DISSERTATION

Submitted in partial fulfillment of the requirements for the award of the degree of

MASTER OF URBAN AND RURAL PLANNING

By

RAVI RAI VERMA



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CERTIFICATE

Certified that this report entitled ***"Planning Strategies for Housing for Jaipur City",*** which has been submitted by **Mr. Ravi Rai Verma,** in partial fulfillment of the requirements for the award of Post Graduate Degree in **Master of Urban and Rural Planning** in the Department of Architecture and Planning, Indian Institute of Technology, Roorkee, Roorkee, is the student's own work carried out by him under our supervision and guidance. The matter embodied in this dissertation has not been submitted for the award of any other Degree.

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CANDIDATE'S DECLARATION

I hereby certify that the work which is being presented in this thesis entitled ***"Planning Strategies for Housing for Jaipur City",*** in partial fulfillment of the requirement of the award of the Degree of Master of Urban and Rural Planning submitted in the Department of Architecture and Planning, Indian Institute of Technology, Roorkee, Roorkee, is an authentic record of my own work carried out during the period from January 2005 to June 2006 under the supervision of **Prof. Rajesh Chandra,** Professor, Department of Architecture and Planning, Indian Institute of Technology, Roorkee, and **Dr. Pushplata,** Professor, Department of Architecture and Planning, Indian Institute Technology, Roorkee, Roorkee.

The matter embodied in this thesis has not been submitted by me for the award of any other Degree.

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CHAPTER1 INTRODUCTION

1.1 BACKGROUND

India is undergoing a radical urban transition. During the last century urban population of India increased ten folds from 27 million in 1901 to 285 million in 2001. While, the total population of the country in 1901 was only 238 million. In 2001 urban population of India was 27.8% of the total population. Nearly 50% of India is likely to be urban in 2050 AD.

The Indian cities act as engines of national growth and account for 55% of National Domestic Product (NDP). Delhi, Mumbai and Kolkata contribute about 80% of India's GDP and 60% of its value added manufacturing.

In recent time, cities have become the nodes of economic growth, mobilisation and consumption. The sustainability of the Indian cities is hampered by several factors, such as, inadequacy of the capital stock (land, water supply, sanitation, mass transport and housing), poverty and environment degradation.

Rajasthan with its 34.2 Million sq. Km of area (largest state of India, nearly 10.43%) has acute shortage of housing. About 2/3rd of the land area is covered by Thar Desert. The economy of state is highly dependent on behaviour of monsoon. Water is one of the most critical inputs for development and state has barely 1% of the country's water resources. Rich cultural heritage and tradition of Rajasthan attracts tourists from every part of globe. Almost all urban areas of state are experiencing the phase of unplanned and haphazard growth. Slums, poverty, unhygienic living conditions and illiteracy are the major hurdles in development.

Jaipur being the capital of Rajasthan has been recognised by National Commission on Urbanisation (NCU) in 1987 as National Priority City (NPC). Two hundred and seventy six year old Jaipur is an excellent example for understanding the traditional architecture and planning concepts of India. King Sawai Jai Singh (1700-1743),

assisted by his able architect Vidhyadhar Bhatyacharya, founded Jaipur on November 17th, 1727.

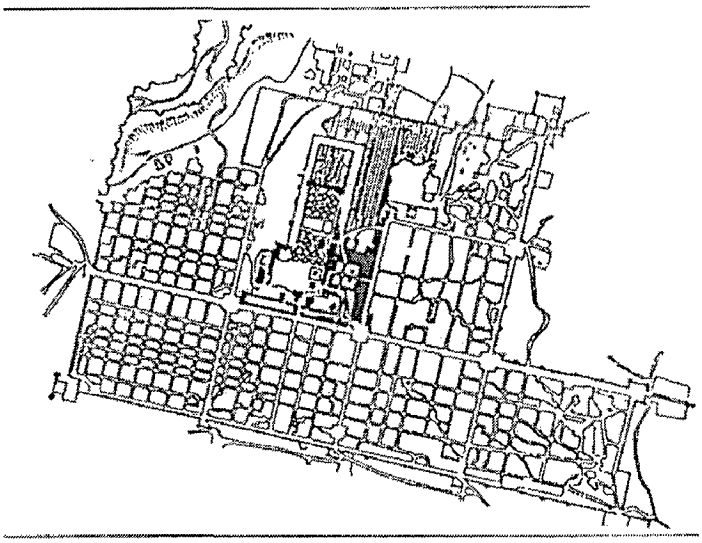


Fig 1.1 The subdivision of old Jaipur into sectors along an orthogonal network of sub-sector streets defining the neighborhoods.

From the road network to the dwelling unit, all aspects of habitat are well thought-out in Jaipur. To give the city a unique character, Jai Singh and his architect stipulated that throughout the city, facades along major roads be designed and constructed by the State to ensure aesthetic control. The design and planning of old Jaipur reflects an excellent response to the harsh climate of the region. Major and minor roads are oriented so as to provide them with optimum amounts of shade. With the major axial road running east-west along a ridge, the city's layout takes advantage of the natural topography for surface drainage. Since water and vegetation were scarce, wells and tanks were treated with importance and trees were planted judiciously at locations where they also served as social meeting places.

No effort has been spared to realize the abstract and physical objectives that Jai Singh and Vidyadhar Bhatyacharya shared as a vision in the conception and execution of old Jaipur.

Till the turn of the 20th century, most of Jaipur's population was contained within the walled city, with very little spillover beyond. In the 1930s, several major residential schemes were proposed in the areas outside the walled city. They were planned

according to British town planning concepts rooted in the garden city principles. In stark contrast to the old city, these schemes had large residential plots and sprawling bungalows, and consequently very low-density development. They seemed to have drawn their inspiration from Edwin Lutyen's New Delhi plan without realizing that this region has severe water scarcity.

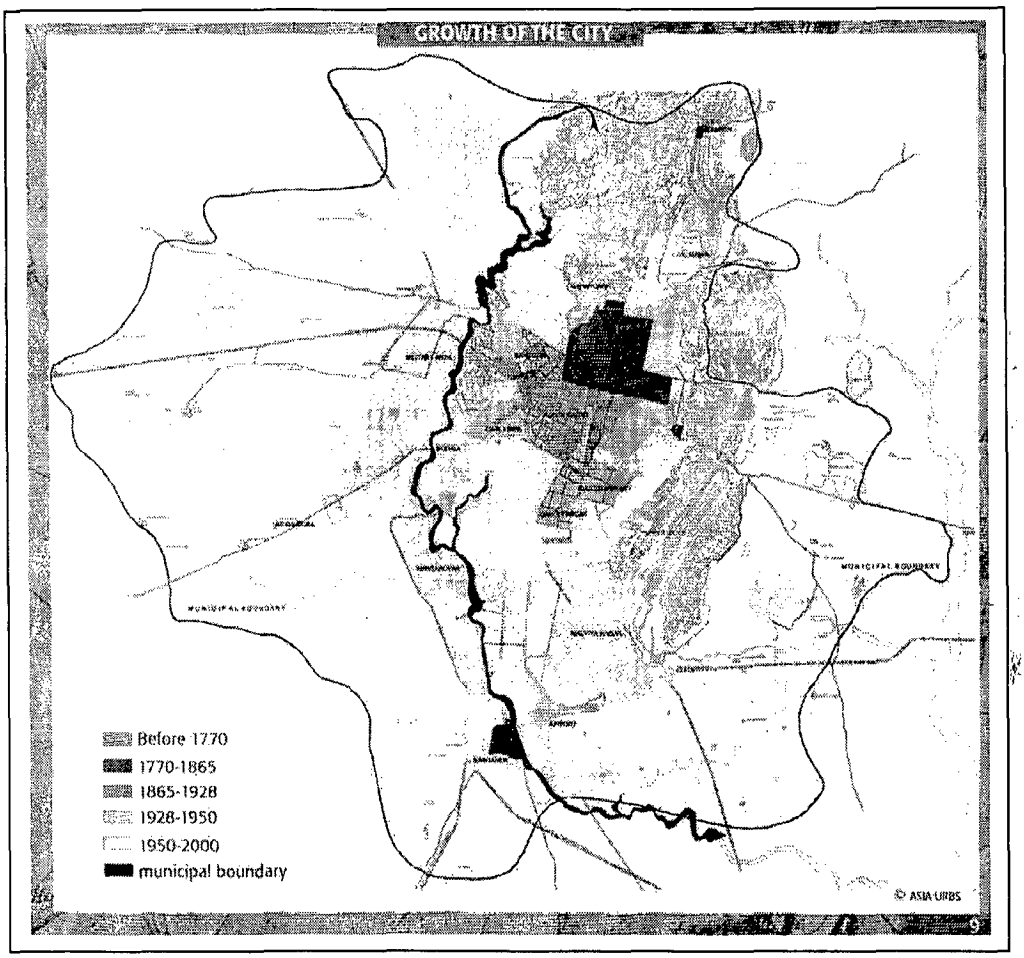


Fig. 1.2 Growth of Jaipur

Jaipur, has now outclassed all other towns in the state and has come off as a vibrant Metropolis with a growth rate, that very few Metros of the Nation could compete. There is therefore, a discrete concentration and polarisation of urban growth emerged in and around Jaipur.

First Master plan for Jaipur (1971-91 extended up to 96) and second Master Plan 1991-2011 was prepared for the planned development of the city by Jaipur Development Authority (JDA). But it seems that these plans could not achieve their objectives. As the perception and implementation process of these plans lost its sprit behind.

The housing scenario of Jaipur is not much different to other Metros. It has shown the rapid urbanisation in last two decades. Resulted into skyrocketing of urban land values, modern trend of trades and commerce boosted the economy of Jaipur City, increased immigration of poor masses. Even from Bangladesh, poor households have developed slums on prime locations.

1.2 NEED FOR STUDY

Important Issues in Ready-built Housing developed in Jaipur.

- Inadequacy / Lack of infrastructure in ready-built housing.
- Large time gap in the provision and implementation of infrastructure
- Ribbon development along major roads.
- Land use conversion to get unspecified benefits of location.
- Poor construction and material requires high maintenance cost.
- Addition and alteration in ready-built houses often turns to encroachment.
- Inadequate parking space leads to more congestion and bottle-necking on road.
- Residential plots are heaving their front on major roads.

Important Issues in Site and services for Housing developed in Jaipur.

- The most important reason for the failure of site and services projects is their **location**. The beneficiaries, primarily intended to be from the EWS, need to live close to their work place in order to keep their travel time and cost to a minimum. The high cost and non-availability of land in prime locations results in many of these projects being located in peripheral areas of urban centers. These settlements often remain unoccupied.

- The poorest family can barely afford the basic serviced plot. After buying the plot, they often do not have enough resources to build even a minimum shelter on the site. Hence, without access to additional finance for house construction, this concept is not attractive to the very poor.
- These projects are sometime grossly subsidized by the public sector. This tempts the beneficiaries to resell the plot at a market price to the higher income groups.
- In the situation of severe housing shortage, leakages in the delivery system result in sites being occupied by higher income groups. An inappropriate procedure of identifying the beneficiaries can lead to malpractice.
- The building bylaws and standards used for the organisation of spaces, materials and construction techniques are of the conventional concept of the housing and conceived it as a product rather then a process.
- Huge pockets of site and services projects reserved for EWS families can create undesirable residential segregation in a city.

Present ills in the quality of housing

- New housing environment is not conducive to the continuation of traditional lifestyle.
- Basic space requirements are not established.
- Lack of identity and privacy.
- Inappropriate open spaces.
- Disregard of climatic factors
- Lack of services and public amenities.
- Income generating activities are not integrated into housing schemes.
- Lack of informal character in housing.
- Response to regional character is missing.

Success of any programme is depends on the practicality of policies, well thought-out strategies and successful implementation.

Govt. housing policies mainly suffered due to its impractical approach.

Since from the beginning govt. has conceived housing as a basic minimum need of the people and designed the housing scheme on same concept. Although this was a

good approach to solve the problem of houselessness, they neglected the segment of people who required house/housing not just a shelter but also as a healthy living environment.

This is the high time to rethink and evaluate our policies, strategies and implementation process to achieve the concept behind our aimed development.

1.3 AIM

To suggest planning strategies for housing, under taken by Govt. agencies for optimal utilisation of resources and to solve the problems of housing in Jaipur.

1.4 OBJECTIVES

1. To analyse the prevailing condition and problems of housing, being developed by govt. agencies in the study area.
2. To evaluate the planning policies and strategies being followed by concerned agencies and their achievements.
3. To find lacunas, hurdles and challenges in the planning and implementation process.
4. To propose guideline in this regard.

1.5 SCOPE

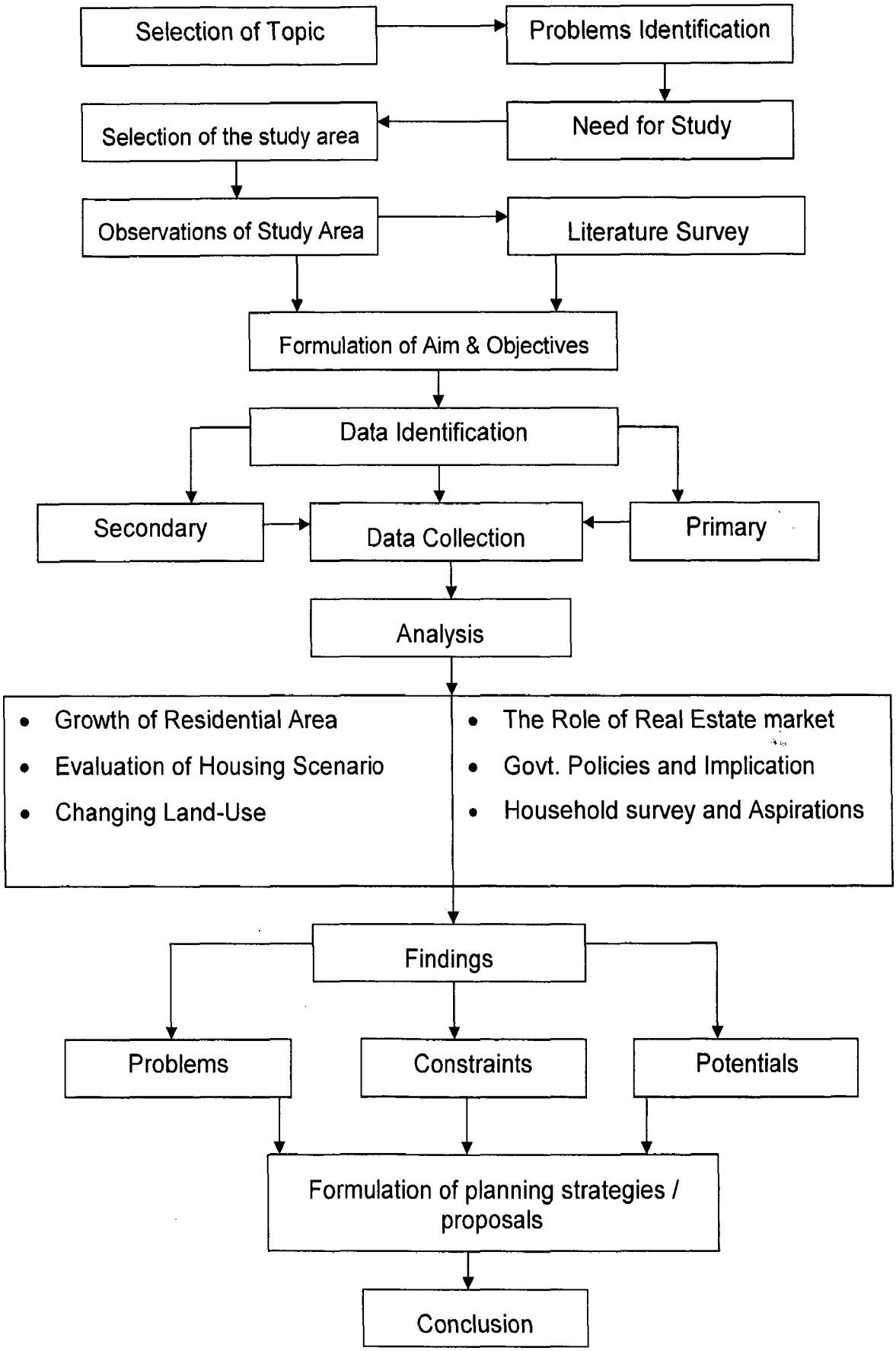
The expected outcome of the study will be appropriate strategies for planning and implementation process for housing in Jaipur city and can be utilized elsewhere upto certain extent where constraint, problems and potentials are similar.

1.6 LIMITATION

Primarily Jaipur Development Authority and Rajasthan Housing Board are the agencies contributing to Jaipur's housing stock and playing the main role as housing provider from public sector.

Since the time and resources are limited I confined my thesis within the geographical limits of Jaipur Urban area and the projects done by govt. agencies within it.

1.7 METHODOLOGY



1.8 SURVEY TOOL AND TECHNIQUE

Household Sample Survey is adopted as a tool for carrying out survey in the study area.

A Survey Schedule is prepared for understanding the housing scenario, feedback and households aspirations.

For analyzing the data from sample survey the Quantitative and Qualitative analysis will be done.

The outcome of sample survey will be used as secondary source to grasp the dynamics of housing problems.

CHAPTER 2 LITERATURE STUDY

2.1 DEFINITIONS AND CONCEPTS

In fulfillment of social needs housing plays both direct and indirect role and both role are decisive. Housing is defined by many authors as follows.

2.1.1 HOUSING

Housing as described by G.H. Bayer.
"Housing is a product, a highly complex product. It is bulky, durable and a permanent product. It has a fixed location, used only in a place where it is built. Once built, it lost for several years. Frequently long after it serves its serves its purpose, it almost becomes the part of land. Like many of the industrial products it is not standardized. It is both economic and social process, influencing the economy of country tremendously."

UN's definition of Housing.
"Housing is not shelter or household facilities alone, but comprises a number of facilities, services and utilities, which link the individual and it's family to the community and community to region in which, it grows and progress."

The concept of housing is more than nearly a physical shell; housing encompasses all the ancillary services and community facilities, which are necessary to human wellbeing. Therefore community facilities, social amenities and services form an integral part of housing concept and should receive equal or greater attention than the housing unit it serves.

2.1.2 DENSITY

The very basis of planning lies in the functional relationship between land and the various competing uses. Therefore some kind of index is required to equate the demand and supply of land, so as to help allocate it to ensure the maximum use of this resource i.e. LAND.

For this a range of density standards have to be established relating to the residential and commercial activity. Density is the amount of some factor divided by the area that factor occupies.

Various ways in which density of a residential development can be measured as

Persons, habitable rooms, bed space / ha. or floor space.

Density would give us the intensity of development and help in assessing and regulating the impact in respect of provisions of community services and facilities.

RESIDENTIAL DENSITY is a system of measurement expressing in mathematical terms in a specific area of land.

- No. of people –population density
- *Amount of housing –accommodation density*

A. Overall Residential Density

This applies to a town as a whole; it is the residential population of the town divided by the area (ha) it occupies, regardless of how the land is used. It excludes the undeveloped land but includes the industrial land, All public open spaces and schools and all other types of development. This is used for the planning purpose at national or regional level in comparing the intensity of development of one town with the other.

175 persons per hectare - LOW

175-300 persons per hectare - AVERAGE

Above 300 persons per hectare - HIGH

B. Gross Residential Density

It is applied to a neighborhood as a whole. It is the population of the area divided by the no. of ha including all the land covered by the dwellings, gardens, roads, local shops, primary Schools and most open spaces and excluding other urban uses such as industrial land, secondary school, town park and town centers.

It is of no direct relevance in development Control but is used in the preparation of development Plans where the areas of HIGH and LOW intensities can be identified.

C. Net Residential density

Applied to a particular housing layout or zonal development plan and is regarded as a normal basis for the development Control. It is the population or the accommodation divided by the number of hectare including open space and half the width of the surrounding roads up to a maximum of 6 meters but excluding the local shops, primary school and large open spaces and all other type of development.

Factors governing density:
Light and sunshine –cold climates
Shade and protection from glare –hot climate

Cool breeze is welcome and hot dust laden wind to be avoided in humid tropics.
Where heat and light is enjoyed –development can be open and density is low.

Where protection from heat, glare and hot winds is desirable –high density is desirable and preferred with shadowy roads common in old Indian towns.

The density of a commercial area is measured and expressed in term of Floor Space Index **FSI** or Floor Area Ratio **FAR**. Here the rigid volume control of zoning regulation i.e. in terms of height and bulk is relieved by FAR.

2.1.3 ZONING

Means the dedication of a certain area to a particular use. In town planning it has been given a wholly arbitrary limitation.

For land that is used for agriculture or an open space used for recreation is said to be reserved for that purpose. Where as zoning implies for a more intensive use such as building, manufacturing or mining etc. Thus the land is said 'zoned for industry' and 'reserved for agriculture'. This differentiation is necessitated because of the sudden increase in value building and as compared to the values of agricultural land. If an owners land is reserved for agriculture or open space he may claim compensation as he is prevented to get the bldg. value of his land but if it is zoned for bldg. he has no claim for compensation.

The regulation includes provision for the use of property and the limitations upon the shape and bulk of the buildings that occupy the land. The regulations are defined and zoning plan, which delineates the area within which these provisions would apply.

Zoning is usually subdivided into three categories as-

Character Zoning
Density Zoning
Height Zoning

Zoning Regulations and Urban Form

- Zonal regulations based on the sound principles of density, traffic, communications, light and air plane etc. these are suppose to be allow the orderly growth of our cities' but there are some shortcomings and these are because these zonal regulations overlooked the "3^{RD} dimension in town planning".

- To give uniform benefit to plot holders the regulations regarding coverage, FAR, setback etc. have been uniform resulting in rigid development and monotonous and uninteresting skylines.
- In most of the residential colonies houses are constructed on plot basis almost touching each other, having no architectural controls on the design of the facade, compound wall texture, basic lines formed by chhajjas and balconies. Due to this the houses though individually satisfactory but as a whole it presents quiet a distorted picture.
- In other cases where the residential buildings are converted into commercial, the enclosure by the compound walls restrict the vehicular and pedestrian movement

2.2 VARIOUS ASPECTS OF HOUSING

2.2.1 INTRODUCTION

Shelter is a basic human need, which ranks next only to food and clothing. The provision of secured shelter promotes overall socio-economic development and serves as an important indicator of the level of development of a community. Housing in rural and urban areas have to be dealt separately since their characteristics are significantly different from each other. In rural areas it is natural that as a family grows, they extend their home by building additional rooms and enclosing additional areas to serve as a family courtyard. Therefore, in the rural areas, where three fourths of Indians live and work, housing has been traditionally a self or community initiated process. There appears to be little possibility that this would change within foreseeable future.

In urban areas, especially in larger cities the forces of an intense lifestyle drive a family where all needs are translated in terms of commodities/industry/shelter. Thus, families, rich or poor, concentrate on earning higher wages rather than help themselves for less other with activities such as house building. It is also in the urban areas where income wises, the widest range of families live. Thus, there are families who are homeless, living on pavements and those living in large mansions

but nevertheless occupying the entire house. As countries such as India move towards "urbanization", pressure on land, infrastructure and other resources increase rapidly. A common example in this context is the housing problem in towns and cities. Frequently, they tend to grow complex and large in magnitude, leading to glaring inequalities and ultimately, to riots and violence in the urban centers. Therefore intervention is needed to prevent occurrence of such conditions.

Ideally every family should have a house to live in. but there are certain factors like poverty, legal and regulatory framework for ownership, requirements of funds, accessibility to housing loans which inhibit the development of the housing activity that matches with the demand in this sector. The proportion of population, which is very poor, is unable to afford houses and requires state intervention for providing them with the basic need. A small segment of the urban population can own houses through inheritance and some others through access to financial assistance schemes. In some cases certain legal and regulatory procedures create obstacles in owning houses some are willing to have houses constructed provided the facility of loans on easy terms are available to them. These are some of the constraints, which have to be removed for achieving the target of shelter for all. This study is confined to the broad aspects of the urban housing problem in India. Low affordability of a majority of the urban citizens, shortage of urban land and elaborate legal and regulatory framework contribute to shortages of housing in towns, cities and metropolises of India.

An unmistakable diversion of 'housing' and especially urban housing is the implied perception of that phrase. A physically well built shelter alone does not fulfill the perception of urban housing until it is complemented with reasonably easy access to the various services and facilities have been the prime cause of failure of several urban housing projects including those intended for the low income families. Housing activities can be segmented into two broad categories, namely rural housing and urban housing. The factors affecting housing in urban areas are as under.

2.2.2 FACTORS AFFECTING HOUSING IN URBAN AREA

- Scarcity of land leading to unrealistically high land prices.
- Inadequate capacity of housing supply agencies.
- Dynamic socio-cultural character of the users.
- Imperfect land regulations.
- Restrictive legislations relating to housing.
- Affordability constraint of a majority of urban population.
- Unrealistic urban housing policies.

2.2.3 DEMAND FOR HOUSING

In economic terms, the demand for housing is the housing requirement supported by purchasing power. One of the most important factors that influences demand for housing is population. Growth in population leads to formation of new households, which in turn requires housing space to live in. More number of persons would mean larger requirements of housing space. The determinants for the demand for housing in urban India are:

- Growth of urban population and growth of households.
- Income of households.
- Availability of finance
- Location factors
- Cost of land and construction.
- Rate of return on investment in housing
- Institutional factors

The demand side of housing includes the following factors:

- Cost of housing linked to income group composition of the community.
- Availability of cheap finance.
- Changing socio-cultural aspirations of the citizens.

- Affordability ratio: Affordability ratio is obtained by dividing the cost of housing by the average income level. The higher the ratio the more difficult it is for the common man to own a house.

The cost of housing is affected by:

- Cost of land.
- Cost of construction material and labor
- Cost of technology and
- Cost of infrastructure.

Factors affecting the availability of finance for housing:

- The bank rate on long-term loans.
- Government policies on housing finance.
- Regulatory procedures in respect of finance
- Development of secondary mortgage market.

2.2.4 HOUSING SUPPLY

The glaring gaps between demand and supply figures of housing in the urban areas become evident if the annual figures are considered. In the largest India cities, up to year 2000 persons move in, generating an additional demand of up to 1,50,000 dwelling units every year. In comparison, the formal system supplies at best 25,000 to 30,000 dwelling units per year. Thus, the informal supply system plays an active role to supply houses not only for the lowest income families in the form of slums and squatter settlements but also " unauthorized colonies" for middle and even high income families, who due to some reasons, are unable to gain access to a house through the formalized supply system.

The crucial factors for the supply system to be effective are:

- Availability of developed urban land for housing at reasonable price.
- Availability of appropriate housing construction material
- Availability of housing finance.

- Availability of urban services and facilities.
- Appropriate legislative and administrative measures.
- Availability of suitable housing technology and above all.
- Existence of a realistic housing policy.

Factors affecting Housing Supply

- Supply of land for the housing purpose.
- Infrastructure facility
- Adequate availability of construction materials.
- The facility of finance available with builders.
- The capability of the supply agencies.
- Nature of technology used.

Factors affecting supply of land for housing purpose:

- Government policies on land development for housing.
- Land transfer policies.
- Rules regarding registration of land.
- Land prices.
- Laws and regulations related to development of built forms.

Factors affecting land price:

- Location attributes with respect to accessibility to urban services and amenities.
- Area specific and use specific demand for land.
- Urban land ceiling and regulation act.(ULCRA)
- Permissible floor area ratio. (FAR)

2.2.5 LAND

The major input into housing and infrastructure development is land. Without the efficient functioning of land markets and a clear and usable definition of property

rights housing developments are not likely to revive the needs of the population of a city.

Existing policies on land (land ceiling Rent control, Development control Rules) have been responsible for the supply side of the land market not fully responsive to demand conditions. The effect of such policies is reflected in unrealistically high price of land or housing and lopsided development of cities by creating slums and Unauthorized Colonization. If there is one single element that will revolutionize the housing and urban and sector in India it is the reintroduction of an open market in land transactions, Steps should be taken to change those laws and regulation, which hinder in increasing the supply of land.

2.2.6 INFRASTRUCTURE FACILITY

Inadequate availability of developed land and other basic amenities is another factor, which seriously affects the housing sector. The efforts of the government in this direction are not significant enough to match the problem of housing. The Government can encourage private developers to asked active part in developing infrastructure facilities. This can be done if rules and regulations for developing and other infrastructure facilities are so enacted so as to give a reasonable return on their investment.

2.2.7 FLOOR AREA RATIO

One of the parameters of land use is Floor Area Ratio (FAR). FAR is calculated by dividing the total covered area by the size of the plot. FAR in metropolitan cities of India varies between 1 and 3. FAR of the cities of developed countries like Chicago, New York and Hong Kong can be as high as 10 to 12. Of course, the figure of FAR to be allowed in a city is dependent upon the level of infrastructure facilities available in that city and it is being argued that cities in India do not have the requisite infrastructure to permit a higher FAR. The solution is not in keeping the FAR low but in upgrading the infrastructure. The Cost of providing infrastructure is likely to be much lower than the value of additional area made available. Additional premium can be charged by corporate bodies for the additional FAR to be allowed at least for

commercial space. The amount so realized can be earmarked exclusively for the provision and up gradation of social and physical infrastructure. Higher FAR is likely to have an effect on controlling the prices of properties.

2.2.8 HOUSING FINANCE

Housing finance is the provision of finance or capital for housing. To own a house, households might have to layout as much as four times their annual income; therefore few are in a position to buy a house from their own current resources. One obvious solution is to accumulate or save small amounts of capital and defer house purchase until the required total is reached. Even assuming that 20 percent of current income could be devoted to such savings, this procedure might imply a wait of 20 years or more, provided that costs do not inflate more than the interest accrued on savings in the same period. Individual saving, therefore, is not a very attractive proposition. A way to overcome this is not only to use one's own savings but also to borrow the savings of others, to acquire or purchase a new house, and to repay the borrowed amount back over time.

For this, a group of prospective house-purchasers could get together and pool savings. Provided not all the members wanted to borrow from the pool at the same time, it could be a workable system, and the larger the pool, the more workable it would be. This is, of course, the basis of mutual savings and loans associations that exists in many forms in the country for variety of purpose, not just housing.

However to get a sizeable operation going an association of savers alone will not suffice, and other savers must be attracted who do not have house-purchase in view. Such savers need not only be other households but may include institutions as well. Over time, a number of specialized institutions have emerged that can play the intermediary role necessary to such an operation, bringing savers and borrowers together.

2.3 HOUSING SCENARIO

2.3.1 INTRODUCTION

India is undergoing a radical urban transition. During the last century urban population of India increased ten folds from 27 million in 1901 to 285 million in 2001. The number of urban settlements in India increased from 1843 in 1901 to 5161 in 2001. In 2001 urban population of India was 27.8 percent of the total population (1027 million). By 2020, urban population will be nearly 480 million, that is 39.3 per cent of the total population. Nearly 50 per cent of India is likely to be urban by 2050 AD. Though the urbanization rate slowed down in the 1980s, the magnitude of urban population in India is second highest in the world, first being China. As a consequence, there had been a rapid increase in pressure on habitat, housing and infrastructure facilities. As given below the urban growth rate had been 31.2% during 1991 -2001, as compared to 36.4% during the previous decade.

Table 2.1 INDIA: URBANISATION AND RELATED INDICATORS, 1951-2001

Census	Number of towns/ Urban agglomerations	Urban population (in million)	Urban population as percent of the total	Annual Growth Rate	
				Urban Population	Urban Natural increase
1951	2,845	62.4	17.3	-	-
1961	2,365	78.9	18.0	2.3	-
1971	2,590	109.1	19.9	3.2	-
1981	3,378	159.1	23.3	3.8	1.9
1991	3,768	217.6	26.1	3.1	2.0
2001	5,161	285.9	27.8	2.1	-

Sources: Census of India, Government of India, 1951-2001

Bulk of the urban growth in India is concentrated in large cities. It is estimated that the present number of 35 metropolitan cities (plus one million population) will go up to 75 by 2021, including 6 as mega-cities with more than 10 million population. It is projected that India will have the greatest concentration of mega-cities in the Asia Region. This is

happening largely as the Indian cities act as engines of national growth, adding value to rural produce, serving regional markets and attracting international investments. The estimates indicate that cities in India account for 55 percent of national domestic product (NDP). Delhi, Mumbai & Kolkata contribute about 80 per cent of India's GDP and 60 per cent of its value-added manufacturing. Construction activity provides the direct means for the development, expansion, improvement and maintenance of human settlements in particular and economic growth. In general construction activity accounts for more than 50% of the development outlays in India and is a major source of employment and income generation.

The cities today have become the nodes of economic growth, mobilization and consumption. The sustainability of the Indian cities is hampered by several factors, such as, inadequacy of the capital stock (land, water supply, mass transport and housing), poverty and environment degeneration. Torrents of migrants, refugees and unemployed from the countryside inundate the cities. Unprecedented urbanization is posing the challenge of building in a decade equal to what was built in hundred years.

Slums and shantytowns, squatters and bastis are growing twice the rate of planned housing. Per capita consumption of land and built space, including housing, water, power and generation of wastes are increasing at an alarming rate as compared to population growth. As a result, the cities in India face the problems of overcrowding, sanitation and pollution and acute shortages of water, power, housing, transport, open space and public facilities.

According to the Planning Commission, Government of India, during 1993-94 about 36 percent of India's population were below the poverty line, (37 percent rural and 32 percent in urban areas). During 1999-2000 the methodology was changed and the estimates of urban poverty ratio came between 21.6 to 23.6 percent. However, urban poverty continues to be a major concern. With the recent policies of economic liberalization, privatization and globalization, the apprehensions are often expressed with

regard to the survival and welfare of the poor and need for adopting pro-poor development strategies for their economic emancipation.

2.3.1.1 The Man and His Habitat

By nature, man is social. His natural habitat is his mohalla, neighborhood, village, town, city or metropolis. Today these human settlements are in crises and do not satisfy people's needs. This is a critical moment in India's history. Population is rising very rapidly; physical resources are being depleted; environmental deterioration is spreading to all corners of the country; hundreds of millions of people are being denied minimum basic conditions for a life of purpose and dignity. Symptoms of crisis are visible in continuing poverty and unemployment, the mass exodus from rural areas, urban slums and squatter settlements, environmental pollution, shortages of housing, and the basic services as water, sanitation and electricity. Problems vary in kind and severity, but no city is without its share.

Despite a century of industrialization and development, more people today are ill- housed than ever before and the goal of higher living standards is receding. Whether the following are the root causes:

- Economic development models which are not succeeding.
- Inequalities in wealth and opportunity-both within and between nations.
- Value systems and societal priorities, which don't serve community needs.
- The failure of institutions to keep pace with change.

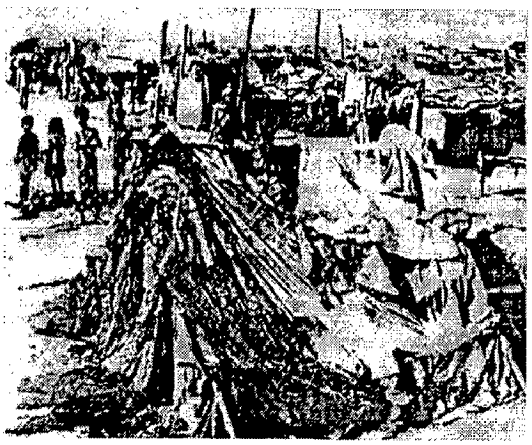
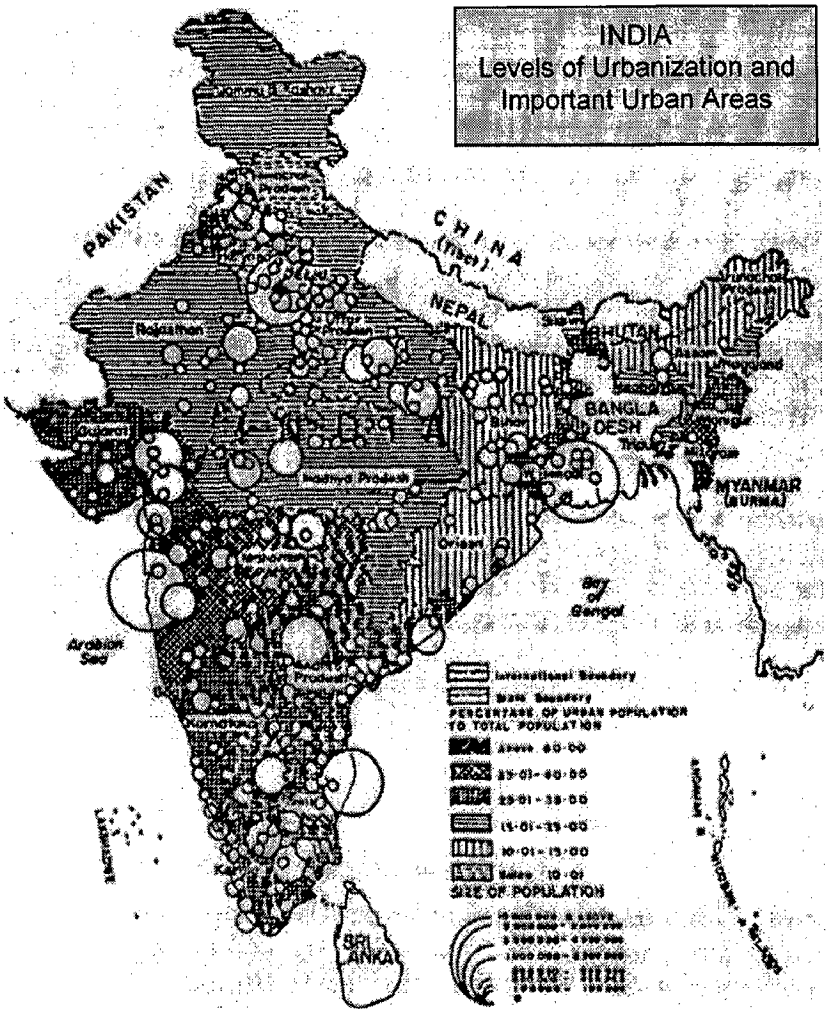


Fig. 2.1 Katchi Basties as common feature of cities



Source: TCPO, Urban and Regional Planning & Development in India, 1996, New Delhi.

Fig. 2.2 Levels of Urbanization and Important Urban Areas, India

Inadequate shelter has been a major contributory factor to poverty, ill health and social stress among the poor. The concept of urban shelter is changing from a place of living to a place of livelihood, where often low-income families run their home-based micro-enterprise.

One estimate puts slum and squatter population for 2001 at 62 million, i.e. about 21 % of India's urban population. The shelter shortage in urban India is estimated apt around 13 million units with 45% having only a single room. 30% of the urban poor live in dilapidated shacklike structures and mud dwellings. The Working Group on Urban Housing

for the 9th Plan gave thrust to housing development and targeted construction of 8.87 million housing units. The National Housing and Habitat Policy 1998 emphasizes "housing for all" by the end of year 2007. The operational programme included two million additional dwelling units, predominantly for the poor, each year. Social development and reducing poverty are envisaged to be achieved through empowerment of the poor, particularly women and other vulnerable sections of the population and by improving access to credit, land and adequate shelter. Adequate shelter with attended physical and social infrastructure is seen as an inherent component of poverty alleviation. The target of 'Shelter for All' envisages a facilitating approach, principally in three areas:

i) Legal reforms,

ii) Transfer of technology,

iii) Fiscal incentives and enlarging the resource base.

2.3.1.2 Future Trends and Emerging Issues

By 2021 it is expected that India will have 75 million plus cities as also, 500 cities (0.1 million) and 4,430 towns (large, medium, small) (<0.1 million population), with a total of approximately 480 million people living in urban areas. With economic liberalization and expected higher economic growth, rate of urbanization in India in coming decades is likely to increase. This will put an unprecedented demand for growth of urban areas. By 2050 India's urban population will reach the 50 percent mark. New urban areas will have to be planned and developed in adequate number to accommodate such a growth of urban population and to provide them basic infrastructure services.

This trend of rapid urbanization has resulted in urban economic activities making up an increasing share of GDP in all countries. Urbanization in India too has been a catalyst for economic growth. In 1950-51 urban India contributed to 29% of India's GDP, which had reached 47% in 1980-81, 55% in 1990-91 and is crossed 60% by 2001, which is expected to be at about 73% of G D P contributed by 2021.

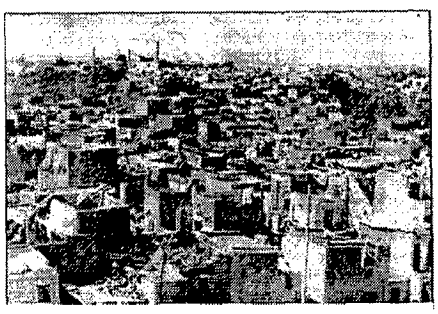


Fig. 2.3 New Development: Common Urban Phenomena

Access to adequate levels of urban infrastructure presents a major constraint to improved urban productivity and also directly affecting the physical environment and the quality of life of the citizens and thus the productivity and efficiency of cities.

Potable water supply is accessible to only 84% of India's urban population that too partly. The International Water Supply and Sanitation Decade (1981 -90) had projected 100% water for all in urban areas. AT the end of the decade, the world settled for 'Some water for all'. We are way behind even for this benchmark. There are no sewerage and sanitation services for close to 54% of the population living in cities. Latrines are yet not accessible to 31% of urban residents and proper Waste Collection services, if not, disposal have reached only 72% of the population. Electricity supply is yet to be provided to close to 25% of the population.

Despite considerable investment and efforts over successive plan periods and also a substantial increase in housing investments by public financing institutions and specialized housing agencies particularly in last decade, the housing problem continues to be grim. Even though the estimates from 1991 housing census indicate that the housing shortage is much less than earlier believed (as against 3 1 million projected by NBO, the housing census figure is only 22.9 million), the situation is still far from satisfaction as evident from the shortage given below:

Table 2.2 HOUSING SHORTAGES IN INDIA 1991-2001

Year	Rural	Urban	Total
1991	146.7	82.3	229.0
1992	145.3	80.1	225.4
1993	143.7	79.7	223.4
1994	142.1	79.1	221.2
1995	140.4	78.2	218.6
1996	138.5	77.1	215.6
1997	136.6	75.7	212.3
1998	134.5	73.6	208.1
1999	132.3	71.8	204.1
2000	130.0	69.3	199.3
2001	127.6	66.4	194.0

Source: Census of India

The recent studies by National Council of Applied Economic Research indicate the following trends:

Only 17 percent of villages in India have piped water supply and 37 percent have pucca roads. 49% of the villages do not have a telephone while 59 percent are without a middle school and 12 percent of villages are without a primary school. In India 55.4% of the housing stock is kucha (temporary). About 43% of houses do not have electric connections, 25% do not have piped water supply and 15.3 per cent are without toilets (Human Development Report, NCAER).

In Class I cities (pop. +1,00,000) average water supply is 140 lpcd and only 70% Class I cities have sewerage facility. The solid waste generated in Indian cities varies between 0.20 to 0.60 kg. per capita per day, and municipal waste management covers 50 to 90% of solid waste. India's average per capita income during 1999-2000 had been Rs. 10204 (at 1993-94 prices), or Rs. 16047 at current price. The informal sector employment varies from 28.5% (Calcutta) to 65.5% (Bangalore).

India needs to build 33 million houses in five years of which 16.75 million are for the needs of urban areas. The gap between the demand and supply of urban services, housing and the impending pollution, environmental decay, unemployment and urban poverty, inadequate finance and ineffective governance make a depressing habitat scenario.

It is an accepted fact that a direct approach of house building will not solve the problem, as the dwelling units so constructed will be transferred to next or even next higher economic group under economic compulsion. A multi-pronged approach appears desirable where, in addition to house building, necessary investment is made in educating the poor and providing employment opportunities. This may increase their purchasing power and hence will be able to get access to the housing market. Informal housing is another sector that provides shelter to the poor and which needs recognition and support.

2.4 POLICY REFORMS

During last decade the government of India initiated radical policy reforms in the form of 74th Constitutional Amendment Act (74th CAA) and economic liberalization. The Union Ministry of Urban Development during recent years took up the Habitat themes of "Inclusive Cities" and "Cities without Slums". At the same time, the Govt. of India and the United Nations Centre for Human Settlements (UNCHS) launched "Good Urban Governance Campaign". It is seen as an integral process of services improvement and their better delivery. The hypothesis is that better infrastructure service, security of tenure political empowerment and participation in civic decisions will lead the urban poor to higher levels of economic and social life. The UNCHS campaign for Good Urban Governance gives emphasis on inclusive cities, participatory, transparent and accountable management, community empowerment, poverty reduction, capacity building and security of tenure. There is a clear paradigm shift in the approach, which envisages public-private partnership, a facilitating approach; and institutional capacity building and legislative and procedural reforms.

Through various policies and plans, several programmes of service delivery, employment generation, housing, shelter, slum and squatter settlement upgradation have been taken up in the country. Massive investments have been made in the programmes like 'Environment Improvement of Urban slum (EIUS) and Urban Basic Services (UBS). The National Campaign for Shelter Rights envisages bridging the gap between goals and achievements. The Building Centres Programme, Slum Networking, micro-banking, Shahri Rojgar Yojana and numerous such programmes converge to help the urban poor.

At the national level, policies and priorities towards 'a shelter for every household' appear to slowly fall in place. The earlier approach of slum removal has been replaced by upgrading and environmental improvement of slums. Gradually the slums are being viewed as the start of a housing process through in-situ upgrading of shelter and services, coupled with employment generating activities. The combination of residence-

work syndrome of low-income families is becoming acceptable through compatible mixed land use policy. A large number of success stories and best practices are already discernible in respect of Government-Community partnership, self-help, micro-savings, land tenure rights, slum improvement, sanitation and water supply upgradation in various cities. Urban Basic Services programme, employment generation in slum areas, energy saving, pollution control, preventive health, graded physical infrastructure technology today all receive central financial support.

The Slum Improvement Projects, in place of clearance progammes, focus on in-situ environmental improvements, community development and health package covering the following:

- Infrastructure improvement: roads, drains, water, sanitation, street lighting and community halls.
- Health: promotional and preventive via maternal-child health clinics, health awareness and health volunteers
- Education: pre-schools, non-formal education, legal literacy and adult literacy.
- Facilitating community based actions and affordable services
- Tenure rights
- Community development: institution building, gender awareness raising, vocational training and economic support
- Encouraging small home-based occupations
- Promoting micro-credit facilities
- Networking among slum communities

The Govt. of India through the National Agenda, declared Housing for All as a priority area. The Agenda set a target of construction of 2 million houses every year with emphasis on the poor and deprived. The National Agenda emphasizes that housing activity would be an engine for substantial generation of employment in the country. In fact the economy can only be revived by vigorous housing activity spread throughout the length and breadth of the country. To this end, all legal and administrative impediments that stand in the way should be

removed and the policy must correct the imbalance caused by excessive dependence on the public agencies. The central theme of the Housing and Habitat policy of the Govt. of India (1998) has been on creating strong Public-Private partnerships for tackling the housing and habitat issues. The Government would provide fiscal concessions, carry out legal and regulatory reforms and create an enabling environment. The Private sector as the other partner would be encouraged to take up land assembly, housing construction and invest in infrastructure services. Gentle but firm guidance can release strong and healthy growth impulses.

2.4.1 HOUSING AND HABITAT POLICY (1998)

The Housing & Habitat Policy aims at –

i. Creation of surpluses in housing stock either on rental or ownership basis.
ii. Providing quality and cost effective housing and shelter options to the citizens, especially the vulnerable group and the poor.
iii. Ensuring that housing, along with the supporting services is treated as a priority and at par with the infrastructure sector.
iv. Guiding urban and rural settlements so that there is planned and balanced growth.
v. Planning or urban transport is to be an integral part of the urban Master Plan.
vi. Development of cities and villages in a manner which provide for a healthy environment, increased use of renewable energy sources and pollution free atmosphere with a concern for solid waste disposal.
vii. Using the housing sector to generate more employment and achieve skill upgradation in housing and building activity, which continue to depend on unskilled and low wage employment to a large extent.
viii. Ensuring that all dwelling units have easy accessibility to basic sanitation facilities and water.
ix. Removing legal, financial and administrative barriers for facilitating access to land, finance and technology.

x. Progressive shift from a subsidy based housing scheme to cost sharing or cost recovery-cum-subsidy schemes for rural housing.

xi. Progressive shift of rural housing strategies from target orientation to a demand driven approach.

xii. Empowering the Panchayati Raj Institutions and village cooperatives to mobilize credit to adding to the housing stock and also basic amenities in the rural areas.

xiii. Using technology for modernizing the housing sector to increase efficiency, productivity, energy efficiency and quality. Technology would be particularly harnessed to meet the housing needs of the poor and also specific requirements of rural housing.

xiv. Forging strong partnerships between private, public and cooperative sectors to enhance the capacity of the construction industry to participate in every sphere of housing and habitat.

xv. Meeting the special needs of SC/ST/disabled/f reed bonded labourers/ slum dwellers.

xvi. Involving women at all levels of decision making and enabling them in formulation and implementation of the housing policies and programmes.

xvii. Addressing the special needs of women headed households/single and working women/women in difficult circumstances. The specific requirements of women in terms of providing necessary facilities in homes to lessen their drudgery would be given sufficient attention.

xviii. Protecting and promoting our cultural heritage, architecture and traditional skills.

xix. Establishing a Management Information System in the housing sector to strengthen monitoring of building activity in the country. This would serve as a decision support system.

The objectives set out in the National Housing and Habitat Policy shall be achieved through the following means:

1. The central government would enact laws and regulations to achieve this target of a house for every one. It will provide fiscal concessions for housing, infrastructure, innovating and energy saving, construction materials. It will help in promoting and protecting the local environment and therefore shall try to achieve better living conditions for all human beings.

2. Similarly efforts shall be made at the state level to liberalize the legal and regulating regime to give a boost to housing and infrastructure. Private sector and cooperatives will be encouraged to take up group housing. The State Government for production and availability of the building material will take steps. Under the 73rd and 74th CAA local bodies have been empowered to discharge their responsibility in regulatory and developmental functions. Local authorities would also identify certain housing shortages and hence prepare District Housing Action Plans for rural areas. This will also include providing land for housing particularly for the vulnerable groups of the society, local bodies shall be responsible for sustainable development of the area and also for strict and effective regulatory measures as well.

3. Private housing finance companies shall be adopting more a flexible approach. This will develop the requisite skills to mobilize domestic savings through innovative methods for Utilization in housing sectors.

4. Housing Boards / Corporations / Development Authorities will participate in a big-way in clearing the backlog in housing sector.

5. The Corporate, Private and Cooperative Sectors are to take the lead role in terms of land assembly, construction of houses and development of amenities within the projects.

6. The corporate sector will encourage the custom of providing housing for their staff and to facilitate their employees in acquiring their own houses.

7. The research-oriented activities are to be further strengthened for meeting the challenges of different climatic conditions in the country.

8. The most important step in the advancement of the construction sector should result in reducing the use of scarce natural resources and replace them with renewable resources. This will reduce the strain on natural environment.

9. Development and use of renewable energy resources for he housing sector, particularly, solar, biomass and waste based energy would need to be taken up.

10. Efforts for transfer of proven technologies and materials will be intensified at the grass root level through the natural network of building centres in both rural and urban areas.

11. Emphasis will be laid on the use of locally available material in case of rural housing projects.

In the context of new Housing and Habitat Policy the Corporate, Private and Cooperative Sectors are to take the lead role in terms of land assembly, construction of houses and development of amenities within the projects. Emphases will be on creation of housing stock on ownership and rental basis. Corporate sector is to be encouraged to provide for hosing for staff and to facilitate their employees in acquiring their own houses. Cooperative Sector is to be given preference in allotment of land and house sites to encourage group housing by this sector. State Governments have to work out schemes in collaboration with the private sector for slum reconstruction on cross subsidization basis.

2.4.2 DEMOCRATIC DECENTRALIZATION

Recent changes have initiated many technological and organizational innovations at both the policy and the project levels. At the policy level an important opportunity to face

the challenge of rapid urbanization is presented by the surge towards decentralization adopted by governments throughout the world. In India, the government took a very significant step in 1992, by passing the 73rd and 74"1 Constitutional Amendment Act thereby transferring many administrative and financial powers to Local Bodies. This makes Urban Local Bodies as the most important functionary in the provision of the urban services.

As per the 12th Schedule of the 74th Constitutional Amendment Act of India, 18 new tasks have been defined as in the functional domain of the ULBs, the most important of which are:

1. Urban Planning including town planning
2. Regulation of land-use and construction of buildings.
3. Planning for economic and social development
4. Roads and bridges
5. Water supply for domestic, industrial and commercial purposes
6. Public Health, sanitation, conservancy and solid waste management
7. Fire services
8. Urban forestry, protection of the environment and promotion of ecological aspects.
9. Safeguarding the interests of weaker sections of society, including the handicapped etc.

These amendments also encourage the preparation of district and metropolitan development plans, which integrate investments and their spatial implications, and need a suitable plan making mechanism and techniques. This requires serious consideration so that the planning framework responds to the climate of new economic policies and democratic decentralization.

In order to enable the implementation of a new strategy, it would be necessary to restructure the local bodies and service departments and to equip them to the changing

political set up. The challenge is to find ecologically sustainable, socially just, economically viable and culturally transferable technological and managerial innovations.

Under the74thCAA, District and Metropolitan Areas have been recognized as a viable unit for administration as well as a key unit in the multi-level planning system. Article 243 ZD (1) provides for Constitution of a District Planning Committee at district level in every State to consolidate the plans prepared by the Panchayats and the Municipalities in the district and to prepare a draft development plan for the district as a whole. Article 243 ZE (1) provides for constitution of a Metropolitan Planning Committee in every metropolitan area to prepare a draft development plan for the Metropolitan area as a whole.

DISTRICT PLANNING COMMITTEE

Article 243 ZD (2): The Legislature of a State may, by law, make provision with respect to:

- Composition of the District Planning Committees.
- Manner in which the seats in such Committees shall be filled.
- Functions relating to district planning which may be assigned to such Committees.
- Manner in which the Chairpersons of such Committees shall be chosen.

Article 243 ZD (3): Every District Planning Committee shall, in preparing the draft development plan, (a) have regard to:

- Matters of common interest between the Panchayats and the Municipalities including spatial planning, sharing of water and other physical and natural resources, the integrated development of infrastructure and environmental conservation;
- The extent and type of available resources whether financial or otherwise;
- Consult such institutions and organizations as the Governor may, by order, specify.

Article 243 ZD (4): The chairperson of every District Planning Committee shall forward the development plan, as recommended by such Committee, to the Government of the State.

METROPOLITAN PLANNING COMMITTEE

Article 243 ZE (2): The Legislature of a State may, by law, make provision with respect to:

- Composition of the Metropolitan Planning Committees;
- Manner in which the seats in such Committees shall be filled;
- The representation in such Committees of the Government of India and the Government of the State and of such organizations and institutions as may be deemed necessary for carrying out of functions assigned to such Committees;
- Functions relating to planning and coordination for the Metropolitan area which may be assigned to such Committees;
- Manner in which the Chairpersons of such committees shall be chosen.

Article 243 ZE (3): Every Metropolitan Planning Committee shall, in preparing the draft development plan, have regard to:

- The plans prepared by the Municipalities and the Panchayats in the Metropolitan area;
- Matters of common interest between the Municipalities and the Panchayats, including:
- Coordinated spatial planning of the area
- Sharing of water and other physical and natural resources
- The integrated development of infrastructure and environmental conservation.
- The overall objectives and priorities set by the Government of India, and the State Government;
- The extent and nature of investments likely to be made in metropolitan area by agencies of the Government of India and of the Government of State and other available resources whether financial or otherwise;
- Consult such institutions and organizations as the Governor may, by order, specify.

Major Highlights:

The Act envisages:

- Spatial and environmental planning for integration of the municipal and Panchayat plans with District plans and Metropolitan Areas plans.
- Provides for spatial planning, sharing of water and other physical and natural resources and integrated development of infrastructure and environmental conservation at district and metropolitan area level.
- Ensuring devolution of power to the people.
- The state empowered to enact upon the structure, composition and functions of DPC and MPC.
- Members to be elected by and amongst the elected members of the Panchayats and the Municipalities.

Major issues:

- Only few states have enacted enabling legislation for the constitution of DPC and MPC.
- These bodies lack necessary technical expertise to draw up a Spatial Development Plan integrating the various sectors of development and rural urban continuum.

2.4.3 NATIONAL POLICY ON URBANISATION

The directive principles of the state policy set forth in the Constitution lay down that "the state shall strive to promote the welfare of the people, security and protect, as effectively as it may, a social order, in which justice, social, economic and political shall inform all the institutions of national life; and shall in particular direct its policy towards securing:

a) The citizen, men and women equally, have the right to an adequate means of livelihood,

b) That the ownership and control of natural resources of the community are so distributed as best to sub-serve common good,

c) The operation of economic system does not result in the centralization of wealth and means of production to the common detriments.

The concept of modern town planning in India was introduced by Sir Joseph Bhore in 1946. The Sir Joseph Committee observed "Most of the rural and urban centers in the country came up in the past without due regard to the principles of planning and it is therefore essential to regulate the growth of towns in accordance with the principles of sound planning, to make a determined efforts to eradicate existing slums and to prevent conditions in which they can again grow and thrive. It was these efforts and recommendations of this Committee, which guided town planning and housing activities up to the end of the First Five Year Plan (1951-56). Subsequently, by the end of First Five Year Plan it was evident that urban and regional planning was an important aspect of development, which could no longer be given a minor place in planning and development activities of the country. During the Second Five Year Plan the need for preparation of Master Plans for all-important towns was felt and work on preparation of Master Plan for a selected towns was started. During the Second Five Year Plan, Delhi Master Plan, the regional study of Damodar Valley, the study of Rajasthan Canal Region and also Bombay and plans for metropolitan cities like Kanpur were taken up.

In the Third Five Year Plan it was recognized that urban and regional Planning was an integral part of economic planning and emphasis was laid on comprehensive Urban Land Policy, Planned Development of Metropolitan Cities, State Capitals, Port Towns, Industrial Centres etc.

The Fourth Five Year Plan signified a qualitative shift in the evolution of urban development planning. During this period it was realized that migration of rural population to urban areas should be checked. Problem of urban growth was recognized

ultimately as one of planning in terms spatial location of economic activities throughout the country. Water supply, drainage and other infrastructure schemes were given priority to check the migration from rural to urban areas in a big way.

The main goals of National Policy on Urbanisation:

i) Promotion and sustenance of economic activities, amongst them industrial development in the different parts of the country, especially in the backward areas.

ii) Discouraging population growth in the metropolitan and large cities and diverting such population to small and medium towns.

iii) Development of a more rational pattern of urban population in a hierarchical system of cities, towns and villages relating to the resources for economic development and needs of each area.

iv) Achieving an integrated rural urban growth complementing each other so as to achieve higher economic and social prosperity.

v) Minimization in the differentials in the quality of life both in the rural and urban settlements.

The urbanisation policy is based on the considerations of some major ingredients such as:

(i) The actual size of the urban population

(ii) Distribution of labour force in non-agricultural occupations

(iii) Creation of settlements pattern of smaller urban settlements with particular reference to backward regions

(iv) Measures to regulate the growth of metropolitan cities,

(v) Urbanisation measures necessary to suit various degrees of social and economic development

(vi) Integrated development of social and community facilities in urban and rural areas and

(vii) Maintenance of ecological balance at desired levels. Such policy supported "complete interdependence of such factors as industrial and agricultural

products, family planning and population policy, urban development and location policy, the trade and commerce and employment policy etc.

2.4.4 ENVIRONMENT (PROTECTION) ACT, 1986

The Environment (Protection) Act, 1986 provides for the protection and improvement of environment and the matters connected therewith. Subject to the provisions of this Act, the Central Government is empowered to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of environment and preventing, controlling and abating environmental pollution. The Environment Protection Rules, 1986 prescribe inter-alias standards for emission or discharge of environmental pollutants, prohibition and restriction on location of industries and the carrying on of processes and operations in different areas, procedures for taking samples, procedure for submission of samples for analysis and the form of laboratory report thereon, functions of environmental laboratories, qualifications of a Government analyst and manner of giving notice etc. The Environmental Clearance Notification, 1993 states that the expansion or modernization of any existing industry or new projects listed in Schedule-I or Schedule-II shall not be undertaken in any part of India unless it has been accorded environmental clearance by the Central Government or, as the case may be, by the State Government concerned in accordance with the procedure specified in the notification.

2.4.5 UDPFI GUIDELINES, 1996

The National Workshop on Master Plan Approach, it Efficacy and Alternatives organized by the Ministry of Urban Development & Poverty Alleviation, in February, 1995 recommended that for realistic and effective urban development plans, steps needed to be taken to evolve

i) Spatial Development Plan depicting broad landuse zones and major proposals,

ii) Resource Mobilization Plan,

iii) Institutional Mechanism to implement the Development plan,

iv) A set of Comprehensive and Simplified Development Management/Promotion Rules/Regulations/Law which may be easily understood by the people and

v) A mechanism to involve the participation of the people especially the poor, socially disadvantaged groups, women, non-government and community based organizations in the planning process of all cities/metropolitan areas and regions.

The Workshop, among other things also recommended that there is no alternative to the Master Plan in the Indian context, except a better Master Plan which is transparent, simple and dynamic.

2.4.6 TENTH FIVE YEAR PLAN PROPOSALS

A Working Group on Urban Development had been constituted in the context of formulation of the Tenth Five Year Plan (2002-2007) to work on urban transportation, urban water supply and sanitation (including low cost sanitation, sewerage and solid waste management) and urban environment. Activities of this working group are summarized as follows:

The structural modifications in the Indian economy brought about by the process of urbanization have resulted in the decline in the contribution of agriculture to the GNP from 55% in 1961 to about 35% in 1984 at current prices, while the share of mining, manufacturing, construction, etc. Increased to 29.9%.

This structural change has further widened disparities in per capita rural / urban income. The industrial sector is beset with wide disparities between different states and regions. Nearly 50% of the total manufacturing working force is concentrated in the four relatively industrialized states of Gujarat, Maharashtra, Tamil Nadu and West Bengal.

Indian cities face deficient social and technical infrastructure like those in other Third World countries, high cost of urban land and residential construction, thereby

debarring a big section of urban population from the urban housing market, overcrowded housing and proliferation of slums on vacant public land; inadequate water supply; inadequate drainage, sanitation and refuse disposal, creating poor environmental conditions; deficient communication facilities; inadequate access to education and facilities for acquiring skills to improve earning capabilities and deficient health services for mother-child care.

A striking feature of the urbanization in the country is the considerable inter-regional variation in the growth of urban population as well as in the levels of urbanization along with uneven growth of population in towns and cities of different classes. In 1981 there were only 218 Class-I cities and it increased to 423 in 2001. The following table shows the increasing trend of distribution of population in class-I cities and the decreasing trend in other class cities:

Central Statistical Organization estimated the contribution of urban sector to the NDP to 45.73% in 1993-94. Presently, this share is expected to be in the range or 50-60%.

Table 2.3 Percentage Distribution of Population In Different Class Cities of India

TYPE OF CITIES	1981	1991	2001
Class I	52.57	56.68	61.48
Class II	14.09	13.33	12.3
Class III	17.08	16.35	15
Class IV	11.24	9.77	8.08
Class V	4.34	3.43	2.85
Class VI	0.68	0.45	0.29

Sources: Census of India, Government of India, 1981-2001

2.5 GOVERNMENT INTERVENTIONS FOR LAND AND BASIC SERVICES

In India, many programmes to increase the access of urban poor to land and basic services have been designed and implemented. Thus tenure regularization and shelter improvement and upgrading programmes remain the only viable policy options to improve the access of the urban poor to land, besides provision of serviced land. There are three types of programmes implemented for improving the access of the urban poor to land and basic services: (i) basic services schemes, (ii) shelter cum services programmes, and (iii) special programmes. Individual programmes under each of these are as follows:

2.5.1 BASIC SERVICES PROGRAMME

There are four schemes implemented under this program. They are:

Urban Community Development (UCD):

This program was launched in 1966 as a centrally sponsored scheme. But in 1969, it was transferred to the state sector. Owing to the paucity of funds, the program discontinued in most of the states. The program was started with the aim of involving the community in the improvement of slum, provision of health facilities and the construction of dwelling units (where included as a part of the project), thereby reducing the cost of the project and for the post-project maintenance. In Hyderabad, where construction of dwelling units under the Urban Community Development has been successfully implemented, it has been done in three major stages, namely, tenure regularization, finalizing the layout plan of the colony and actual construction of the dwelling units. It has been observed that because of the very design and method of implementation of the scheme, Urban Community Development had a very limited success.

Urban Basic Services for Poor (UBSP):

This is an integrated approach to improvement of conditions in slums. Scheme's focus, though, is on women and children, water supply and sanitation, training of

community workers and development of community organizations in the slums. Under the water supply and sanitation component, hand pumps are installed and low cost pour-flush latrines are constructed. The latrines are constructed up to the plinth level only, with the program funds, while the user as per his/her affordability builds the super structure. The user also shares part of the program cost.

The UNICEF originally started it as Urban Basic Services (UBS) program in 1976, with the financial participation of the Central Government, the state government and UNICEF in the proportion of 20:40:40 (7). Now, UNICEF has more or less withdrawn from this program and supports only training and logistics. This program differs from the Environmental Improvement of Urban Slums / Slum Improvement Program, the Urban Basic Services Program is an integrated program and not mere physical improvement of slum. It asks for financial as well as organizational participation of slum dwellers thereby reducing the possibilities of future displacement. Urban Basic Services Program was being implemented in 296 towns in mid-1990s (8).

Environmental Improvement of Urban Slums (EIUS) / Slum Improvement program (SIP):

Both these programmes are concerned with the physical improvement of slums though provision of a standard package of community facilities, such as provisions of water taps, open drains for outflow of waste water, storm water drains, community bath and latrines, widening and paving of existing lanes and street lighting. However, under the Slum Improvement Program, in some cases, the slum dwellers have to pay back the total cost of improvement, whereas the Environmental Improvement of Urban Slums has been implemented solely through the grants from the Central Government. Both the schemes are generally restricted to authorized / notified slums.

The Slum Improvement Program implemented so far falls under two categories: (i) not charging beneficiaries for facilities that have been provided and (ii) charging beneficiaries in installments, for facilities that have been provided. Accelerated Slum

Improvement Scheme taken up in Madras through the state government funds and implemented by the Tamil Nadu Slum Clearance Board (TNSCB), falls under first category while The World Bank financed urban development projects, which have Slum Improvement Program as component, such as the Calcutta Urban Development Project (CUDP) and Tamil Nadu Urban Development Project (TUDP), belong to second category. The Bank has provided grants and loans to the implementing agency through the Government of India for financing this component. The loan has been passed on to the beneficiaries at a 12 percent rate of interest repayable in 20 years. The Housing and Urban Development Corporation (HUDCO) is currently advancing loans for the scheme at an interest rate of nine percent to be repaid over 10 years to cover half the project cost.

Danger of displacement exists even in slums improved under either the Slum Improvement Program or the Environmental Improvement of Urban Slums if the standards of the services are kept high (9). The per capita grant for both not being much, higher standards have not been maintained under these programmes. But, where improvement has been undertaken with loans, it is likely that standards may have been higher to attract the better-off sections.

Low Cost Sanitation (LCS) program:

This program was started to provide sanitation facilities to 80 percent of the urban population at the end of the UN Decade for Water Supply and Sanitation in the 1980s. HUDCO came forth with assistance to cover the slum areas and old city area with LCS programmes.

2.5.2 SHELTER CUM SERVICES PROGRAMME

Sites and Services (S&S) Schemes:

This is mainly a program to make serviced urban land in small lot size accessible to the poor. The beneficiaries are expected to construct their houses primarily through self-help. It was introduced during the Fifth Plan. Site and Services schemes have

been founded by the HUDCO, the World Bank and even by Central Government under the policy for Integrated Development of Small and Medium Towns. Although HUDCO was the first financing agency to introduce the scheme in the country, impetus to it has been given by the involvement of the World Bank in Madras Urban Development Project (MUDP).

The MUDP phase I was taken up in 1976-77 with partial funding from the World Bank. It had a provision for sites and services and slum improvement and upgrading. The MUDP-I was implemented during the period 1976-77 to 1980-81. Then followed MUDP-II and since mid-1980s Tamil Nadu Urban Development program in major cities of Tamil Nadu. Subsequently, the bank took up several other Sites and Services schemes in different cities, namely Kanpur in 1981-82, Indore in 1982-83 and a number of cities in Gujarat in 1985-86. The S&S schemes financed by the World Bank in India have several options relating to plot size for people in different income groups within the Economically Weaker Section category and even Low Income Group and Middle Income Group housing. Several plots are also provided for commercial and industrial use so as to cross-subsidize the small plots, an evaluation by NIUA (1993) showed that only 53 percent of the plots in MUDP – I, MUDP – II and TUDP projects were occupied In Chennai. Of the total plots allotted, 28 percent were occupied by original allottees.

The review of some Sites and Services projects implemented in different cities indicate a broad trend of transfer of allotted plots to slightly better-off households; the process being known as '*gentrification*'. Since monthly income is the criteria adopted by World Bank as well as HUDCO in allocating the funds and selecting the allottees, urban poor do initially get entry into the schemes meant for them – if the corruption at the entry to the scheme is checked. The danger of gentrification rests upon two related considerations: (a) the attractiveness of the upgraded (or new) settlements to the relatively well off, and (b) the affordability of the project to the original low-income dwellers

In case of sites and services, the third consideration is the location of the project. If it is closer to the city center – in most cases it is not – then its attractiveness to better –off increases and if it is far off from city center – in most cases they are – then the poor cannot afford to travel daily to the city for work. In both the cases, the poor are displaced. The more important criticism of Sites and Services schemes is that the lands available for the schemes are at very distant and inconvenient locations. The cheap lands are only available at the periphery of the city or even outside the main city. In Mumbai, S&S schemes were located beyond 30 km from the city center.

The Slum Up gradation Program (SUP):

This program for the provision of shelter and basic services was started in the Fifth Plan at the instance of the World Bank. Currently HUDCO also finances SUP under its Repairs and Additions Schemes for EWS and LIG categories and inner city areas. Like the S&S scheme, it was first taken up in Madras as a component of MUDP- I in 1977. Facilities provided under it are same as the SIP. However, giving of land *putta* (tenure regularization) on a leasehold or freehold basis is a requirement that distinguishes it from the SIP. Another distinguishing feature of the SUP is the availability of a Home Improvement Loan (HIL) to the beneficiary on a freehold basis. The MUDP – I and II and the TUDP are examples of this. The second type is program under which land is leased out to the community on a collective basis, as in case of Bombay. For the success of the latter, a higher level of community participation, as compared to the former, is required. HUDCO and World Bank loans have been made available for this scheme.

Up gradation programmes are taken up only in slums that are compatible with the zoning and land use restrictions in the Development Plan of the city. Besides, slums close to nallah, on land which can get water – logged, near high tension power lines, railway tracks, airports, sensitive defense establishments and hill slopes are not selected. By these criteria, around half the slums in the metro cities would be classified as objectionable and thus become disqualified for up gradation or reconstruction (14). In Mumbai, it was decided that at least 10 percent of the total

one-lakh slum households to be covered under the Slum Up gradation Program (as a part of BUDP), would be on the private lands, which did not happen at all in spite of concerted efforts.

Giving of Pattas (tenure regularization):

Though tenure regularization or giving of land *pattas* to the slum dwellers has been accepted in policy, not many state governments in India initiated this policy. Madhya Pradesh government passed legislation in 1984 to confer tenure rights for 30 years on leasehold basis to households squatting on public land. The legislation was applicable to 47 municipal corporations and civic bodies. It is important to note that this legislation was applicable only to slums on public lands. Hence, the success of this scheme was quite limited. In Bhopal, only 43.0 percent of the households squatting on the public lands got 30 years lease. Another 13.3 percent households, which were on objectionable lands such as road side, near public buildings and houses of important persons such as ministers, and so on, got only one year lease. Another 15.6 percent households came under the category of disputed cases and remaining large proportions, 27.6 percent were not considered at all for tenure rights. Besides the limited coverage of the policy, there were many problems in implementation of the scheme.

In Delhi, slum regularization program has been implemented, which includes giving of *pattas*. Of the total 3332 unauthorized colonies identified by the Delhi Development Authority (DDA) and Municipal Corporation of Delhi (MCD) officials, only 615, i.e. 18 percent were regularized till 1993. The achievement is very low.

2.5.3 SPECIAL PROGRAMMES

Minimum Need Programme

This programme was introduced in Fifth Five Year plan with the objective of providing the rural population, particularly the poor, with access to certain items of social consumption Initially, there were eight components under MNP, i.e.

elementary education, health, water supply, roads, electrification, housing/shelter for rural; and environmental improvement of urban slums and nutrition In sixth plan, adult education was added In seventh plan, the list was further expanded with three more components namely domestic energy, sanitation for rural areas and public distribution system.

A review of the programme reveals that in most cases, the physical and financial targets have been achieved satisfactorily except in area of rural sanitation. However, the quantity achievements are not enough, as there is a need of qualitative aspect also In case of education though, enrolment of children is upto 90% but literacy rate is only 50%. There is an extensive network of primary health centres and subcentres but there is no staff and medicine. There is a supply of water but actually water is not available on sustained basis. Villages are electrified but supply of electricity is for a very short period so in the eighth plan, the emphasis was on qualitative results rather quantitative aspects only. The planning and implementation of these programmes were integrated with other on-going rural development programmes in addition to village basic amenities as an integral part of MNP with a certain amount of united funds allocated to the local level bodies for these amenities. These included street lighting, a primary school building, community centres, handpumps, biogas etc.

INDIRA AWAS YOJANA

The Ministry of Rural Development is operating this fully subsidized rural housing scheme as part of rural employment programme for providing houses to the SCs/STs and freed bonded labour. It now forms a part of Jawahar Rozgar Yojana (JRY). The objective of this scheme is to develop a viable micro-habitat, provide housing and ensure a base for higher level of earning for the beneficiaries. A sum of Rs 12,700 per unit for plain areas and Rs 14,500 per unit for difficult hill areas was given as grant under this scheme to the State Governments for housing, sanitation and infrastructure. During the Seventh Plan, 6.87 lakh dwelling units were constructed at an estimated expenditure of Rs 699.58 crores and for the year 1990-91 the target achieved was 1.71 lakhs, at an

anticipated expenditure of Rs 187.96 crores. The sum has now been increased to Rs 20,000 in plain areas and Rs 22,500 in the hilly areas and scheme is still continuing for SC/ST classes having income below Rs 11,000/- per annum.

CITY SPECIFIC PROGRAMMES ADDRESSING LAND TENURE:

Higher land prices is a big temptation for local bodies and planning bodies to put land for more rewarding purpose, than to give it to poor at affordable prices. As a consequence, the planning bodies now seems to be interested in making profits through land sales and invest these in the city level infrastructure projects and in some cases in city beautification projects. In case of Mumbai, Mumbai Metropolitan Regional Development Authority (MMRDA) has set up infrastructure fund through the sale of developed lands in Bandra-Kurla complex, a new Central Business District (CBD) developed by it. Recently Hyderabad has followed the example by auctioning government land to raise funds for infrastructure development. Providing tenured land with minimum basic services has remained the major dilemma in the large cities. However, some of these cities have also thought of innovative programmes to address the issue of tenured land and basic services of the poor. These are cases of public- private partnership and have come up during the decade of the 1990s. Some noted program /schemes are discussed as follows:

PUBLIC – PRIVATE PARTNERSHIP IN LAND DEVELOPMENT

Realizing the inability of the public bodies in meeting the continuously high demand of serviced land in the large cities, as per the recommendations of the National Housing Policy (NHP) of India in 1992, public – private partnerships are being encouraged in the large cities and urban centers around these cities. Under this, the public authority, mainly the local development authority, either makes raw land available to the private developer or facilitates the later to purchase the same from the farmers and ensures all required clearances on the land. The private developer earmarks the plots after developing the infrastructure on the site. The Public Authority provides off-site infrastructure. Generally, the private developer is allowed to allocate 55 percent of the developed area to housing and the rest 45 percent for

public facilities and amenities. The Public Authority has stipulations for reservation of plots for Economically Weaker Section. Either the Public Authority buys back the plots meant for Economically Weaker Section at pre – determined rates or asks for free transfer of plots to it. In short, there is a stipulation of social housing as a part of the public private partnership agreements. To make this model attractive, generally higher floor area ratio (FAR) than normally permitted, about 2.5 times is permitted so that the private developer can make enough profit.

Some of the examples are, City and Industrial Development Corporation (CIDCO), the Public Authority developing New Bombay, Haryana Urban Development Authority (HUDA) in Gurgaon and Lucknow Development Authority (LDA) has implemented projects under this model. In New Bombay, City and Industrial Development Corporation buys back 35 percent of the built up area at pre-determined rates and then earmarks these for the poor. The prices are so prohibitive (around Rs.15, 000 in 1994-95, based on CIDCO reports), that the poor cannot afford these plots. In Lucknow, Lucknow Development Authority asked the private developer to construct 40 percent of the houses for Economically Weaker Section category with an area of 30sq.m. as per Housing and Urban Development Corporation (HUDCO) norms, to avail the loan. It took so long to get loan from Housing and Urban Development Corporation that the cost of Economically Weaker Section unit shoot up to Rs. 65,000. In Gurgaon, Haryana Urban Development Authority (HUDA) asked the private developers to reserve 20 percent of plots (not area) for the Economically Weaker Section. HUDA would sell these plots to the EWS households at nominal rates (now Rs. 200 per sq. m.). The plot size on an average is 50 sq. m. The plot would there fore cost Rs. 10,000. On paper this appears to be a good scheme. But in reality, the plot prices have increased to at least 20 times, leading to the release of the plots and displacement of the poor.

2.6 INFERANCES FROM LITRATURE STUDY

2.6.1 EVALUATION

The list of programmes have been designed and implemented with differentiated levels in various cities. There is no comprehensive statistics to indicate the coverage of these programmes. However, there are some basic lacunae in these programmes for effectively reaching the poor. The basic service programmes have been confined to only those slums that are declared as 'authorized' and identity cards are given to the dwellers. The shelter up gradation programmes has been implemented only in few cities and only in few slums, which have clear land titles. Giving of land *pattas* have been effectively implemented only in cities of Madhya Pradesh and that too in limited slums. In other cities, the coverage is less than 20 percent. The sites and services programmes, which are quite promising, have not been taken up in any mega-scale as required for the large cities. Wherever these have been implemented, for example in Mumbai and Chennai with some success these are located at periphery of the city.

"Public policy plays a crucial role in both the supply of and demand for land. Through planning, public authorities can direct transport and infrastructure towards opening up new land but they can also follow up the settlement process with regularization and upgrading. Modifying approval procedures and taxes can lower transaction costs and make markets operate more efficiently. The promotion of a diversity of investment options in the various capital markets can help to reduce land prices, minimize speculative investment and optimize the use of public and private capital. Responsibility for formulating and enforcing rules of tenure and use of land rests ultimately with the government".

2.6.2 POLICY AND PROGRAMME CONCLUSIONS

The innovative projects in large cities have their inherent problems as discussed. The Slum Networking Program being implemented in Ahmedabad and Indore cities appears to be promising. Land tenure issue, however does not get fully addressed by this program. The Slum Redevelopment Scheme in Mumbai has been a non-starter. The public-private partnership in land development offers many promises, only if implemented by the urban development authorities with great sincerity. On the contrary, these bodies have of late shown interest in making profits through land sales. Lucknow Development Authority, for example, resorted to selling units meant for Economically Weaker Section at a price above Rs. One Lakh. City and Industrial Development Corporation also have similar policies. These bodies use public-private partnership model only for passing on their responsibility of land development to the private sector rather than for taking benefits of the model to pass part of the share of benefits earned to the low income groups.

While continuing efforts must be made to develop housing policies and programs related to the needs of the various income groups within the urban population, a new and broader approach to housing for the numerically-dominant lowest income groups can be developed in terms of the following policy statements:

1. Existing housing stock must be preserved wherever possible so that new housing results in the maximum net gain.
2. Major and rapid improvements in the living conditions of housing stock must be achieved through well-organized programs of improvement to the physical and social environment without replacing existing housing units.

3. An urban land policy must be implemented which provides adequate developed land in planned and suitable locations for the establishment on a sufficiently large scale of new controlled and modernized, self-help- settlements of informal type.

4. The maximum encouragement must be given, through financing techniques and through social and economic development programs, for the establishment of these new urban settlements housed in non-permanent, self-constructed shelter but with adequate environmental and community facilities; and this must be done with a sufficient urgency and on a sufficient scale to provide a real alternative to the proliferating shanty-slum in urban areas.

5. The achievement of acceptable environmental depends essentially on the successful introduction of imaginative and efficient management services and on associated programs of community development based on voluntary effort.

The concept of planning has changed considerably over the last 25 years. It reflects on the increasingly complex urban environment and development challenges that have consequently altered the way in which we practice planning. Derek Lyddon's study given below is equally relevant for Indian cities:

FROM	TO
"Garden City"	"Inner City"
"Expansion of New Development"	"Conservation and renewal"
"Population and employment increase"	"Stability, changes in social structure and our understanding of the future of work"
"Simplistic notion of planning as enlarged architecture"	"The understanding of the city as a social and economic system"
"Creating and controlling whole environment"	"Accepting diversity and the happy accident"
"The 'end state' master plan"	"Flexible policy plan"
"Top-down' Planning"	"Encouraging self-help initiatives"
"Planning product according to design rules"	"Planning process as a result of participation"
"Control by 'plot ratio"	"Urban impact analysis"
"Separation of land uses for health reasons"	"A mixture of uses for social diversity"
"Quantitative methods"	"Qualitative methods"
"The planner as the only discipline involved in planning"	"Corporate view and product from a wide range of disciplines"

"The pursuit of exciting but simplistic new images"	"The discovery of order in existing diversity"
"Industrial technology"	"Electronic technology"
"Cheap energy"	"Non-Conventional Energy"
"Central systems"	"Quest for decentralization"
"Consensus and agreed definitions"	"Roles of experts questioned"
"Municipality provides services"	"Municipality acts as civic entrepreneur"
"Urban governance : worst first"	"Municipal marketing : invest in success"

Source: Derek Lyddon in Cities, November 1989

The basic conclusion is that, given the resource position and the facts of population increase, the staggering urban housing situation cannot be solved except through the efforts and initiatives of the masses. The role of government should be to encourage and stimulate this initiative through imaginative land development policies, through a concentration of effort on improvements in environmental and social services, and through specific social and economic development programs. There is a very clear need to match planning and architectural ingenuity with an accurate appraisal of the way of life in Indian urban areas. It is perhaps worth pointing out that many of the apparent problems in - construction, financing, entrepreneurship, and social arrangements. New solutions must have a similar relevance if they are to produce a significant improvement in living conditions.

CHAPTER 3 CASE STUDY (Literature Based)

3.1 ARANYA TOWNSHIP (Indore)

Indore is the commercial centre of the state of Madhya Pradesh. According to the 1981 census, this city had a population of 8.27 lakhs. Like most other cities in India, Indore is experiencing an acute shortage of housing, as well as, problems arising out of inadequate infrastructure. **Aranya** has been proposed by the Indore Development Authority to alleviate the housing shortage, particularly for the economically weaker section of the society. An innovative approach has been used for the design and development of the township. This chapter sets out the overall context within which the proposal for Aranya was formulated and describes the issues specific to the project.

3.1.1 PROJECT BACKGROUND AND SALIENT FEATURES

THE HOUSING SITUATION IN INDORE IN 1990

The two main government agencies catering to the city's housing needs are the **Indore Development Authority** (IDA) and the **Madhya Pradesh Housing Board** (MPHB). A study carried out by the IDA in 1981 estimated that 51,000 families were homeless or living in illegal settlements. This is in addition to a large segment of the population that lives in legal, but dilapidated housing. During the decade of 1971-1981, the housing supply by both public and private agencies was to the tune of 25,000 units as against the additional demand of 51,000 units. With the limited resources available, the provision of ready built houses was an impossible task for the government agencies. In addition, the city needs a large investment on infrastructure, for its water distribution system and road network are over-strained. There is a need for a comprehensive sewerage network and treatment plant.

The existing housing stock is very old and needs gradual replacement. A study of households according to number of rooms revealed that 41.44% of the total households live in one-room tenements. The number of persons per room is also noticeably high.

Table 3.1 Income distribution of the Indore city.

Category of Households	Income Range (Rs per month)	Percentage to Total	
1.	2.	3.	4.
E.W.S. I	150-200	20.00	60.00
E.W.S. II	200-250	15.00	
E.W.S. III	250-300	10.00	
E.W.S. IV	300-350	15.00	
L.I.G. I	350-450	15.50	25.50
L.I.G. II	450-600	10.00	
M.I.G.	600-1100	12.00	12.00
H.I.G. I	1100-1500	02.00	02.50
H.I.G. II	1500 +	00.50	

Source: Aranya, Vastu Shilpa Foundation

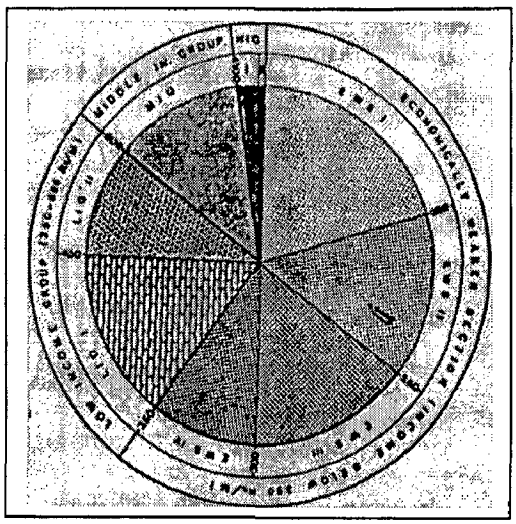


Fig 3.1 Income Distribution of Population in Indore

For its proposal, the IDA adopted the site and services concept. The proposal for service infrastructure comprised roads, open drains, sewage conveyance and treatment, water supply and street lighting. A small number of plots were reserved for local shopping, schools and health centers. However, higher level commercial, community and recreational activities were not planned for. The EWS plots were provided with basic sanitary cores; options ranged from unroofed toilets to fully built w.c, bath and kitchen units, to suit the variations in income range and repayment capacity within the EWS group.

An attempt was made to cross-subsidize the lower income housing through the profit generated by selling plots at market prices to higher income groups. A family's ability to pay 10% to 30% of its income towards housing was revealed by various studies and this was used to determine the prices of various options. For the EWS, the options were to range from site with a service core, to site with a service core and plinth, to site with a service core, plinth and a room. People could choose the option that best suited their need and

ability to pay. Modes of payment were to be developed to help the people repay their loans over a long period of time, with varying interest rates according to income groups. For the LIG and MIG, only serviced plots were to be provided at market prices. Plots for higher income groups, as well as commercial areas were to be auctioned. Plots for social facilities were to be sold without any profit.

The project's development cost was estimated to be 481.80 lakhs at 1982 prices. The project envisaged predominantly residential development, with 7271 mixed-income housing plots, out of which 4660 were targeted for the EWS. The EWS plots, excluding the buildings on them, were to be subsidised from the profit generated by selling the higher income and commercial plots. An amount of 62.72 lakhs was to be utilised in subsiding the EWS housing.

Table 3.2 Land utilization ARANYA prepared by the IDA

S.No.	Item	Area in ha.	% to total
1	2	3	4
A	MARKETABLE LAND		65.74
1 2 3	Residential Commercial Institutional	51.57 1.68 5.07	58.13 1.89 5.72
B	NON-MARKETABLE		34.26
4 5	Parks & Playgrounds Circulation	7.42 22.98	8.36 25.90
	Total	88.65	100.00

Table 3.3 Model land utilization suggested by World Bank

S.No.	Land use	% to total	
A	MARKETABLE LAND		69.98
1. 2. 3. 4.	Residential Educational Community facilities Commercial	61.64 5.71 1.13 1.50	
B	NON MARKETABLE		30.02
5. 6.	Parks and Play Ground Circulation	6.70 23.32	

Table 3.4 Plot size distribution IDA proposal

Option Group	Plot Size in Sq. m.	No.of Plots	% to Total
1	2	3	4
1 EWS I	32.41	2160	29.71
2 EWS II	33.41	1100	15.12
3 EWS III	33,45	900	12.38
4 EWS IV	33.45	500	6.88
5 LIG I	55.76	912	12.54
6 LIG II	92.93	327	4.50
7 MIG I	139.40	879	12.09
8 MIG II	223.04	156	2.15
9 HIG I	325.27	135	1.86
10 HIG II	474,00	60	0.82
11 Flats	613.40	42	0,57
Total		7271	100.00

Source: Aranya, Vastu Shilpa Foundation

THE SITE AND ITS ENVIRONS

The urban development boundary of Indore City encompasses an area of 214 square kilometers, out of which 80 square kilometers is currently developed. Most of the recent growth has been along the Delhi-Bombay national highway, which runs through the city in the north-south direction. With the exception of some industrial development, most of this recent growth comprises residential use without commensurate commercial and institutional support. The pressure on the existing city centre is, therefore, accentuated. Much of the new growth also depends heavily on the already over-strained, existing city service infrastructure.

LOCATION OF THE SITE

The Aranya Township is sited on the Delhi-Bombay highway, approximately 6 k.m. from the crty centre of Indore. Selected out of four possible locations, the deciding factor in favour of the selected site was that it was far ahead in the process of land acquisition. The site was also more suitable in terms of linkages to the city, as well as its proximity to other employment areas. There are large pockets of existing and proposed industrial areas within a radius of 2 k.m. from the site. The existing suburban growth has almost reached the southern boundary, whereas towards the east and the north, the site is surrounded by open fields and agricultural land, earmarked for the future growth of the city.

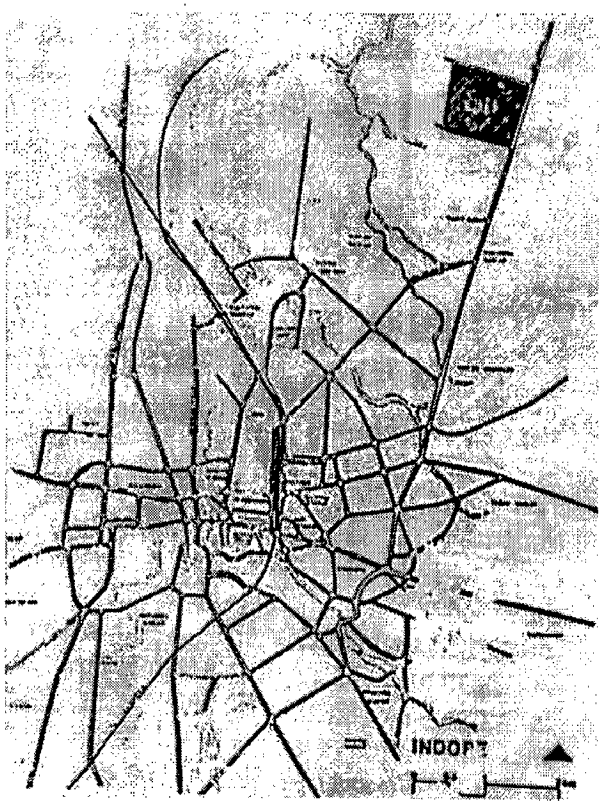


Fig 3.2 Location of Aranya Site.

3.1.2 BROAD GOALS OF ARANYA

It is important for any township plan to have a strong ideological basis. A sense of continuity of fundamental values of the society should be the essence of the approach to plan a **good** habitat. The broad goals of Aranya are :

Vitality:

To create a township form which at various levels supports its vital functions, the biological requirements and capabilities of human beings.

Imageability:

To achieve have a settlement character that can be clearly perceived and mentally differentiated. This dimension leads to establishing harmony between the built environment and cultural constructions.

Equity:

To create a balanced community with satisfactory level of environmental quality for all; especially for the disadvantaged groups, along with equitable access to resources generated through planning actions.

Efficiency:

To evolve a township form that optimizes all resources - physical, natural, fiscal and human, to the advantage of the community, so as to facilitate its activities.

Flexibility:

To evolve a framework within which progressive development can occur with ease and efficiency.

Feasibility:

To ensure development within a given legal, fiscal and organizational framework in a realistic time frame.

3.2 INFERENCES FROM CASE STUDY

To a large extent, the chaos in urban areas is the result of the lack of a philosophical backbone to the planning process adopted. Hence, these plans are subject to forces, which a planner can neither control nor direct in a meaningful way. Specific design guidelines were evolved for Aranya and the broad goals to a successful settlement were identified. Issues of specific concern to the project were added to these goals, which arose in response to the contextual situation. Framing broad goals and addressing specific issues of a community through design and planning solution for a settlement, should be encouraged for providing more acceptable settlements.

CHAPTER 4 STUDY AREA PROFILE (JAIPUR)

4.1 INTRODUCTION

Settled in the rugged hills of the Aravallis, Jaipur is the pristine jewel in the desert sands of Rajasthan. Jaipur is as remarkable for its marvelous architecture and town planning as it is for the lively spirit of the people who inhabit it. The picturesque capital of Rajasthan, Jaipur is color washed pink-the color associated with hospitality in Rajput culture. Jaipur displays a remarkable harmony and architectural splendor. The ancient heart of the Pink city still beats in its fairy-tale palaces, rugged fortresses perched on barren hills and broad avenues that dot the entire city. The only planned city of its time, Jaipur is encircled by a formidable wall.

This famous city is the capital of Rajasthan and has earned universal renown as the "Pink City ", and pink it is, with beautiful constructed palaces, havelis and forts. Jaipur which means the city of victory was built exactly 278 years back and is 262 km by road from Delhi (Capital of India). A strong wall encircles the old city and even today has a suggestion of formidable strength; its function of protecting all within is obvious.

The plains of Rajasthan of which Jaipur is the capital once thundered and echoed with clash of swords and the drums of wars. Built in 1727 by Sawai Jai Singh-II, Jaipur was the first planned city of its time (the earlier planned city in northern India having been built near Taxila sometime in the 2nd century BC).

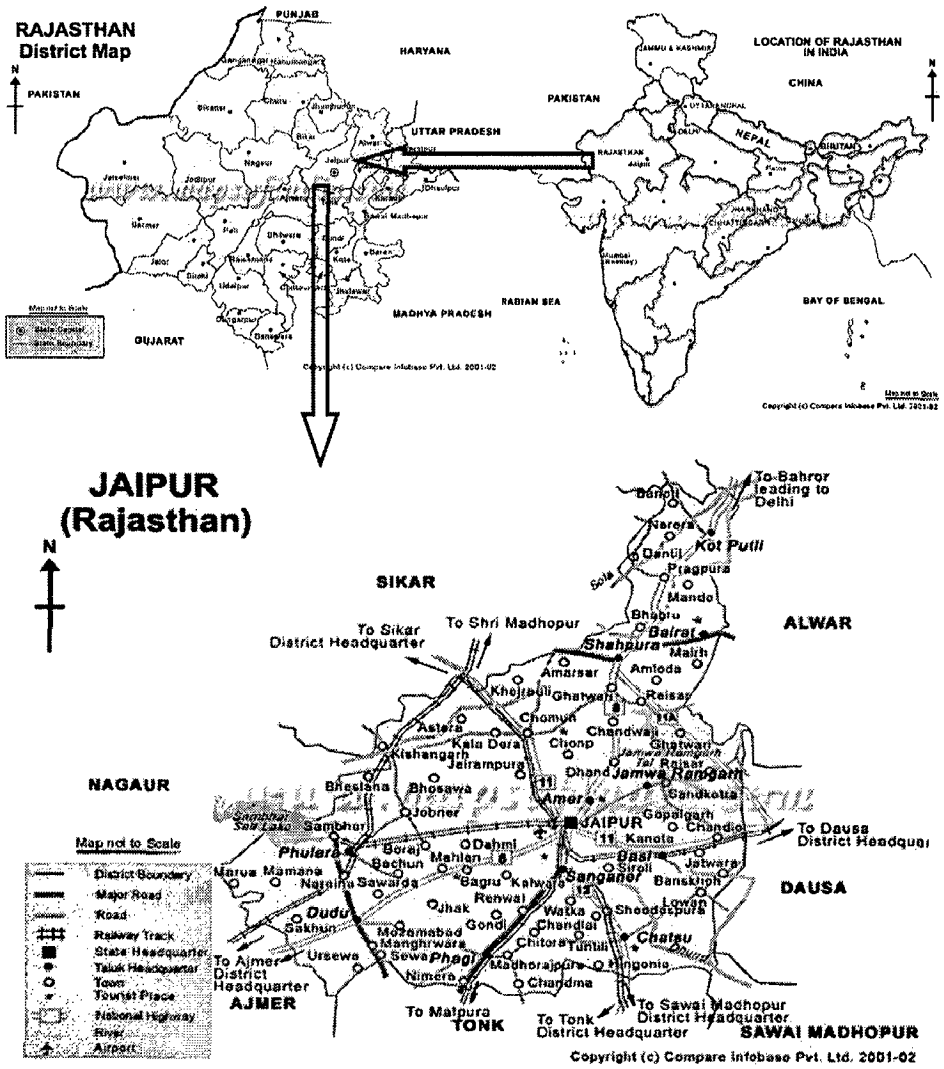
Jaipur was planned by Vidhyadhar Bhattacharya, a Bengali architect, in a grid system with wide straight avenues, roads, streets and lanes and uniform rows of shops on either side of the main bazaars, all arranged in nine rectangular city sectors (chokris) in accordance with the principles of town planning set down in the 'Shilpa Shastra'- and epochal treatise on the Hindu architecture.

The city itself is an attractive creation worthy of universal admiration. There is a feast in store for tourists. Attractive monuments where one can breathe

the fragrance of history. Comfortable and luxurious hotels, once the proud of kings, parks, gardens, and excursions of nearby places of interest, make Jaipur a tourist's paradise.

4.2 LOCATION

Jaipur city is located at 26 degrees and 54 minutes North latitude and 75 degrees and 49 minutes east longitude (Map 4.1). The district is situated in the eastern part of Rajasthan. It is bound in the north by Sikar and Alwar, in South by Tonk, Ajmer and Sawai Madhopur., Nagaur, Sikar and Ajmer in the west and in east by Bharatpur and Dausa districts.



Map 4.1: Location of Jaipur City

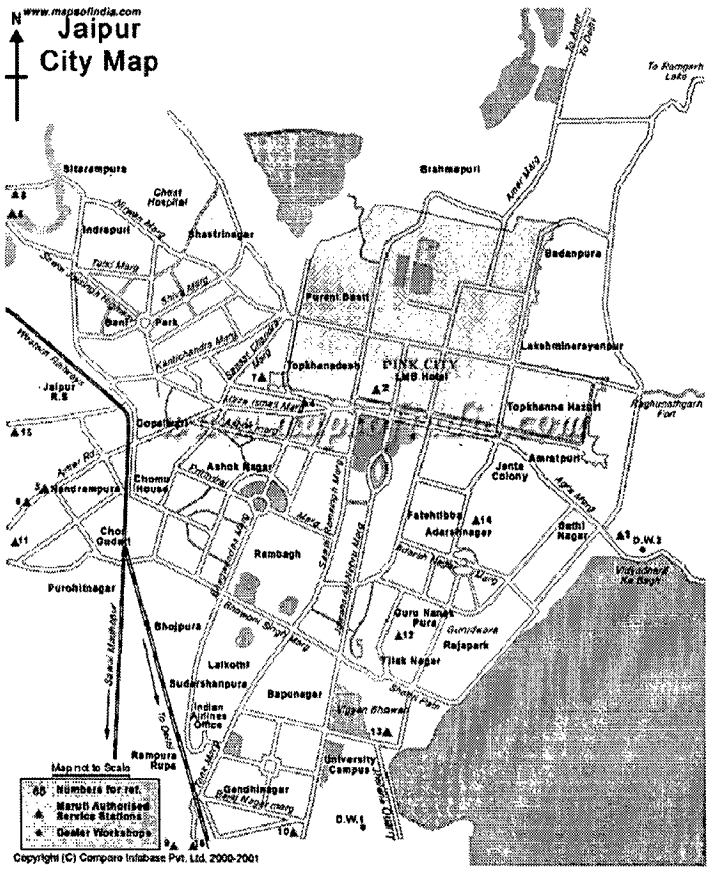
4.3 REGION

Jaipur Region comprising of area includes Jaipur city, Amer, Sanganer, and towns and settlements of Bassi, Chandlai, Sheodaspura, Bagru, Chomu, Achrol, Jamwa Ramgarh and Contiguous areas (Map 4.1 Jaipur).

The area of Jaipur Region may work out to be approximately 1464 Sq. Km & it's 4.11 % of the state.

4.4 LINKAGES

Jaipur is well linked by roads, railways and airways to the rest of the country. The city lies on Delhi- Ahmedabad rail route of Western Railways. The N.H. 8 and N.H. 11 intersect at Jaipur and NH 12 leading to Jabalpur starts from Jaipur. Jaipur lies at a distance of about 260 Kms from Delhi, 135 Kms from Ajmer, 225 Kms from Agra, 245 Kms from Kota. The city is well connected by Air with its airport at Sanganer located towards south of the city (Map 4.2).



Map 4.2: Map of Jaipur City.

4.5 HISTORICAL PROFILE

Jaipur, like all cities, has passed through different phases of growth, stagnation, decay and rapid development. Before Jaipur was built, Amber town was the capital of a small state by the same name consisting of three parganas-Amber, Dausa & Baswa. Its rulers belonged to the Kachwaha clan of Rajputs.

Foundation of the city of Jaipur was laid by Sawai Jai Singh II in November, 1727 as a new capital of the Amber State. Most of physical development of this new capital took place before 1800 A.D. Jai Singh's successors continued to add to the glory of the city by constructing various temples, palaces and other important buildings.

The beginning of Sawai Mansingh II's reign was the beginning of the modernization of Jaipur city. After Sir Mirza Ismail took over as Dewan of Jaipur in 1942 major land development schemes outside the walled city were taken up.

Bagru, Chomu, Neendar, Sewar and Achrol were the prominent seats of Jamindars in the feudal system, then functioning under Jaipur State and thereby had their own autonomous functions for land and revenue management under their control.

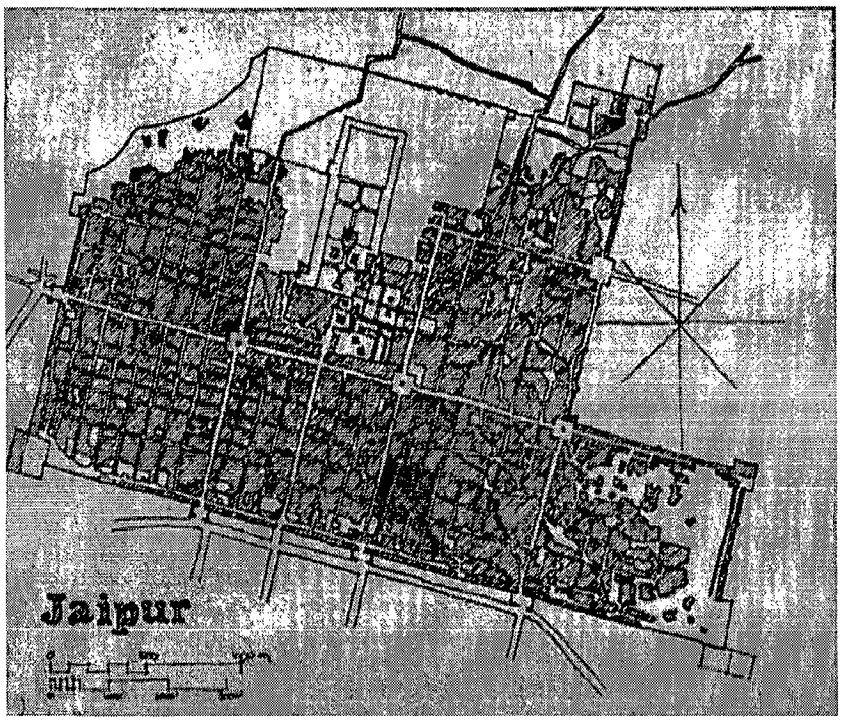
Jaipur State continued as a separate entity for some time after independence of India in 1947. It became a part of the present Rajasthan State on 30th March, 1949.

Map 4.3: Original Map of walled city, Jaipur designed by the Architect Vidyadhar Bhattacharya in 1727(City Place Map Library, Jaipur)

4.6 PLANNING OF THE CITY

Jaipur is the first planned city of the medieval period. It's plan prepared by the Chief Architect Vidyadhar Bhattacharya (Map 4.3).

Jaipur city is a geometrically square shaped city. The square of the walled city on a side of 1.61 mile is divided into nine equal works by two intersecting lines from each side at right angle, and at equal distances. Its approximate area is 7.77 Sq. km.



Map 4.4: Walled City, Jaipur

The grid-iron patterns of streets of Jaipur were carefully classified according to the width and usage. The main streets are 110 feet wide, while the smaller streets. Lanes and by lands are of proportionate 55 feet, 27.5 feet, 13.75 feet respectively. The crossings of the main market are called Chaupars. Like street width, the shops on both sides are also standardized in widths and design. There are about 160 shops between the Chaupars on each side of the main street and their widths and heights have been collectively worked out.

The roads are built on the highest level in an area to avoid their flooding during the

rains, so the first major road running east-west along the southern wall of the Chandra mahal (city palace) was kept on the crest line of the dunal plane. This ridge road running through the Chaupars. Since the crest line is not exactly east-west but slightly tilled from south-east to rorth-west at an angle of 11.75 degrees (Map 4.4). Hence the square of the city automatically tilted by the same angle and it is not horizontal on the plan.

Thus from the above description it is evident that the walled city has not developed at any one time, but expanded from time to time by the rulers of Jaipur state and finally by the Government of Rajasthan.

4.7 DEMOGRAPHIC PROFILE

Total Population of Jaipur district is 52.52 lac & Total urban population of the Jaipur City is 24.89 lacs (Table 4.2). The sex ratio for Jaipur is 868 females for every 1000 males. The density of population for Jaipur has been recorded as 6956 persons per sq. km.

Table 4.1: Population of Jaipur City

Year	Walled City	Municipality
1729	60 000	-
1870	116563	137 887
1931	144 179	148 755
1961	256 274	403 444
1971	355 532	615 258
1981	365 328	966 677
1991	395 945	1458 483
2001	350 183	2324 319

Source: Census of India, 2001

Table 4.2: Demographic Data of Jaipur

Population of Jaipur District	persons	52,52,388
Density of population	persons per sq. kms.	471
Population of Jaipur City	persons	23,24,319
Density of population(Urban)	persons per sq. kms.	6956
Density of population(Walled city)	persons per sq. kms.	57916
Literacy	per cent	70.63
Total working population	per cent	29.17

Percentage distribution of work force		
Cultivators	per cent	40.05
Agricultural laborers	per cent	5.66
Household industry manufacturing, processing servicing and repairs	per cent	14.71

District	Population 2001			Decadal growth rate		Sex ratio		Density	
	Persons	Males	Females	1981-91	1991-01	1991	2001	1991	2001
Jaipur	5,252,388	2,769,096	2,483,292	49.11	35.10	892	897	349	471

Source: Census of India, 2001

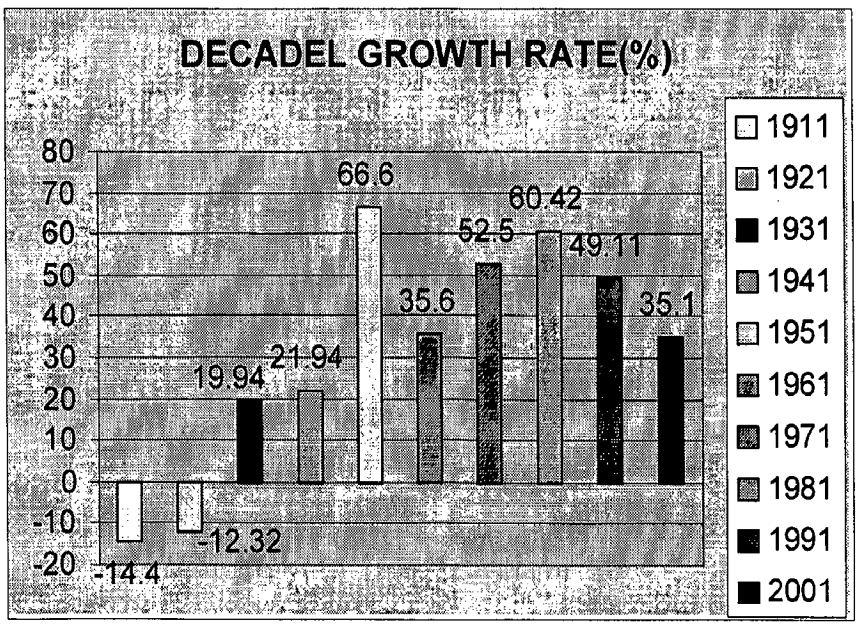


Fig. 4.1 Decadal Growth Rate of Population, Jaipur

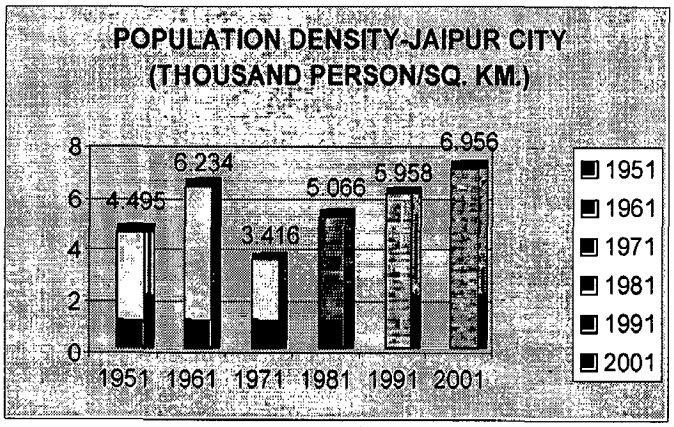


Fig. 4.2 Population Density, Jaipur City

4.8 PHYSICAL PROFILE

A major part of Jaipur Region is covered with thick mantle of soil, wind-blown sand and alluvium. The eastern and the northern parts are formed of hill-ranges.

Three major hill ranges belonging to Aravalli system exist in Jaipur (Map 4.5). These are known by different names such as (1) Torawati hills, situated west of Sabi and Banganga rivers (2) Range starting from Sambher Lake, and crossing over to Singhana in Jhunjhunu district (3) Puranaghat, Nahargarh, Jhalana and Amagarh hills.

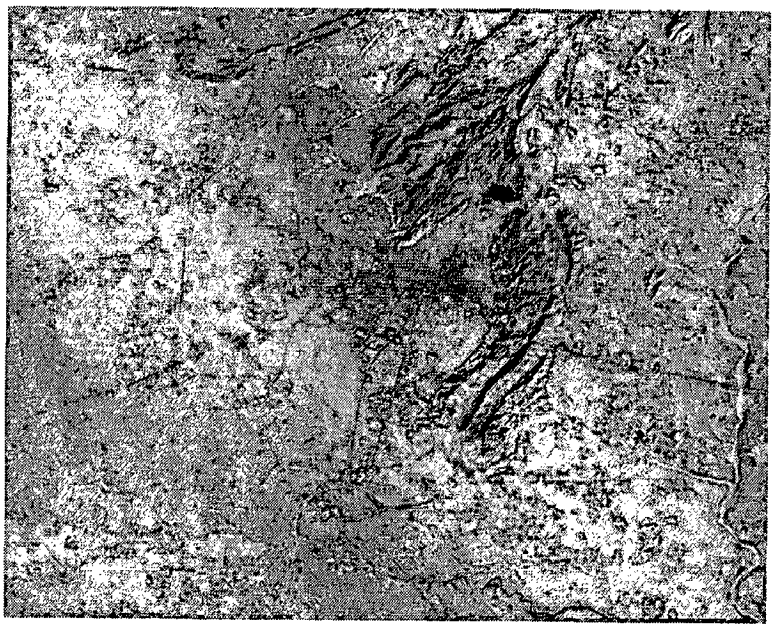


Fig 4.3 Satellite Image of Jaipur city

The Region is drained by a number of seasonal rivers, of which Banganga, Dhundh and Bandi are prominent. Banganga has been impounded near Jamwa Ramgarh by Ramgarh dam. A study of Regional slopes indicate that Amani Shah Nala towards the west and the south of the city area forms a major drainage system which flows to meet Dhundh river towards the south-east of Jaipur city. The Region towards the north-west has various local nala slopes which join together to form Bandi river situated further down towards the south west of the city. The northern area converges through local nala slopes to form Banganga River which flows towards the east. Bandi river has two major reservoir basins known as Kalakh Sagar towards the west of Jaipur Region and Hingoniya Sagar towards the south-west.

The land area of the Region as per use are:

1. Agricultural Land	88529 Ha.
2. Waste Lands	21770 Ha.
3. Forest	14052 Ha.
4. Others	22049 Ha.
Total	146400 Ha.

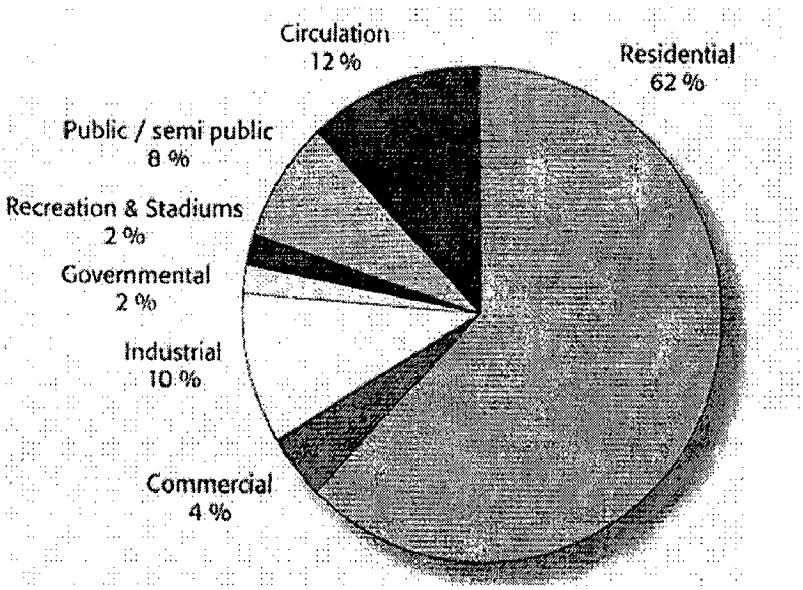


Fig. 4.4 Existing Landuse of Jaipur City

4.9 CLIMATE PROFILE

Table 4.3: Climatic Data of Jaipur City.

Climate	Mean Max.	Mean Min.
Summer	45.0 degree C	25.8 degree C
Winter	22.0 degree C	8.3 degree C
Altitude	431 meters	

Jaipur Region falls under the semi arid Region of climatic zones. The average annual rainfall is 62 cm and predominant wind direction is from North West and West.

4.10 ENVIRONMENTAL PROFILE

Jaipur Region has experienced an emergence of environmental crisis in terms of depletion of water, forests, soil erosion, flora and fauna and climatologically changes.

The whole area towards the east has experienced substantial deforestation. This has further deteriorated due to mining operations for building stones. At regional level the upper Banganga valley is slowly turning into a deforested patch. Devastation of tree and soil cover has turned hilly areas to rocky exposures. Silting of Ramgarh dam and the upper river channels of Banganga has been the result of wide spread deforestation in the upper river basin. The waste land areas are continuously increasing and degrading the environment.

Salination process is generating saline wastelands at the district level in general. These areas are mostly concentrated around Sambher Salt Lake and along river channels in the western, southern and eastern parts of the district. Saliniation is prominent in the area towards the west and the south-west of Jaipur Region. Few chunks of waste. lands with or without scrub can be seen in the areas towards west of Achrol and also towards east of Jaipur.

Jaipur district has also recorded increase in sandy wasteland due to strong dust storms and drifting of sand from the gap in areas located on the western boundary of the district on Aravalli hill range. A large concentration of sand features can be observed across the gaps in the district stretching right up to Jhalana- Dungri area of Jaipur.

Wide spread deforestation, mainly on hilly areas, has resulted in increase in the rate of soil erosion due to combined impact of wind and water erosion. Higher rate of soil erosion has accelerated the process of silting in the river channels and water reservoirs. It has further disturbed the natural habitat of wild life and other biotic processes in the area.

The resultant impact of the deforestation, erosion, siltation, salination processes has created environmental changes in the eco-system and their sub-systems. This is affecting the recharge of ground water, resulting in lowering of the water table every year. It has also affected the micro climate of the region in terms of temperature and humidity.

4.11 URBAN INFRASTRUCTURE

4.11.1 WATER SUPPLY

Water supply for Jaipur city as per the existing scenario is catered to by underground sources as well as surface sources. Ramgarh reservoir meets only about 30% of the total requirement and the rest is fed by the network of tube wells spread allover the city. In some of the cooperative societies and unauthorized colonies people have their own arrangements in the form of tube wells for water supply to the local needs. As there are no major dams or other surface sources in the nearby vicinity it is likely that dependence on ground water will continue inspite of low recharge.

The major rivers passing through the Jaipur district are Banas and Banganga. The ground water resources to the extent of about 28.65 million cubic meter are available in the district.

4.11.2 ELECTRICITY

The Region is well serviced with uniformly distributed network of electricity feeder and service lines for the present requirements. Connection with the National grid ensures the level of supply as per the priorities of supply at National level. Jaipur district is receiving the hydro-electric power, supplied by the Chambal Hydel System. Out of total 2,131 villages in the district, 2,131 were electrified as on March 2000.

The converging pattern of High Tension lines to Hirapura Grid Sub Station in Jaipur has engulfed a sizable chunk of urbanisable land under their electromagnetic fields.

4.11.3 COMMUNICATION

The Region has a fairly developed communication system. Bagru Town is connected to main Jaipur local system of telephones while other satellite towns have trunk dialing facility.

Table 4.4: Total No. of Communication system in Jaipur City

Particulars	(No.)
Post offices	599
Telegraph offices	143
Telecom centres	9
PCOs	859
Telephone exchanges	150

4.11.4 TRANSPORTATION

Besides the major linkages as enumerated under 'Linkages' the Region is serviced by a network of village roads giving access to the entire Region within an accessibility limit of approx 4 Kms from a black top rural road. The rural settlements otherwise are well linked with jeepable tracks.

4.11.4.1 ROAD TRANSPORT

Jaipur city is the capital of the state and is centrally located. The National Highway No.8 links Delhi to Ahmedabad and No.11, linking Bikaner to Agra passes through Jaipur district to a total length of 366 kms. The total length of different types of roads in the district was about 4,102 kms as of March 2000.

4.11.4.2 RAIL TRANSPORT

Jaipur district is connected with meter gauge rail route with Sri Ganganagar, Ajmer, Udaipur and Sirohi. Jaipur is also connected with major centres of neighbouring states such as Agra (Uttar Pradesh), Ahmedabad (Gujarat) and Delhi. Recently, Jaipur has got connected in broad gauge, enabling direct connections to cities like Sawai Madhopur, Kota, Jodhpur, Bikaner, Bombay, Howrah, Lucknow, Kanpur & Delhi.

4.11.4.3 AIR TRANSPORT

Jaipur is connected by air with Jodhpur, Udaipur, Aurangabad, Delhi, Bombay and outside the country with Paris, London & Dublin.

4.11.5 SEWERAGE & DRAINAGE

The sewerage disposal system in the Region varies from open disposal to sewer lines and sewerage treatment plant for a part of Jaipur. The satellite towns have no sewerage system and the method of disposal is through raw disposal in pits, septic tanks and soak pits, besides open disposal. Jaipur city has sewerage system limited to walled city, RHB colonies and some colonies.

Most of the areas resort to direct disposal to pits (Kul) many of which are even taken up to sub soil water level. Limited use of septic tanks and soak pits is also in use. The system of disposal is of an alarming magnitude in terms of pollution threat to ground water and increasing incidence of water born diseases. Waste water drainage is by way of open and covered drains left untreated. Storm water drainage again is through open nallahas some of which are lined. However, these are insufficient in terms of quick disposal of rain water.

In case of Jaipur, the sewerage system is available in walled city and housing colonies developed by Housing Board and some colonies only. Over 400 approved Housing Cooperative Colonies, about, 175 Kachi Basties, old colonies and several unauthorized colonies in the city do not have provisions of sewer line. Most of the colonies developed at the time of U.I.T. were not provided with sewerage system. Only about one third of the total population is catered by the existing sewerage system in the city and rest depends on septic tank or pit system. A very large percentage of population is still using open fields for defecation, especially kachi basti dwellers, who constitute about one third of the total population.

In the development of a city the disposal and treatment system of human excreta is a subject of major concern. An improper care in this aspect creates breeding grounds for mosquitoes resulting in various types of epidemic diseases.

4.11.6 SOLID WASTE MANAGEMENT SYSTEM

Solid waste Management of Municipal Corporation. Jaipur, is based on three tier System. The female sweepers sweep the garbage & sand etc. & accumulate it in small heaps. The city is divided into 2,800 parts for this stage of work. In each part, one female sweeper is engaged to sweep the road etc. and accumulate the garbage. The male sweeper cleans the drains and accumulates the garbage in small heaps. For drain cleaning the city is divided into 1200 parts, known as beats.

After sweeping of roads by female sweepers and cleaning of drains by male sweepers the heaps are removed through hand carts by male sweepers. For this stage of work, the city is divided into 1500 beats 1 with prescribed place for collection depot.

From the 1500 collection depots, where the garbage is collected, the garbage is then lifted and transported to the dumping grounds.

At present Jaipur Municipal Corp. is dumping the entire solid waste of Jaipur City near Jagatpura andin Amanishah Nalha in Vidyadhar Nagar zone.

Since the moisture content in the waste of Jaipur City is quite high, the possibilities of Power generation are remote. NEERI in 1975 has reported that the moisture in the waste of Jaipur City varied between 40% to 45% and their study showed that such wastes having high moisture content waste are unsuitable for energy generation.

So far there has been no legislation setting standards for collection or disposal of solid wastes. Public health laws have sometimes been used against garbage dumps with problem of rodents or flies. Guidelines of Airport Authorities are also a determining factor in selection of solid waste disposal sites.

The major cost of solid waste disposal is in the collection and transportation of the wastes; by comparison the cost of disposal is a lesser factor. Good disposal methods that do not threaten public health or aesthetic sensibilities are unlikely to increase costs very significantly.

There is still a practice of reclaiming non-destructible components of garbage for recycling, in India and Jaipur being no exception. In fact, recoverable garbage contributes to employment and manufacture, mainly because of the intrinsic value of the junk. The residual organic matter is easily bio-degradable, provided it is collected and transported to treatment centres. Organic waste is amenable both to trenching and to mechanical composting. The least economic use of garbage is land filling, which is resorted to in increasing measure by most of the large cities. This practice will have its own limitations beyond a certain period. Innovative and research oriented solutions will have to be resorted to for a solution on continuous basis.

4.11.7 EDUCATIONAL FACILITIES

Table 4.5: Total No. of Educational Institute in Jaipur

Particulars	(Nos)
Universities	1
Colleges	45
Agricultural colleges	2
Engineering colleges	14
Polytechnical colleges	4
Medical colleges	2
Secondary & higher secondary schools	554
Higher primary schools	1,460
Primary schools	2,905
ITIs	6
Agricultural research centre	2

4.11.8 INDUSTRIAL PROFILE

- No. of large & medium scale running units: 48
- No. of small scale units: 19,544
- No. of industrial areas: 19

Bagru, Bassi, Bais Godam, Bindyaka, Dudu, Hirawala, Jetpura, Jhotwara, Kaladera, Kanakpura, Kartarpura, Malviya Nagar, Phulera, Renwal, Sanganeer, Shahpura, Sitapura, Sudarshanpur and Vishwakarma.

- Main Industrial Products

  Acetylene gas, ACSR conductors, ball bearings, bottling of LPG, ceramics, pottery, cold roll strips, common salt, corrugated boxes, deoiled cakes, durries, dyeing and printing, edible oil, electronic items, engraving on brass items, ferrous and non-ferrous castings, gems and Jewellery, general engineering and manufacturing, granite slabs and tiles, hand made paper, handicraft items, halogen auto bulbs, hawai chappals, household electrical appliances, HT steel strips, iodized salt, lamps, laminated springs for railways, marble statues, marble tiles & slabs, moulded plastic components for electronics, perfumes, pigment colors, plastic containers, P.P. multifilament yarn, PVC cables, PVC doors, PVC footwear, canvas shoes, nitro chloro benzene, oxygen gas, port land cement, readymade garments, re-roller products, steel furniture, steel ingots, stone grits, synthetic leather, synthetic suiting & shirtings, tablets and capsules, two way radio and line, washing so ap, wheat maida, suji, atta, woolen carpet, re fined vegetable oil and vanaspati ghee.

- Export items

  Brass and lacquer work, enamel work, gems and jewellery, granite tiles, handloom, marble statues, printed cloth and textiles, readymade garments and woollen carpets.

4.12 ADMINISTRATION SETUP

After the formation of new Dausa district, there are 13 tehsils and the same number of Panchayat Samities. The total number of towns are 14.

4.13 TOURISM PROFILE

Rajasthan State attracts nearly one third of the total foreign tourists visiting India. In Rajasthan, Jaipur has its own attraction and forms one apex of the Golden tourism triangle of Delhi, Agra and Jaipur. Besides this, Jaipur functions as a gateway to other tourist destinations of the State which also get a large volume of tourist traffic.

Jaipur has attracted tourists both foreign as well as Indian for its city planning, urban design, historical monuments, array of natural features supplemented by forests, Temples and Palace complexes.

The international image of Jaipur City can effectively be further developed and strengthened to provide a strong environment friendly economic base to the region through tourism.

4.14 URBAN SPRAWL AND SETTLEMENT PATTERN

In the Jaipur Region, the urban sprawl of Jaipur city has registered the fastest growth and most of the increase besides ribbon development has been along the highway corridors.

The satellite towns and rural settlements have not enlarged much in physical terms. The various transportation nodes in between Jaipur city and satellite towns indicate potential of emergence as important nodes for economic activities.

Sectoral investment at various locations in the region specially development of Industrial Areas by RIICO without providing the rest of the urban infrastructural facilities which are otherwise essential and incidental to principal activity have resulted in haphazard growth of these activities around the industrial estates developed by RIICO.

4.15 URBAN AREA

The population of urban agglomeration in 1981 was 10.151acs , 15.181acs in 1991 and 23.32 lacs in 2001 .

Participation ratio in Jaipur was 26.87% as against 20.9% in Rajasthan (urban). The total land envelope of 38,400 acres for population of 12.54 lacs. Out of this, the assigned developed area was 33,500 acres. This was expected to accommodate different urban activities.

The developed area in the city in 1991 was only 25,270 acres and it accommodated a population of 15.18 lacs. This is a clear indicator of growth of the city accommodating itself in lesser quantum of land and consequently the city has grown at a density higher.

As per data's Urban Land parcels under different uses per 1000 population reveals that the scenario of quality of urban spaces has not changed from the level which existed in 1971. In fact, it has deteriorated in certain spheres.

The entire urbanizable area was contained in the 8 Planning District, for detailed planning. Each of these districts was envisaged to be more or less self contained in the matter of employment, habitation and recreation. A Peripheral Control Belt was considered as 9th Planning District. Four out of eight districts encompassed more or less the existing urbanized area of 1971. 25,000 acres of area earmarked for development was placed in four districts.

The situation as it exists today is that these specified districts have no distinct identity. They have also not developed as self-contained communities.

4.16 ECONOMIC PROFILE

The economic profile predominantly is Trade and Commerce, Tourism and Tertiary sector for the urban area and Agriculture for the rural areas. These activities have grown in size and output, without indicating a noticeable change in participation ratio and percentage of workforce.

The result of liberalized economic policy and uniguage system of Indian Railways has not yet shown its impact in terms of increase in the pace of Industrial Development.

The only noticeable change relevant to spatial planning during the last decade has been the investments by the urbanites in agricultural lands in the rural areas and in the fringes of urban areas.

4.16.1 ECONOMIC GROWTH

4.16.1.1 INDUSTRIAL

The city of Jaipur has experienced a growth in industries, especially, in the two decades between 1961-81. During a span of five years from 1986-91, the number of small-scale industries has increased by, almost 50%. Presently there are about 5000 registered small-scale industries in Jaipur City alone. The employment under large & medium scale and small-scale industries is about 10,000 and 27,000 respectively thereby accounting for almost 9% of the total workforce. Household industries manufacturing goods on household basis such as stone cutting and polishing, 'lakh' work, gota, sculptures etc. have always played an important role not only in providing employment and growth of economy but also in maintaining the traditional art and culture of the city. Besides registered small scale units and household

industries. Large number of unregistered small scale units is in operation in Jaipur city employing almost two times the workforce engaged in registered units.

The walled city of Jaipur has an industrial workforce of 51,841 (46.42%) as against 54,323 (48.65%) in the city area outside the walled city. Sanganer and Amer have an industrial workforce of 5,508 (4.93%). The share of population in the walled city is just 32.67%. This indicates the high degree of concentration of small scale and household industries in the walled city of Jaipur.

It has also been observed that in household industries, the participation of female workers is 11.22% and in other industries it is just about 3.63% which highlights that most of the female workers are engaged in household industries.

4.16.1.2 WHOLE SALE TRADE

As per the 1991 census the services under the administration forms the basic sector of economy with about 31.8% of the total workers and other sectors such as trade and commerce, transport & communication, manufacturing, construction agriculture etc. together accounts for 68.2% of the total workforce out of which trade and commerce forms the highest share having workforce of 102,521

Total workforce in trade and commerce is 102,521 as against 70,000 proposed for 1991, which is 23.97% of the total workforce of 4,27,772 workers. This indicates that there has been increase in workforce in the sector which is due to growth of informal sector and small shops.

The percentage share of workforce in trade and commerce has been increasing in every decade. The total workforce in trade and commerce has been increasing from 19,349 (16.49%) in 1961, to 32,581 (19.70%) in 1971 and to 1,02,521 (23.98%) in 1991. The increasing growth rate also indicates a tendency of further increase of commercial activities in the city.

The proportion of female workforce is meager. Out of total workforce of 427722, 390819 (91.4%) are males and rest 36,903 (8.6%) are females.

On an average 3,500 new shops and commercial establishments are set up every year in Jaipur city alone and it is estimated that more than 75,000 people work in the existing 45,000 shops and commercial establishments in the city. The major portion of the workforce is employed in the walled city area which consists of important commercial work centres like Johari Bazar, Chaura Rasta, Kishanpole Bazar, Tripolia Bazar, Indira Bazar, Bapu Bazar, Sanjay Market etc.

Surveys reveal that there are approximately 2500 wholesale traders in Jaipur city. The wholesale traders of wood products and textiles are maximum in number i.e. 500 (9.0%) and 300 (5.33%) respectively. The food product traders are scattered throughout the city except for those dealing in food grains and fruits. The wholesale market dealing in textiles is located in Purohit Ji ka Katla inside the walled city.

Trade and commerce is being mainly conducted from inside the densely populated Walled city part of Jaipur. The goods are first transported into the walled city area, from where they are again distributed to various parts of the city which aggravates the traffic and transportation problems in the congested streets of the walled city. The emergence of informal sector activities in the adjoining areas of the wholesale, markets along the road corridors have further aggravated transportation problems.

The total employment in wholesale trade is about 12,000 which are 11.7% of total work force of trade and commerce (102521). It indicates an average of 4.5 workers per wholesale trade unit. Maximum workforce (25.6%) is engaged in wholesale trade of food products. The building material trade is having the highest number of workforce per unit (6.71 workers / unit).

74% of wholesale traders are located in market areas or shopping complexes and 19% are located in residential areas indicating that several residential buildings are either fully or partially being used for running wholesale trades.

The analysis of surveys has also revealed that 53.5% of wholesale traders are willing to expand their business and need additional space of different sizes.

4.16.2 INFORMAL SECTOR

The informal sector activities have attained the status of being a part and parcel of all the sectors of economy including Trade and Commerce, Industry, Agriculture, Construction and Transportation.

The informal sector absorbs nearly 36% of the total migrant population of about 27%. This clearly indicates that the share of migrant population in informal sector is substantially large. Nearly 94% of the persons engaged in the informal sector have migrated to Jaipur for employment. The general economic profile of informal sector workforce is very poor. Nearly three-fourth of the workers is living in accommodation having one or two rooms only. Nearly 63% of the activities in this sector have come up in the last ten years only, which is indicative of this sector as a fast emerging and enlarging economic activity.

Nearly 80% of the activities in this sector are being conducted along the roads. The urban space occupied by these activities is mainly on the lands meant for traffic and transportation purposes. This is generating undue stress on the network, creating problems of pedestrian movement and is a serious traffic hazard. Nearly 47% of these people walk to their place of work, about 20% use cycles and rest use public modes of transport. This is indicative of a very low percentage of dependency of informal sector workforce on the transportation system.

The location of emergence and consolidation of informal activities has a strong inter relationship with the location of wholesale markets, places of recreation and tourist interest work places, educational institutions and traffic nodes.

It has been estimated that the total work force in Jaipur city in the informal sector is about 1.45 lakh which is approximately 33.96% of the total workforce of Jaipur city.

This indicates that informal sector is sector which warrants immediate attention to be recognized as a major participant in economic activity.

The informal sector is playing a vital role in generating employment accelerating economic activity, augmenting distribution system, creating scope for transportation system and providing service sector in the city. The growth of informal sector in the context of urbanization in Jaipur city is dynamic and demands priority action, review and redress.

CHAPTER 5 HOUSING SCENARIO

5.1 DEVELOPMENT OF HOUSING SETTLEMENTS

The city of Jaipur has been planned according to the conventional nine-grid pattern that astrologers believe to be lucky, and had been recommended in the ancient Indian treatise on planning and architecture. Each grid consists of a square and these have been so planned that the seat of governance, the Royal Palace, is at the center of the city. Spread around it, in tiers, were public buildings, the residences of the elite of the city, such as the decision-makers, businessmen and the trading quarters of merchants and artisans. Even the drawings for private residences and trading establishments had to be submitted for approval to the royal architect Vidyadhar Bhattacharya, who planned Jaipur.

This centralized system of planning was to ensure similarity in the facades of the buildings and to contribute to the aesthetics of the city. Over time, the city has outgrown from the original nine grids, and has now spread out in all directions. Rapid growth of population, acceleration in concentration of economic activities fuelled by migration, has challenged the organized system of planning and city development of yesteryears.

5.2 HOUSING DELIVERY MECHANISM

The housing situation in Jaipur presents a scenario of paradoxes. The wall city area is the most densely populated. It covers 5% of the urbanized area but has 20% of the total population. This historic core is also the central business district. The front set back of the residential houses has been converted into commercial units. The adjoining areas of the wall city, New colony, C-scheme, Banipark and their abutting

areas have also changed from residential to commercial land use. The mix use and high density increases the pressure on provision of basic services.

The formal housing delivery system in the city includes public agencies, private sector and cooperatives. They are not able to provide affordable shelter to the citizens and together account for a small proportion of the housing stock (15.0%). Lack of developed land remains the most important constraint in promotion of housing activity. The operations of the Jaipur Development Authority (JDA) and Rajasthan Housing Board (RHB) in providing developed sites and built-up units account for 12.8 % of the total sample housing stock in Jaipur. Interventions of the private developers, cooperative housing societies and employers housing is also limited and accounts for 2.2% of the sample households survey done by Society of Development Studies and Development Research Group, World Bank 2002.

The unauthorized revenue sites provide the most affordable housing solution to the large segment of the society. This informal delivery mechanism meets the shortfall in formal housing system and is prevalent across the country. It accounts for 58.6% of the sample housing stock in Jaipur (Table 5.1). Revenue sites are sub-divided agriculture lands, converted to residential use without approval from the planning authority. The real estate agents purchase agricultural land for developing unauthorized group housing schemes and form the buyers into housing cooperative societies, which are mainly unregistered. The layouts are prepared without adhering to planning norms and standards, and the buyers are given possession of unserviced plots for house construction. The habitat services, mainly water and liquid waste disposal, are developed individually by the house owners by accessing ground water and constructing septic tanks.

There is ambivalence regarding regularization of these settlements and extension of services to them. Though JDA is regularizing these revenue sites on collection of development charges, recovery of the cost has been low. This imposes the financial

burden on the local bodies. Further conversion of land use deviates from master plan proposals, and has increased the proportion of land under residential use. By 2001, nearly 500 colonies have been regularized, which generated revenue of Rs. 280 million.

Table 5.1: Components of Housing Stock

(Percent Distribution)

Housing Category	Jaipur City	Jaipur District
1. Non-notified Squatter Settlement	4.2	2.7
2. Notified Squatter Settlement	2.2	1.4
3. Resettlement	1.2	0.8
4. Revenue Site/Unauthorized Colony	58.6	55.7
5.JDA/RHB/EWSplots	3.5	2.2
6. JDA/RHB/EWS flats	9.3	5.6
7. Cooperative Housing	0.3	0.1
8. Employer Housing (govt. or Private)	1.6	2.1
9. Private Builders / Colonies	0.3	0.3
10. Urban Improvement Trust	18.8	29.2

Source : Jaipur Urban Household Survey, 2002

This parallel development of formal and informal housing settlements, with the large part in the latter category, has created a multiple city phenomenon in Jaipur. The result is distinct settlements of the poor and the non-poor, a classic testimony to the process of urbanization.

A substantial part of the housing demand is met by shelter units in squatter settlements. In 1998, Jaipur had 216 squatter settlements out of which 126 were regularized settlements. In addition to the regularization of squatter settlements, households squatting in high-risk zones and on lands required for public projects have been resettled. However, it is felt, that these efforts for improving the quality of life in selected settlements may inadvertently fuel the proliferation of new squatter

settlements. The slum management strategies have to be on a city wide and coordinated basis rather than being spatially sporadic efforts. The slum population, including the squatters, is estimated at 15.0% of the city population.

The existing rate of supply of new houses, through the formal housing delivery system, is around 4,000 houses per annum, which is not in tune with the demand. A natural consequence is the rapid proliferation of sub standard housing. Though 62.8% of the total developed area is under residential use, in net terms this is far less due to the mixed use of residential property. As much as 14.6% of the households have dual use of their residential units.

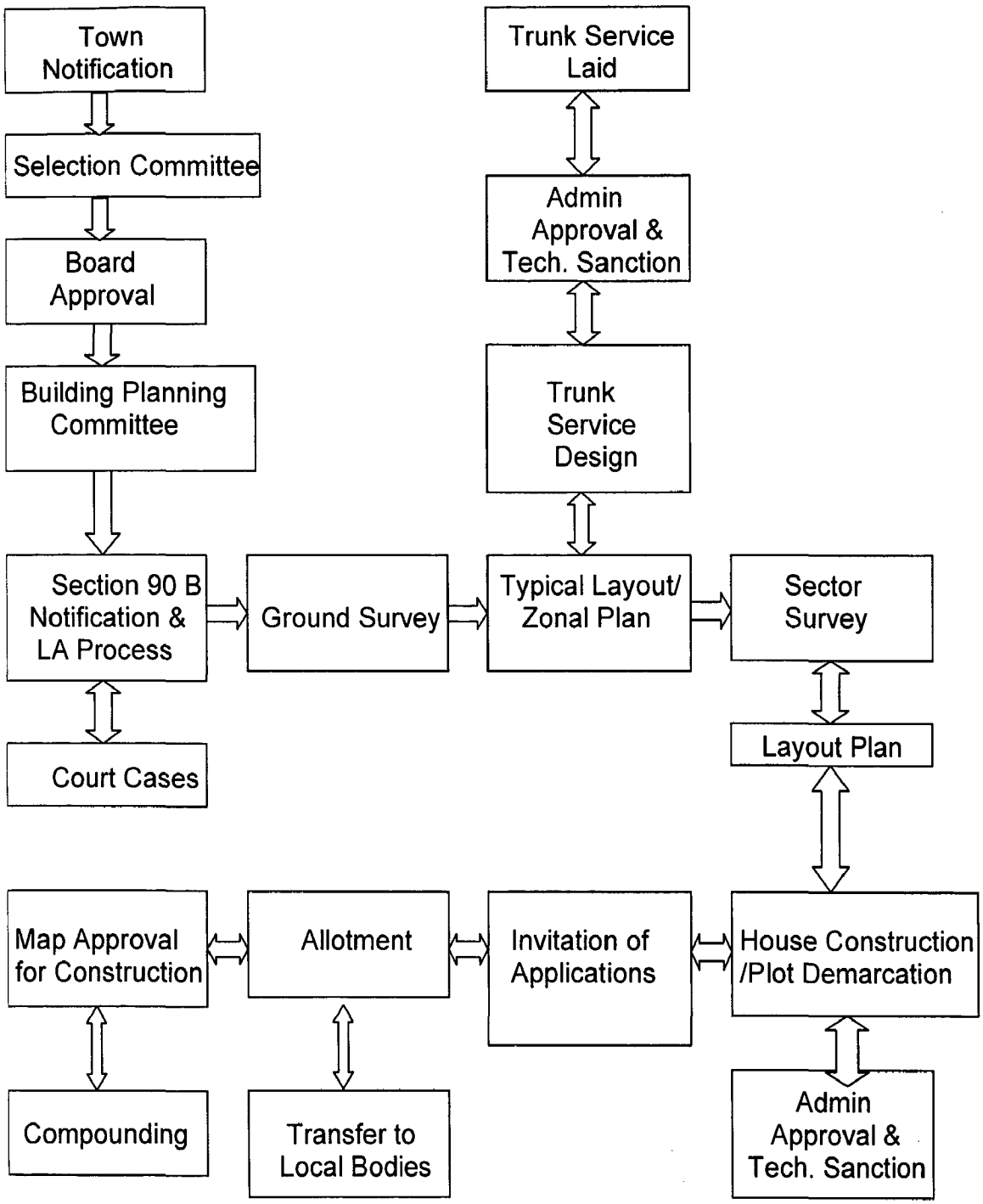


Fig. 5.1 The process adopted by the Government Authorities while setting up a new residential area

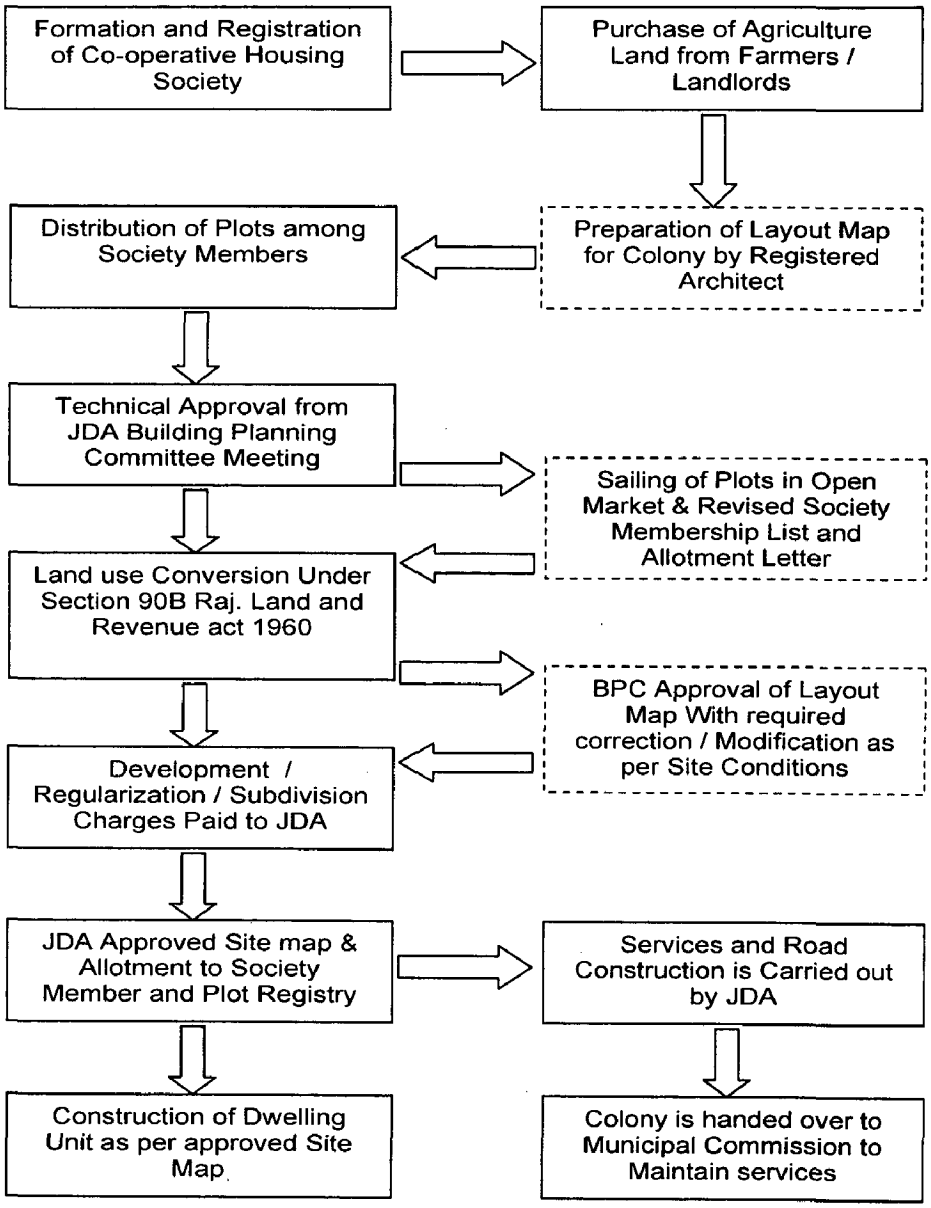


Fig. 5.2 The Process Adopted by Co-operative Housing Societies

Lack of availability of developed land is the prime factor for slow pace of housing activity. The JDA has not been able to undertake large-scale land acquisition due to inhibiting provisions of the agricultural land conversion rules of the State Revenue Department. Also, approval of proposed housing schemes of cooperative societies has been hindered by legal and administrative procedures. The inadequate supply of formal housing has encouraged unauthorized housing activity on a large scale. Considering the fact that 10% of land in urban areas has been estimated to be lying vacant, appropriate land assembly techniques such as land pooling, land

readjustment may be considered, apart from tax on vacant land to make land available for urban housing.

There is a need to conceive measures of Planning Strategies for new housing development for the Jaipur City.

5.3 HOUSING QUALITY

There is no regional disparity between the metro city and other secondary towns in the vicinity in terms of housing quality. The quality of dwelling units was assessed on two parameters, exterior and the interior condition and then ranked in three categories: good, passable or dilapidated. Unlike in major cities, the condition of housing is reasonably good in Jaipur. Nearly two-thirds of the dwelling units have good exterior and interior (61.9 and 61.2, respectively, in Jaipur). There is a close relationship between security of tenure and quality of housing. In Jaipur, 93.0 % of the households have some kind of title to the land, since there is no fear of eviction households tends to improve their housing units.

Table 5.2 Exterior Housing Quality

(Percent Distribution)

Housing Category	Jaipur City		
	Good	Passable	Dilapidated
1. Non-notified Squatter Settlement	15.6	70.3	14.1
2. Notified Squatter Settlement	30.3	57.6	12.1
3. Resettlement	55.6	33.3	11.1
4. Revenue Site/ Unauthorised colony	67.0	29.4	3.6
5. JDA/RHB/EWS plots	88.7	9.4	1.9
6. JDA/RHB/EWS Flats	82.3	17.7	-
7. Cooperative Housing	100.0	-	-
8. Employer Housing (govt.or private)	68.0	32.0	-
9. Private Builder / Colonies	60.0	40.0	-
10.Urban Improvement Trust Board	44.4	49.7	5.9
All Categories	61.9	33.9	4.3

Source: Jaipur Urban Household Survey, 2002

Table 5.3 Interior Housing Quality

(Percent Distribution)

Housing Category	Good	Passable	Dilapidated
1. Non-notified Squatter Settlement	17.2	68.8	14.1
2. Notified Squatter Settlement	33.3	54.5	12.1
3. Resettlement	55.6	38.9	5.6
4. Revenue Site/ Unauthorised colony	65.3	31.3	3.4
5. JDA/RHB/EWS plots	88.7	9.4	1.9
6. JDA/RHB/EWS Flats	81.6	18.4	-
7. Cooperative Housing	100	-	-
8. Employer Housing (govt.or private)	68.0	32	-
9. Private Builder / Colonies	80.0	20	-
10.Urban Improvement Trust Board	45.5	50.7	3.8
All Categories	61.2	35.1	3.7

Source: Jaipur Urban Household Survey, 2002

There is substantial degree of variation in the quality of housing stock. The proportion of dilapidated house is higher in poorer settlements. The housing developed by the JDA/RHB and cooperative housing societies and in possession of the better off sections of the population, is of the best quality. The construction cost has been rising and the units are beyond the affordability of the poor. The technologies available for cost-effective construction are yet to reach the needy.

5.3.1 TOILET FACILITIES

Nearly 80% of the households in Jaipur have access to individual toilets. A significant proportion of the households (13.2%) have no access to toilets facilities. This proportion is highest in the poorest quintile (33%). At the sub-city level in most of the peripheral wards, more than one-half of the sample populations have no access to toilets. With increasing population, the problem is going to become even more severe, unless sustained efforts are made. Access to regular flush type toilet increases with the welfare levels. It is only 9.5% in the lowest quintile as compared to 47.5% in the highest quintile. Scavenging has been successfully eradicated as only 0.2% of the sample households in Jaipur use service toilets (Table 5.4).

42.6% of the households discharge toilet waste into the underground sewerage or drainage. Many of the respondents were not able to distinguish between the two as the drainage lines are being put to dual use. Equal number of households discharge waste in septic tank. Septic tank effluent is generally disposed in the open drains, a system actually developed for storm water. This practice is extensively evident in the walled city area and to some extent in the peripheral colonies and has emerged as a major environmental concern that needs immediate attention. The discharge in open or covered drain is negligible (1.0%) (Table 5.5).

Table 5.4 Toilet Facilities

(Percent Distribution)

Type of Toilet Facility	Jaipur City
1. No toilet	13.2
2. Service toilet	0.2
3. Pit toilet	2.3
4. Water closet, pour flush	58.1
5. Water closet, flush	23.7
6. Toilet shared with neighbors	2.2
7.Community toilet	0.2

Source: Jaipur Urban Household Survey, 2002

The situation varies at the sub city level. The southern part of the city comprising mainly of the Sanganer administrative zone, has low coverage of sewerage system. The outfall sewers are non-existent and the entire main and trunk sewers discharge into open drain.

Table 5.5: Type of Toilet Waste Disposal

(Percent Distribution)

Toilet Waste Discharge	Jaipur City
1. Sewer system	42.6
2. Septic tank	40.3
3. Open drains in neighborhood.	2.8
4. Covered drains in neighborhood.	1.0
5. No toilet	13.2

Source: Jaipur Urban Household Survey, 2002

5.3.2 KITCHEN FACILITIES

More than three-fourth of the households (81.4%) have a separate kitchen, indicative of good living conditions (Table 5.6). The proportion of households using part of room as kitchen in the poorest households 28.3% in Jaipur.

Table 5.6: Kitchen Facilities
(Percent Distribution)

Type of Kitchen	Jaipur City
1. Within house, separate	81.4
2.Within house as part of other	13.6
3.Outside the house	4.9

Table 5.7: Type of Cooking Fuel Used
(Percent Distribution)

Fuel Used for Cooking	Jaipur City
1. Firewood	19.6
2. Cowdung Cake	3.6
3. Coal/ignite/charcoal	0.6
4. Kerosene	9.4
5. LPG	83.0
6. Others	1.3

Source: Jaipur Urban Household Survey, 2002

5.4 DEMAND ASSESSMENT

5.4.1 HOUSING PLANS

The analysis of the empirical evidences suggests that housing activity in Jaipur district in the near future is likely to decline. The households recognize the ground reality of their limited income and affordability, which restricts their capacity to improve their housing conditions. A very small proportion of households have future plans for housing (6.1% in Jaipur). The proportion of households who indicated this interest is highest in plotted development (revenue sites and

JDA/RHB plots). This evidence sheds light on another aspect of the realistic assessment of the people of Jaipur, that house extension is easier on plotted development as structural design limitations and stipulations under the building codes in not rigid.

In Jaipur city, 84.2% of the sample households who have a housing plan desire to add another room to overcome the constraint of inadequate living space. The delineation of spaces in the older houses, according to functions is non-existent. It is observed that 60% of the sample households who have housing plans want to add one function-specific room, and others want to add a kitchen to suit their present life style. Construction of a toilet, attached or close to the living areas are also contemplated by some of the households.

A very small proportion of the households want to shift to a new dwelling - 1.5% in Jaipur (Table 5.8), this proportion is highest in the squatter settlements followed by the flats provided by JDA/RHB.

Table 5.8 Future Housing Plans

(Percent Distribution)

Housing Categories		Upgrade Present House	Move to New Dwelling	None
1.	Non-notified Squatter Settlement	1.6	4.7	93.8
2.	Notified Squatter Settlement	-	3.0	97.0
3.	Resettlement	-	-	100.0
4.	Revenue Site/Unauthorised Colony	4.2	1.6	94.3
5.	JDA/ RHB/EWS plots	5.7	1.9	92.5
6.	JDA/ RHB/ EWS flats	2.1	3.5	94.3
7.	Cooperative Housing	-	-	100.0
8.	Employer Housing (govt. or Private)	-	-	100.0
9.	Private Builders / Colonies	-	-	100.0
10.	Urban Improvement Trust	4.5	2.8	92.7
Total Households		2.4	1.5	96.2

Source: Jaipur Urban Household Survey, 2002

5.4.2 ANALYSIS OF PREFERENCES

Housing agencies, both in the public and the private sector, still consider housing to be a largely supply driven process. Accordingly, housing projects are undertaken without a proper assessment of demand and affordability of different market segments. The high vacancy rate in the flats/apartments constructed in Jaipur is an indicator of the outcome of this approach. The preferences of the people shows that housing units designed in accordance with the preferences of the potential customers are likely to have higher level of acceptability, as compared to those with standard designs. The sample data from Jaipur Urban Household Survey, 2002 shows that the demand for apartment category is negligible. The mindset of the people in city is to view housing as real estate, with ownership of the land being critical, rather than only the dwelling structure. Therefore, free-standing house and attached house are the most preferred choices of the households those who want to move to new dwelling and these constitute 45.8% of the sample households in Jaipur

Table 5.9 Type of Unit Preferred

(Percent Distribution)

	Housing Categories	Free - Standing	Attached House	Flat/ Apartment
1.	Non-notified Squatter Settlement	100.0	-	-
2.	Notified Squatter Settlement	-	-	-
3.	Resettlement	-	-	-
4.	Revenue Site/ Unauthorised Colony	22.2	77.8	-
5.	JDA/ RHB/EWS plots	-	-	-
6.	JDA/ RHB/ EWS flats	80.0		20.0
7.	Cooperative Housing	-	-	-
8.	Employer Housing (govt. or Private)	50.0	50.0	-
9.	Private Builders / Colonies	-	-	-
10	Urban Improvement Trust	42.9	57.1	-
Total Households		45.8	50.0	4.2

Source: Jaipur Urban Household Survey, 2002

This fact is came out households from all the housing categories are having desire to possess at least a two rooms dwelling unit. The public housing agencies may need to reconsider construction of single room tenements for the lower income strata. The clear preference for bigger units is evident in the aspirations of households in all the income groups and the minimum number of rooms required ranges from two to five (Table 5.10). Most of the housing agencies have products in this size range; the issue is the reach out and matching the supply with the demand by locations and price.

The analysis of information on the preferred locations, as identified by the respondents, shows the determinants are economic linkages to workplace, culture and social ties, as well as proximity to school and habitat-related services.

Table 5.10 Preference for New Housing Unit

(Percent Distribution)

	Housing Categories	No of Rooms	Min Size	Max Size
1.	Non-notified Squatter Settlement	2	50	100
2.	Notified Squatter Settlement	-	-	-
3.	Resettlement	-	-	-
4.	Revenue Site/ Unauthorised Colony	4	625	928
5.	JDA/ RHB/EWS plots	-	-	-
6.	JDA/ RHB/ EWS flats	5	1256	1614
7.	Cooperative Housing	-	-	-
8.	Employer Housing (govt. or Private)	5	550	1025
9.	Private Builders / Colonies	-	-	-
10.	Urban Improvement Trust	5	657	1027
Total Households		5	736	1073

Source: Jaipur Urban Household Survey, 2002

5.4.3 HOUSE COST AND AFFORDABILITY

Cost of housing is a primary variable that determines the effective demand for housing. The sample survey (Jaipur Urban Household Survey, 2002) brings out also the self-assessed affordability level for buying a new house for various housing categories. This assessment was based on the saving efforts of the households and their capacity to repay home loan that may be mobilised. Empirical evidences from the survey indicate that households who have plans to buy or construct a new house, belong to the higher income catagory.

The new dwelling unit will be financed from two sources, their own sources and home loans from HFIs. The access to home-loan facility is limited to households able to fulfill all the prescribed formalities, including documented proof of incomes, a clear and a marketable title of land, cost estimation by an architect and approval of buildings plans by the concerned departments. People employed in the informal sector and belonging to the lower income quintile generally fails to meet them and is outside the HFI system. With their savings not being adequate, owning a house becomes a distant dream for these households.

There is a wide variation in the paying capacity for housing, the households in the squatter settlements and the higher income categories are willing to pay upto Rs.30,000 and Rs.3-8 lakhs, respectively for new dwelling unit. Payment capacity of the lower income groups is, thus, highly inadequate. In the case of the households in informal settlements, often a part of their income is given as protection money, against forced and sudden eviction from their illegal habitation; however, most slum dwellers own one or more comfort items, which are still considered a luxury for even the middle income population. To encourage these categories of households to invest their savings in housing, special schemes may be formulated to augment their savings and enable them to buy or construct houses.

This fact is revealed that households have aspiration for improved housing, but the primary constraint of the people in general, and the lower income segment in particular, is the access to credit. The onerous and tedious procedure of getting a loan for housing activity is a major impediment for the people in taking advantage of housing finance institutions. Besides this, HFIs insists on a clear and a marketable title of land, cost estimation by an architect and approval of buildings plans by the concerned departments. Obtaining clearances from a number of authorities for building or upgrading a house often takes months and also increases the total cost of the house. Due to these legal formalities, people are reluctant to take the benefit of institutional credit. HFIs should design flexible products and simplify the procedure in order to meet the needs of the people.

Table 5.11 Resource Mobilisation for present Housing Unit

(Percent Distribution)

Financing of Current Home	%
1. Own Source	72.8
2. Informal Borrowing (no interest)	14.6
3. Informal Loan/Money lender	7.0
4. Formal Loan (without collateral)	2.6
5.Home Loan(HDFC, HUDCO, etc.)	3.0

Source: Jaipur Urban Household Survey, 2002

The limited role of HFIs is also evident from the fact that in Jaipur city nearly three-fourth of the households had mobilized the resources for their present housing from own sources and borrowings from relatives or friends. A very small number of households, 3.0 % in Jaipur city had received loans from HFIs (Table 5.11). The gap between the need and eligibility is increasing. The HFIs may have to develop special home loan packages for this category, with appropriate repayment schedules and security options such as collective guarantee. These changes will have a catalytic effect.

To address the lacuna of inaccessible credit mechanism, the Tenth five year plan has stated that 'the credit activity by the state agencies and the housing cooperatives need to be revived. HUDCO and HFIs should be encouraged to finance self-help groups who have support of an NGO and who can be of assistance in loan recovery.

5.5 FIELD STUDY

In order to have an understanding of the existing conditions of the previously settled areas, five residential areas were selected for study and survey. This study was aimed at the underlying planning process and various factors that affect the success or failure of that particular area in terms of public response.

The residential settlements can be classified into two categories – one promoted by the government authorities and the other by private bodies / agencies. These newly developed residential areas should have a reflection of the changing demands. Although, the government bodies seem to be more concerned with the bylaws and regulations, but still the ultimate outcome lags in some way or the other. In contrast to this, the private developers, especially the societies purchasing large chunk of land (from farmers) and further retailing it in parts are generally less bothered by the planning controls. They are more oriented towards profit earning than provision of facilities and services.

5.5.1 IDENTIFICATION OF HOUSING SCHEMES

For the purpose of field study, five residential areas of Jaipur city were selected, out of which, three were promoted by the government and two by the private bodies / agencies. Among the government housing projects, schemes developed by Jaipur Development Authorities are far better than the housing scheme by Rajasthan Housing Board. The housing schemes developed by the societies are facing lack of

development, improper planning and massive inadequacy in terms of physical infrastructure.

- The areas selected are as follows:

S.No.	Name of Residential Scheme	Developer / Promoter
1.	RHB Sector 16 Sanganer	Rajasthan Housing Board, Jaipur
2.	Vaishali Nagar	Jaipur Development authority
3.	Vidhyadhar Nagar	Jaipur Development authority
4.	Shriram Nagar	Bhairav Grah Nirman Sahkari samiti
5.	Kumawat Colony	Khudabadi Sonar cooperative housing society

Household survey and Physical Observations are done for understanding the prevailing Housing conditions, Problems & Public Aspirations to get lesson from and to evolve Planning Strategies for new housing development for Jaipur City. Since the vast extent of the city poses a limitation as the attempt was timed , five residential areas of the city mentioned above, were selected to carryout survey work.

This selection was made on the basis of the following criteria:

1. Level of living conditions.
2. Nature of planning practice.
3. Relative rate of success or failure in terms of dweller's satisfaction.
4. Discussions with officials of various government departments and private bodies involved in mass residential development.

5.5.2 PHYSICAL OBSERVATIONS

5.5.2.1 RAJASTHAN HOUSING BOARD SECTOR 16 PRATAP NAGAR, SANGANER

Location:

Sanganer Township is located in South of Jaipur on Tonk Road. Nearly 13 Km. from Jaipur Main Railway Station and 3 Km. from Sanganer Airport.

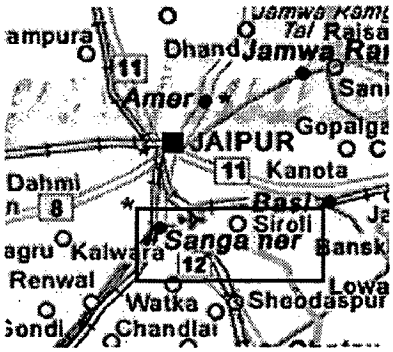


Fig 5.3 Location plan of RHB Sec. 16

Connectivity:

Sector- 16 is Well connected to Tonk Road With 45 M. wide road passing between Sector- 16 & Sector- 9 and another 60 M. wide road between sector- 16 and sector- 14 provides major transport access towards Tonk Road.

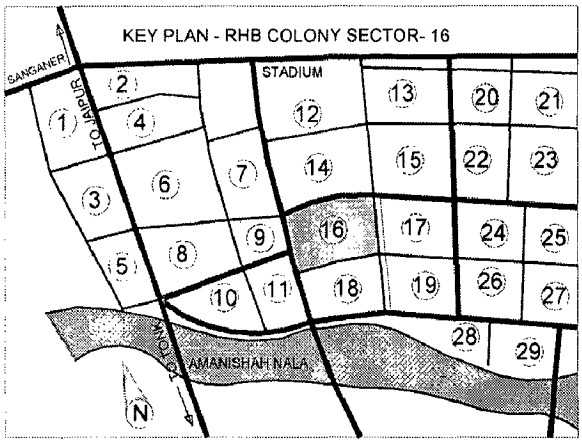


Fig 5.4 Key Plan for RBH sec. 16

Landuse:

Table 5.12 Landuse of RBH Sector 16

S.No.	Landuse	Area in Sq. M.	Percentage
1.	Residential	101800	46.70
2.	Parks	19800	9.09
3.	Educational	4700	2.16
4.	Commercial	6000	2.75
5.	O. C. F.	10500	4.82
6.	Dispensary	2600	1.19
7.	Reserved	4000	1.83
8.	Roads	68000	31.46
Total		218000	100

Table 5.13 Detais of built houses of RBH Sector 16

S.no.	Type	Design	No. of units (total 1310)	Cost per unit (in lakh)	Area per unit
1	EWS	RHB / HQ / 96 / 27	350	1.25 – 1.41	4.0 X 9.0 M^2
2	LIG	RHB / HQ / 96 / 17	516	1.86 – 2.27	5.0 X 12.0 M^2
3	MIG- A	RHB / HQ / 96 / 19	192	3.15 – 5.92	6.0 X 15.0 M^2
4	MIG- B	RHB / HQ / 96 / 21	182	3.66 – 7.62	8.0 X 15.0 M^2
5	HIG	RHB / HQ / 96 / 15	70	7.50 – 12.47	10.5 X 18 M^2

Layout

Important Features from layout are:

- The whole Sector is planned in Clusters. Five Clusters are designed around small parks with the mixture of all income groups.
- District Center along with Commercial and Institutional area is also provided adjoining to the scheme as per Jaipur Master Plan.
- Two 18 M wide Roads are crossing through Sector 16 and two 18 M wide Roads are passing between District Center and Housing and Commercial / Institutional Area and Housing.
- Internal roads are of 9.0 M wide.
- Public Amenities like Primary School, Dispensary, Local Shopping, PHED office (for water supply) and RSCB (for electricity) is provided in heart of the colony.
- 46.7 % of total area is used for housing.

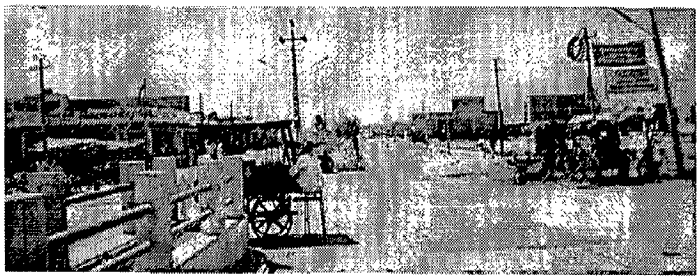
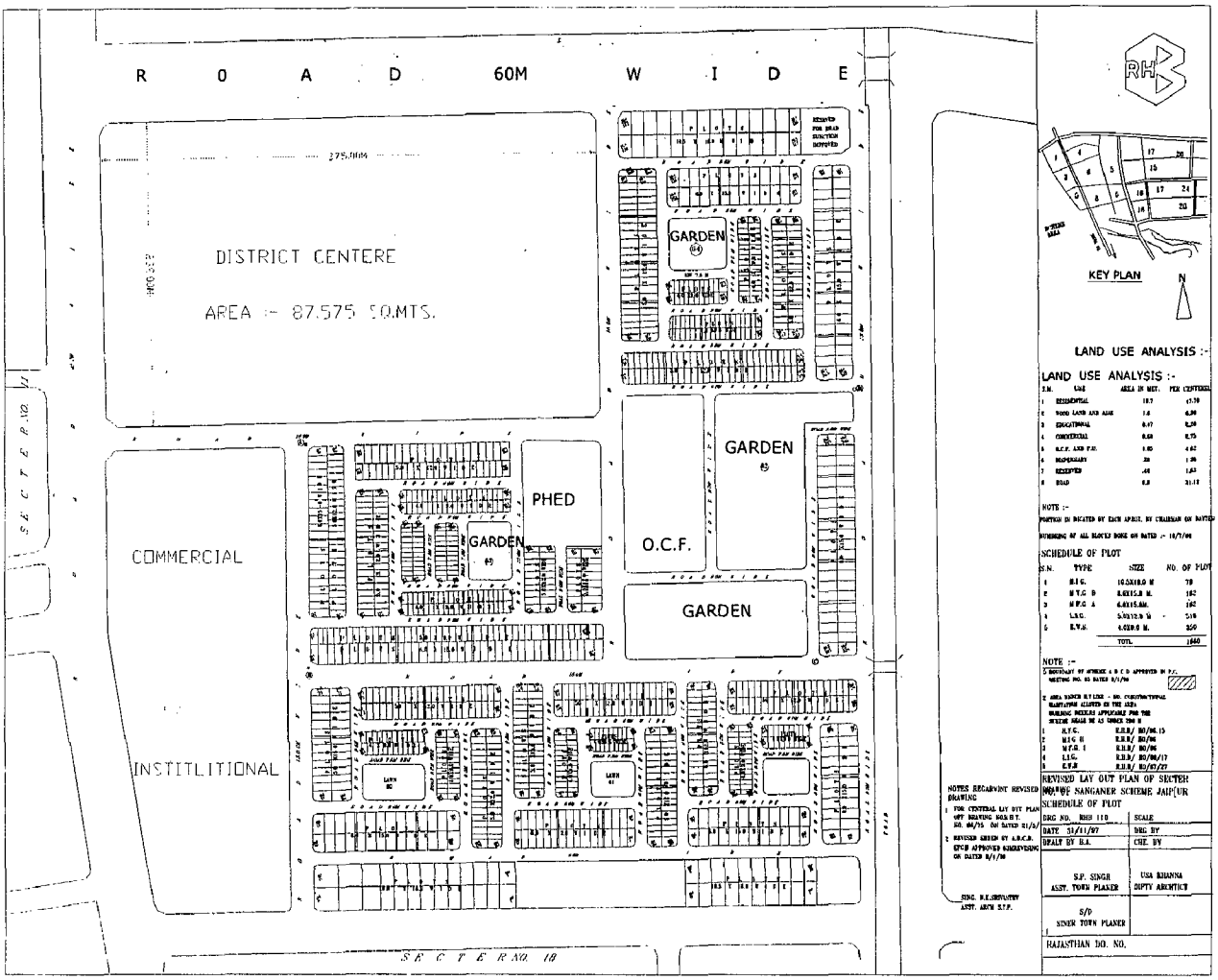


Fig 5.5.a 60 m. wide road betweem sector-16 & sector-9



Map 5.1 Layout map of RBH Scheme Sector 16 Sanganere

Fig 5.5.b 18 m wide road passing through sector- 16. Commercial / Educational area in left and HIG flats on right

Fig 5.5.c Park provided in the scheme.

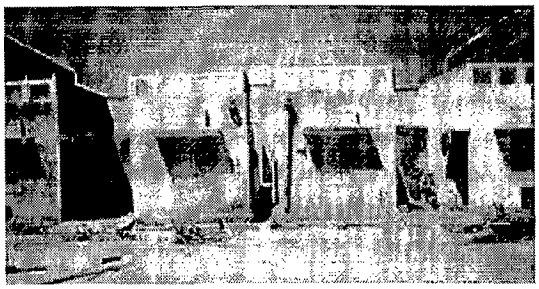


Fig 5.5.d View showing the EWS row housing, Space left between both the plot is divided half to each, is of no use until they extend their rooms.

Fig 5.5.e View shows sharing of services, cement jali & chajja in traditional Jaipur style & pink colour is used for aesthetics.

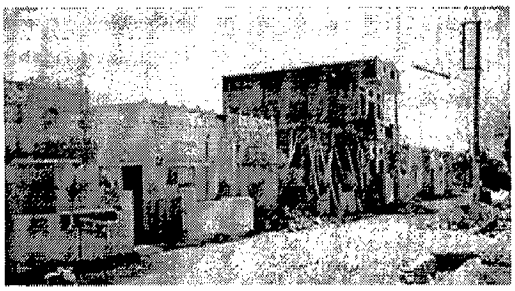


Fig 5.5f Changing character of housing with alteration in structure / landuse.

Fig 5.5g View shows the abandoned houses without compound wall causing intruders to enter.

Fig 5.5.h Lack of parking space resulted into encroachment (in circle); house is also painted in white to avoid monotony.

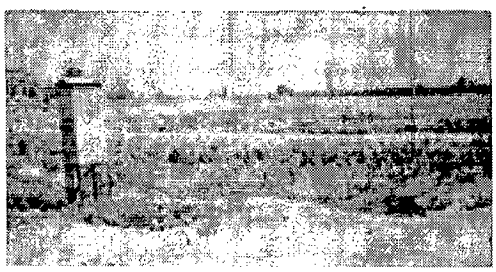


Fig 5.5. I & j Vacant Plot of City Center & Local Shopping Center causing Lack of Commercial Facilities

Fig 5.5. k & l Unauthorised commercial development on residential plots on 18 meter wide road.

Observations

1. Provision for local shopping and large commercial area as per Jaipur Master Plan is made but no construction is done so far; resulted into inadequacy of local shopping, hence shops are constructed in various residential plots.

2. 18 M. wide road passing through Sector- 16 is also having its high potential to be convert as commercial landuse so people done it by converting their residences into shops.

3. Plots facing City Center got additional commercial value.

4. All designs except EWS are having backyard, four backyards meets at a point, if any one build room in his backyard, and trend is followed by others. Ultimately open space from all four plots vanishes (Fig 5.5.m & n).

Fig 5.5.m & n

5. Criteria for categorization of applicants for housing as per income group and designing in accordance to income group are not rationalized.

6. Private school (Tagore Secondary School) in the corner of colony is started, as no building is constructed for school by the Govt. at plot provided for (Fig 5.5. o).

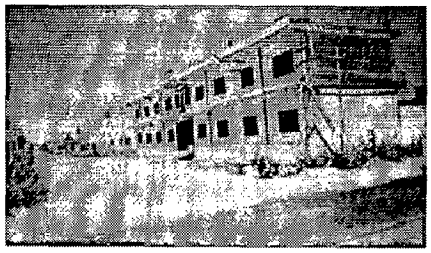


Fig 5.5. o Tagore Sec. School

7. School is not having any setbacks from the roads (3 Side) and it is accidental prone(Fig 5.5. o).

8. Condition of unoccupied houses is not suitable for habitation until proper repair and maintenance is not done (Fig 5.5 p).

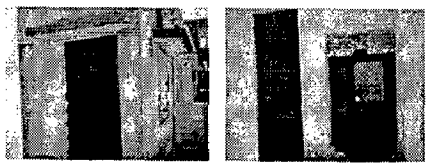


Fig 5.5 p Delpitated houses

9. Drainage and sewerage from streets and residences is released into Nallah passing nearby, which is not acceptable solution and causing mosquitoes and odor to residents (Fig 5.5 q).

Fig 5.5 q Nallah

10. Plantation along the road is not been done, which is essential in harsh sunny summer season of Jaipur No tree is available along the road. Thus it become difficult even to walk on road (Fig 5.5 r).

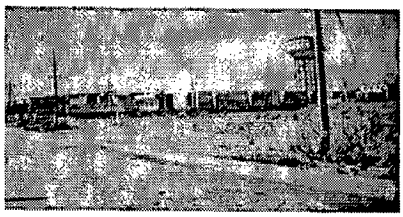


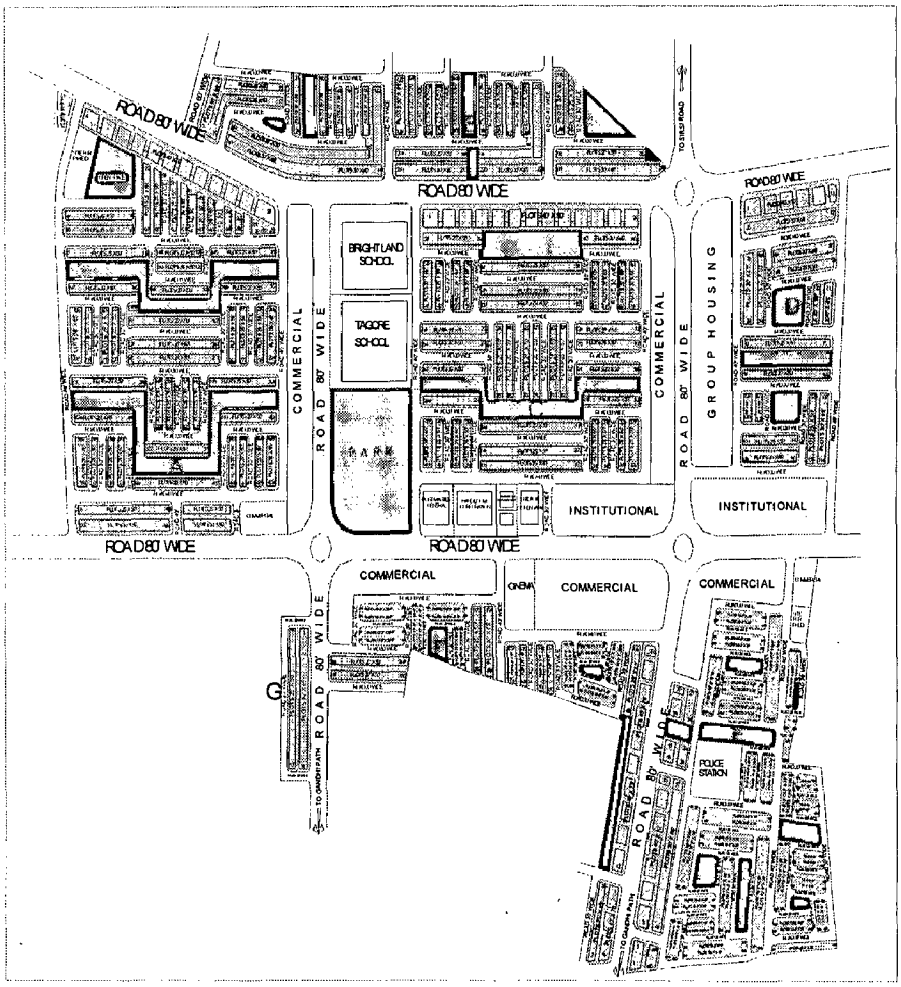
Fig 5.5 r No plantation

5.5.2.2 VAISHALI NAGAR

Location:

Vaishali Nagar is located in south-west part of Jaipur. It is around 6.5 km to Jaipur Main Railway Station.

Land cost in Vaishali Nagar scheme is one of the highest in jaipur. This scheme was conceived and developed by Jaipur development authority.



Map 5.2 Layout map of Vaishali Nagar Scheme.

Land use

Table 5.14 Landuse of Vaishali Nagar

S. No.	Land Use	Area in Sq. M.	Percentage
1	Residential	257000	34.15
2	Group Housing	16400	2.20
3	Commercial	67100	8.91
4	Educational	31100	4.13
5	Institutional	31100	4.13
6	Roads	255400	33.39
7	Park & Open space	95500	12.55
	Total	752200	100.0

Schedule of Plots

Table 5.15 Schedule of Plots of Vaishali Nagar

S.No.	Plot Size	A	B	C	D	E	F	Total
1	13'-3" X 30'	-	-	-	-	828	222	1050
2	25' X 50'	421	188	350	82	-	63	1104
3	30' X 65'	50	97	42	55	25	20	289
4	40' X 70'	-	-	-	-	-	25	25
5	40' X 90'	26	-	26	11	20	-	83
TOTAL		497	285	418	148	871	330	2551

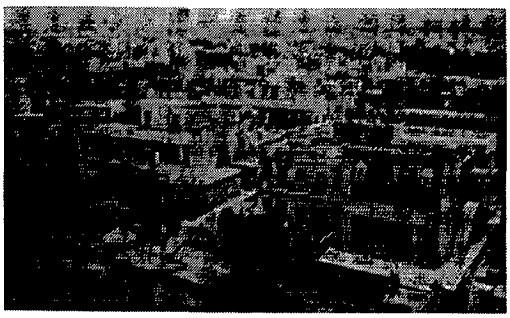


Fig 5.6 a Overview of Housing Development in Vaishali Nagar

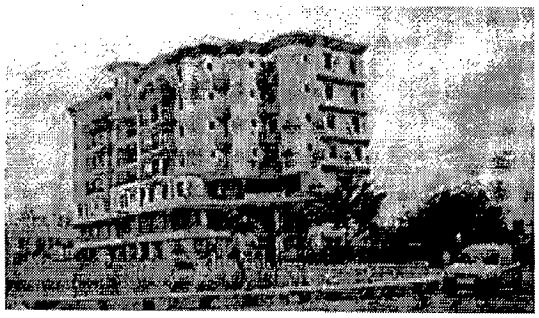


Fig 5.6 b Residential Cum Commercial Apartment

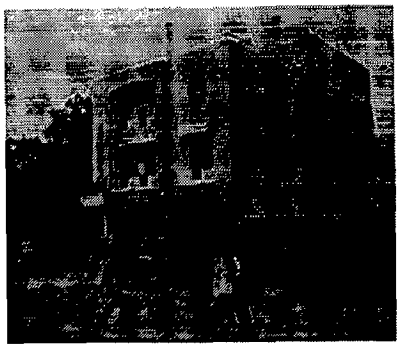
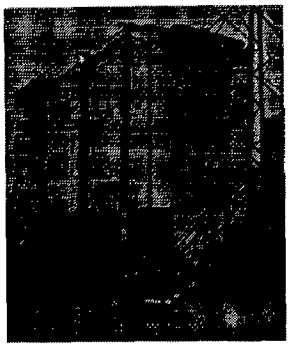




Fig 5.6 c-e Residential cum Commercial Apartments over Residential Plots

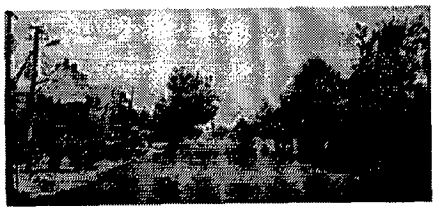


Fig 5.6 f 80' Wide Road

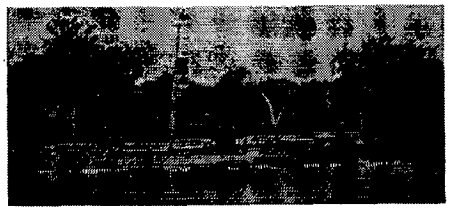


Fig 5.6 g Park

Fig 5.6 h Signage

Fig 5.6 i JDA Shopping Center 1

Fig 5.6 j JDA Shopping Center 1

Fig 5.6 k Vaibhav Multiplex

Fig 5.6 l Brightland Public School

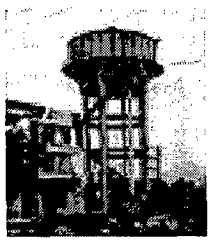


Fig 5.6 m Over Head Tank

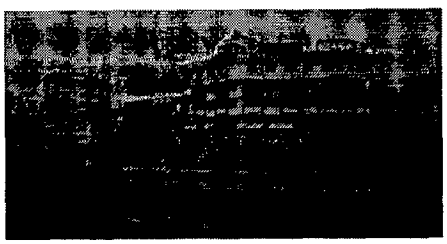


Fig 5.6 n Large Traffic Circles

Observations

1. Only 20' wide road is provided in EWS Plots and that to is encroached 3' to 4' from Both Sides (Fig 5.8 o).

Fig 5.8 o Narrow street

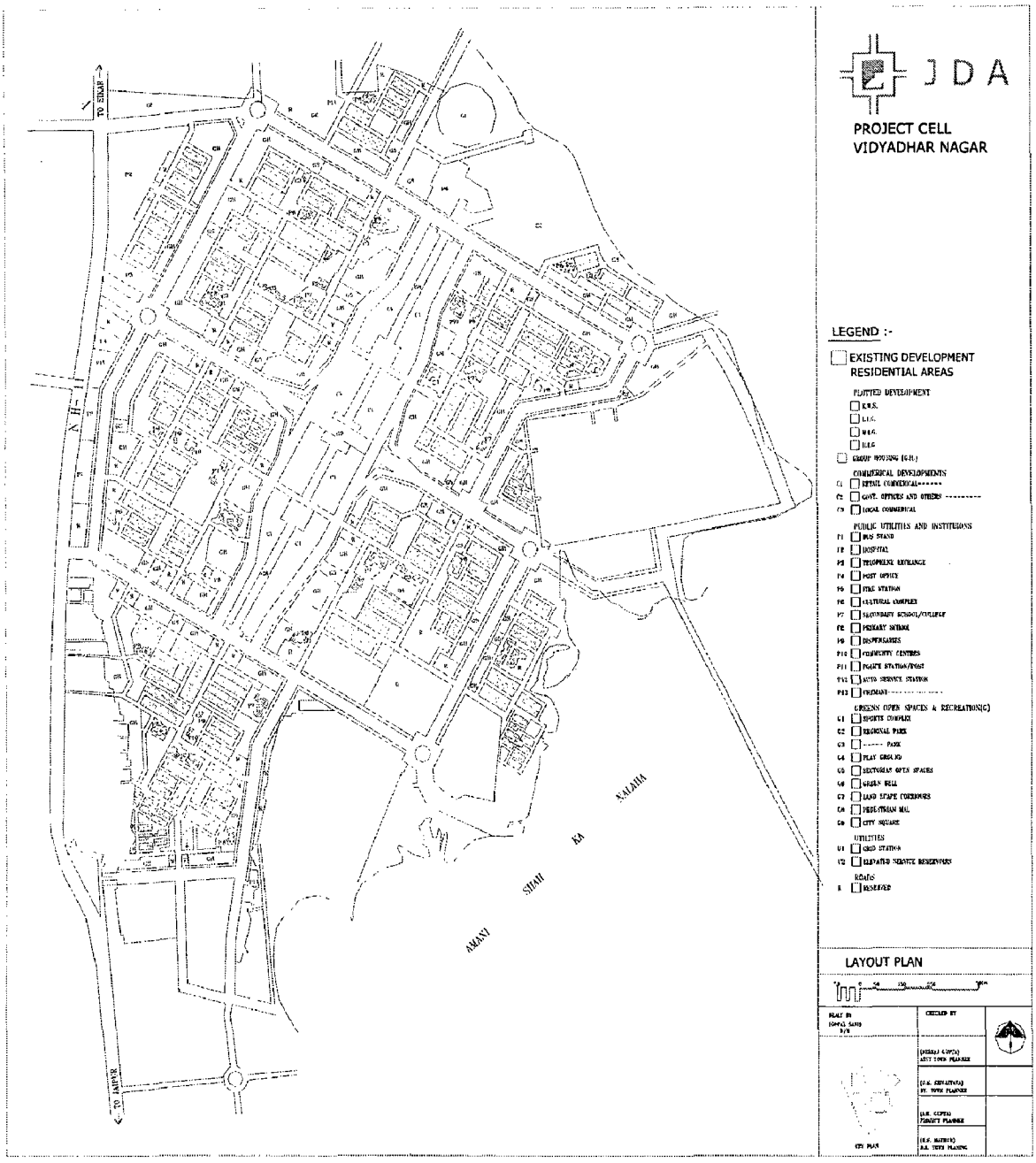
Fig 5.8 p Unattained Park

2. Park turned as garbage dumping spot (Fig 5.8 p).

3. Most of EWS and other residences are having commercial activities as they are well connected to 80' Wide Road and good transportation facilities are available (Fig 5.8 q & r).

Fig 5.8 q & r Massive unauthorised commercial development

5.5.2.3 VIDHYADHAR NAGAR



Map 5.3 Layout map of Vidhyadhar Nagar Scheme.

Land use

Table 5.16 Landuse in Residential sectors planned in Vidhyadhar Nagar (Area in M^2)

Sector No.	Residential		Commercial		Parks & open spaces	Educational		Community Facility			Roads	Reserved	Total
	Plotted	Group Housing	Local Shopping	Convenient Shopping		Primary School	Higher Secondary School	Dispensary	Community Centre	Religious Sites			
Sector (1)	51625	53790	3500	1500		6000	7500	1000	2000	1000			
	105415 (42.54%)		5000 (2.01%)		42645 (17.20%)	13500 (5.44%)		4000 (1.61%)			64559 (26.05%)	12680 (5.11%)	247799 (100%)
Sector (2)	51105	30675	3500	1500		9000	7500	1000	2000	1000			
	81780 (45.55%)		5000 (2.78%)		14463 (8.05%)	16500 (9.19%)		4000 (2.22%)			37789 (21.04%)	34493 (19.21%)	179538 (100%)
Sector (3)	50742	55790	3500	1500		6000	7500	1000	2000	1000			
	114532 (42.75%)		5000 (1.86%)		53140 (9.82%)	13500 (9.82%)		4000 (1.49%)			63110 (23.54%)	14740 (5.50%)	268022 (100%)
Sector (4)	30287	14970	-	1000		3000	-	1000	2000	500			
	45757 (39.24%)		1000 (0.85%)		3362 (2.88%)	3000 (2.57)		3500 (3%)			32940 (28.22%)	26627 (23.24%)	116686 (100%)
Sector (5)	19395	20772	-	1500		-	-	1000	2000	500			
	40167 (51.07%)		1500 (1.90%)		4645 (5.90%)	-		3500 (4.45%)			23949 (30.45)	4878 (6.20%)	78639 (100%)
Sector (6)	87885	128330	3500	3000		12000	10000	1000	2000	1000			
	216215 (51.59%)		6500 (1.55%)		60465 (14.43%)	22000 (5.25%)		4000 (0.95%)			92286 (22.02%)	17680 (4.21%)	419028 (100%)
Sector (7)	65105	106783	3500	2250		9000	7500	1000	2000	5000			
	171888 (55.77%)		5750 (1.86%)		43330 (14.06%)	16500 (5.35%)		3500 (1.13%)			59719 (19.39%)	7490 (2.44%)	308177 (100%)
Sector (8)	170354	-	-	2000		6000	-	-	2000	1000			
	170354 (59.21%)		2000 (0.69%)		41350 (14.37%)	6000 (2.08%)		3000 (1.04%)			59560 (20.70%)	5442 (2.11%)	287706 (100%)
Sector (9)	16237	13110	-	1000		3585	-	-	-	500			
	29347 (38.66%)		1000 (1.32%)		21995 (28.97%)	3585 (4.72%)		500 (0.66%)			15090 (19.88%)	4395 (5.79%)	75912 (100%)
Sector (10)	17145	12420	-	1350		2500	-	-	-	500			
	29565 (46.5%)		1350 (2.12%)		15000 (23.61%)	2500 (3.93%)		500 (0.78%)			14604 (23.02%)	-	63519 (100%)
Total	1005020 (49.14%)		34100 (1.66%)		300395 (14.68%)	97085 (4.74%)		30500 (1.49%)			463606 (22.66%)	128425 (6.27%)	2059126 (100%)

Source: Vidhyadhar Nagar Zone JDA. Jaipur.

Other town level facilities provided in addition to sectors are:

1. Sports complex
2. Regional Park
3. Central Spine Mix landuse (Residential + Commercial) zone
4. Educational Area (for Colleges, Technical Institutions and Schools)
5. Cinema Hall (Multiplex in Central Spine)
6. Government, Semi Government and Corporate Offices.
7. Hospitals (300 and 500 beds).
8. Hotels
9. Public Utilities
10. Fire station
11. Bus Stand

12. Police Thana
13. Petrol pumps
14. Water Tanks
15. Grid stations
16. Post Office
17. Telephone Exchange

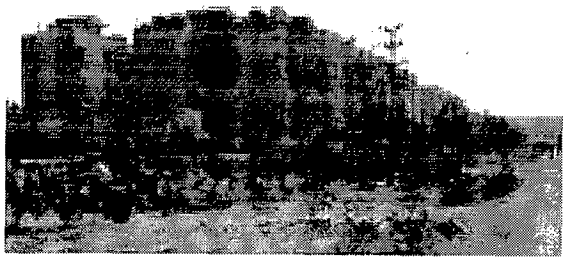


Fig 5.7 a Group Housing for Railways

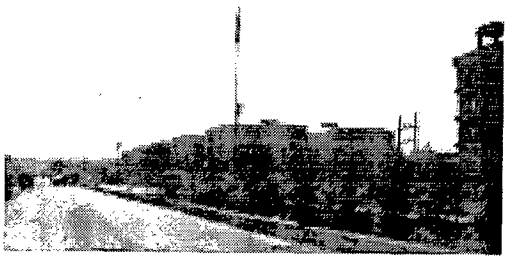


Fig 5.7 b GH Along 120' wide Road with large Set backs & Approach from inner road only

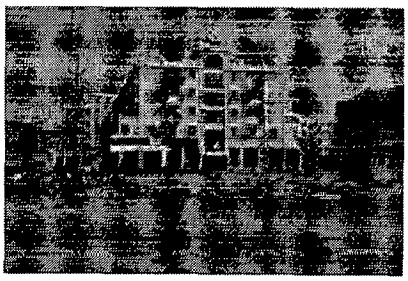


Fig 5.7 c Large Setbacks for commercial activities in central spine

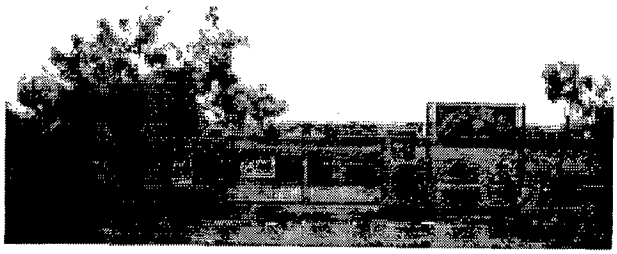


Fig 5.7 d Vidhyadhar Nagar Stadium

Fig 5.7 e. Shopping Centre are provided in every sector with large open surroundings

Fig 5.7 f Police station in Sector 6, centrally located

Observations

1. There are many Vacant Group Housing Plots and unoccupied apartments shows living in apartments is less proffered by people then own plot (Fig 5.11 g).

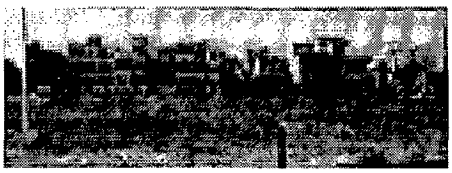


Fig 5.7 g Vacant Group Housing Plots

2. JDA Shopping centers are unoccupied in sector 3, 8 and 7; due to legal formalities are remaining with allotees (Fig 5.11 h).

Fig 5.7 h Unoccupied JDA Shopping center in Sec. 3

3. Due to lack of attention Park turned as garbage dumping spot (5.11 i).

Fig 5.7 i Park turned as garbage dumping spot

4. Bank, Institutes, offices are running in residential plots (Fig 5.11 j & k).

Fig 5.7 j

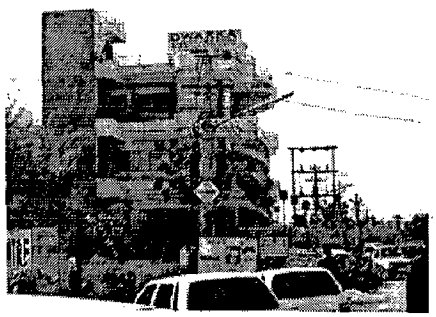
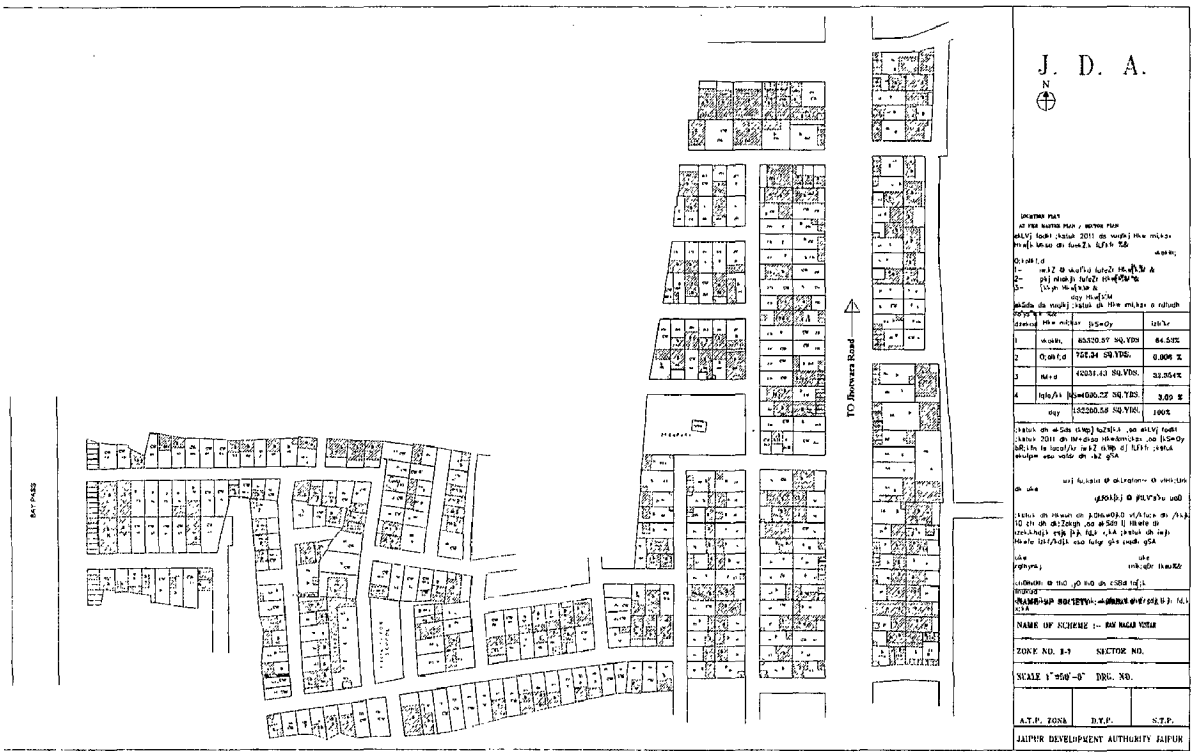


Fig 5.7 k

5.5.2.4 SHRIRAM NAGAR

Located in western part of Jaipur on Jhotwara Road.

6 km. from centre of City (Sindhi Camp bus stand).



Map 5.4: Layout map of Shriram Nagar Scheme.

Landuse

Table 5.17 Landuse of Shri Ram Nagar

S. No.	Land Use	Area in Sq. M.	Percentage
1	Residential	71364.78	64.53
2	Commercial	629.28	0.006
3	Roads	35156.40	32.254
4	Facilities	3425.41	3.21
	Total	11575.87	100.0

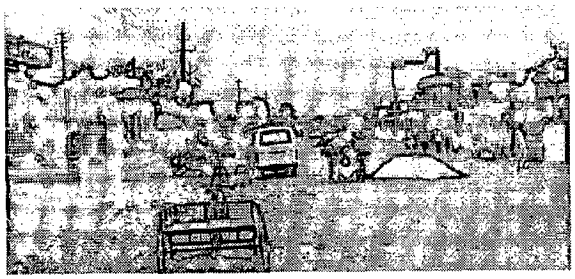


Fig 5.8 a Main 100' wide Road

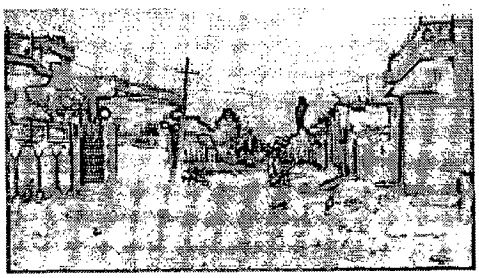


Fig 5.8 b Inner Kacha Roads

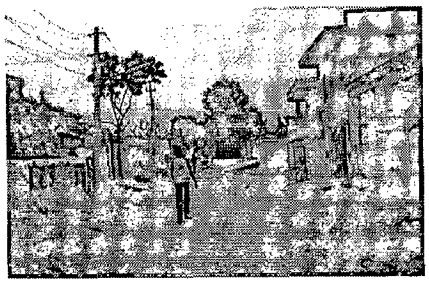


Fig 5.8 c & d Lack of Provision of Sewerage & Drainage System

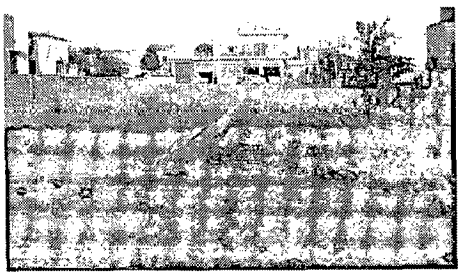


Fig 5.8 e Vacant Plots used as garbage disposal point

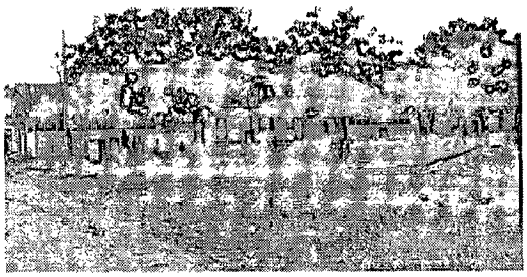


Fig 5.8 f Private School running in residential plots

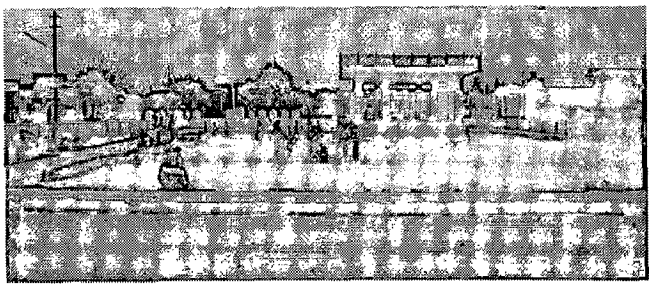


Fig 5.8 g Park in the colony

Fig 5.8 g Setback violations

Observations

1. Lack of planned convenient shopping area and high opportunity to get benefits from 100' wide road terned to ribbon commercial development in residential plots.

2. Plots facing 100' road is accident prone.

3. Lack of provision of education facility turned as school running in residential plots.

4. Setback regulation is violated in most of the construction.

5. No correlation in road network with other housing colonies nearby.

6. 86 vacant plot out of 389 plots shows low occupancy.

7. Absence of sewerage/drainage system created uneasy situation.

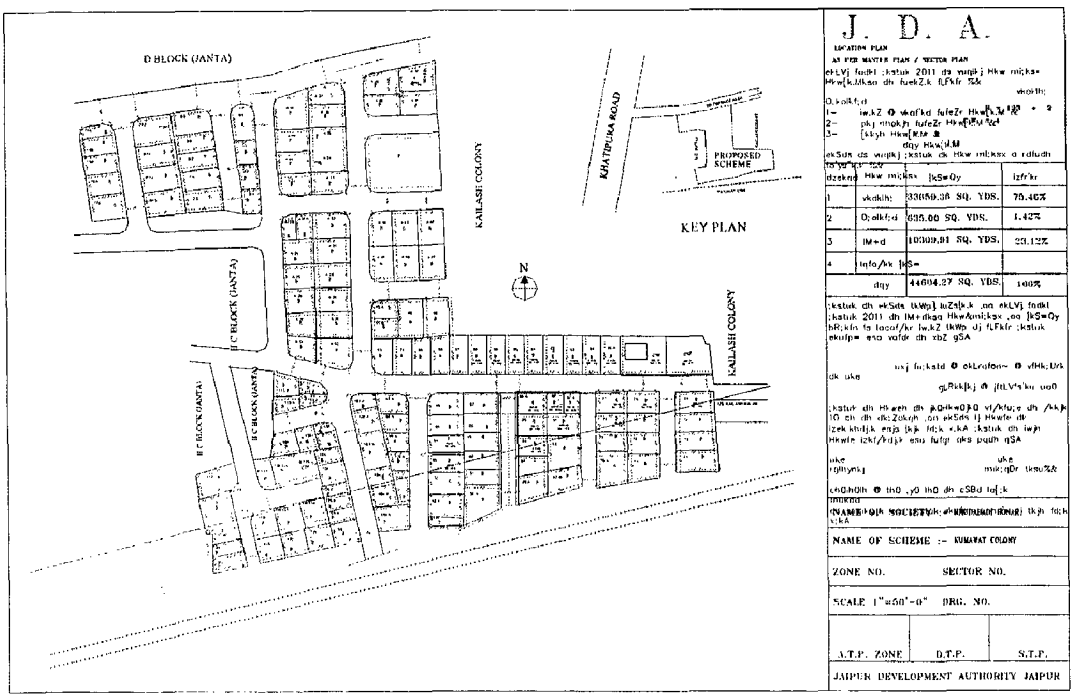
8. Two parks are there of only 3.09% of total landuse.

9. Lack of Street lights on inner roads.

5.5.2.5 KUMAWAT COLONY

Located in western part of Jaipur on Khatipura Road.

4.5 km. from centre of City (Sindhi Camp bus stand).



Map 5.5 Layout map of Kumawat Colony

Table 5.18 Landuse of Kumawat Colony

S. No.	Land Use	Area in Sq. M.	Percentage
1	Residential	28153.73	75.46
2	Commercial	531.13	1.42
3	Roads	8623.53	23.12
	Total	37308.39	100

Fig 5.14 a & b Set Back violations & Openly Dumped Garbage on street

Fig 5.14 c & d Road width and alignment Problems and No setbacks

Observations

1. Lack of planned convenient shopping area turned to ribbon commercial development in residential plots on main approach road.

2. No facility is proposed in this scheme'

3. 36 plots out of total 141 plots are on Railway property.

4. Most of the plots are built but Setback regulation is violated.

5. No correlation in road network with other housing colonies nearby.

6. The main approach road on north leading 100' wide Khatipura road, having narrow irregular width and alignment problem.

7. Absence of sewerage/drainage system created uneasy situation.

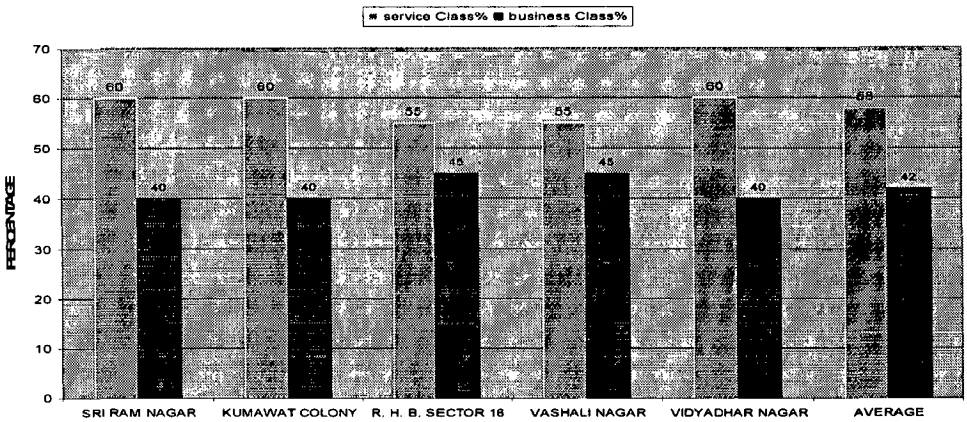
8. Lack of Street lights on inner roads.

9. Railway property and vacant plots are used as solid waste disposal site.

5.5.3 SURVEY SCHEDULE AND SURVEY RESULTS

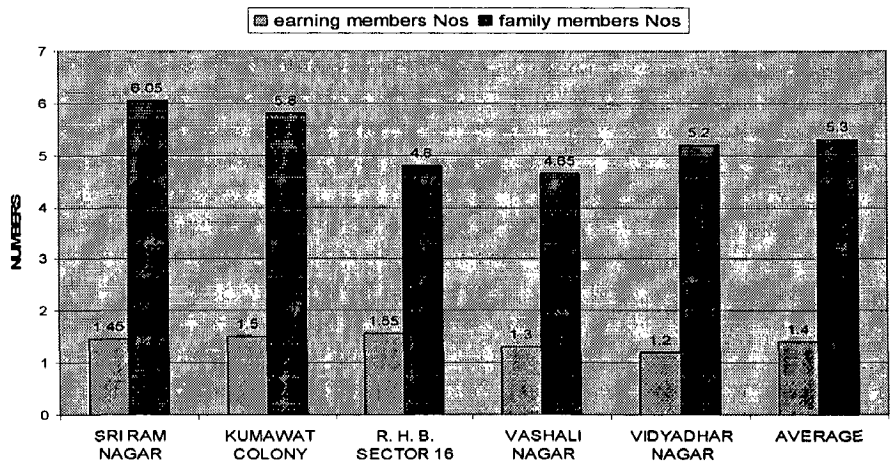
The following inferences have been drawn from the comparative analysis under various heads of the five selected residential areas.

Figure 5.9 Occupational Structure



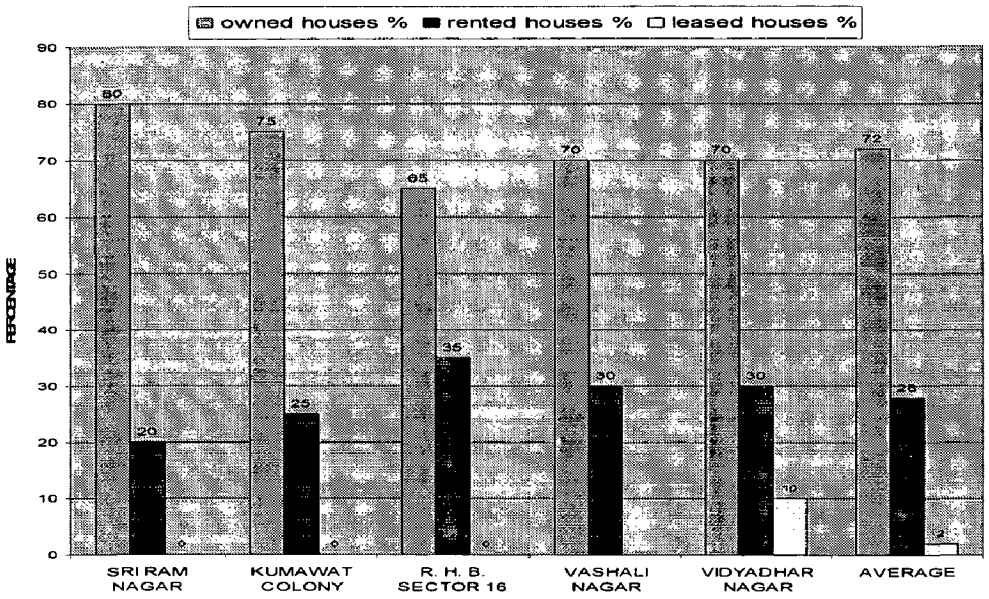
- There is a larger strength of the service class (58%) as against business class (42%) in the study area in general.

Figure 5.10 Numbers of Earning & Family Members



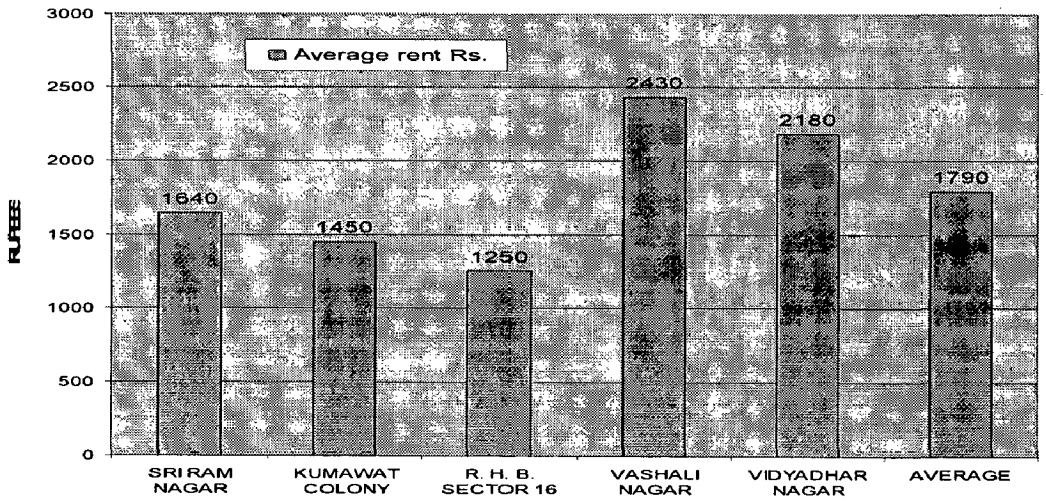
- The average family size has been found to be 5.3 and average number of earning members per family to be 1.4.
- Shriram Nagar has shown high family sizes and R.H.B. Sector 16 shown higher number of earning members per family.

Figure 5.11 Types of Houses



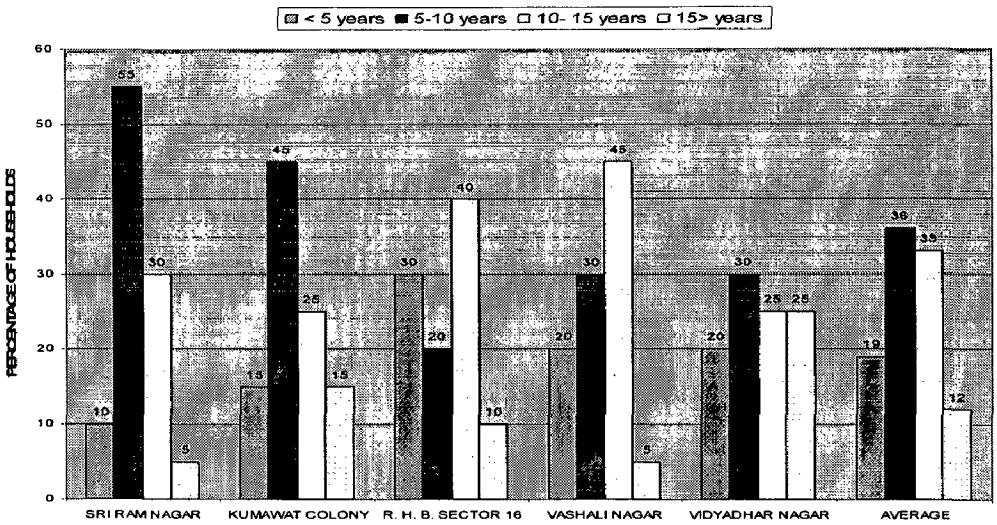
- Majority of the people (72%) are having their own houses.
- R.H.B. Sector 16 shown maximum availability of rented accommodation (30% households) suggested that people have purchased properties and rented them so as to form another source of income.

Figure 5.12 Average rent (Rupees per Month)



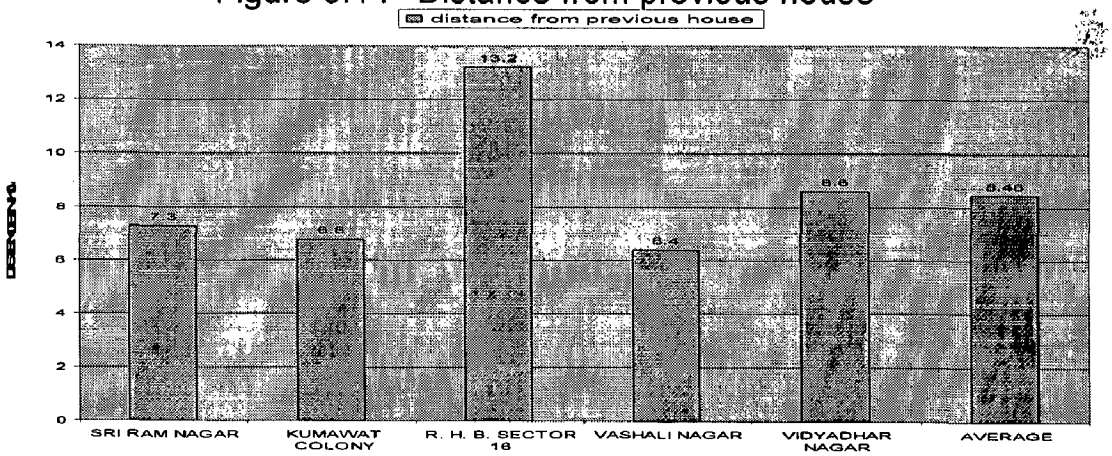
- The average rent has come out to be Rs. 1790 per month for a unit
- Vaishali Nagar has maximum and R.H.B. Sector 16 has minimum rental values of the unit.

Figure 5.13 Period of Living



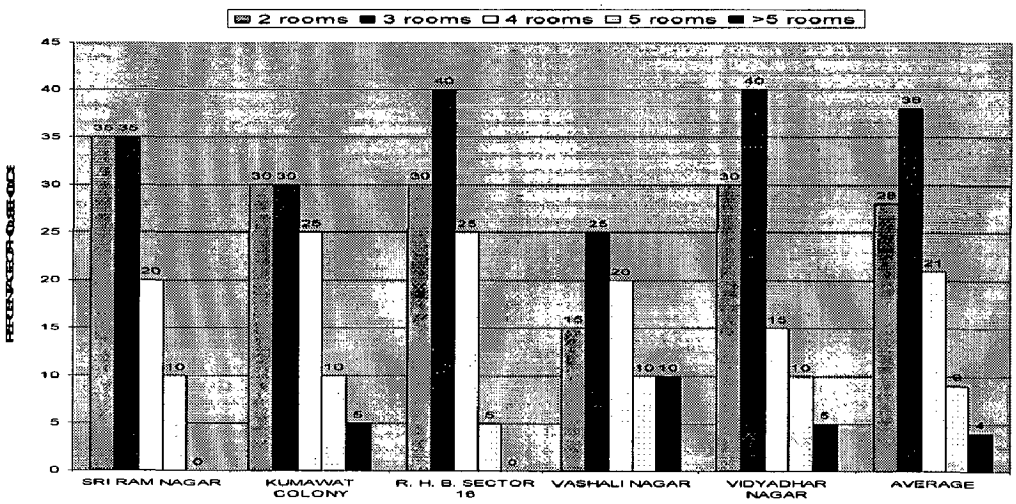
- There has been major influx of people during the past 10 years, as majority of people (36%) have been living since past 5-10 years.
- Colonies developed by societies (Sriram Nagar & Kumawat colony) has the highest ratio of new residents (5-10 years) as infrastructure development in these areas being done within last few years (5 to 7 years).
- Vidhyadhar Nagar has shown a stable influx of people with time.

Figure 5.14 Distance from previous house



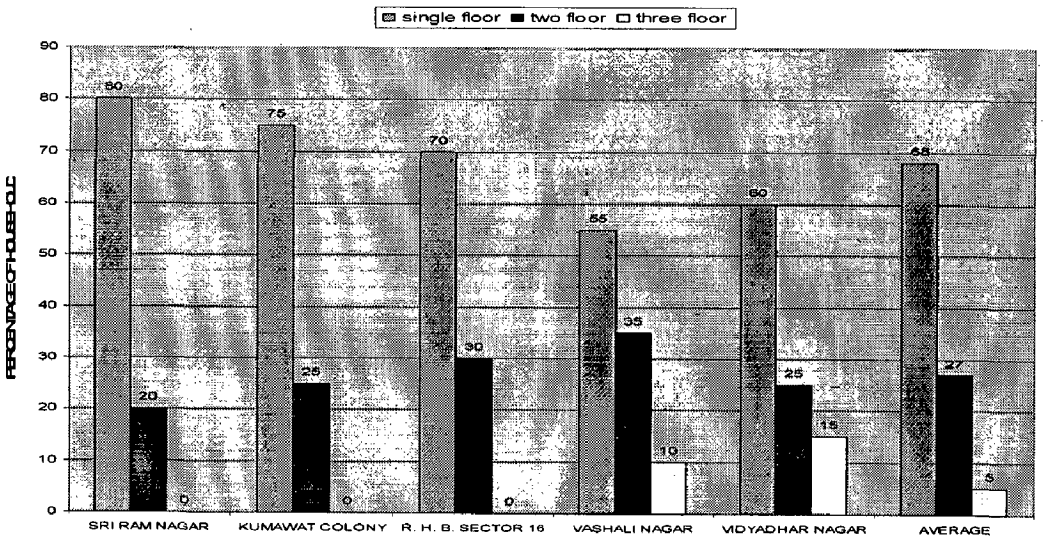
- Average distance from previous house is found 8.46 km.
- Maximum distance from previous house is found 13.2 km in RHB Sector 16 as it was planned by Rajasthan Housing Board, far beyond from the core city to meet the demands of LIG and EWS category within their capacity.

Figure 5.15 Numbers of Rooms in Household



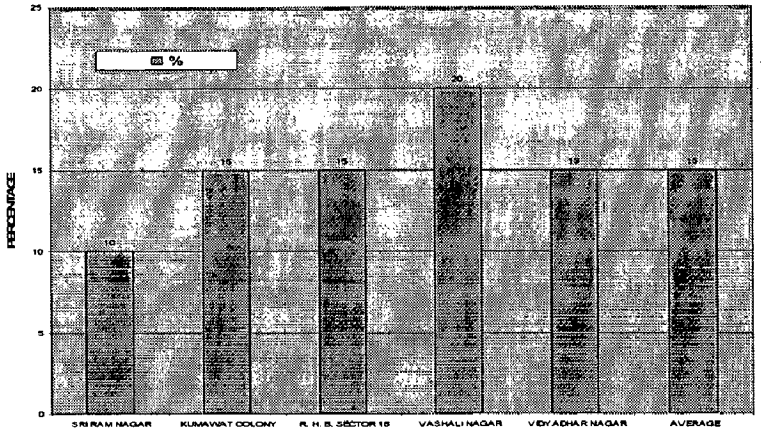
- Major households (38%) have 3 rooms.
- 2 rooms is having second category of households in terms of accommodation.

Figure 5.16 Numbers of Floors in Households



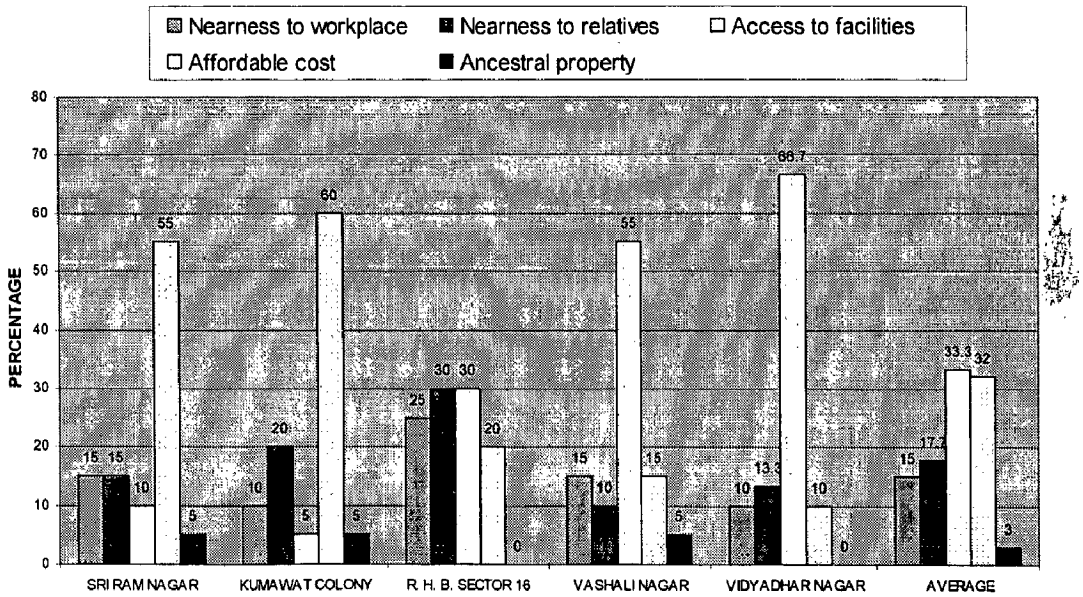
- Major houses (68%) are single storied shows more ground coverage and horizontal expansion of city.
- Sriram Nagar seems to predominantly low rise settlement with highest fraction of single storied houses.

Figure 5.17 Availability of Rented Accommodation



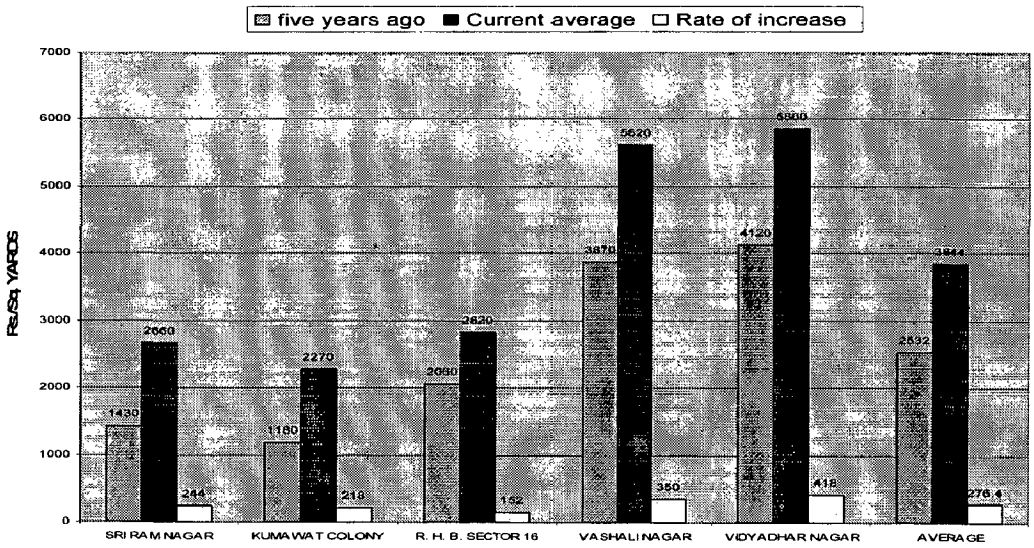
- On an average16% of the Households have rented accommodations available.
- In vaishali Nagar more households 20% have this availability.

Figure 5.18 Reasons for Choosing a Locality



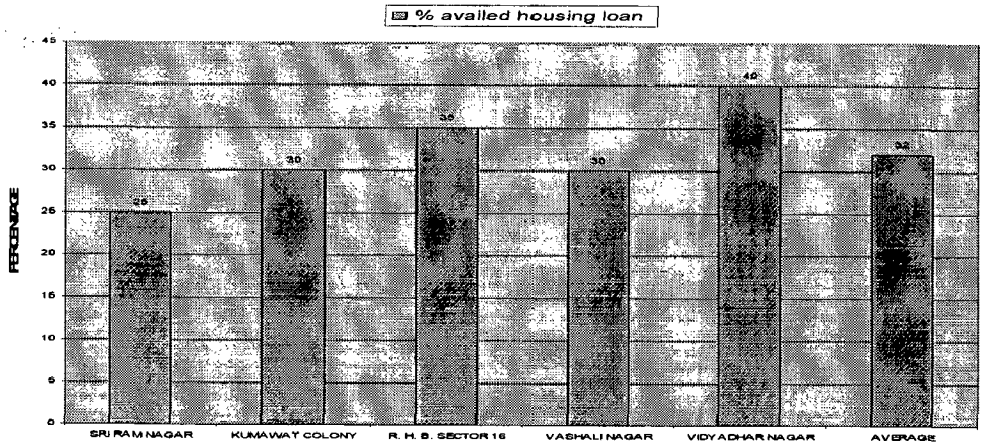
- Most prominent factors for selection of residential location are Access to facilities (33.3%) and Affordable cost (32%).
- Vidhyadhar Nagar and Vaishali Nagar had more number of respondent attracted by facilities and services.
- Kumawat Colony and Sriram Nagar have shown Affordable cost as an attraction.

Figure 5.19 Land Cost



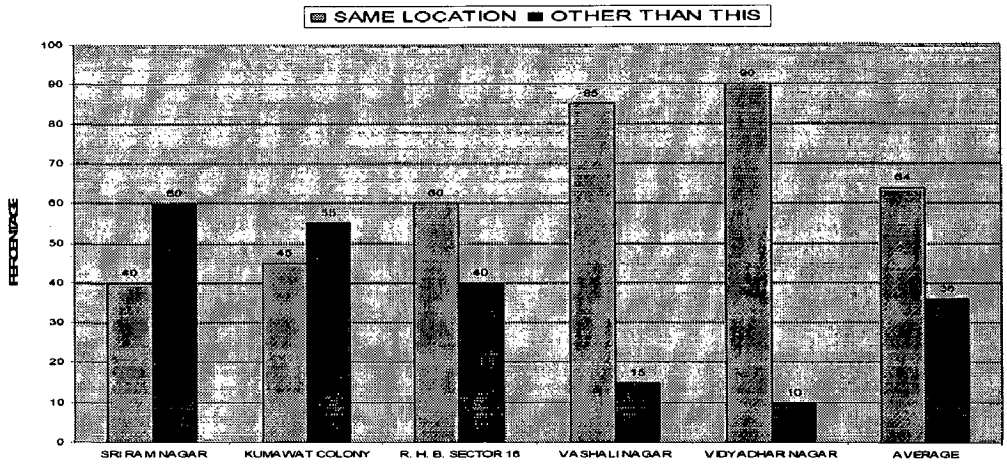
- The average rate of increase of land costs has been rupees 276.4 per sq. yards per year.
- Vidhydhar Nagar has shown maximum rate of increase in land values in past 5 years, while R.H.B. sector 16 has shown the minimum rate.
- At present, Vidhyadhar Nagar has the most expensive lands.

Figure 5.20 Percentage of People availed housing loan



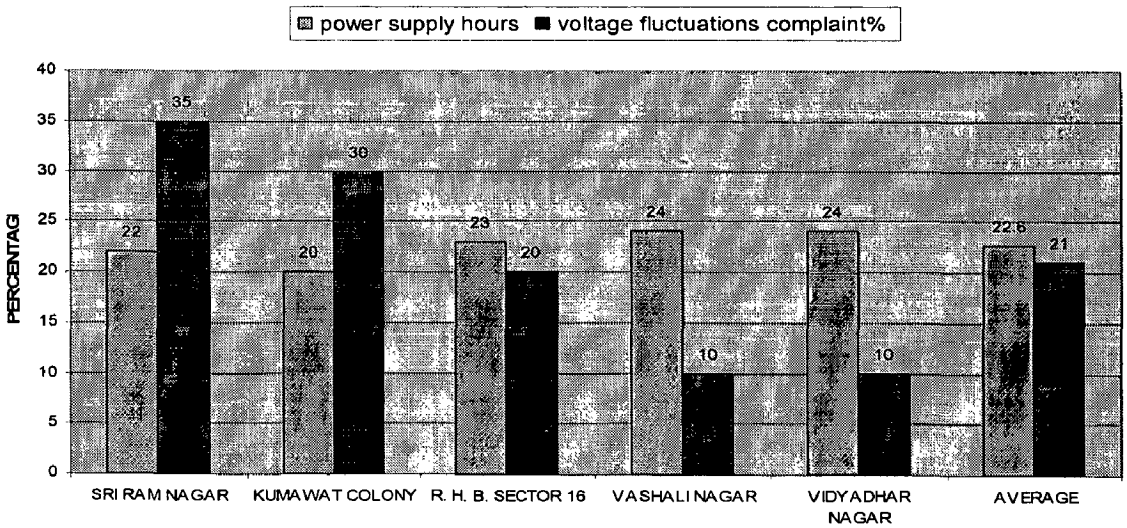
- On an average 32% of people have availed housing loan.
- 40% respondent (maximum) from Vidhyadhar Nagar and only 25% (minimum) from Sri Ram Nagar have availed loan.

Figure 5.21 People's view for best living place in the city



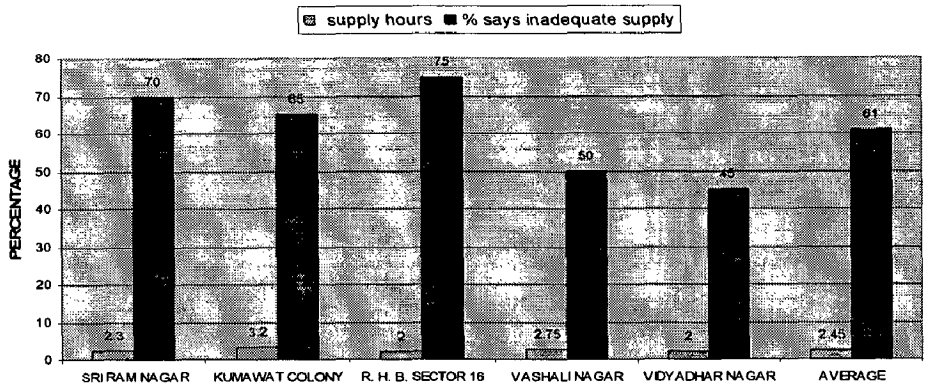
- On an average, majority (64%) of households have been found to be grading their current place of living to be the best in the city.
- Vaisali Nagar and Vidhyadhar Nagar have shown higher degree of satisfaction of the dwellers, while Kumawat Colony and especially Sri Ram Nagar have shown high degree dissatisfaction.

Figure 5.22 Electricity supply



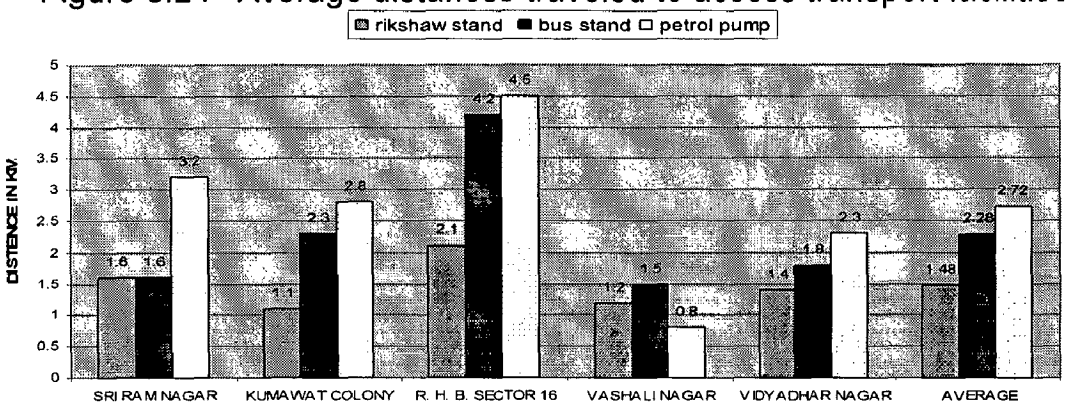
- The average electricity supply hours have been found to be 22.6 hours per day.
- Sri Ram Nagar has shown high rate of voltage fluctuation, while Vidhyadhar Nagar and Vaisali Nagar can be considered best in this regard.

Figure 5.23 Water supply



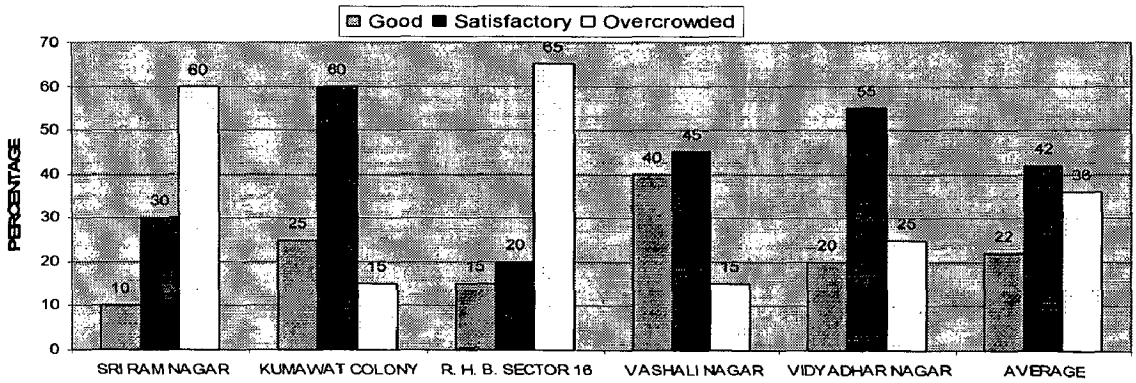
- The average duration of water supply is 2.45 hours per day.
- Majority of households (61%) said that water supply is inadequate.

Figure 5.24 Average distances traveled to access transport facilities



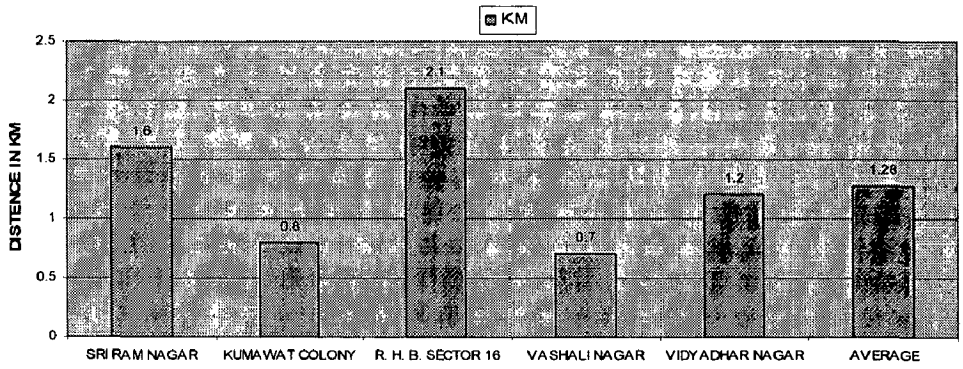
- The average distances traveled to access the following services are: Rickshaw stand - 1.48 km, Bus stand – 2.28 km, Petrol pump – 2.72 km.
- RHB sector 16 is lacking in all these services and Vaishali Nagar is found well serviced.
-

Figure 5.25 Opinion about public transport facilities



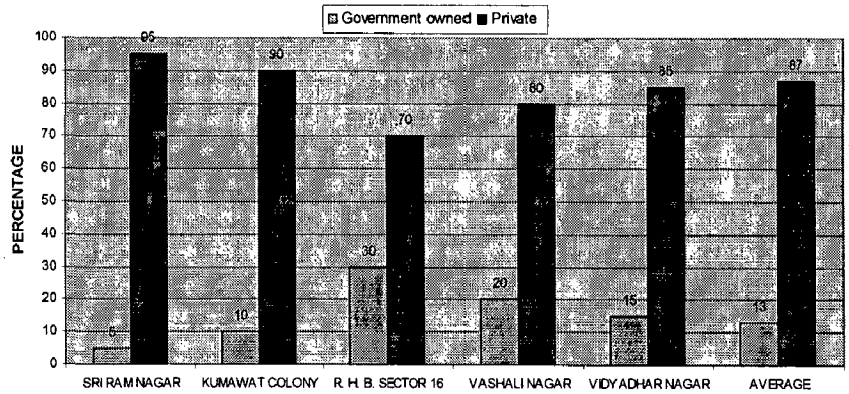
- On an average only 22% respondent have graded public transport facility as good, 42% as satisfactory and 36% as over crowded.
- Kumawat colony has the maximum and RHB sector 16 has the minimum level of satisfaction in this regard.

Figure 5.26 Average distance for medical facilities



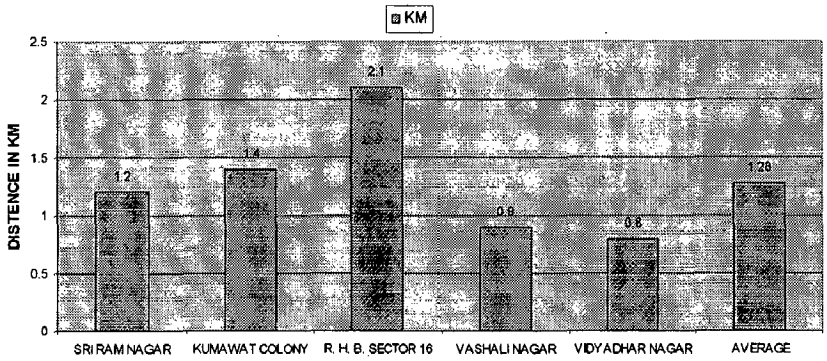
- Medical facilities at an average are available at a distance of 1.28 km.
- Vashali Nagar is the best and RHB Sector 16 is worst in this regard.

Figure 5.27 Ownership of Medical facilities



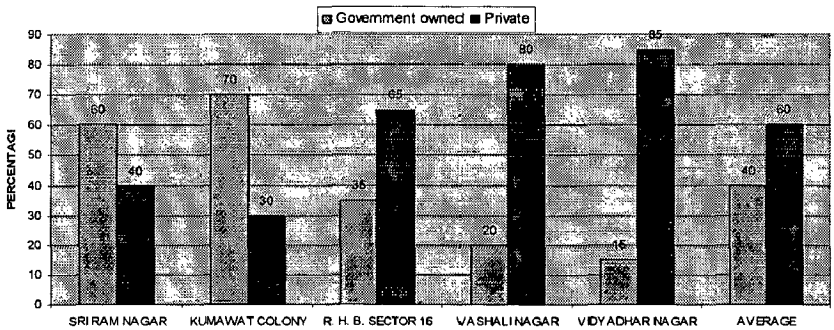
- On an average almost all (87%) medical services are being provided by the private and only 13% by the government.

Figure 5.28 Average distance to nearest Education facilities



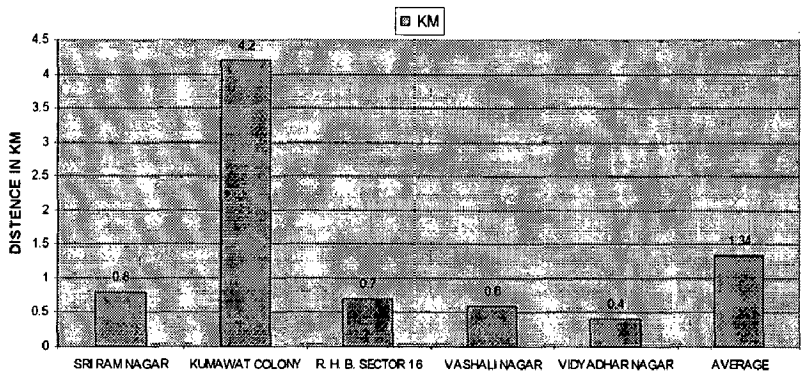
- Educational facilities are available at an average distance of 1.28 km.
- Vidhyadhar Nagar is rich and RHB Sector 16 lacks with regard to educational services.
-

Figure 5.29 Ownership of Educational facilities



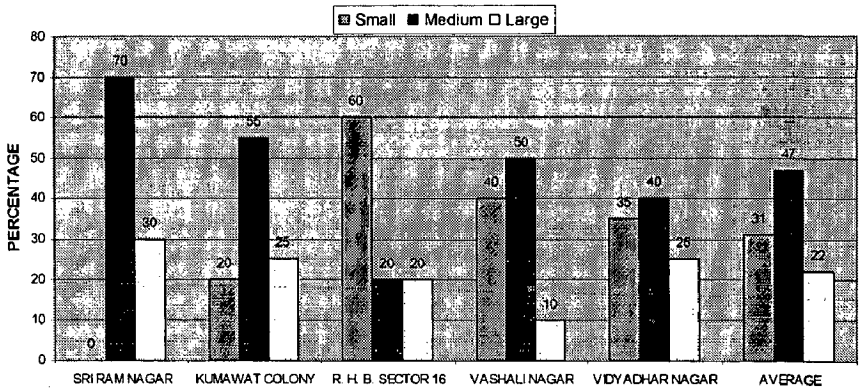
- The major fraction (60%) of the educational centers are private as against 40% are government setups.

Figure 5.30 Average distance to nearest park or open spaces



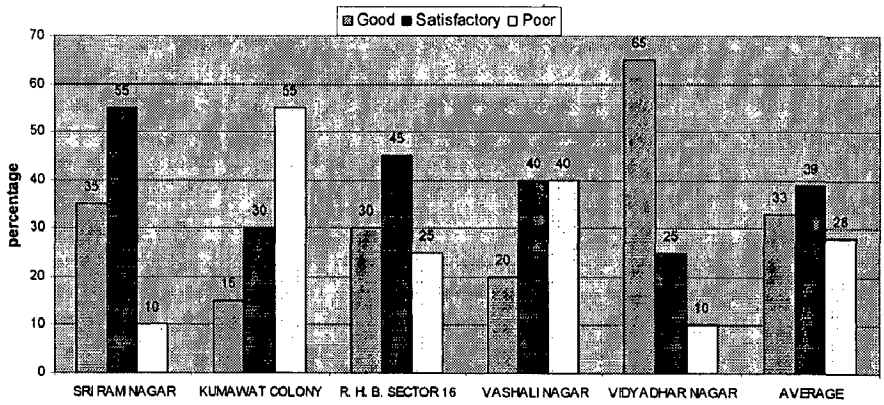
- Parks and open spaces are available at an average distance of 1.34 km.
- Vidhyadhar Nagar is richest and Kumawat colony is the most lagging in this regard.

Figure 5.31 Size of Park / Open space



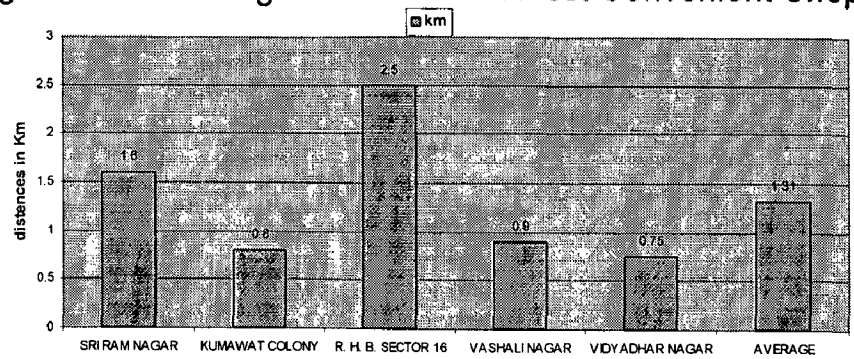
- Majority of parks and green spaces (47%) are medium sized and only 22% are of larges sized.

Figure 5.32 Maintenance of park or open spaces



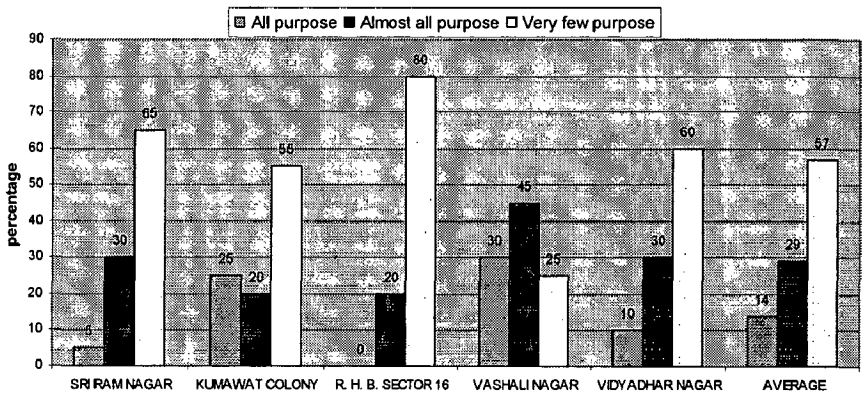
- 39% of the respondent has reported the Parks / Open spaces are poorly maintained.
- Vidhyadhar Nagar has well maintained parks and open spaces and Kumawat colony has the worst.

Figure 5.33 Average distance to nearest Convenient Shopping



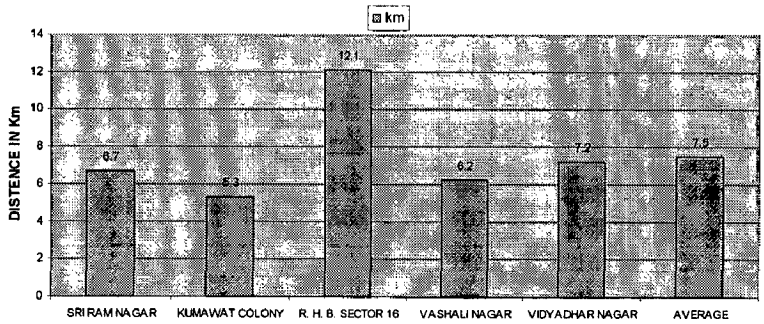
- Shopping facilities are available at an average distance of 1.31 km.
- Vidhyadhar Nagar is richest and RHB Sector 16 is lagging in this regard.
-

Figure 5.34 Utility of the nearest Convenient Shopping



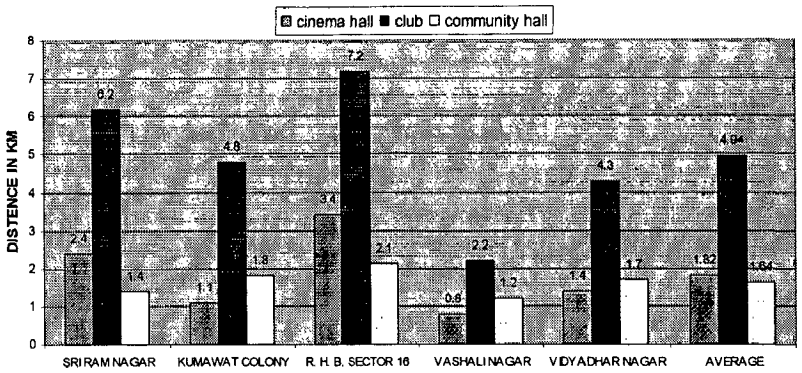
- More than half (57%) of the respondent have reported the nearest available shopping facilities to be serving very few purposes and only 14% have found them useful for almost all purposes.
- Vaishali Nagar has a higher level of satisfaction and RHB Sector 16 has lowest in this regard.

Figure 5.35 Average distance to the most preferred shopping area



- On an average most preferred shopping area (Walled City in most of the cases) is 7.5 km away.
- RHB Sector 16 has largest distances for most preferred shopping area.

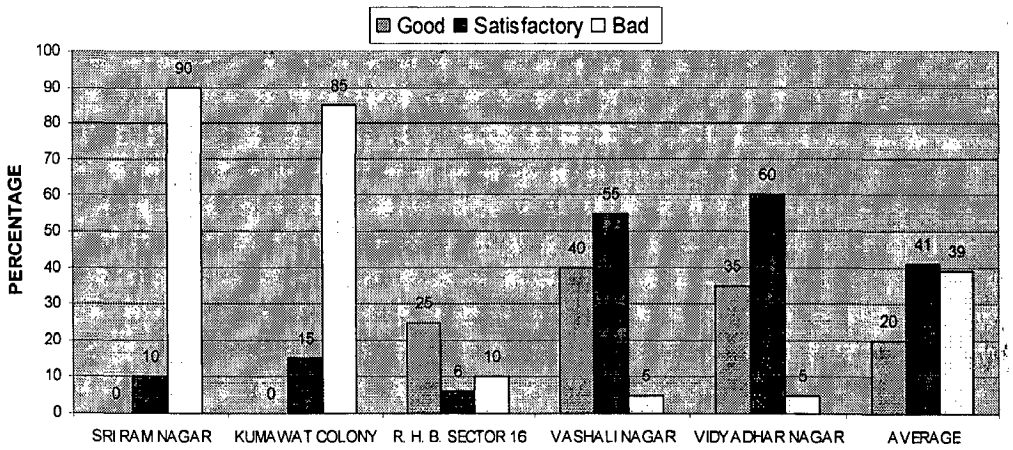
Figure 5.36 Average distance to nearest community / recreational facilities



- Community / recreational facilities are available at an average distance as follows.

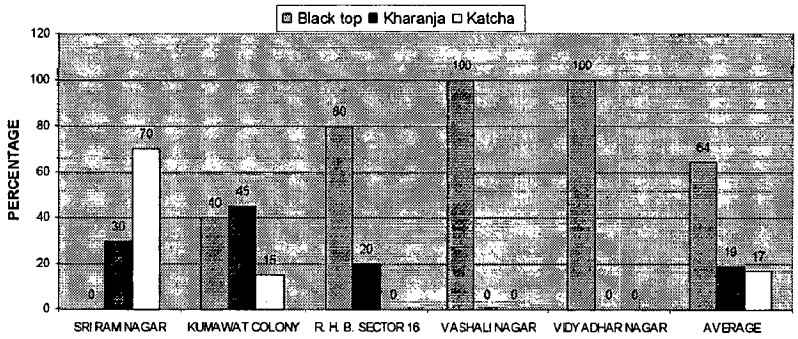
  Cinema hall – 1.82 km Club – 4.94 km Community hall – 1.64 km.

Figure 5.37 Condition of sewerage / drainage system



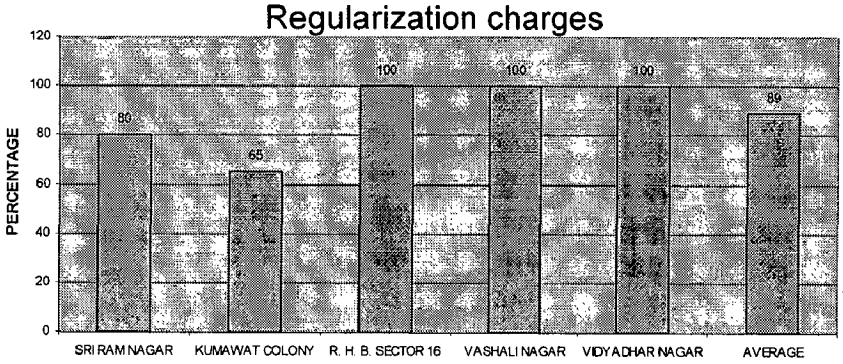
- On an average 41% of respondent says condition on sewerage and drainage is satisfactory and 20 % says it is in good condition but 39% says condition is bad in this regard.
- Sri Ram Nagar and Kumawat colony has worst condition and Vidhyadhar Nagar and Vaishali Nagar are better serviced.

Figure 5.38 Approach road condition



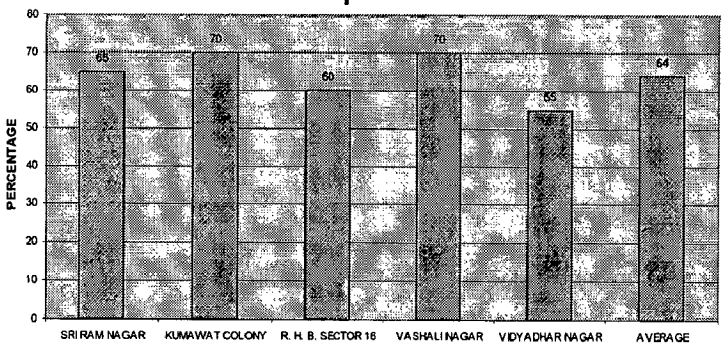
- On an average 64% households have black top approach to their houses.
- Vidhyadhar Nagar and Vaishali Nagar have all rods black topped but Sri Ram Nagar does not have any.

Figure 5.39 Percentage of households who have paid Development / Regularization charges



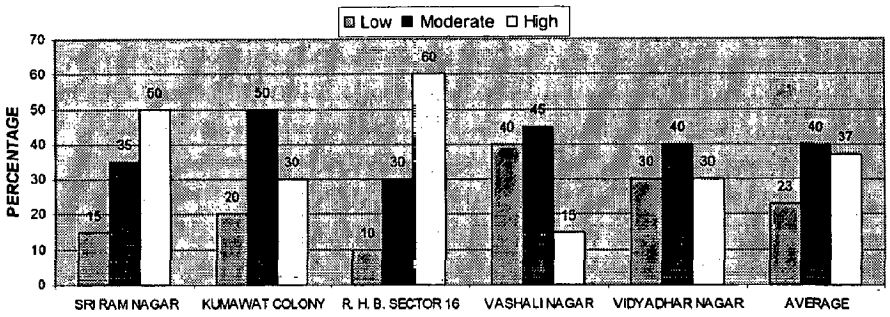
- Almost 89% of households have paid development / regularization charges.

Figure 5.40 Percentage of households willing to pay for better services and development



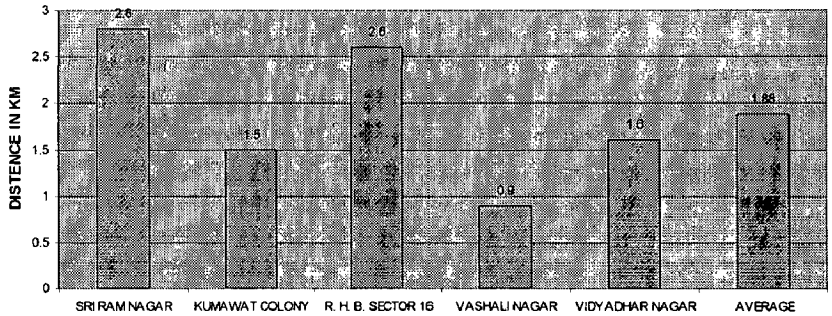
- On an average 64% households are willing to pay for better services and development.

Figure 5.41 Crime rate (% distribution)



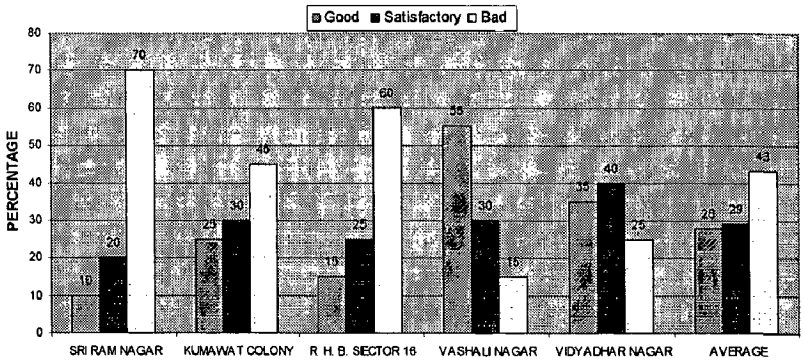
- RHB Sector 16 is having highest crime rate and Vaishali Nagar has the low crime rate.

Figure 5.42 Average distance of the nearest police station



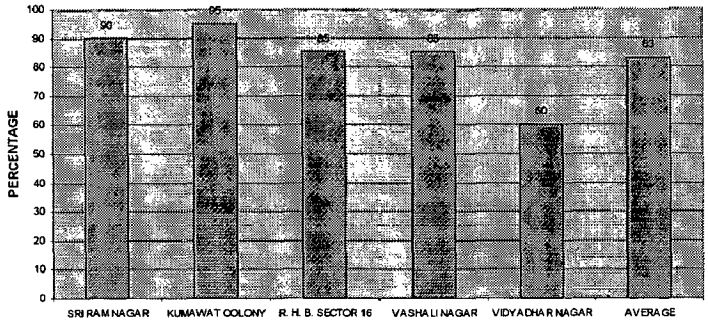
- Nearest police station are located at an average distance of 1.88 km.

Figure 5.43 Police Assistance and Patrolling



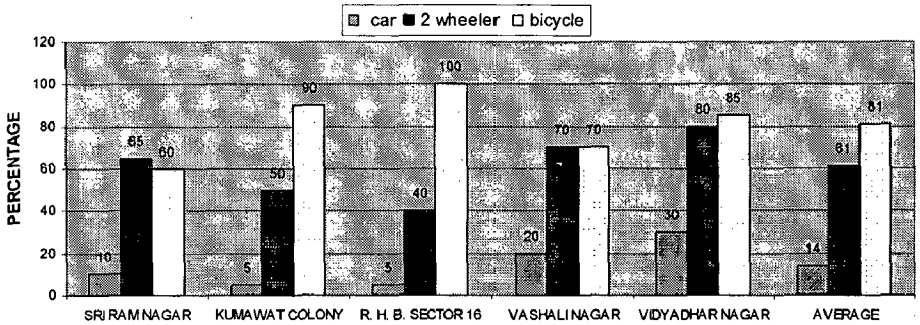
- Only one third (28%) of the respondent have rated the police assistance and patrolling to be good as against 43 %as bad.
- Vaishali Nagar is the best and Sri Ram Nagar is the worst in this regard.

Figure 5.44 Use of private system of security



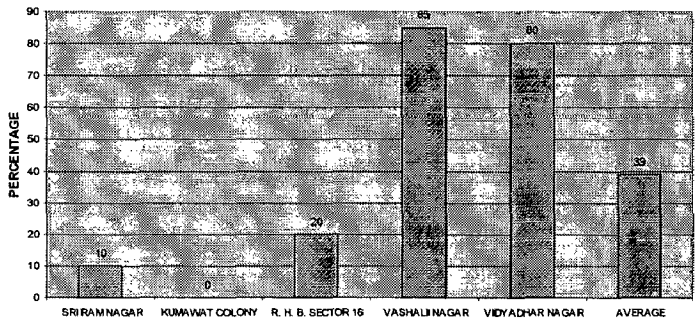
- Almost every household (83%) have arranged some kind of private system of security.

Figure 5.45 Type of vehicle ownership



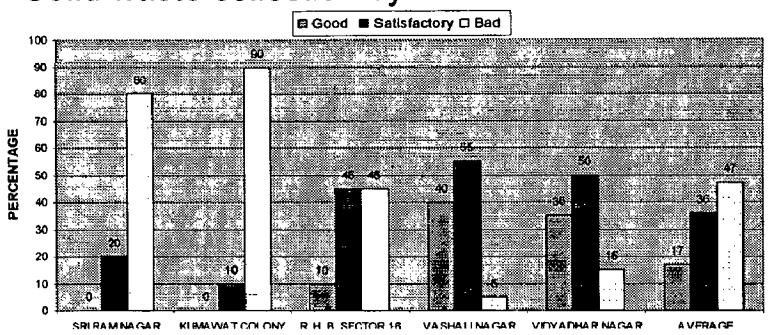
- More people living in Vidhyadhar Nagar own a four wheeler (30%), while in Kumawat colony and RHB Sector 16 has the lowest (5%).
- Almost 61% of households have two Wheeler.

Figure 5.46 Availability of dustbin / solid waste collection point



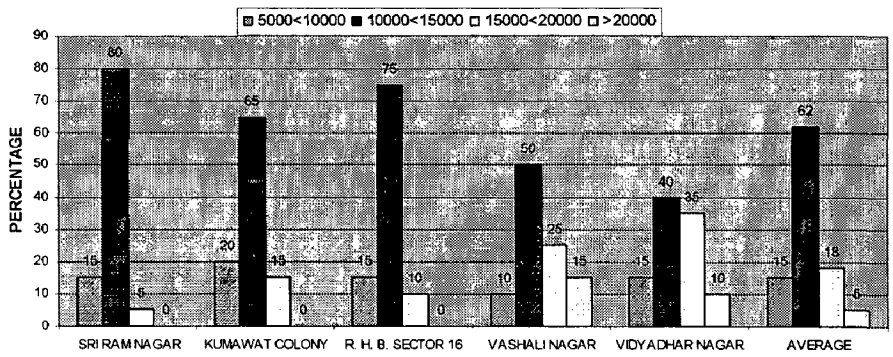
- On an average only 39% of respondent says that dustbins are available.
- Kumawat colony dose not have any dustbin or collection point where Vaishali Nagar and Vidhydhar Nagar are well equipped with this facility.

Figure 5.47 Solid waste collection system and maintenance



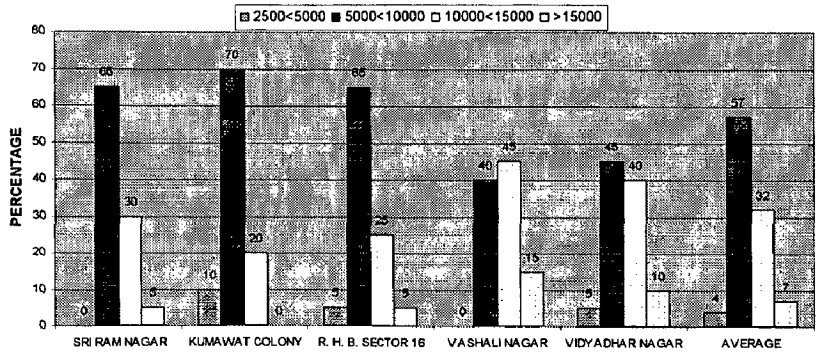
- Almost half (47%) of respondent are not satisfied with Solid waste collection system and maintenance.
- Respondent from Sri Ram Nagar and Kumawat Colony indicated that conditions in this regard are very poor and Vaishali Nagar is better served.

Figure 5.48 Average gross family income per month



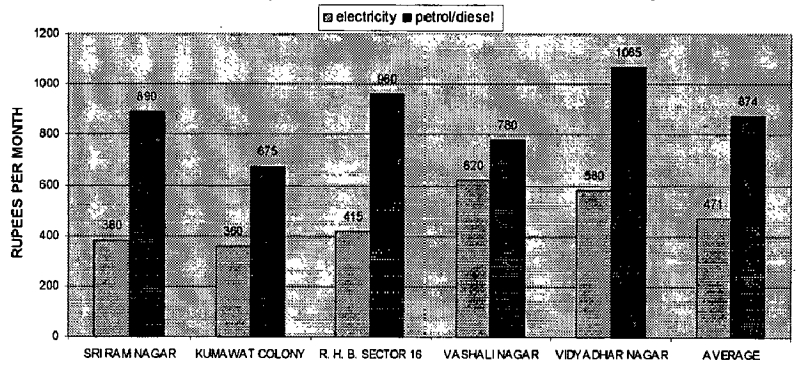
- Majority (62%) of the households lie in the income range of 10000 to 15000.
- Vaishali Nagar has a higher fraction of higher income groups, while Kumawat Colony has shown higher fraction of low income groups.

Figure 5.49 Average gross family expenditure per month



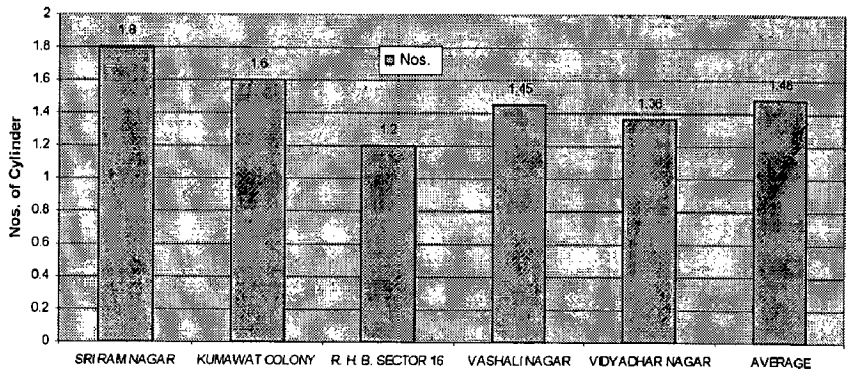
- Majority (57%) of the households lie in the expenditure range of 5000 to 10000.
- Households living in Vaishali Nagar and Vidhyadhar Nagar expend more in compare to others.

Figure 5.50 Average electricity & petrol / diesel consumption in rupees per month



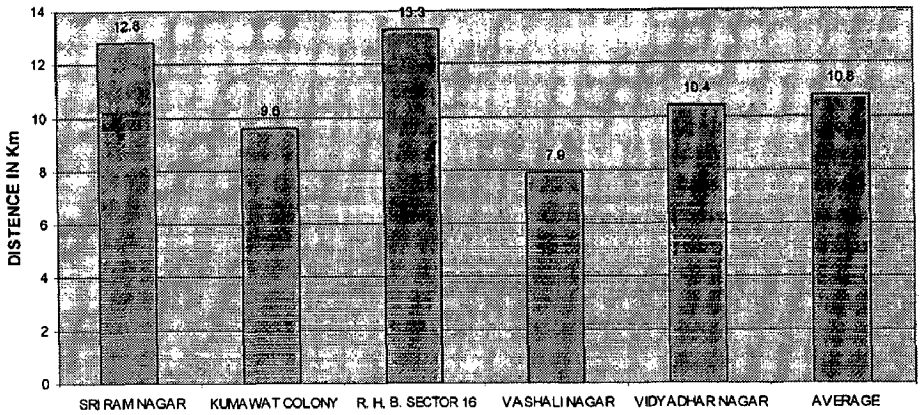
- On an average expenditure per households on electricity is Rs. 471 and on Petrol / Diesel is Rs. 874.
- Households living in Vaishali Nagar spends larger amount on electricity while households from Sri Ram Nagar spends least.
- Households living in Vidhyadhar Nagar spends larger amount on Petrol / Diesel while households from Kumawat Colony spends least.

Figure 5.51 Average LPG consumption (cylinders / month)



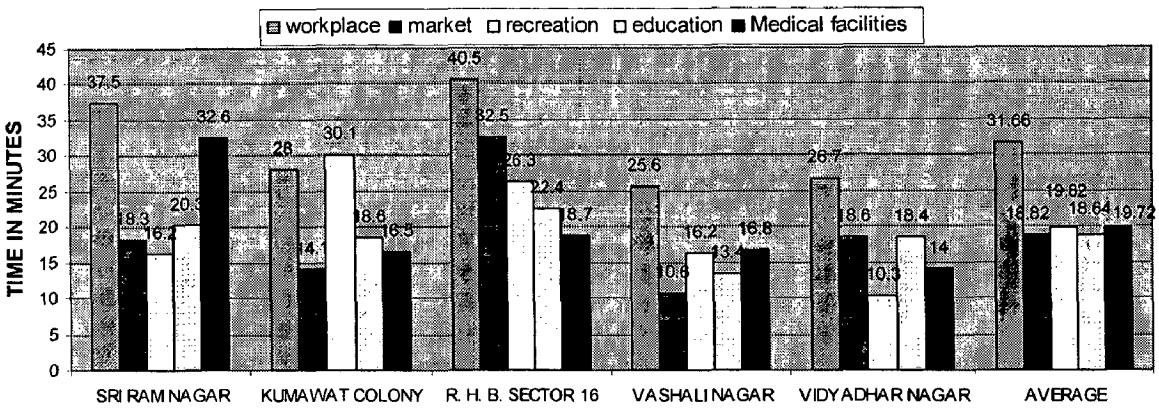
- Average LPG consumption is 1.48 cylinders per month.
- Households from Sri Ram Nagar have highest consumption while RHB Sector 16 has least.

Figure 5.52 Average distance traveled to workplace (km)



- The average distance traveled to reach the work place has been found 10.8 km.
- People at RHB Sector 16 are traveling maximum and those at Vaishali Nagar are traveling minimum distances to reach the respective workplace.

Figure 5.53 Average time taken to reach various places



- The average time taken to reach for the various places by the dwellers of different areas are as follows:

Table 5.19 Average Time Taken to Reach Various Places

No.	Destination	Average time taken	Minimum time taken in	Maximum time taken in
1.	Workplace	31.66 Min	Vaishali Nagar	RHB Sector 16
2.	Market	18.82 Min	Vaishali Nagar	RHB Sector 16
3.	Recreation	19.82 Min	Vidhyadhar Nagar	Kumawat Colony
4.	Education	18.64 Min	Vaishali Nagar	RHB Sector 16
5.	Medical facilities	19.72 Min	Vidhyadhar Nagar	Sri Ram Nagar

- Vaishali Nagar seems to be the best area as regards to the time taken to access various facilities (implying the close and easy availability of the amenities and services) and RHB Sector 16 seems to be worst in this regard.

CHPTER 6 INFRENCES AND FINDINGS

6.1 FACTORS AFFECTING THE STRATEGIES

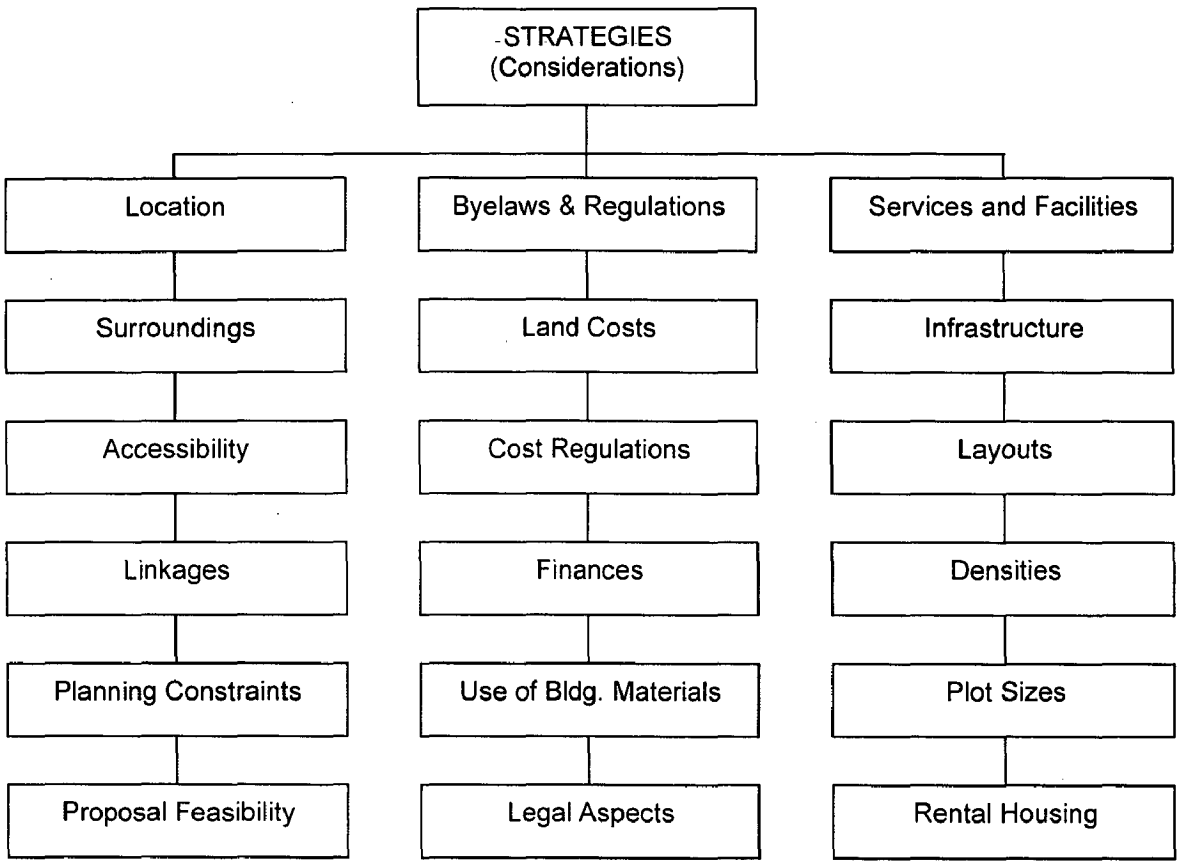


Figure 6.1 Various factors governing the strategies

Above mentioned are the various factors governing the strategies and methods adopted during the development of a new residential area. In this settlement process, there are broadly two entities, which play important role, the consumer (residents) and the supplier (the government agencies and the private bodies involved in planning and construction). There are some of the factors concerns to both the entities, so they can be categorized into three groups with respect to the concern of the three.

6.2 CATEGORIZATION OF THE CONCERNS OF HOUSING CONSUMER AND SUPPLIER

Depending on the concern of the consumer, government bodies and the private agencies the various factors governing the settlement of a new residential area can be correlated. The following table presents the same wherein √ shows a positive concern.

Table 6.1 Correlation on concerns of housing consumer and supplier.

S. No.	Factor	Consumer	Govt. Bodies	Pvt. Agencies
1.	Location	✓	✓	✓
2.	Accessibility	✓	✓	✓
3.	Surroundings	✓		
4.	Land Costs	✓	✓	✓
5.	Finance Options	✓	✓	✓
6.	Services and Facilities	✓	✓	
7.	Proximity to workplace	✓		
8.	Planning Constraints		✓	✓
9.	Feasibility		✓	✓
10.	Byelaws & Regulations		✓	
11.	Building materials/techniques		✓	✓
12.	Legal Aspects		✓	✓
13.	Cost of infrastructure		✓	
14.	Layout		✓	
15.	Density		✓	✓
16.	Plot Size	✓	✓	✓
17.	Rental Housing	✓	✓	✓
18.	Communication Links	✓	✓	

Thus the adoptive strategy is the one which has been taken into account all the above-mentioned factors so as to make the scheme more comprehensive, diverse and widely accepted.

6.3 AVERAGE LANDUSE PATTERNS & COMPARISON TO STANDARDS

The average land uses of the five residential areas studied has been carried out and compared to various urban planning standards laid by the authorities. Our study has been shown that the clearly revealed the rules and regulations by the governing bodies.

Table 6.2 Comparative land use distribution in percentage

S. No.	Land use	Ready Build Housing (RHB Sec-16)	Plotted Housing Schemes by JDA		Plotted Housing Schemes by Private Societies		Standard (%)
			Vaishali Nagar	Vidhadhar Nagar	Shri Ram Nagar	Kumawat Colony	
1.	Residential	46.70	34.15	49.14	64.53	75.46	55-60
2.	Commercial	21.84	32.46	28.2	3.22	1.42	25-22
3.	Green / open space						
4.	Educational						
5.	Facilities & services						
6.	Roads & circulation	31.46	33.39	22.66	32.25	23.12	20-18
	Total						100.00

INFERENCES

1. The area under residences in general overshoots in plotted housing schemes by private societies from the standards specified by the Jaipur Development Authority.

2. The area under facilities and services has been observed to be much less in plotted housing schemes by private societies than that specified in the standards.

3. The area under roads and circulation has also exceeded the standards in housing of every category.

4. There is a lesser concern for the provision of the required facilities and amenities in the residential areas, no matter they are developed by the government authorities or by the private developers.

6.4 MAJOR FINDINGS FROM SURVEY DATA ANALYSIS AND OBSERVATIONS

The major findings and inferences drawn from survey data analysis and observations have been categorized under various headings as follows:

6.4.1 HOUSING TYPE, SERVICES & FACILITIES

1. Survey data analysis has been shown that the revealed almost 68% of the houses are Single Storied. This has led to rapid horizontal expansion of the city.

2. 32% of people have availed finance-loans for housing construction but lower income group are not availed this facility.

3. Electricity supply, water supply, medical facilities, open spaces like park. These facilities have been fond to be better in government-supported areas.

4. Medical and educational facilities are majority being provided by the private firms. This leads to expansive service and lack of standards but on the other hand, it offers business and employment opportunities.

5. The crime rates have been found to the higher in the Societies colonies and RHB Scheme areas. This is also evident from the fact that almost 85% of the

residents from government supported localities have adopted private security systems like alarm systems or private guards.

6.4.2 FINANCIAL ASPECTS

1. It has been observed that the land prices and the rate of increment in the government supported areas have always been higher. In addition, the surrounding / nearby areas also tend to show higher prices in spite of lagging services and facilities, which is an outcome of the rapid expansion rate.

2. The city has a greater fraction of service class due to its administrative, educational and political character. The service class has been observed to be availing the financial aid/loans more frequently, due to the regular income flow. This too is confined to the upper and middle income classes.

3. The majority of people belong to the middle income group. The group has been found to prefer government supported areas and occupy the newly developed areas in early (developing) stages. As regard to the areas developed by the private bodies, the success rates are low at the initial stages.

6.4.3 REGULATIONS

1. The average plot size of the plots in the residential areas has been found to be 151.52 Sq.M. This reflects that lesser number of small plots is available in the residential areas in general.

2. Parks/ open spaces and convenient shopping centers have been found to be better maintained in the government supported areas. In addition the shopping centers in these areas have been found to be more useful in terms of fulfillment of requirement.

3. The most preferred shopping areas of the residents of both the area have been found to be located at an average distance of 7.5 kilometers and are generally located in the wall city. This is basically due to the comparatively low rate of the commodities (because of wholesale nature) and a wide variety of the items available.

4. Majority of people living in areas provided by societies, have been found to grade other residential areas better for living than their own, which clearly reflects dissatisfaction and inferior conditions.

6.4.4 TRANSPORTATION

1. Most of the households have been found to be having a 2 wheeler and few of them having a car. This is clear indicative of the fact that people prefer their own mode of transportation as compared to the public transportation system. Although three fourth of the households have been found to own a bicycle but its use is very limited (say for accessing educational facilities by children).

2. People living in areas developed by societies, have been found to be spending more on fuel (petrol & diesel) implying more distances of work centers, educational and recreational centers, markets etc. meaning thereby bad location aspect and lack of public transportation facilities. In addition these people are traveling greater distances and spending more time to reach their workplace as compared to those living in the government promoted areas.

3. On an average a person is traveling 10.71 kilometers and spending about 26.93 minutes to reach the respective workplace. This is a result of the vast extent of the city limits, high traffic volume and inefficient public transportation system.

CHPTER 7 CONCLUSIONS,RECOMMENDATIONS AND STRATEGIES

7.1 CONCLUSIONS

In the light of the present study, it may be concluded that, in order to meet the changing needs of the growing population, the promoters (Government or private) are required to adopt new strategies and methodologies. This will [redacted] ensure more precise action plans, faster implementation of the schemes and greater efficiency of the system

Higher densities, revised plot sizes and standards, rental housing & densification etc. may be the tools which can be adopted to make the schemes more suitable to the contemporary approach of shrinking requirements, wherein the factors like high land costs, land scarcity and low availability play their respective roles.

In addition to the strengthening of the Government's approach, the role of the private developer/promoters needs to be supervised so that they provide for proper services and facilities as a simultaneous process in new settlements.

7.2 RECOMMENDATIONS AND STRATEGIES

The various recommendations and strategies which have been derived from the detailed field studies have been categorized under various headings as follows:

7.2.1 HOUSING TYPE, SERVICES AND FACILITIES

1. Single storied construction should be discouraged and multistoried to be encouraged to ensure proper density (medium if not high) by provision of some incentives. This will ensure lesser coverage on the ground & slower expansion rate of the city limits. This approach will also help reducing the cost

of infrastructure by reducing the length of water supply, drainage and sewerage lines and road lengths.

2. The area having low housing densities may be traced out and subjected to re-densification. This may be achieved by selling off the roof slabs for construction of an additional floor (considering the structural stability at the same time) or by allowing additional ground coverage in the plots (relaxation in the setbacks).

7.2.2 FINANCIAL ASPECTS

1 Efforts should be made to reduce the investment per unit so as to reduce the effective price. Shared areas like open spaces /parks/ playgrounds, convenient shopping centers etc. would be better shares, thereby reducing the cost of provisions.

2 In order to encourage the sector of population which has the capacity to invest in housing they should be given some incentives or relaxation so that provision of rental accommodation turns up as a lucrative venture for them and thereby increase the housing stock. This will also ensure higher residential density.

3 The above two measures will not only promote higher densities and lower cost of infrastructure per residential unit, but also help regulating the rapidly hiking land prices and slower sprawl of the city limits.

4 There is a need to work out certain finance options for the low income as well. Ready built houses scheme was tried at Sanganer for the lower income class but most of them after allotment either sold it or have rented it for money. Thus there should be some regulation to stop this practice.

7.2.3 REGULATIONS

1. The difference in the quality of provision in government & private settlements should be checked by imposing a set of terms and conditions on the private developers. They may be granted permission in phased manner so as to ensure proper implementation of the supervised scheme and provision of required services and facilities simultaneously.

2. A variety of plot sizes should be made available to the customers, so as to suit a variety of income groups.

7.2.4 TRANSPORTATION

1. Modes other than MRTS and Metro Train can serve the same purpose in lesser number of breaks and within lesser time. Thus there is a need to strengthen the rail and Road network and to enhance the coverage. Although the bus service is satisfactory, but the needs improvement in terms of greater coverage.

2. The linkages of access to the city center and marked places should be checked so as to ensure better mobility in addition to the provision of market places in outer areas in long term.

3. Bicycle lanes may be promoted to encourage this eco-friendly personal transportation option, as is being done in several countries like China, Japan, America and many other western countries.

4. The road transportation system needs immediate improvement in terms of quality, coverage and routes followed.

7.2.5 ENVIRONMENTAL ASPECTS

1. There is a need to relocate the municipal dumping sites, as they are posing health and environmental hazard.

2. The solid waste disposal system should be strengthened by provision of dustbins, by increasing the frequency of garbage collection & adoption of new strategies such as using paper bags instead of polythene bags, segregation of organic and inorganic waster and thereafter separate processing.

3. The battery driven autos have proved to be successful as a public transportation mode. In addition to the low operating cost, they are eco-friendly with no emission. These autos should be encouraged along more traffic routes.

7.2.6 LAYOUTS

1. The layout should support lesser lengths of service networks so as to minimize the infrastructure cost per household.

2. Parks / open spaces should be well segregated from the major traffic arteries to avoid mishaps and noise, and should be uniformly distributed throughout the layout.

3. Hierarchy of road widths should be adopted along with a systematic road network.

4. The layout the colony should ensure easy access to various private partnerships may be sought which will not only generate employment opportunities but also ensure easy and regular maintenance.

5. Incompatible intermixing of land uses should be avoided.

6. Vacant plots should be checked for encroachment by slum dwellers or businessmen or its conversion to a garbage collection spot.

7. Signage plays an important role in housing layout, so it should also be given due importance as it helps an outsider locate the desired position.

7.2.7 GENERAL RECOMMENDATION

1. If the new residential area is developed along the main traffic corridors / highways / roads, they develop at a rapid rate due to easy accessibility and there after the nearby areas also develop at a faster rate due to the newly available infrastructure facilities and services. The linkage and accessibility are thus important determinants of the locational aspect. Fast communication is essential to make the area develop at a rapid rate. The roads, taxi routes, MRTS etc. should be made readily available.

2. Private sector partnership may be sought for new ventures, which may prove to be better in terms of efficiency and reduce the burden of the authorities.

3. Non-government organizations may be called upon to promote specific housing types, such as housing for the low income group, using low cost construction technology and mass housing schemes. Building research organizations may provide a technical hand.

4. The private developers should be imposed with some regulations and restrictions, like those related to subdivision of land, regulation of the plot sizes, setbacks, provision of facilities and services, scope for future expansion etc. The development process should be supervised by some

regulatory body to ensure proper implementation of the scheme in a phased manner.

Thus the newly adopted strategies shall impart a more systematic and foreseen outlook to the city's expansion, instead of the haphazard and unplanned growth. The new residential areas thus developed shall have a more fulfilling and satisfying character, by virtue of better service and facilities.

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ANNEXURE I

QUESTIONAIRE FOR HOUSEHOLD SURVEY IN STUDY AREAS

Conducted by: Ravi Rai Verma, MURP,
Department of Architecture & Planning,
Indian Institute of Technology, Roorkee, Uttaranchal

A. General Information:

1. Name of head of family:.....
2. Religion: ..... 3. Occupation:.....
4. Address:.....
..... 5. Number of earning members:.....
6. Age Group 7. Education

Age Group	Male	Female
<5		
5<15		
15<25		
25<60		
60<		

Education	Male	Female
Nil		
Metric		
Hr. Sec.		
Graduate		
Post Graduate		

B. Issues:

1. Type of accommodation (√):
   i) Own house. ii) Rented house. iii) Govt. leased house.
   iv) Company leased house. v) Others:.....

* Rent/lease amount (per month) .....

2. You are living in this house since (√):
   i) <5 years. ii) 5<10 years. iii) 10<15 years. iv) >15 Years.

Before this house, which area you were living in?
.....

3. Number of rooms in the house. (√):
   i) 1 ii) 2 iii) 3 iv) 4 v) 5 vi) .....

4. Numbers of floors in the house (√):
   i) 1 ii) 2 iii) 3 iv) 4 v).....

5. Have you rented any floor/part of your house? Yes / No.

If yes than specify:
i) floor and rooms:..... ii) Monthly rent:.....

6. Reason for opting a house in this locality(√):
   i) Nearness to workplace ii) Nearness to relatives iii) Access to facilities
   iv) Affordable cost v) Ancestral property vi) Others.....

7. Land cost:
i) When Purchased: (.....) .....ii) Current: .....

8. Any housing finance scheme or loan availed: Yes / No.

   If yes than specify: i) Agency:..... ii) Amount.....
   iii) Term of loan.....iv) EMI.....

9. Do you have desire to shift for better living? Yes / No.

   If yes than, which residential area in Jaipur you consider best to live in.
   ..... Why ?.....
   .....

10. While choosing a residential location, which of the following factors you consider to be most important (√):

   i) Proximity to workplace ii) Value of land
   iii) Proximity to good education iv) Well linked by transportation
   v) Good social environment vi) Proximity to major market
   vii) Public services and recreation

11. Electricity supply:
   i) Supply hours ..... ii) Voltage fluctuations: Yes / No

12. Water supply:
   i) Adequate / Inadequate ii) Supply hr.....
   iii) Source: Municipal supply / tube well / Others

13. Transportation:
   i) Nearest Rikshaw / Auto Rikshaw stand..... (kms.)
   ii) Nearest Bus stand.....(kms.) iii) Nearest petrol pump..... (kms.)
   General comment on the facility: Overcrowded / Good / Satisfactory

14. Health care facilities:
    i) Nearest available (kms.): ii) Nature: Govt. / Private (G / P)
    Clinic .....Dispensary.....Nursing Home.....Hospital.....

15. Education:
    i) Nearest available (kms.): ii) Nature: Govt. / Private (G / P)
    Nurs: Secondary: Hr. Sec.: Deg. College Universities

16. Parks and open spaces:
    i) Nearest available ... (kms.) ii) Size of the park: Small / Medium / large
    iii) Maintenance Good / Poor / Satisfactory

17. Convenient shopping:
    i) Nearest available:.....(kms.)
    ii) Useful for: All purposes / Very few purposes / Almost all purposes
    iii) Most preferred shopping area in the city:..... Distance.....
    iv) Nearest Govt. control rate shop.....

18. Community recreational facilities:
    i) Nearest cinema hall.....(kms.) ii) Nearest club.....(kms.)
    iii) Nearest community center / Marriage hall.....(kms.)

19. Whether sewer line / drainage system is available
i) Yes / No.
ii) Condition Good / Satisfactory / Poor .....

20. Approach road
i) Black top / Kharanja / Katcha
ii) width.....

21. Priorities for development
    i) Roads ii) Park/ Play ground iii) Sewerage iv) Street Light
    v) Drainage vi) Shopping center vi) Solid waste collection vii) Others

22. Development / Regularization Charges already paid
    Yes / No
    Amount .....(Rs.)

23. Willingness to pay for better services and development
    Yes / No
    Amount .....(Rs.)

24. Security and safty:
    i) Crime rate: High / low / Moderate.
    ii) Nearest police station..... (kms.)
    iii) Police assistance and patrolling Good / Bad / Satisfactory
    iv) Any private system of security: Guard / Security alarm / Others.....

25. Vehicles owned (√ and put numbers):
    i) Scooter ( ) ii) Car ( ) iii) Cycle ( ) iv) Any other ( )

26. Pollution and hygiene level (√):
    i) Dust and smoke ii) Foul smell iii) Noise, Source.....
    iv) Water stagnation v) Flies & mosquitoes vi)Others.....

27. Solid Waste:
    i) Availability of dustbin / collection point Yes / No
    ii) Distance.....
    iii) Collection system and Maintenance Good / Poor / Satisfactory

28. Gross family income (√):
    i) <5000 ii) 5000-10000 iii) 10000-15000 iv) 15000-20000
    v) 20000<

29. Gross family expenditure ..... (Rs.)

30. Expenditure distribution (%):
    i) Food ii) Education iii) Energy iv) Transportation
    v) Recreation vi) Others.....

31. Energy consumption (per month)
    i) Electricity ii) LPG iii) Kerosene iv) Petrol / diesel

32. Distances, time taken and mode of transportation for various destinations:

S. No.	Destination	Distance (kms.)	Time taken (hrs.)	Mode
1.	Workplace			
2.	Market			
3.	Recreation			
4.	Education			
5.	Medical Facilities			

33. Any suggestions .....
.....

ANNEXURE II

Survey Data Compilation							
S. No.	HEAD / AREA	SRI RAM NAGAR	KUMAWAT COLONY	R. H. B. SECTOR 16	VASHALI NAGAR	VIDYADHAR NAGAR	AVERAGE
1	Percentage of service Class	60	60	55	55	60	58
	Percentage of business Class	40	40	45	45	40	42
	Number of earning members per household	1.45	1.5	1.55	1.3	1.2	1.4
	Average number of family members	6.05	5.8	4.8	4.65	5.2	5.3
2	Percentage of owned houses	80	75	65	70	70	72
	Percentage of rented houses	20	25	35	30	30	28
	Percentage of leased houses	0	0	0	0	10	2
3	Average rent (rupees per month)	1640	1450	1250	2430	2180	1790
4	Percentage of people living for < 5 years	10	15	30	20	20	19
	Percentage of people living from 5-10 years	55	45	20	30	30	36
	Percentage of people living from 10- 15 years	30	25	40	45	25	33
	Percentage of people living for 15< years	5	15	10	5	25	12
5	Average distance of the previous place of residence (km)	7.3	6.8	13.2	6.4	8.6	8.46
6	Percentage of house having 2 rooms	35	30	30	15	30	28
	Percentage of house having 3 rooms	35	30	40	25	40	38
	Percentage of house having 4 rooms	20	25	25	20	15	21
	Percentage of house having 5 rooms	10	10	5	10	10	9
	Percentage of house having more than 5 rooms	0	5	0	10	5	4
7	Percentage of house having single floor	80	75	70	55	60	68
	Percentage of house having two floor	20	25	30	35	25	27
	Percentage of house having three floor	0	0	0	10	15	5
8	Percentage of house having rented accommodation	10	15	15	20	15	15
9	Reason for choosing this locality to live in (% of responses)						
	Nearness to workplace	15	10	25	15	10	15
	Nearness to relatives	15	20	30	10	13.3	17.7
	Access to facilities	10	5	30	55	66.7	33.3
	Affordable cost	55	60	20	15	10	32
	Ancestral property	5	5	0	5	0	3
10	Average land cost five years ago (rupees/sq. yard)	1430	1180	2060	3870	4120	2532
	Current average land cost (rupees/sq. yard)	2660	2270	2820	5620	5860	3844
	Rate of increase of land cost (rupees/sq. yard/year)	244	218	152	350	418	276.4
11	Percentage of people who availed housing loan	25	30	35	30	40	32

	Most prominent financing agency	SBI, HDFC	PNB, SBI	PNB, HDFC	ICICI, HDFC	LIC, ICICI	PNB, ICICI,LIC, SBI
12	Percentage of people who consider the same area to be best to live in the city	40	45	60	85	90	64
	Percentage of people who consider some other area to be best to live in the city	60	55	40	15	10	36
13	Major factor in governing in house location	Land value	Land value	Land value	Transportation	Good social environment	Land value
	Second major factor in governing in house location	Transportation	Good social environment	Transportation	Land value	Transportation	Transportation
	Third major factor in governing in house location	Good social environment	Transportation	Proximity to work place	Good social environment	Land value	Good social environment
14	Average power supply hours	22	20	23	24	24	22.6
	Percentage of people who complained voltage fluctuations	35	30	20	10	10	21
15	Average water supply hours	2.3	3.2	2	2.75	2	2.45
	Percentage of people who complained inadequate water supply	70	65	75	50	45	61
16a	Average distance of nearest rikshaw / auto rikshaw stand	1.6	1.1	2.1	1.2	1.4	1.48
	Average distance of nearest bus stand	1.6	2.3	4.2	1.5	1.8	2.28
	Average distance of nearest petrol pump	3.2	2.8	4.5	0.8	2.3	2.72
16b	Opinion about public transport system (% distribution)						
	Good	10	25	15	40	20	22
	Satisfactory	30	60	20	45	55	42
	Overcrowded	60	15	65	15	25	36
17a	Average distance to nearest medical facility	1.6	0.8	2.1	0.7	1.2	1.28
17b	Nature of the facility (% distribution)						
	Government owned	5	10	30	20	15	13
	Private	95	90	70	80	85	87
18a	Average distance to nearest education facility	1.2	1.4	2.1	0.9	0.8	1.28
18b	Nature of the facility (% distribution)						
	Government owned	60	70	35	20	15	40
	Private	40	30	65	80	85	60
19a	Average distance to nearest park or open spaces	0.8	4.2	0.7	0.6	0.4	1.34
19b	Size of park/open space						
	Small	0	20	60	40	35	31
	Medium	70	55	20	50	40	47

	Large	30	25	20	10	25	22
19c	Maintenance of park or open spaces (% distribution)						
	Good	35	15	30	20	65	33
	Satisfactory	55	30	45	40	25	39
	Poor	10	55	25	40	10	28
20a	Average distance to nearest convenient shopping	1.6	0.8	2.5	0.9	0.75	1.31
20b	Useful for (% distribution)						
	All purpose	5	25	0	30	10	14
	Almost all purpose	30	20	20	45	30	29
	Very few purpose	65	55	80	25	60	57
21	Average distance to the most preferred shopping area	6.7	5.3	12.1	6.2	7.2	7.5
	Average distance to the government controlled rate shop	1.8	0.9	3.1	0.6	1.2	1.52
22	Average distance to nearest cinema hall	2.4	1.1	3.4	0.8	1.4	1.82
	Average distance to nearest club	6.2	4.8	7.2	2.2	4.3	4.94
	Average distance to nearest marriage hall/community hall	1.4	1.8	2.1	1.2	1.7	1.64
23a	Availability of sewer line	No	No	Yes	Yes	Yes	Yes
23b	Condition of sewerage/drainage system(% distribution)						
	Good	0	0	25	40	35	20
	Satisfactory	10	15	65	55	60	41
	Bad	90	85	10	5	5	39
24	Approach road condition						
	Black top	0	40	80	100	100	64
	Kharanja	30	45	20	0	0	19
	Katcha	70	15	0	0	0	17
25	Priority for development (% distribution)						
	First priority	Drainage	Sewerage	SWM	Park/ play ground	SWM	SWM
	Second priority	Road	Road	Street light	Street light	Street light	Street light
	Third priority	Shopping center	Solid waste management	Shopping center	SWM	Shopping center	Shopping center
26	Percentage of households who have paid Development/Regularization charge	80	65	100	100	100	89
27	Percentage of households willing to pay for better services and development	65	70	60	70	55	64
28a	Crime rate (% distribution)						
	Low	15	20	10	40	30	23
	Moderate	35	50	30	45	40	40
	High	50	30	60	15	30	37
28b	Average distance of the nearest police station	2.8	1.5	2.6	0.9	1.6	1.88
	Police assistance and patrolling (% distribution)						

	Good	10	25	15	55	35	28
	Satisfactory	20	30	25	30	40	29
	Bad	70	45	60	15	25	43
	Any private system of security (% distribution)						
	Yes	90	95	85	85	60	83
	No	10	5	15	15	40	17
29	Percentage of households having car	10	5	5	20	30	14
	Percentage of households having 2 wheeler	65	50	40	70	80	61
	Percentage of households having bicycle	60	90	100	70	85	81
30	Major pollution and hygiene problem	Water stagnation	Water stagnation	Water stagnation	Noise	Flies & mosquito	Water stagnation
	Second major pollution and hygiene problem	Flies & mosquito	Foul smell	Flies & mosquito	Flies & mosquito	Foul smell	Flies & mosquito
	Third major pollution and hygiene problem	Dust & smoke	Flies & mosquito	Foul smell	Water stagnation	Dust & smoke	Dust & smoke
31a	Availability of dustbin/collection point						
	Yes	10	0	20	85	80	39
	No	90	100	80	15	20	61
31b	Solid waste collection system and maintenance (% distribution)						
	Good	0	0	10	40	35	17
	Satisfactory	20	10	45	55	50	36
	Bad	80	90	45	5	15	47
32	Average gross family income per month						
	5000<10000	15	20	15	10	15	15
	10000<15000	80	65	75	50	40	62
	15000<20000	5	15	10	25	35	18
	>20000	0	0	0	15	10	5
33	Average gross family expenditure per month (% distribution)						
	2500<5000	0	10	5	0	5	4
	5000<10000	65	70	65	40	45	57
	10000<15000	30	20	25	45	40	32
	>15000	5	0	5	15	10	7
34	Average electricity consumption (rupees/month)	380	360	415	620	580	471
35	Average LPG consumption (cylinders/month)	1.8	1.6	1.2	1.45	1.36	1.481
36	Average petrol/diesel consumption (rupees/month)	890	675	960	780	1065	874
37	Average distance traveled to workplace	12.8	9.6	13.3	7.9	10.4	10.8
38	Average time taken to reach workplace	37.5	28	40.5	25.6	26.7	31.66
	Average time taken to reach market	18.3	14.1	32.5	10.6	18.6	18.82
	Average time taken to reach place of recreation (minutes)	16.2	30.1	26.3	16.2	10.3	19.82
	Average time taken to reach place of education (minutes)	20.3	18.6	22.4	13.4	18.4	18.64
	Average time taken to reach Medical facilities (minutes)	32.6	16.5	18.7	16.8	14.0	19.72