COMMONWEALTH GAMES 2010 DELHI : URBAN DEVELOPMENT AND TRANSFORMATIONS

A DISSERTATION

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

MASTER OF URBAN AND RURAL PLANNING

By

KANIKA MALIK

M.G. CENTRAL LIBRARY
ACC No. G20484
Date 26/11/10
I.I.T. ROORKEE

DEPARTMENT OF ARCHITECTURE AND PLANNING
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE -247 667 (INDIA)

JUNE, 2010

CERTIFICATE

Certified that this report entitled **"Commonwealth Games 2010 Delhi: Urban Development and Transformations"**, which has been submitted by **Ms. Kanika Malik,** in partial fulfillment of the requirements for 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 the student's own work carried out by her under my supervision and guidance. The matter embodied in this dissertation has not been submitted by her for the award of any other degree of this or any other institute.

Date: 7th JUNE 2010

Place: Roorkee

(Prof. Rajesh Chandra)
Assistant Professor
Department of Architecture and Planning
Indian Institute of Technology Roorkee
Roorkee – 247667
INDIA

(Prof. Tina Pujara)
Assistant Professor
Department of Architecture and Planning
Indian Institute of Technology Roorkee
Roorkee - 247667
INDIA

CANDIDATE'S DECLARATION

I hereby certify that this report entitled **"Commonwealth Games 2010 Delhi: Urban Development and Transformations"**, which has been submitted in partial fulfillment of the requirements for the award of the degree of **Master of Urban and Rural Planning**, 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 July 2008 to June 2009, under the supervision and guidance of Prof. Rajesh Chandra and Prof. Tina Pujara, Department of Architecture and Planning, Indian Institute of Technology Roorkee, Roorkee, India.

The matter embodied in this dissertation has not been submitted by me for the award of any other degree of this or any other institute.

Date: 7th JUNE 2010
Place: Roorkee

Kanika Malik
(KANIKA MALIK)

This is to certify that above statement made by the candidate is correct to the best of my knowledge.

Date: 7th JUNE 2010
Place: Roorkee

(Prof. Rajesh Chandra)
Assistant Professor
Department of Architecture and Planning
Indian Institute of Technology Roorkee
Roorkee – 247667
INDIA

(Prof. Tina Pujara)
Assistant Professor
Department of Architecture and Planning
Indian Institute of Technology Roorkee
Roorkee - 247667
INDIA

ACKNOWLEDGEMENT

I owe my gratitude to all those people who have made this dissertation possible and because of whom my academic experience here at IIT Roorkee has been one that I will cherish forever.

My deepest gratitude is to my thesis guide, Prof. Rajesh Chandra, for his constant support, inspiration, guidance and invaluable suggestions at every point of time, for both academics and life in general. I am indeed blessed to have worked under him. I am grateful to Prof. Tina Pujara for going out of her way and helping me out with the dissertation.

I would also like to thank Dr. V. Devadas for guiding me through the initial phase of this dissertation.

I am grateful to Dr. S.Y. Kulkarni, Head of the Department, for giving me an opportunity to commence this dissertation and Dr. Nalini Singh, Thesis Co-ordinator, for keeping us in time for all our submissions.

I would also like to thank Prof. R. Shankar, Dr. Najamuddin, Prof R.K Jain & all other faculty members of the department for their valuable suggestions and help all through.

I convey my sincere gratitude to the various organisations, which have helped me in the process of data collection and extended their valuable suggestions.

I thank all my friends, especially Satwik for being there when I needed him, Prathyusha for keeping my spirits high always, Abhijit for being such a dear friend and his invaluable advice, Namrata for going out of her way to help me and a special thank you to Bharat for making sure I was never short of encouragement. I thank all my classmates for the discussions we had on our thesis, which has helped improve our work.

Last but not the least, I would like to thank my dearest family and relatives for their loving support and encouragement throughout my endeavour and my nephew Kabir for being the bundle of joy he is.

Kanika Malik

IIT Roorkee

EXECUTIVE SUMMARY

Cities today are a witness and host to national and international events, which require huge development expenditure and have wide implications on the city development process. The Commonwealth Games to be hosted in New Delhi 2010 is one such event which will give impetus not only to games infrastructure but will also help the city in augmenting its services for the benefits of its citizens. All these planned construction projects having multilateral impact on the city development need to be studied in a comprehensive manner so that these can bring about wholesome urban development. Therefore the aim of the study is to assess the impact of Commonwealth Games 2010 on Delhi's urban development.

The study has been carried out in 4 stages. The stage 1 involves the literature review in which background study has been done to identify possible impacts that a mega event has on the host cities. In stage 2, information was gathered on the infrastructure being developed for the Games from various authorities. Stage 3 is the analysis stage, where the information gathered was analysed in terms of the possible implications that these developments will have on the city. The analysis led to the study of zone E in detail where the implications were assessed in terms of land use and land values. Based on the analysis, issues and opportunities were identified. In stage 4 the implications of the infrastructure development was identified and strategies were formulated.

The chief findings were: the event is not leading to an all-round city development, no strategy made to recover the huge investments made for the event, no rehabilitation strategy for the construction workers and inconvenience caused to the local people during the construction phase. On the contrary, games have also led to speedy infrastructure development, building of sport venues of international standard, addition of hotel rooms and parking spaces which was much required by the city and huge investments made in Zone E leading to its up gradation. Zone E has experienced land use transformations and rise in land values due to the infrastructure development. This rise in land values will call for more intensive and high density development. Based on these issues and implications, strategies have been framed which suggest that these events should aim for an integrated development and should achieve much more than just successfully hosting the event, like, rejuvenation and redevelopment of the blighted areas, etc.

TABLE OF CONTENTS

CHAPTER 8: ISSUES AND OPPORTUNITIES

CHAPTER 9: IMPLICATIONS AND STRATEGIES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

1.0 PREAMBLE

The study of the history of civilization reveals the existence of an intimate tie between the practice of sports activity and the development of the spirit of mankind. Sports can address one of the central problems of modernity, namely the erosion of the utopian community. In today's society we get easily differentiated from each other in the struggle for a living, sports activity can form the chain that holds us together.

A similar relationship exists between the physical framework and sporting activity that it supports. Cities today are a witness and host to national and international events, which not only provides an opportunity for economic development but also are instrumental in infrastructural development of the city. These events often require new construction hence a huge amount of investment is required for the construction of the facilities. This phenomenon is distinctly visible when the event being hosted by a city is an international event. These events are helpful in development of the city. These events thus have an effect on the city structure and more on its services and its transport, social infrastructure, physical infrastructure or land.

The benefits of the events have been given a great deal of importance. The big projects and events can add prestige to the national identity and can help cities and nations to justify huge investments in replacing old facilities with new. These are seen as bringing competitive advantages as cities compete with each other to attract investment, to better position themselves in the global market and to present themselves as powerful and prestigious.

1.1 CONTEXT

The **Commonwealth Games** to be hosted in New Delhi 2010 would be bringing in a lot of changes and development. These games are third in order after the Olympics Games and the Asian Games and call for huge developments and investments. Most important is the impact of these developments on the city as well as areas near major venues or Commonwealth Games Village site. This event will give impetus to development and hence should be taken as an

opportunity to develop the city for the benefit of the city dweller. This event will definitely have an impact on various aspects of the society and the physical framework; however the intensity and nature of impact need to be evaluated.

Hosting a sporting event at a scale such as the Commonwealth Games is a matter of international prestige for the country, and is bound to boost brand India. The country is heralded as the next world economic superpower and the Games will be another opportunity to project the nation on the world stage. Delhi too, as the host city, will get the chance to exhibit a new image for itself – that of a world class city with international standards. Improved infrastructure and appearance of the host city, and global media exposure will serve to transform the image of the city.

Another legacy of the Games will be the social, economic and physical regeneration of Delhi. The Games will help to boost urban renewal, create jobs, increase investment and transform the landscape of the city. Delhi will get a major facelift due to the Games: its monuments and heritage buildings will be restored and areas such as East Delhi and the Yamuna riverfront will be developed. Not only will the Games leave behind improved infrastructure and facilities for the citizens of Delhi, but will also promote investment in the city. The hospitality sector is an area that will see a huge growth spurt, with the help of the XIX Commonwealth Games 2010 Delhi.

Another sector that will see huge improvements will be transportation: flyovers, bypasses, broader roads, a larger metro system, an integrated Rail Bus Transport system and a High Capacity Bus system. These will all serve to ease traffic congestion and transit for Delhi's citizens. The modernisation of the Indira Gandhi International Airport will treble capacity and go a long way towards improving connectivity within India and with the rest of the world. Apart from this, two new power plants to enhance electricity supply, improved water distribution and solid waste management systems will add considerably to the Delhi citizen's comfort levels post Games.

And, of course, the Games will leave behind dramatically improved, world-class sports facilities that generations of Indian sportspersons can use in the future. The establishment of an Olympic-size pool as well as a gym in the Delhi University will boost sports among the youth of Delhi.

More than all this, the legacy of the XIX Commonwealth Games 2010 Delhi will be to boost the sports culture as a part of the daily life of every Indian, particularly the youth.

IMPACT OF THE GAMES

The impact of being the host city, range from the physical (construction projects) to the intangible (local self-esteem or international impact).

The impact that an event of this kind has on the urban landscape can largely be gauged by the size of the "legacy" that it creates.

It is important to note here that it is not only legacy creation that is important, but creating a legacy which is beneficial to the host community post games, and which justifies the costs involved.

Improved infrastructure and appearance of the host city, and global media exposure will serve to transform the image of the city.

- Creation of Employment
- Investment in the Region
- Sporting Legacy
- Improved Transport Links
- Creation of Business Opportunities
- Improved Image of the Region
- Increase in Visitor Numbers
- A Culture of Volunteering
- A Cultural Legacy

1.2 NEED FOR THE STUDY

An event of this magnitude would unavoidably affect urban land, its uses & the existing dynamic activities.

The consequence of this will be an extensive variety of impacts over the area of influence, ranging from negative to positive aspects.

The Commonwealth Games Village too will have tremendous effect on the urban fabric, especially at immediate periphery and along the corridors connecting it to the main city.

This would automatically trigger commercial activity on an unprecedented scale thereby changing the land use.

This would result in increased demand of commercial and residential properties near the village, thereby boosting the land values and triggering off real-estate activity

It would be therefore relevant to look for ways for appropriate land use and planning to exploit the increased property demand on a large area.

Therefore there is a need to look into the land use pattern & develop Strategies so as to optimize the benefits of the Common Wealth Games to improve the urban Infrastructure and Economic Growth.

1.3 AIM

- Assessing the probable implications of Commonwealth Games 2010 on Delhi's urban development

1.4 OBJECTIVE

The prime objectives of the study are:

- To study the infrastructure development for the Commonwealth Games 2010 in Delhi.
- To identify, assess and evaluate the impact of the games in terms of infrastructure development at city level.
- To identify and assess the impact of the games in terms of land use transformations and land values in Zone E (as per master plan 2021) of Delhi.
- To formulate strategies to optimize the benefits of the infrastructure developed (for the games), in the post game period.

1.5 SCOPE

The study attempts to highlight the implications of holding events in terms of infrastructure development, land use and land values.

- The implication study at the city level has been done taking into the account the infrastructure that is being developed for the games.
- The implications of the infrastructure development on land use and land values have been carried out in Zone E.

1.6 LIMITATIONS

- The study has been conducted through information and data collected through secondary sources.
- The Purpose of the thesis is to analyze the impact of the Common Wealth Games in Delhi but the study area has been limited only to East Delhi.

1.7 METHODOLOGY

The study has been carried out in 4 stages.

The ***stage 1*** involves the literature review in which background study has been done to identify possible impacts that a mega event has on the host cities. A few examples of the past game events were studied to understand the planning, implementation and the implications that these events had on the respective cities. This helped in the formulation of aims and objectives of the study.

In ***stage 2***, information was gathered on the infrastructure being developed for the Games from various authorities. The infrastructure includes the Games Village, sport venues, transportation projects (road projects and metro), hotels, power, water supply and sanitation.

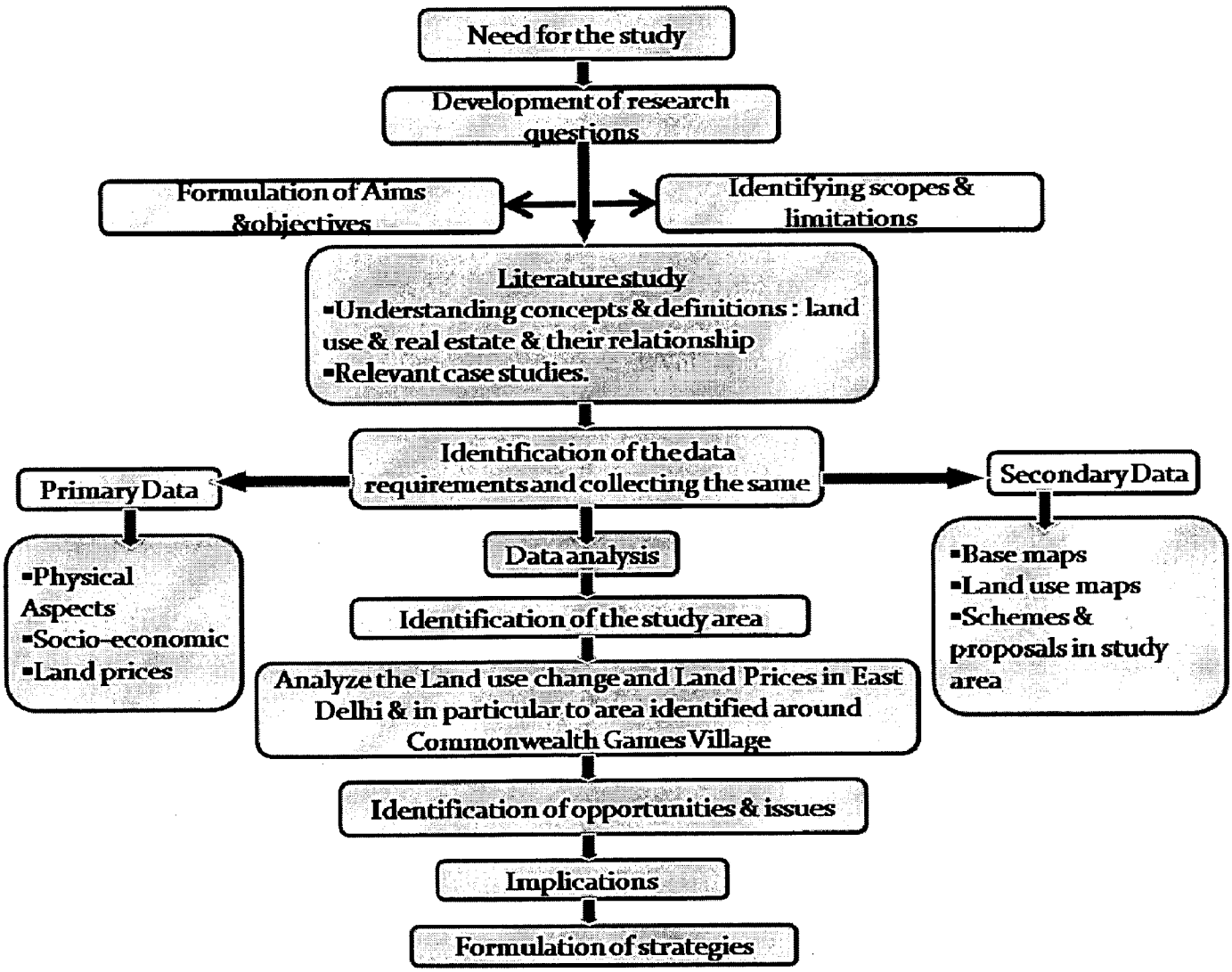
Stage 3 is the analysis stage, where the information gathered was analyzed in terms of the possible implications that these developments will have on the city. The analysis led to the study

of zone E in detail where the implications were assessed in terms of land use and land values. Based on the analysis, issues and opportunities were identified.

In ***stage 4*** the implications of the infrastructure development was identified. The implications have been grouped under three subheads – planning stage, construction stage and the post game period. Strategies and recommendations were then formulated.

The methodology followed has been shown in schematically in Figure 1.

Figure 1.1: Methodology



1.9 STRUCTURE OF THE REPORT

Chapter 1 consists of brief introduction on the Commonwealth Games along with the need of the study, aim, objectives, scope, limitations and the methodology followed.

Chapter 2 & 3 is a compilation of the background study that has been done to carry forward the thesis. This includes a study on the impacts that a mega event has on the host city. Three examples were studied in detail from the past game events. These are Asiad Games Delhi 1982, Barcelona Olympics 1992 and Sydney Olympics 2000.

***Chapter 4 &* 5** deal with the developments that are taking place for the Commonwealth Games 2010 in Delhi. It details out the infrastructure projects that are being built in the city which includes Games Village, sport venues, transportation projects (road, flyover, metro, and parking), hotels, power and water supply and sanitation. The data collected for the study has been analyzed in terms of cost the infrastructure projects and the zone wise location of the projects in the city.

Chapter 6 & *7* gives the profile of Zone E of the city. This Zone has been detailed out in terms of the location of infrastructure projects and the impact that these projects are having in terms of land use transformations and change in land values.

Chapter 8 deals with the issues and opportunities that have been identified after analyzing the collected data.

Chapter 9 summarizes the implications that have been mentioned in the previous chapters as well. It also contains the strategies that have been formulated based on the issues that have come up after analysis. Further it gives the strategies for organizing such events to make them more beneficial for the society as a whole.

CHAPTER 2: LITERATURE REVIEW

2.0 OVERVIEW

This chapter looks at the various parameters affecting the impact of Commonwealth Games 2010 and reviews the relevant land-use, integrated land use transportation models and other available tools and techniques, condition of their applicability.

It also looks into the facets of mutual interactions between land use and land value. It tries to give a cursory view of the conceptual structure of the interaction and mutual impacts on the interaction variables.

This chapter also dwells at some relevant case studies both national and international.

2.1 THRUST AREAS

- To identify factors causing the impacts.
- Studying the current real estate trends in the country and Delhi city.
- Studying similar case studies and drawing inference from them.

2.2 IMPACT ASSESSMENT

Factors effecting or Attributes

- Change in
  - Land use
  - Land value
- Accessibility
- Density
- Physical Infrastructure
- Social
- Economic

- Environmental

I = f (Change in Land use, Land value, Accessibility, Distance, Population Density, Physical Infrastructure, Social, Economic, Environmental)

2.3 SOME TOOLS FOR IMPACT ASSESSMENT

The following are some of the established tools and techniques used in assessing and measuring impacts. However their applicability varies from case to case.

2.3.1 Checklist

- Check lists help structure the situation so that the most significant impacts are not overlooked.
- The Leopold matrix goes one step further to allow estimation of relative magnitude and importance of the various impacts on a list.

2.3.2 Delphi technique

- This method elicits the opinion of a group of individuals, essentially experts, without meetings or direct discussions
- It makes use of a repeated wave of questionnaires and feedback reports which control group interaction and facilitates consensus development.
- Though lengthy and elaborate procedure, its basic premise of eliciting expert opinions is noteworthy.

2.3.3 Concept of Cellular Automata (*Source: Batty, Michael, Cities and* Complexity)

- Many Basic but Interactive units exist in the System that constantly evolve and unfold over time
- Each Cell exists and Each Cell take only one state
- Each Cell has dependency on State and Configuration of Neighbouring Cells
- Transition Rule based on change on other Neighbouring Cells.

2.3.4 Regression modelling

- In this method best fitting curves are derived out of least square or maximum likelihood analyses to derive a mathematical relation between quantifiable variables.
- Multiple regression analysis gives dependency of a variable on multiple factors
- This is more a relational model than a forecasting model and works best in interpolation.
- This is by nature an objective technique, which may prove to be a drawback for cases with limited accessibility to numerical data.

2.3.5 Cross impact

- Cross impacts allow prediction of a complex series of events that may be inter-related, ie when one impact is conditional upon another
- It uses expert estimates of the probabilities of occurrences of possible impacts, and the probabilities of all the combination of impacts
- These are then adjusted to give a refined list of probabilities

2.3.6 Discrete Multi-criteria Approach (*Source: Hwang, Multi criteria techniques*

Lexicographic Approach (Tversky)

- Identify Most Important Attribute
- Compare the options of development
- The option ranking highest in the Most Important Attribute is to be chosen

2.3.6.1 Elimination by Aspects Method (Tversky)

- Delineate EXCLUSION ZONES
- Earmark Remaining Zones for Development
- Determine Set of Criteria – Contextual to the Ward / Block
- Order the Criteria Lexicographically based on Contextual Criticality
- Sieve the Existing Condition on Ordered Criteria step-by Step
- Decide the Proposed Action
- Decide Quantum of development and Nature of development
- Compute Proposed Population Density

- Compare with UDPFI Guideline / relevant norms
- Cross-check with Govt. Vision
- Perform Simulation till the desired Result is obtained

2.4 INTERACTIONS BETWEEN URBAN LAND USE & LAND VALUE: RESEARCHES IN URBAN PLANNING

Regardless of the geographical location, origin or size of an urban area rational pattern of land use evolves. Normally after an assessment of various advantage & disadvantages, the location of any activity is determined either by the desire to maximize profits in respect of business users of land or to maximize utility. The urban land use pattern is mainly determined by activities competing for sites through the forces of demand & supply.

THE CLASSICAL MODELS

2.4.1 Concentric Zone

Concentric Zone Theory was first proposed by Burgess in 1925 to explain ecological processes in a city & was first applied to Chicago. It acted as an ideal that attempts to explain the internal structure of a city & its expansion & development. A city is visualized as a series of five concentric zones with CBD at the core. Each of the five zones is differentiated according to land use & physical, social & economic characteristics. The farther from CBD, the better the quality of housing, but longer is the time. Also there would be reduction in rents, accessibility & densities. Thus the access of better housing is at the cost of longer commuting time & costs. It was essentially an application to urban land use of Von Thunen's theory related to rural land around a city.

The five concentric zones proposed by Burgess are:

i. **The CBD**- it's referred as the *"loop"* district with concentration of social & civic activities & retail activity, which seek a central location. This encircled by a wholesaling & light manufacturing industries fanning out in the next zone.

ii. **The Zone of Transition**- it is identified by variety & changing characteristics of its users. Residential areas start from here containing low-income worker classes, residential deterioration & slums.

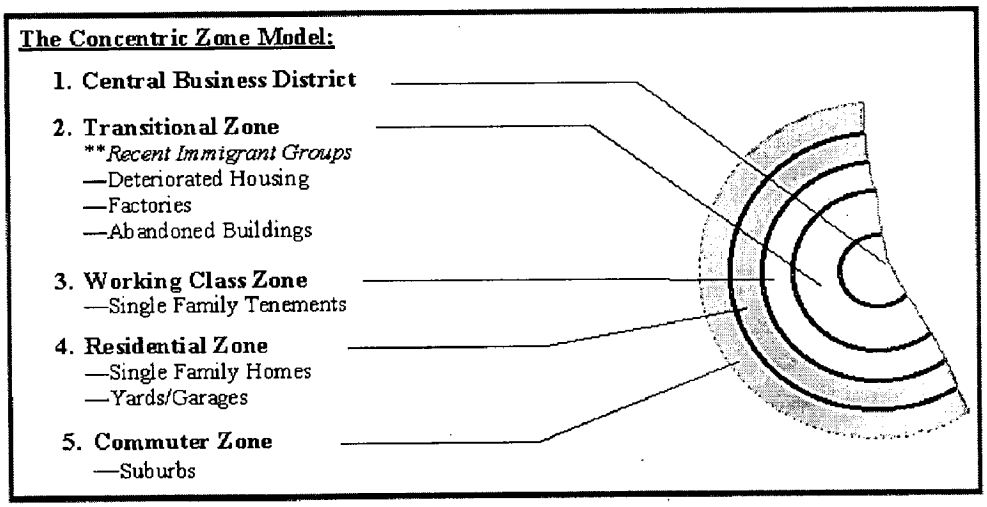
iii. **The Zone of Independent Workers' Homes**- the previous zone mingles with this zone containing largely the residences of factory workers, labourers etc

iv. **The Zone of Better Residences** - home to white-collar workers & middle class families.

v. **The Commuters Zone**- In this ring are the suburban communities found along the arteries of transportation.

The theory describes the relative positions of the major functional areas of the land use in a city & how they change over the years.

Figure 2.1: Concentric Zone Model



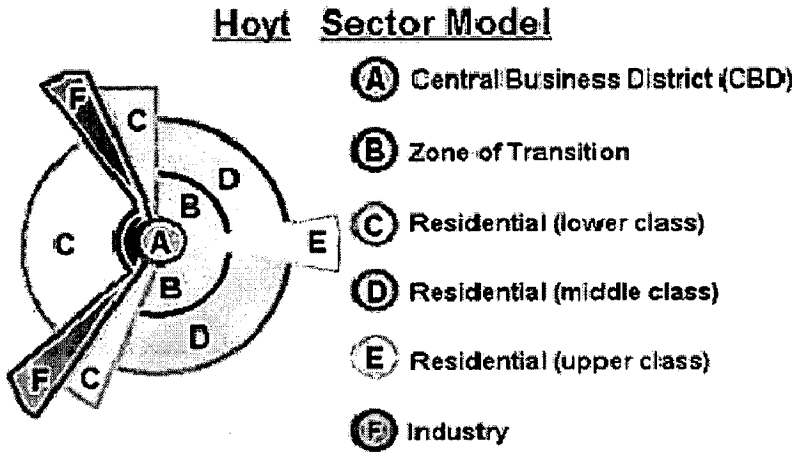
2.4.2 Sector Model

This concept proposed by Hoyt in 1939 holds that the different income classes of the city tend to be found in distinct areas describable in terms of sectors of a circle centered on the CBD. The high rent or high class residential areas can be found in a particular sector & rentals go down from these high rental areas in all the directions. Viewed in context of change, the theory holds

that similar type of use originating near the center of the city tends to migrate within the same sector & away from the center.

The theory establishes a relationship between accessibility, land use and values & densities.

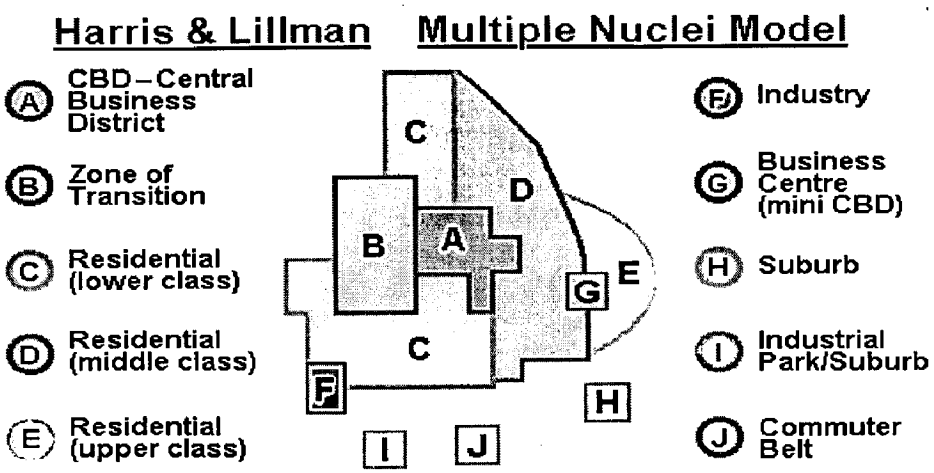
Figure 2.2: Sector Model



2.4.3 Multiple Nuclei Theory

First proposed by Mackenzie, the Multiple Nuclei hypothesis is built around the observation that frequently there are a series of nuclei in the patterning of the urban land uses rather than the single central core postulated by the other two theories. Then Geographers C.D.Harris.and E.L. Ullman developed the model in 1945.

Figure 2.3: Multiple Nuclei Model



They identified 4 factors that lead to emergence of separate nuclei in urban land use pattern.

i. **Interdependence of certain activities**- one is the interdependence of certain type of activities & thus there need for close physical proximity.

ii. **Natural clustering tendency**- this tendency among certain type of activities which find it mutually profitable to locate together.

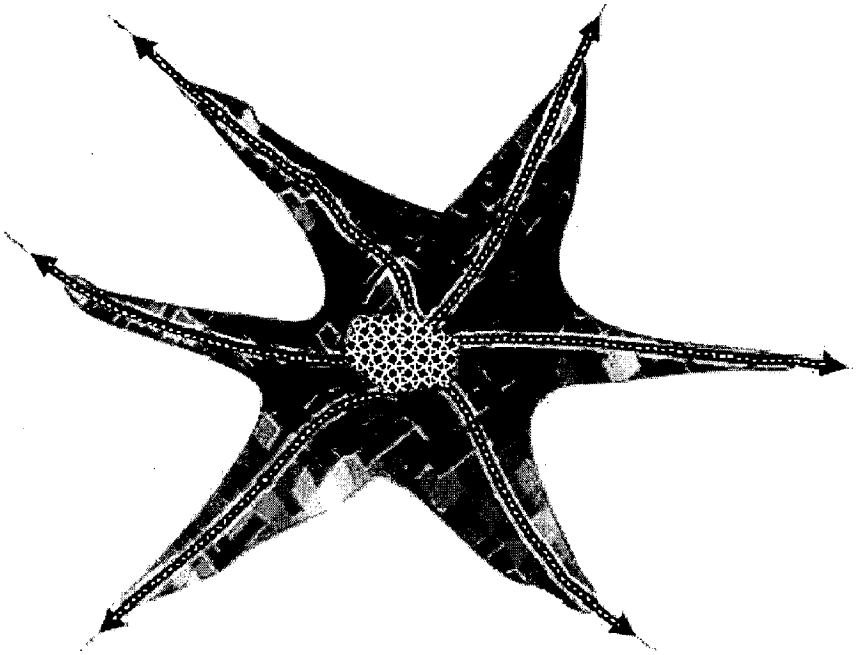
iii. **Repelling Clusters**- The appearance of centers to accommodate activities that may have no particular affinity for one another.

iv. **High rent or high land cost** which have the effect of attracting or repelling users in the process of nucleation.

2.4.4 The Star theory (Hurd, 1903)

- Proposed that cities spread out of the center along transportation axis, creating a sort of octopus shape.
- This was particularly evident where most commuting was by the mass transit systems of that time namely railroads.
- The approach could not be applied in developing countries, where most people are more likely to go to work travelling by foot.
- Due to the massive introduction of the automobile at the beginning of the 20th century not only the railroads but also the implementation of highways and main roads in cities might have been the best indicator of the effectiveness of this proposal.
- Because of this, the principle is still valid for emerging populated areas. There, road corridors are powerful in shaping the urban tissue, where private transport impacts on land allocation are still incipient.

Figure 2.4: The Star Theory



2.5 LAND VALUE & PROPERTY VALUE

The land value is guided by the economic principle of the highest & best use which produces the highest net return over a period of time. The property value is function of the structural attributes, the land value & rental value (both of which are guided by the land use & location) of the property.

No two properties are same, the vacant plot & the constructed one in a similar area cannot be valued at same rate. On the other hand similar structures on similar plots in different areas may have dramatically different values. Each plot is unique due to specific attributes it has, such as land use, location, aesthetics, development status etc.

To set the stage for empirical analysis, the primary monetary value to the owner or user of property is considered. This is the market value of the property and is also referred to as the price at which the willing seller would sell & the willing buyer would buy in full knowledge of the market conditions. The property value of the property is the direct indicator of the land value,

since the building cost is the smaller component & is uniform all over the city according to the quality of construction. Hence both the terms are used to convey similar meanings.

2.5.1 DETERMINANTS OF LAND VALUE

Physical attributes: Quality of location, fertility and climate; convenience to shopping, schools and parks; availability of water, sewers, utilities and public transportation; and patterns of land use, frontage, depth, topography, streets and lot sizes.

Legal or governmental forces: It includes type and amount of taxation, zoning and building laws, planning and restrictions.

Economic forces: It includes value and income levels, growth and new construction, vacancy and availability of land. It is the influences of these forces, expressed independently and in relationship to one another that help the people and the assessor measure value.

Demand Factors: The presence of exceedingly high demand for land over available supply causes an increase in property value. The demand generally outpaces the available supply of property, if it is spurred by major demographic changes. In anticipation of the increase in value, in practice, the values rise several years before change in use. Anticipation of high yields may also induce hold outs & create false scarcity thereby increasing values. The rapid expansion of towns & cities increase with it the locational advantage of properties at any time within the urban boundaries & hence causes economic values to be increased. For any site there are certain points of transition in use, closely associated with the infrastructure & other services, where jumps in property value are likely to happen.

Supply factor: It is known economic principle that the decrease in supply creates scarcity & hence an increase in value. This may be the case when the agency/ authority responsible for the supply is greatly constrained in supply. The constraints experienced by the agency could be because of the - High development cost, Scarcity of developable land, the material &

infrastructure cost, Minimum standards to be met, not reflecting ground realities of affordability, Administrative delays, and Political considerations.

Infrastructure development: The level of infrastructure services, physically as well as socio economic, available in a particular area in a significant determinant of land values. The access to basic services such as water supply, sewerage, drainage, garbage removal & electricity; & socio economic facilities such as educational, medical, commercial & institutional; is an essential ingredient of the living environment. The quantity & quality of these is usually in direct proportion to the levels of land values in the area.

Location and Transport Linkages: The properties located in the area of high level of infrastructure facilities or the ones located in or adjacent to the areas of economical intensive activities such as markets or industries have higher values. Transport linkages are also important since they govern the mobility & ease of movement to & from the area. Clearly defined hierarchy of roads, efficient public transportation, and lack of congestion are some of the desired transportation attributes of any residential area. Residential land values are also observed to be in direct proportion to the hierarchical order/ right of way of the abutting road.

Social Factors: These are basically a result of irregular changes in the political or social order and have little or no relevance to the demand & supply factors. The political pressure for regularizing an unauthorized colony leads to increase in land values.

2.5.2 THEORIES RELATED TO LAND VALUE

2.5.2.1 Land & Its Prices

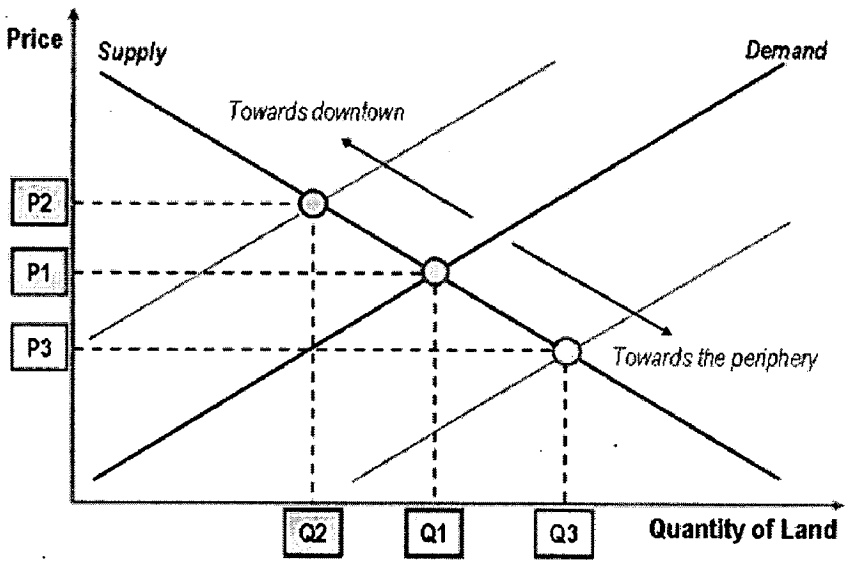
In a market economy, most of the urban land can be freely sold or purchased. Thus land economics are concerned about how the price of urban land is fixed and how this price will influence the nature, pattern and distribution of land uses.

Fig 2.5 provides some basic relationships between the quantity of land and its price. This mechanism follows the standard market relationship between supply and demand, where an equilibrium price is reached. A quantity of land Q1 would be available at a price of P1. However, what is particular to cities is that the supply is fixed since there is a limited amount of land available.

- When land is reasonably available (Q1), the price (P1) will be moderate.
- Moving towards the downtown the demand rises, land becomes scarcer (Q2) & the price goes up (P2)
- Moving towards the periphery, more land is available, demand drops (Q3), and so does the price (P3).

Obviously, not every type of activities can accommodate a price equal to P1. Some activities may even need a price lower than P3. High land values impose a more intensive usage of space so the highest number of activities can benefit from a central location. The logic behind the construction of skyscrapers is therefore obvious.

Figure 2.5: Relationship between Quantity and Land Price



2.5.2.2 Land Rent Theory

Three concepts are at the core of the land rent theory:

- **Rent.** A surplus (profit) resulting from some advantage such as capitalization and accessibility. The rent is the highest for retail because this activity is closely related to accessibility.

- **Rent gradient.** A representation of the decline in rent with distance from a center. This gradient is related to the marginal cost of distance for each activity, which is how distance influences its bidding rent. The friction of space has an important impact on the rent gradient because without friction all locations would be perfect locations. Retailing is the activity having the highest marginal cost, while single-family housing have the lowest marginal cost.

Figure 2.6: Rent Gradient

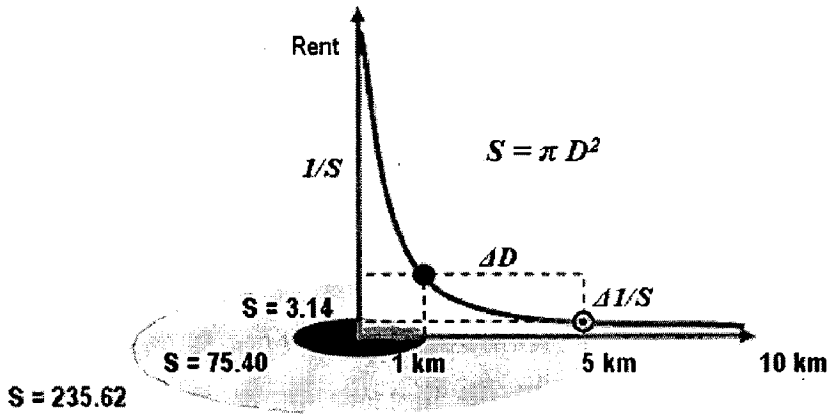
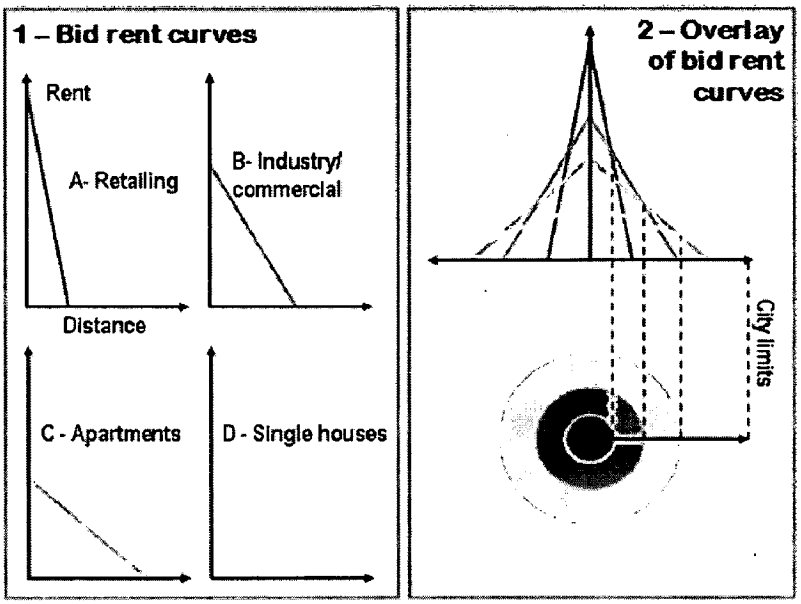


Fig 2.6 illustrates the basic principles of the land rent theory. It assumes a center, which represents a desirable location with a high level of accessibility. The closest area, within a radius of 1 km, has about 3.14 square kilometers of surface (S=πD2). Under such circumstances, the rent is a function of the availability of land, which can be expressed in a simple fashion as 1/S. As we move away from the center the rent drops substantially since the amount of available land increases exponentially.

- **Bid rent curve function.** A set of combinations of land prices and distances among which the individual (or firm) is indifferent. It describes prices that the household (firm)

would be willing to pay at varying locations in order to achieve a given level of satisfaction (utility/ profits). The activity having the highest bid rent at one point is theoretically the activity that will occupy this location.

Figure 2.7: Bid Rent Curve



2.5.3 LAND VALUE MEASUREMENT

Three Approaches to Valuing Land

The highest and best use of the site, based on criteria such as: physically possible, legally permissible, financially feasible, and maximally productive is firstly determined, then a analysis is made, based on:

- Highest & best use, if the site is vacant;
- Highest and best use of the site as improved, or if undeveloped as proposed to be improved.

The three standard approaches to estimating market value are:

a) **Cost approach:** It is based upon the principle that the informed purchaser would pay no more than the cost to produce a substitute property with the same utility as the subject property.

b) **Sales comparison approach:** It utilizes prices paid in actual market transactions of similar properties to estimate the value of the site. This appraisal technique is dependent upon utilizing truly comparable market or sales data which have occurred near enough in time to reflect market conditions relative to the time period of the appraisal.

c) **Income approach.** It is applied in appraising income-producing properties. Anticipated present and future net operating incomes, as well as any future reversions, are discounted to a present worth figure through the capitalization process. This approach also relies upon market data to establish current market values and expense levels to arrive at an expected net operating income. The resulting indications of value from the three approaches to value are correlated into a final estimate of value for the site. It is not always possible or practicable to use all three approaches to value. The nature of the property being appraised, and the amount, quality, and type of data available, dictate the use of each of the three approaches.

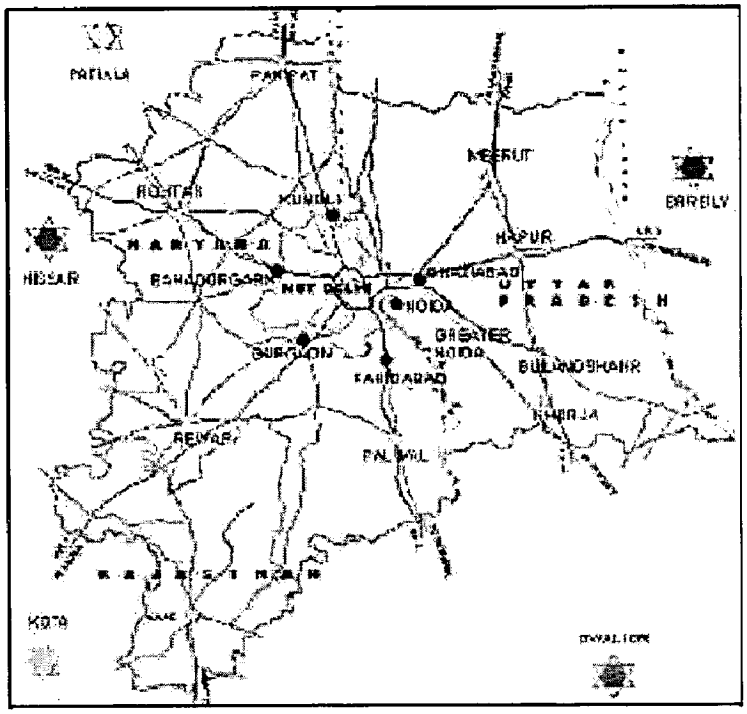
M.G. CENTRAL LIBRARY
ACC No. G20484
Date.....
I.I.T. ROORKEE

2.6 REVIEW OF MASTER PLAN OF DELHI 2001 & 2021

2.6.1 Introduction

Delhi, the focus of the socio-economic and political life of India, a symbol of ancient values and aspirations and capital of the largest democracy, is assuming increasing eminence among the great cities of the world. Growing at an unprecedented pace, the city needs to be able to integrate its elegant past as well as the modern developments into an organic whole, which demands a purposeful transformation of the socio economic, natural and built environment. A prime mover and nerve centre of ideas and actions, the seat of national governance and a centre of business, culture, education and sports, Delhi, however, stands at the crossroads today. The choice is between either taking a road to indiscriminate uncontrolled development and slide towards chaos or a movement towards making Delhi a world- class city, if handled with vision and care.

Figure 2.8: Map of Delhi & NCR Region



Apart from critical issues such as land, physical infrastructure, transport, the ecology and environment, housing and other socio cultural and other institutional facilities, the cornerstone for making Delhi a world- class city is the planning process itself and related aspects of governance and management.

The Vision-2021 is to make Delhi a global metropolis and a world-class city, where all the people are engaged in productive work with a decent standard of living and quality of life in a sustainable environment. This will inter alia, necessitate planning and action to meet the challenge of population growth and in migration into Delhi and even measures to restrict it to the extent possible; provision of adequate housing, particularly for the weaker sections of the society; addressing the problems of small enterprises, particularly in the unorganized informal sector; dealing with the issue of slums, both as an issue pertaining to the cityscape and of shelter; up-gradation of old and dilapidated areas of the city; provision of adequate infrastructure services; conservation of the environment; preservation of Delhi's heritage and blending it with the new and complex modern patterns of development; and doing all this within a framework of

sustainable development, public-private and community participation and a spirit of ownership and belonging among its citizens

2.6.2 REVIEW

The Master Plan 2021 is the first plan of the 21st Century and, considering the limited land area of Delhi. There being a limited scope thereafter for pure new urbanization and the related spatial development and land use planning. It is necessary to briefly review and analyze some of the achievements, shortfalls and difficulties during the implementation of the MPD-62 and MPD-2001. Such an exercise should be seen as introspection, which could lead to the development of sound basic policies and strategies, which should inform both the Plan and the methodology of its implementation.

Some of the broad parameters in the light of which a review could be usefully done would relate to the extent and validity of population projections, quantum of land needed for development as per the Plans and the extent to which this actually became available, quantitative and qualitative targets for the development of shelter and the required infrastructure services and the actual achievements in this regard, and other important developments which were not anticipated, but impinge heavily on the entire process of the planned development of Delhi.

The population of Delhi in 2001 was 137.8 lakhs as against the MPD-2001 projection of 128 lakhs. This has had its inevitable implications and impact in terms of shelter, including squatter settlements, and other infrastructure facilities, etc.

As regards the actual acquisition and development of land, studies made for the preparation of MPD-2021 show that there have been large gaps between the area targeted for, and/or actually acquired, as also between the area acquired and that, which could be developed. This has had implications, at one level, in terms of shortfalls in the planned development of shelter and allied facilities and, at another, in terms of the growth of unauthorized colonies, particularly on lands which may have been notified for acquisition but could not actually be acquired. In turn, this

position is indicative of limitations of resources- financial, physical and human, on the one hand, and of the procedural and other difficulties, bottlenecks and delays in the process of land assembly for the purposes of Planned Development, on the other.

Another vital aspect stemming from the whole scheme of declaration of large areas as Development Areas, under the Delhi Development Act, coupled with the scheme of large scale acquisition and development, is that no construction can be done by any person or organization without the approval of the DDA which, in turn, has not been possible largely because of non submission of proper layout and development plans etc. This has also been substantially responsible for the growth of unplanned and unauthorized colonies. Some issues that arise for consideration in this backdrop are:-

i) A review of the scheme of large scale development and acquisition and its relevance in the present context;

ii) Development of alternatives options for development of areas identified for urbanization in MPD-2021 without having to depend upon acquisition and development of land by the DDA or any other public sector authority:

iii) Evolving a system under which planning for, and provision of basic infrastructure could take place simultaneously with reference to (i) and (ii) above; and

iv) Generally involving the private sector in the assembly and development of land and provision of infrastructure services.

One of the most important aspects of planned development pertains to the provision of adequate, and well provisioned, shelter and housing for the different categories of inhabitants of the city. The studies carried out for the formulation of MPD-2021 have revealed quantitative and qualitative shortages and deficiencies in this regard. The provision of shelter has been predominantly in realm of the public sector. The limited participation of the private sector in the development of housing has been through the medium of cooperative group housing societies, who are being allotted land, mainly in the urban extension areas by the DDA. There are obvious limitations to the extent to which housing can actually be provided by public sector agencies alone, and there is an urgent need to see how the involvement of the private sector in this sphere

can be significantly stepped up. In turn, this should also be seen in concert with the involvement of the private sector in land assembly and development.

Two major challenges which have emerged in the wake of the developments outlined above relate to the phenomenon of unauthorized colonies and squatter / jhuggi jhoppari settlements. Both these will require planned measures, not only to deal with these phenomena in their present manifestation, but also in terms of future growth and proliferation.

The exercises done for the MPD-2021 also show that there is a need for redevelopment, and even densification of the existing urban areas, both in terms of improvement of the housing stock and increasing the capacity to host additional population, as also with reference to overall urban design and city improvement. This aspect would need to be a major component of the new Master Plan, and a comprehensive redevelopment strategy for accommodating a larger population, strengthening of infrastructure facilities, creation of more open spaces, and generally with reference to urban design, would need to be developed and implemented. An important aspect which needs consideration in this context is the need for re-densification / intensification and redevelopment along the MRTS corridors, so that the synergy between work and residences and, generally, between transportation and urban development could be achieved.

Another important development observed during the period of the last Master Plan and present is the inclusion of **International Sports Event** in MPD 2021. While in MPD 2001 it has no mention. It states that a suitable area of about 200 ha. should be reserved for International Events wherever possible. It also lays down the development controls for various sports facilities:

Table 2.1: Development Control for International Sports Events

Maximum Ground Coverage	20% including amenity structure
Max. FAR Height	40 (subject to clearance from AAI, Fire Dept and other statutory

	bodies)
Parking	2 ECS / 100 Sq.m of floor area

i) To incentivize development of sports facilities and swimming pool (upto 100sq.m) within the group housing area, school, clubs etc. shall not be counted towards ground coverage and FAR.

ii) All these various facilities shall have layout plan, landscape plan and parking plan etc.

Source: Master Plan of Delhi 2021

Constructions norms have undergone changes in the MPD 2021.The master plan allows the construction of third floor subject to the condition that it should meet the FAR norms outlined in MPD 2021 refer table 2.2.

Table 1.2: Construction Norms

	2001 MPD		**2021 MPD**	
Area of the plot (in sq.m)	Max Ground Coverage	FAR	Max Ground Coverage	FAR
Below 32	75	225	90	350
32-50	75	225	90	350
50-100	75	225	90	350
100-250	66.66	200	75	300
250-500	50	150	75	225

500-1000	40	120	50	150
Above 1000	33.33	100	40	120

Source: Master Plan of Delhi 2021

As shown in the table above, the permission for construction of third floor has released a huge construction area in the city. The owner plot size upto 250 sq.m can construct 30% - 33% extra. Earlier third floor was not allowed and ground coverage area was restricted to 90% and 75%, the owner of the plot of up to size of 250 sq. mts could not utilize the entire area allowed for construction. Now the third floor being okayed, the owner of the plot up to the size of 100 mts. Can make use of 30% extra construction area. The benefit further goes up to 33% for owners of plot sizes between 100 sq.mts and 250 sq.mts. This may lead to densification of the area.

2.7.1 IMPACT OF GAME EVENTS ON HOST CITIES

1. Urban Regeneration

Hosting a hallmark event is often viewed as a recipe for successful urban regeneration, as it not only brings the opportunity to improve the infrastructure and appearance of the host city, but it also gives global media exposure meaning that the image of a city can be transformed in the eyes of viewers. Barcelona and Manchester can be viewed as partially successful in that they were able to re align the popular image of the city, both of which were manufacturing centres to that of tourist destinations as trendy European cities. [1]

Urban regeneration is often written into bids for major sporting events, as the costs of staging such an event are so high they can only be justified when they are envisaged as leading to a major programme of urban regeneration and improvement (Essex and Chalkley 1998: 187). Such improvements can include updating the transport system or network and upgrading areas of the city's landscape. This can lead to the events becoming' *a self-serving commercial circus of*

property developers, construction companies, equipment suppliers *and commercial sponsors'* (*ibid*: 191).

2. Gentrification

Gentrification, or **urban gentrification**, is a term applied to that part of the urban housing cycle in which physically deteriorated neighbourhoods attract an influx of investment and undergo physical renovation and an increase in property market values. In many cases, the lower-income residents who occupied the neighbourhood prior to its renovation can no longer afford properties there.

Often initiated by private capital, gentrification has been linked to reductions in crime rates, increased property values, increased revenue to local governments from property taxes, increased tolerance of sexual minorities, and renewed community activism.

Critics of gentrification often cite the human cost to the neighbourhood's lower-income residents.

The city undergoes through transformation and eventually its image changes for example Barcelona image from a typical industrial city changed to a flexible city after 1992 Olympics. This lead to price rise Barcelona in general & games village in particular. The area that was once an industrial area transformed to high income group residing in the area. [3]

3. Benefits to the community

Such events are beneficial for the communities in many ways. There is an increase in job opportunities during the construction phase as well as in the post game period. There are youth and education programmes organized to invite volunteers to manage the event. [4]

4. Infrastructure Development

These events call for a lot of investments in developing world class infrastructure. The city benefits from it as these are utilized by the citizens once the games are over. This development

takes place in a definite time frame as the focus is on conduction the event in a successful manner. [4]

5. New investments in the city and region

Due to the infrastructure that is built for the event, the city experiences an increase in the investments in various sectors, especially near the areas where the games are being held. It attracts new investments, activities and people. This leads to increased trade in the city. [4]

6. Increase in tourism activity

The host city also experiences an increase in the tourism activity as it gets recognized by other nations due to the hosting of the event. The host city also has an opportunity and invests a lot in developing the tourism infrastructure to attract more tourists.[4]

2.7.2 IMPACT OF GAMES ON DEVELOPING NATIONS

The impacts discussed above are in general and can be experienced by any city hosting a mega event. It has been seen that there is a difference between a developing nation hosting a mega event and a developed nation hosting it. Hosting of a mega event by a developing country is usually considered a disadvantage for the country for the following reasons:

- **Economic non-viability:** Such mega events rarely pay for themselves. The absolute cost of building infrastructure in developing countries is high, and the opportunity cost even higher. In the face of a weak sports culture, and abysmal social indicators on education, health, gender equality, etc, spending crores of money on hosting an event without an economic viability analysis is not justified.
- **Environmental implications:** Mega events involve rapid construction and in such a situation neglect the analysis of the potential environmental impact of constructions.
- **Human costs:** Large sporting events always shape the development of their host city, but not always in the best interest of its citizens. This is especially the case in developing nations where slum clearances and "city beautification" alienate the poorest members of society and

take away their jobs and home, where urban and utility planning focuses more on sporting events than the long term needs of the city's inhabitants, and where migrant construction workers, not recognized as stakeholders in the industry or even society, are denied access to devent working / living conditions, benefits, identity, and a welcoming city environment once the games are over.

- The sport facility developed for the Games are not utilized to their full potential after the Games, so lot money goes in for their maintenance work as well.
- Developing nations may also not be able to attract a large number of spectators as residents may be unwilling to pay the high ticket costs and also the sporting culture is not highly developed.[5]

Richard Cashman in his article ***Impact of the Games on Olympic host cities***, has further divided the impacts four separate periods:

1. ***The planning stage*** - alterations in design of the city; changes to the physical and the built environment; the representation of a city and country and its culture; improvements in air, road and rail transport;
2. ***The construction stage*** – inconvenience, protests, etc
3. ***The period when the Games are being staged*** - the involvement of the community as volunteers
4. ***The post-Games era*** increased costs and taxes; changes in governance and public decision-making; innovations in politics and political relationships; potential increased tourism and business activity. [6]

2.7.3 ISSUES IN HOSTING A MEGA EVENT

The issues that arise in hosting such an event are:

- There is limited community consultation and over-riding of local concerns because of fast tracking of venues and other games projects.

- A lot of inconvenience is caused during the construction phase. A popular surfing beach was closed in Sydney for some six months for the construction of a stadium for Olympics. The development of the Ryde Pool, the venue of some preliminary water polo matches, closed a public pool for two years and converted part of a public park into a private leisure facility. [7]
- While it is clear that the Games can produce tangible benefits for government and business, and the tourism industry in particular, the non-tangible benefits for the community are less self-evident, other than the privilege of participating in the Games in one way or another.
- The Games doesn't benefit the poor, the homeless and the environment.
- There has been inadequate attention paid to planning for the post-Games period. It is important is to decide on what should be done with the Games infrastructure, particularly the new venues created for the Games. More attention needs to be paid as to whether there can be some ongoing return and community benefit from these venues. If such facilities do not have a significant post-Games use they can become a burden to the taxpayers. [6]

2.8 PRESENT SCENARIO OF REAL ESTATE IN INDIA

The real estate sector in India has assumed growing importance with the liberalization of the economy. The consequent increase in business opportunities and migration of the labour force has, in turn, increased the demand for commercial and housing space, especially rental housing. Developments in the real estate sector are being influenced by the developments in the retail, hospitality and entertainment (e.g., hotels, resorts, cinema theatres) industries, economic services (e.g., hospitals, schools) and information technology (IT)-enabled services (like call centres) etc. and vice versa.

The real estate sector is a major employment driver, being the second largest employer next only to agriculture. This is because of the chain of backward and forward linkages that the sector has with the other sectors of the economy, especially with the housing and construction sector. About 250 ancillary industries such as cement, steel, brick, timber, building materials etc. are dependent on the real estate industry. Consequently, a unit increase in expenditure in this sector has a multiplier effect and the capacity to generate income as high as five times.

The Indian real estate sector has witnessed a revolution, driven by the booming economy, favorable demographics and liberalized foreign direct investment (FDI) regime. Growing at a scorching 30 per cent, it has emerged as one of the most appealing investment areas for domestic as well as foreign investors.

2.8.1 CURRENT SCENARIO

It is difficult to estimate the exact contribution of the real estate sector to gross domestic product (GDP) as it appears in a disaggregated and dispersed form in the National Accounts Statistics. Residential housing and real estate services (activities of all types of dealers such as operators, developers and agents connected with real estate) is covered under the category 'real estate, ownership of dwellings, business and legal services'. The gross value added in the ownership of dwellings is equivalent to gross rental of the residential dwellings less cost of repairs and maintenance. Gross rental is estimated as a product of average gross rental per dwelling and the number of census dwellings and includes imputed rent of owner-occupied houses.

The rentals of the industrial/trading establishments are deductible expenses from the profits of these establishments but appear as profits of the business or company renting out the premises. Similarly, implicit rents on self-owned real estate is accrued as profits from business and is difficult to separate from non-real estate profits. The addition to the stock of real assets with these businesses appears in the business accounts as capital addition. In the national accounts it would appear under the head .'gross fixed capital formation – construction'. Value of construction output is the additions made to the stock of real estate assets in the public, private and household sectors. The contribution of 'construction' to GDP is the estimate of value added derived from the corresponding estimates of this value of construction output.

Further, current data on the sectors such as ownership of dwellings, real estate services, construction are mostly not available and estimates for the benchmark year is prepared on the basis of base year data and projected for other years with the help of relevant indicators.

To get an idea of the contribution of the real estate sector to GDP, an attempt is made to factor in the value added to ownership of dwellings, which constitute housing, real estate services and construction.

Table 2.2 : Gross Domestic Product - Real Estate

YEAR	IN CRORES	PERCENTAGE DISTRIBUTION	PERCENTAGE GROWTH
1999-00	127888	7.2	9.1
2003-04	168591	7.6	8.3
2004-05	183140	7.7	8.6
2005-06	200007	7.6	9.2
2006-07	217143	7.6	8.6
2007-08	235700	7.5	8.5

Source: National Account Statistics 2008

During the period 1999-00 to 2007- 08 the real estate services, housing and construction sector have shown a decline in the growth rate. Table 2.3 indicates that the share of real estate services, housing and construction in GDP has been more or less constant from 1999-00 to 2007- 08.

2.8.2 REASONS FOR REAL ESTATE BOOM IN INDIA

Rising income levels of a growing middle class along with increase in nuclear families, low interest rates, modern attitudes to home ownership (the average age of a new homeowner in 2006 was 32 years compared with 45 years a decade ago) and a change of attitude amongst the young working population from that of 'save and buy' to 'buy and repay' have all combined to boost housing demand.

There will be demand for over 24.3 million new dwellings for self-living in urban India alone by 2015.[25] Consequently, this segment is likely to throw huge investment opportunities. In fact, an estimated US$ 25 billion investment will be required over the next five years in urban housing, says a report by Merrill Lynch.

Simultaneously, the rapid growth of the Indian economy has had a cascading effect on demand for commercial property to help meet the needs of business, such as modern offices, warehouses, hotels and retail shopping centres.

Growth in commercial office space requirement is led by the burgeoning outsourcing and information technology (IT) industry and organized retail. For example, IT and ITES alone is estimated to require 150 million sqft. across urban India by 2010. Similarly, the organized retail industry is likely to require an additional 220 million sqft. by 2010.

Real estate markets continue to gather momentum in all major markets of the country. Mumbai, Delhi, Bangalore and Chennai continue to attract interest from IT and ITES companies who are either establishing base in these places or are looking for expansion. The nature of their business dictates that while the space off take is high, the values remain bound in the range of Rs.20 to Rs.40 per sq.ft. per month.

Once again, driven by IT/ITES sector, it is the suburban locations Mumbai, Delhi, Bangalore and Chennai; that are witnessing development activity due to easier availability of land, construction of larger floor plates and offers of built-to suit facilities.

2.8.3 RESIDENTIAL MARKET

On the residential front, prices are witnessing sustained upward pressure in most micro markets. It is true both in luxury segment, due to scarce availability and mid segment which is driven by lowered housing interest rates. This is leading to a bubble like situation in micro-markets like Gurgaon which has seen as much as 20 to 30% rise in capital values over the last one year despite seemingly unending supply.

In the wake of strong economic growth, real estate markets should continue to gain steam. This could result in falling vacancies in CBD areas and more developments in suburbs. It is unlikely

that commercial property prices will go up significantly though residential capital values are likely to see sustained buying pressure in most markets.

India is at the threshold of vibrant change in housing change in the housing sector. After years of unplanned and haphazard development, this sector is now metamorphosing into an organized one with improved product offerings and geographical spread. The development in the housing sector is mirroring the rapid economic growth which the country is experiencing. On the back of the dynamic service sector, which grew by 11% in 2006 -07, the GDP has recorded 9.4% growth within the same period. Also, construction and real sector grew by 10.7% and 10.6% respectively in last financial year.

Residential segment is leading the growth trajectory of the fast expanding real estate sector in India – nearly 75 – 80% of the total real estate demand originates from this sector. Some key factors lending momentum to the Indian residential sector are:

According to UN, India's rate of urbanization is faster than the rest of the world and as per state of world population report 2007, Indian population in urban areas, which currently is less than 30%, is expected to rise 40.7% by 2030. This growing urbanization will result in an incremental demand for housing in suburban locations in urban areas.

A burgeoning middle class (annual USD 4, 000 – 21800) and the growth of the "rich" (annual income >USD 21800) coupled with the rising disposable incomes and fiscal incentives on home loans has increased the affordability and the risk appetite of the average Indian consumer thereby leading to a substantial rise in demand for housing.

Increase in the rate of household formation on account of structural shift from joint family set – up to nuclear families. Job opportunities and diminishing geographical boundaries have enabled youngsters to move out their homes much early than in previous decades.

The rise in double income, nuclear families have changed their attitudes to home ownership. The current average age of the new homeowner in India is 32 years and this average age has reduced by more than 10 years over the last decade.

Due to relative stability of the real estate market when compared to other investment options, household savings are increasingly being invested in physical assets like real estate as opposed to financial assets. An indicator that household investment in physical assets is increasing is the fact that financial assets. An indicator that household investment in physical assets is increasing is the fact that housing loans as a portion of banks is increasing faster than other components. According to the 11th five year document, housing loans as a percentage of GDP at current prices increased from 3.2% in 2003 – 04 to 5.1% in 2005 -06.

Knight Frank research reveals that over the next 3 years, close to 530.5 Mn. Sq.ft. of the residential space would be developed in Grade A & B+ category in 7 major location of the country. This translates into a supply of 200000 units per year in the MIG and HIG segment. Considering 265 of the urban population of India resides in these 7 cities and housing shortage per annum in MIG & HIG segment in these cities to be about 2085 units, we can say that the demand just about meets the supply. As such residential values across the country will remain under pressure and going forward some market may even witness a correction to the tune of 15 – 20% over the medium term.

Table 2.4: Distribution of Pan India New Residential Space By 2009-10

CITY	IN MN.SQ.FT.	IN %
NCR	185.68	35
Mumbai	84.88	16
Pune	68.97	13
Hyderabad	58.36	11
Bangalore	63.66	12
Chennai	21.22	4
Kolkata	47.75	9

Total	530.5	100

Source: Knight Frank Research 2007

Looking back by the recent trends, the sharp rise in residential property prices has fuelled a lot of speculation about the manner in which the residential sector is growing. Most of the housing units built by the private sector cater to the upper income households and the financial institutions also chase the MIG & HIG segment.

2.8.4 COMMERCIAL MARKET

India was the main driver of growth, with rents nationally up 53.5% - an exceptionally strong increase as a result of significant transformation over the last few years on the back of a surge in demand from domestic as well as international retailers.

Office market continues to be driven by IT / ITES sector. Demand for office space in CBD emanating primarily from BFSI segment whereas IT/ITES companies prefer sub urban and peripheral location.

Lack of fresh supply coupled with consistent demand from corporate in CBD and off –CBD locations has resulted in record rental growth. Approximately 201 mn. Sq. Ft. Office supply, including those in SEZs, to be developed in 7 major cities of the country over the next 3 years NCR Delhi to witness the maximum supply increment (22% of the total), owing to the development of District Centres, SEZs and large – scale projects by real estate majors in the region Rising rentals have strengthened market sentiments for investments in ready as well as under construction office space. The improvement in demand & supply equation over the next 2 -3 years will keep the rental values under pressure.

Steady requirement for smaller office space is also expected in the CBD and non-CBD areas; Due to the continued demand for leased office space, rentals in the suburbs are expected to face

upward pressure. Capital & rental values in the CBD shall remain steady as companies continue to opt for smaller offices.

2.9 REAL ESTATE DEVELOPMENT IN DELHI

Table 2.3 : Real Estate Market Ranking In Asia (As Per Growth Rate)

City	2006-07 Ranking		2005-06 Ranking
	Next 12 months	Next 3 years	Next 3 years
Bangkok	1	1	4
New Delhi	4	1	-
Hong Kong	2	4	5
Kuala Lumpur	2	5	1
Shanghai	6	6	8
Seoul	7	11	2
Beijing	3	3	3

Source: Jones Lang LaSalle Research 2006

Table 2.5 shows a study done by Jones Lang LaSalle Meghraj which shows the ranking of various cities of Asia during the period 2005 -06 to 2006 – 07 and their projections made for next three years. Delhi had no ranking in its projections for next three years. But in 2006 it became the most esteemed city for Real estate development. It ranked fourth in 2006 and the projections were made that its ranking will be one for next three years. While in case of Beijing also we notice that it remained constant on the third position in 2005 and 2006 ranking and is projected to be in the same position in the next three years also. In the year July 2001 Beijing was awarded the Olympic games of 2008 and Delhi was awarded the Commonwealth Games in November 2003. Kaula Lampur had organized Commonwealth games in 1998. In the study in 2005 – 06 it

was awarded the first position but in 2006 – 07 it dropped down to 2 and it was projected to drop down to fifth position in Real estate Market.

2.9.1 RESIDENTIAL MARKET

2.9.1.1 OVERVIEW

Delhi is spread over an area of 1483 sq. Kames. Extension of Delhi Metro, development of expressways on the eastern and western sides, widening and six laning of the national highways, airport modernization, 27000 Cr. Investment in infrastructural Projects (table no.5) due to Commonwealth Games have collectively opened doors for newer development in real estate sector. The real estate sector in Delhi and NCR experienced a period of unprecedented growth over the last three years. Higher employment opportunities increase in per capita income and rise in average disposable income has led to a surge in demand for housing in the region.

Locations like Chanakyapuri, Jor Bagh, Civil lines, New Friends colony, Defence colony, Shanti Niketan, Gurgaon are the prime residential locations of the NCR. Rapid commercial development has led to the spill – over of growth from Noida to greater Noida, Gurgaon to Manesar and Ghaziabad to Meerut.

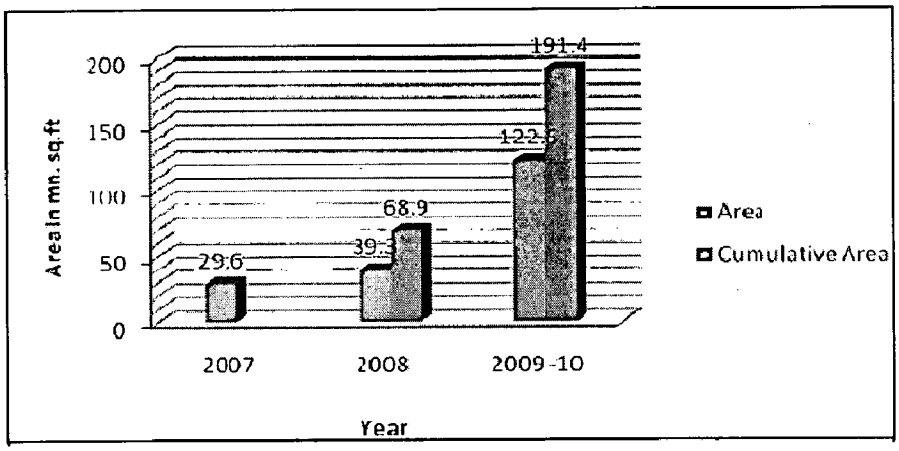
In recent times, the residential supply that has come up in the region has been characterized by high – rise apartments. However the concept of independent floor houses or row houses is growing and would account 10% of the expected residential supply by 2009 – 10. The large number of township projects in NCR indicates that this concept has been a huge success.

2.9.1.2 CURRENT SCENARIO

NCR has substantial residential supply coming in by 2009 -10, totaling to approximately 191.42 sq.ft. Of about 16% shall come up in 2007 and 20 % 2008. The maximum supply (122 mn. Sq.ft) will enter the NCR market in the year 2009 -10. Significantly out of the total supply around 58%

have already been booked.

Figure 2.9: Estimated New Residential Supply by 2009-10 in NCR



Source: Knight Frank Research, 2007

Table 2.6 shows Delhi's residential rates for two time periods 1999 – 00 and 2007 – 08. Delhi's average residential built up area for sale in 1999 -00 was 3500 Rs. / Sq. Ft which rose to 6500 in 2007 – 08 thus marked an increase of 85.7%.

Table 2.4 : Delhi Zone Wise Residential Rates

	1999-2000*		**2007-08****		**% Change**	
Zone	Built-up Area	Monthly Rentals	Built-up Area	Monthly Rentals	Built-up Area	Monthly Rentals
Residential	Sale	Rentals	Sale	Rentals	Sale	Rentals
Delhi	3500	5	6500	8	86	60
Central Delhi	8662.5	72	48000	193	454	167
South Delhi	5030	39	19900	102	296	159
East Delhi	2275	5	5666	14	149	164

North West Delhi	2400	21	4846	28	102	35

Source: *Arora & Associates **Colliers International India Research

Monthly rental value for Delhi was Rs. 5 / sq.ft. which increased to 8 Rs. / sq.ft thus noted an increase of 60%. Its shows that during the period the capital value and rental value of Central Delhi, South Delhi and East Delhi has increased tremendously and is much above the Delhi average . But in North West zone its monthly rental value is below the average. Monthly rental value of East Delhi is above South Delhi. During the period 1999 -00 it can be noticed that the capital value of East Delhi per sq. Ft was Rs. 125 / sq. Ft less than North West Delhi but during the 2007 – 08 East Delhi marked an increase of Rs. 820/sq ft from the same.

Table 2.5 : Delhi Locality Wise Residential Rates

In Rs. / Sq. Ft	1999-2000*		2007-08**		% Change	
Zone	Built-up Area	Monthly Rentals	Built-up Area	Monthly Rentals	Built-up Area	Monthly Rentals
Residential	Sale	Rentals	Sale	Rentals	Sale	Rentals
CENTRAL DELHI						
Aurangzeb Road	10750	104	39000	160	262.8	1.5
Chanakyapuri	8650	72	40000	225	362.4	4.3
SOUTH DELHI						
GK I & II	4400	32	12500	60	184.1	5.9
Vasant Vihar	4950	39	26000	150	425.3	9.9
EAST DELHI						

Preet Vihar	3500	5	6500	16	85.7	64.0
Mayur Vihar	2500	4.5	5500	15	120.0	74.1
NORTH WEST DELHI						
Janakpuri	2000	20	4775	25	138.8	6.3
Pritampura	2400	22	4906	29	104.4	6.0

Source: *Arora & Associates **Colliers International India Research

Table 2.7 gives area wise Built – up area and monthly Rentals of the same period. Delhi has long been centre for residential establishment. **Aurangzeb Road, Chanakyapuri, Golf Links, Sunder Nagar,** followed by locations in South Delhi are some of the most sought after residential locations. In **East Delhi** Preet Vihar with the built –up area sale value of 6500 Rs. / sq.ft. is most sought location in East Delhi but greater percentage of value change has been recorded in **Mayur Vihar** which is closer to the games village location and Preet Vihar is little far from it. One of the striking features to be noted in East Delhi is the increase in monthly rental value which is much above the rest of the area. This increase is confirmation with the Literature survey that in the areas where Games Village is located their rental value increases. Refer table 8 around 2.65.mn.sq.ft. of the residential supply is estimated in Delhi by 2009 – 10. With respect to residential capital values, the highest prevailing rates are in Chanakyapuri followed by Aurangzeb Road. Parsavnath La Tropicana in civil lines is one of the noteworthy upcoming projects in Delhi. Prices are Approximate for Built - up / Super Built Up. Rates may vary depending on precise location, Frontage, Quality of construction, amenities etc. These rates are collected from market sources and are only indicative.

Table 2.6 : Distribution of New Residential Supply by 2009-10

NCR	IN PERCENT
Delhi	1%
Faridabad	16%

Noida	6%
Greater Noida	14%
Ghaziabad / Meerut	27%
Gurgaon / Manesar	20%
Kundali / Sonipat / Panipat	6%
Bhiwadi / Alwar & Others	10%

Source: Knight Frank Research, 2007

Scope of new residential development in Delhi is very less as a study conducted by Knight Frank states that in Delhi there is only 1% of the total development that is to come in the area most of the development will take place in Gurgaon / Manesar , Ghaziabad / Meerut , Faridabad and Greater Noida.

2.9.2 COMMERCIAL MARKET

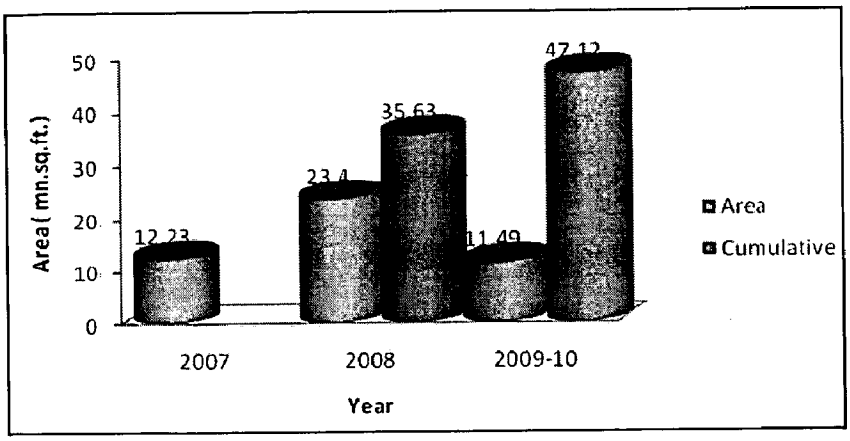
2.9.2.1 OVERVIEW

Real estate market in NCR has witnessed unprecedented upswing in the last 3 -4 years, with the fast – paced growth IT/ITES sector, presence of quality infrastructure, large skilled human resource pool and government initiatives, the region is now a major office market in India.

Geographic spread of economic activities in NCR has increased the demand for commercial hubs over and above the existing ones. Corporate interest in NCR remained buyout as the existing companies went ahead with their expansion plans and new entrants made a foray in the market. This has led to further growth of real estate in the region.

Within Delhi like Connaught Place, Barakhambha Road, Bikaji Kama Place, Nehru Place and Mohan Co – operatives area are the leading office destinations. In the recent time, the metro route is redefining office micro market in Delhi as the development coming along it is sought after by the occupiers.

Figure 1 : Estimated New Office Space in NCR



Source: Knight Frank Research, 2007

The sealing driven by Municipal Corporation of Delhi last year has triggered large – scale relocations to the sub urban location. Gurgaon has been the centre of new age office space development in NCR and is today witnessing the development of some large format office projects and SEZs. Over the last year, Noida and Greater Noida have also gained prominence as an alternative corporate destination on account of currently available quality space at comparatively lower rates.

Table 2.9: Delhi Commercial Rate

In Rs. / Sq. Ft	1999-2000*		2007-08**		% Change	
Zone	Built-up Area	Monthly Rentals	Built-up Area	Monthly Rentals	Built-up Area	Monthly Rentals
Commercial	Sale	Rentals	Sale	Rentals	Sale	Rentals
CENTRAL DELHI						
Statesman House	10000	100	35000	235	250	135
Ashoka Estate	6000	55	22000	150	267	173

SOUTH DELHI						
Nehru Place	10500	105	18000	175	71	67
Munirka	11000	110	23000	185	109	68
EAST DELHI						
Preet Vihar	3000	30	9700	77	223	157
Mayur Vihar	2000	20	5700	43	185	115
NORTH WEST DELHI						
Punjabi Bagh	3500	37	14500	50	314	35
Pritampura	4000	43	18000	62.5	350	45

Source: *Arora & Associates **Colliers International India Research

Table 2.9 gives us Delhi commercial Rates at Built –Up and Monthly Rentals during the period 1999 – 2000 and 2007 – 08. In the table we find that Central Delhi has less built up per sq. Ft. Sale value as compared South Delhi in 1999 - 2000. The reason associated with it is restriction on tall buildings that is imposed in the area to maintain its heritage importance. Recently it has been declared place of heritage importance. In 2007 – 08 the scenario changed mainly due to its connectivity to metro in 2004.

In the study area we find that there has been phenomenal % change in build up sale value and the monthly rental value. It has recorded a change higher than central part of Delhi.

2.9.2.2 CONCLUSIONS

Thus we find that in Delhi the residential and commercial prices have gone up. In east Delhi the residential prices for Built – up Sale have escalated between 80 - 100% and rental prices have appreciated 30 – 70% while in rest of the city rental price increase have witnessed minimal growth of less than 10%. Same is the case with the rental commercial price. New Residential

supply as estimated by Knight Frank Research, 2007 Delhi will have only 1% share of the total 191 sq.ft. Thus there is a little scope for new residential area coming up in Delhi area.

As per the master plan of 2021 it has increased the ground coverage and FAR which may have implication in the densification of the already developed area.

2.10 LESSONS LEARNT

Thus from the above review following things were taken and kept in mind during the analysis of the site area around Games Village:

Land value of an area depends on Physical attributes, Legal or governmental forces, Economic forces, Demand Factors, Supply factor, Infrastructure development, Location and Transport Linkages, Social Factors. Understanding these facts Infrastructural development due to Commonwealth Games needs to be studied in detail. Locations of these Development and physical attributes have to be studied.

It is observed from the theories of land use and land value that a particular set of community resides in particular area and land prices decreases as we move away from the centre. With this understanding study was done to analyze its relevance in the study area due to the location of games village in East Delhi.

The master plan allows the construction of third floor subject to the condition that it should meet the FAR norms outlined in MPD 2021.This may lead to increase in construction area. The Ground coverage and FAR has also been increased. It provides for the provision of a international games event. Our task was to analyze whether these development will lead to land use and land value change in the study area. What happens to people residing in the area?

From the review of land rates of Delhi we find that there is an increase in rental commercial & residential prices in East Delhi. The assignment undertaken is to analyze how have the market reacted to it. Is there any change in the shopkeepers and residential community?

Land use is thus determined by the rent-paying ability of different economic functions in urban areas, such as retailing, industry and residence.

CHAPTER 3: CASE STUDIES

3.1 INTRODUCTION

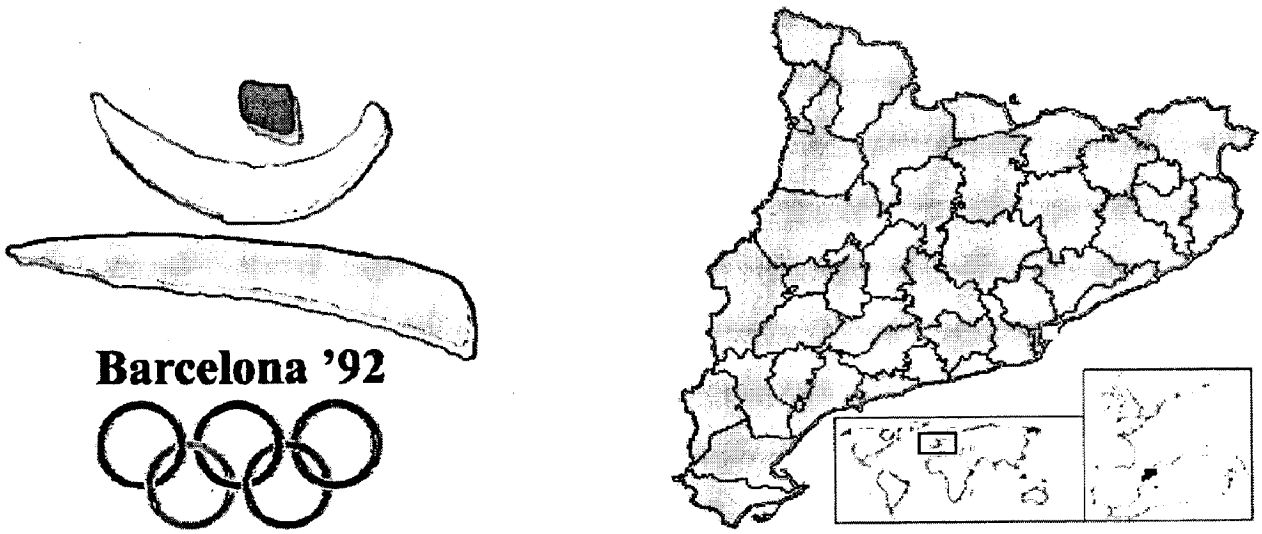
This Chapter tries to analyze the impacts of mega game events and its impact on Land use, Land Value of the area and its transformation.

Some of the games that have been studied are as follows:

- Barcelona Olympics 1992
- Sydney Olympics 2000
- Delhi Asian Games 1982

3.2 BARCELONA OLYMPICS 1992

Figure 3.1: Location of Barcelona



Barcelona claims that Olympic Games played a huge role in setting off some regeneration plans. The city went through a transformation and eventually changed its image from a typical industrial city to a flexible city. The major Olympic construction involves works such as opening

up the sea front to the city, restoring the historical buildings in Gothic Quarters and on Montjuic Mountain and building the ring roads around the metropolitan area.

The Principal Olympic projects imposed a structural effect on the city, and their classes were as follows, in the order of importance (Brunet, 1995):

1. Roads and transportation infrastructures
2. Housing, office, and commercial venues
3. Telecommunications and services
4. Hotel facilities
5. Sports facilities
6. Environmental infrastructures

The following table compares the portion of expenditures categories of Olympic Games 92' with other Games. Out of the five Games, Barcelona had the second biggest portion on indirect investment, which mainly focused on the first four construction classes as stated above. This clears states that Barcelona learned the lesson from the past games and tried to minimize the true cost of the Games and invested heavily on infrastructures which have been utilized extendedly after the Games.

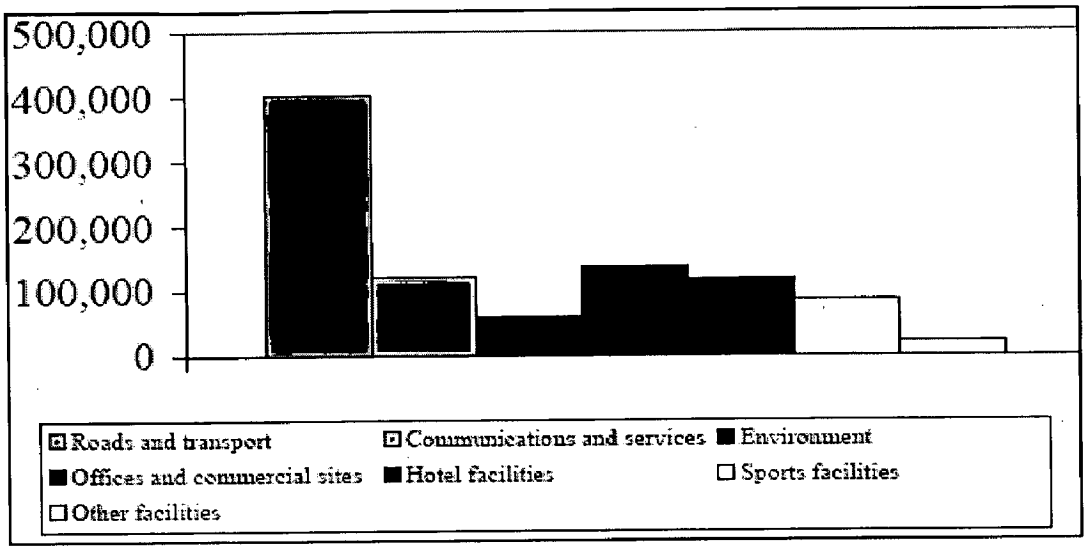
Table 3.1: Expenditure Categories of Various Olympic Games

	Tokyo '64		Montreal '76		Los Angeles '84		Seoul '88		Barcelona '92	
In Millions of US$	M of $	%	M of $	%	M of $	%	M of $	%	M of $	%
Direct Expenditures	452.116	2.7%	2,824,863	89.0%	522,436	100.0%	1,467,853	46.5%	2,460,855	26.2%
Operational Expenditures	169,510	1.0%	411,857	13.0%	450,394	86.2%	478,204	15.2%	1,361,126	14.5%
Direct Investments	282,605	1.7%	2,413,006	76.0%	72,042	13.8%	989,649	31.4%	1,099,699	11.7%
Indirect Expenditures										
Indirect Investments	6,373,372	97.3%	350,012	11.1%			1,687,423	53.5%	6,915,274	73.8%
Total Olympic Investments	6,825,488	100.0%	3,174,857	100.0%	522,436	100.0%	3,155,276	100.0%	9,376,129	100.0%

Source: Brunet, 1995

In Barcelona the largest component of investment went into the development of roads and transport facilities, while the construction of offices, commercial property, hotels and sports facilities also made up a large proportion.

Figure 3.2: Showing Types of Projects (in million Pesetas)



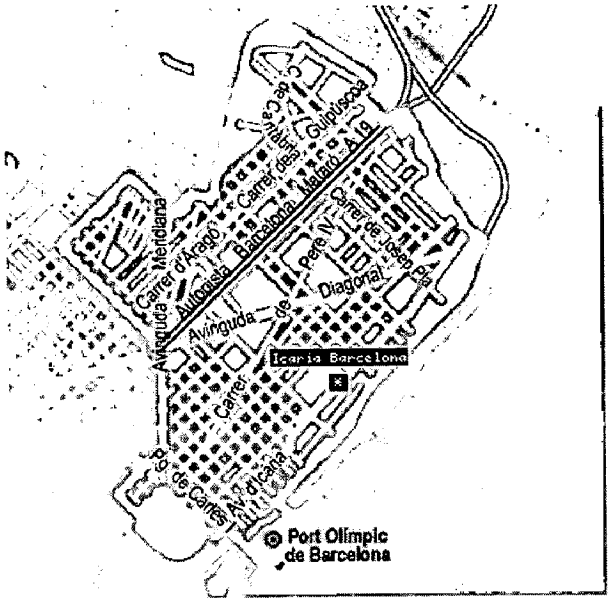
Barcelona due to the Games is seen in these proportions: in relation to the dimension in 1989, the new road projects meant an increase of 15%, the new sewerage systems saw an increase of 17%, new green zones and beaches an increase of 78%, and ponds and fountains, an increase of 268%. (Brunet, F.1995). Figure 3.2 illustrates the kind of projects that were initiated for the preparation of the games.

3.2.1 INFRASTRUCTURE DEVELOPMENT

1. Vila Olimpica And The Sea Front

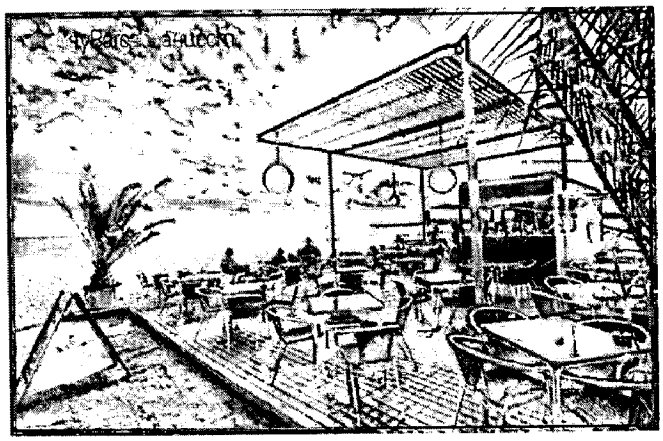
Everyone knows that Barcelona is a mediterranean city. However, the very citizens of Barcelona disregarded the sea for many years, oblivious of a coastline that is one of the city's main attractions today. The city's beaches, named Sant Sebastià, Barceloneta, Nova Icària, Bogatell, Mar Bella and Nova Mar Bella, extend for 4 kilometres and are visited by about 7 million people every year.

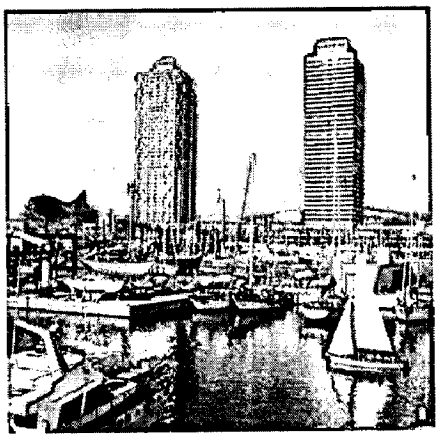
Figure 3.3: Location of Vila Olimpica



The coastline's rehabilitation began as part of the preparations for the 1992 Olympic Games and gave the Barcelona seafront a much-needed facelift. Thanks to this effort, visitors can now enjoy beaches that are equipped with all the necessary services whereas before the area was home to nothing more than factories and half-forgotten areas. These changes were of enormous benefit to two of the city's areas in particular: Barceloneta, the old fisherman's neighbourhood, and the Vila Olímpica, a new, urban zone that was, as its name indicates, built for the Olympic Games.

Figure 3.4: Vila Olimpica and the seafront





The Olympic village was developed on a 130 hectares site at Parc de Mar, which was the most transformed site preparing for Olympic 1992 (Barcelona NOC, 1992). It was built by the Barcelona Holding Olympic, S.A. (HOLSA), and a matrix company also involved in the construction in the Olympic Ring.

2. Ring Road

As the top priority of the city upgrading plan, the construction of the ring road of Barcelona aimed to improve its existing road system so to facilitate the increase traffic flow during the Games. Large amount of public funds have been invested in modification in the road network. It is the key roads to move around the circumference of Barcelona.

After opening of the Dalt and Litoral ring road in the Olympics period, the immediate effect on the city was the increased circulation of motor vehicles which was evidently shown by the comparison of traffic density in 1990 and in 1993(Brunet).

3.2.2 LAND USE

Before the game, the land was occupied as industrial land, and it was separated from the rest of the city. There were two railway lines connecting the site to the city primary for shipping use. The Olympics provided an opportunity to re-develop the area which involves reconstructing the Railway network, building a costal ring road, developing the Olympic village and Olympic Harbour and reconstructing the sewage system. The district was eventually opened up to Barcelona inhabitants and with an easy access to its 5.2 km coastline. The new beaches and waterfront facilities have transformed the landscape and become a new leisure attraction for both locals and visitors. The regeneration of the coastline not only provided the necessary infrastructures for the Olympic Games, but also created a continuing force to redefine the city in a bigger content. As seen in the figure Barcelona land use pattern can be compared to Hoyt and Burgess Model of land use. One part of the urban area may have all the advantages for industrial location so that a lot of factories want to locate there; but few people want to live next door to a factory, so the residential areas are located elsewhere. Planners also prefer this segregation of

land uses into definite zones. But due to the village coming up in the area it is seen that the industrial zone went under major change. High Income group came to reside in the area after the game. [9]

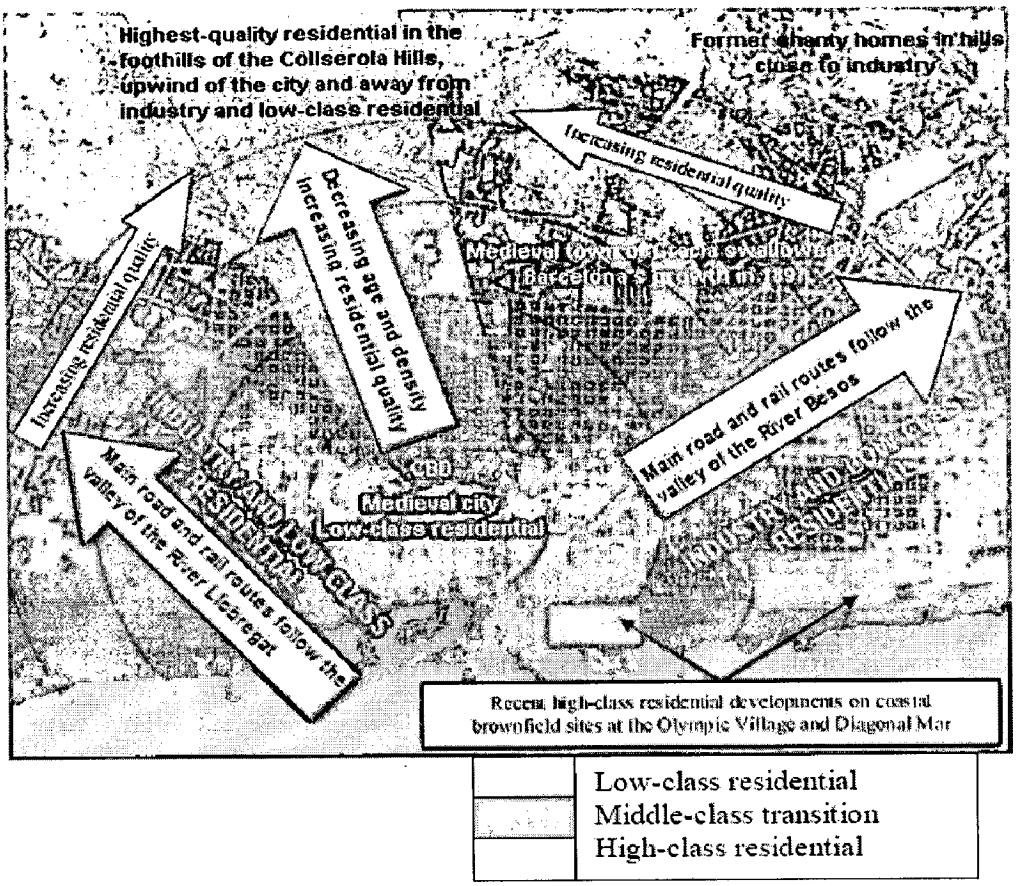


Figure 3.5: Land Use Transformation after Barcelona Olympics ' 92

3.2.3 LAND VALUE

Since 1992 games, city housing price levels increased much more than rest of the region and more than 1% over the inflation rate in Spain. Construction capacity became limited as Olympics work took the priority over the public housing programs. Housing prices soared 131% in five years leading to games nearly 50% more than in Spain as a whole. The Market Price of old and new housing rose between 1986 and 1992 by 240 % and 287% respectively. Further 59000 residents left Barcelona to live in nearby towns between the years 1988 to 1996 and although

everyone cites the Barcelona Olympics as the great success story, the city saw escalated higher costs for food, transportation and services.[10]

3.2.4 IMPACT OF OLYMPIC 1992

The impact of Barcelona Olympic 1992 can be divided as economic and non-economic. Economic Impacts are mainly from construction projects realized for the Games. The induced impact is the largest portion among the overall impact and it started as counted from five years prior to the Games year, since constructions need time (Brunet, *Ibid*). The following table shows the brief categories of the economic impacts and their distributions in percentage.

Table 3.2: Impact of the Olympic Games

Period 1986 – 1993	*In Millions of Current Pesetas*	*Distribution*
Direct accumulated impact	1,165,600	37.5%
Investment	956,630	30.8%
Public Investment	643,613	20.7%
Private Investment	313,017	10.1%
Consumption	208,970	6.7%
COOB'92:current expenditures	162,880	5.2%
Consumption of Visitors	46,090	1.5%
Induced accumulative impact	1,942,188	62.5%
Total accumulative impact	3,107,788	100.0%

Source: Brunet, 1995

However, as mentioned before, economic impact is not the priority for host cities. Barcelona succeeded in "marketing itself" through Olympic '92: a survey which took place in 1992 showed that visitors gave the city high evaluation, especially for the Olympic events, the Olympic atmosphere, Olympic facilities and Olympic signage (Brunet, 1993b). The survey also captured a strong preference of investors willing to locate in Barcelona due to the city's availability of services and labor, its market and the overall competitiveness.

The celebration of the 1992 Olympic Games had an enormous impact on the urbanism and external projection of the city of Barcelona. The Games enabled billionaire inversions in infrastructures that are considered to have improved the quality of life and attraction of the city for investments and tourism, making Barcelona become one of the most visited cities in Europe after London, Paris and Rome.

The nomination of the city as organizer was the spark that led to the application of a previously elaborated ambitious urban plan. Barcelona was opened to the sea with the construction of the Olympic Village and Olympic Port in Poblenou, a decayed neighbourhood. Various new centres were created, and modern sports facilities were built in the Olympic zones of Montjuïc, Diagonal, and Vall d'Hebron. The construction of ring roads around the city helped reduce the density of the traffic, and El Prat airport was modernized and expanded as two new terminals were opened. New hotels were built and some old ones were refurbished.

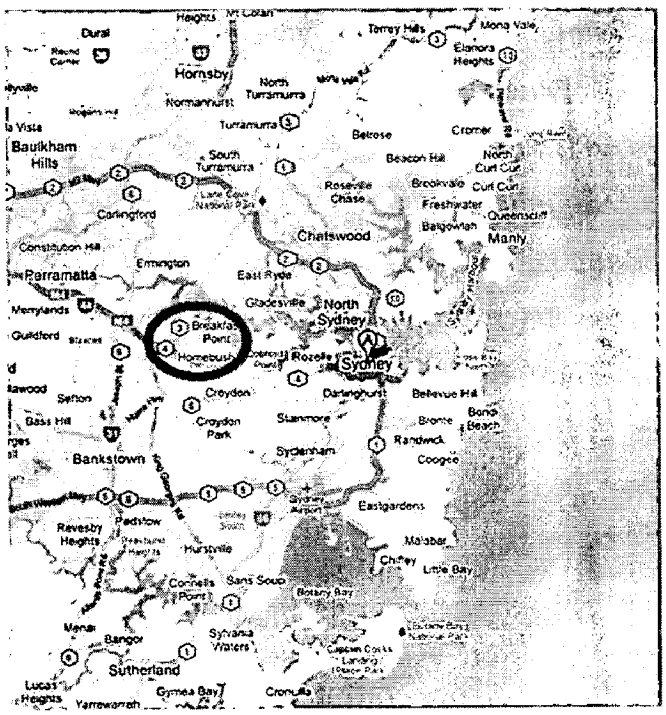
3.2.5 CONCLUSIONS

Organizing mega-events has becoming a trend in cities to promote themselves. However, this "happening" business is not for everyone: as we have seen, the requirements of facilities are moving to the luxury scale, and if not planned carefully, white elephants can be left after and that will also impose unwanted financial burden on the city. The Barcelona story tells that mega events such as Olympic Games do not necessarily have an immediate positive impact on the economy, and the motivation of cities competing for hosting does not depend on the one – time profit it could possibly gain. Nevertheless, by planning constructions of venue and upgrading infrastructures strategically, the hosting city could create a legendary effect in terms of improved city image and suburban renewal. In the case of Barcelona, the city launched deliberately several projects in the call of Olympic and we are expected to see that they all revive till nowadays: its seafront is the most hit place to spend time for the young generation; its ring road still serves as the major traffic lane around the city, and the sports facilities on the Montjuic hill are constantly occupied by locals.

In the larger region of the city, a few Olympic projects may not make a visual difference, but they create continuation of urban regeneration. As the host of The Forum 2004, Barcelona once again created an urban legend by building up the new complex on the seafront between Barcelona and Sant Andrià de Beso area. It is evident that urban design and planning are now used in a more systematic way to sell the city. The city of Barcelona has gone through a process of changing its image from a dull industrial city to a dynamic meeting place for business and leisure. By positioning itself as an international cultural and business meeting point, Barcelona is competing with some world-class cities such as London, New York, and Paris.

3.3 SYDNEY OLYMPICS 2000

Figure 3.6: Location of Sydney and Homebush Bay



3.3.1 GAMES VILLAGE

The main site for the Sydney Games is Homebush Bay, which is located 14 km to the west of the city centre. The site had been scarred by noxious land uses and an area of contaminated wasteland used for dumping household and industrial waste, but was earmarked for

environmental remediation and as a future centre for sporting, exhibition and business uses to complement existing facilities on adjacent sites (the State Sports Centre, 1984 and Bicentennial Park, 1988). The new facilities of an Athletics Stadium, warm-up track and Aquatic Centre, together with the Olympic Village, will create a multi-use centre for Western Sydney. The village is intended to act as a model for eco-sensitive design which can be reproduced elsewhere in Australia or abroad. It was designed with Greenpeace and incorporates solar power, water recycling and passive heating and cooling. By having so many Olympic facilities within walking distance of each other, the theme of sustainability is achieved by reducing the dependence on the motor car. Public transport to the Olympic site is being enhanced by a new state-of-the-art rail link, capable of delivering up to 50 000 passengers an hour. After the Games, the Athlete's Village would become a new suburb; however there was no commitment in the bid document to reserve any part of it for social or affordable housing purposes. The housing would be rented, and then sold, "according to prevailing market conditions

Figure 3.7: Location of Homebush Bay

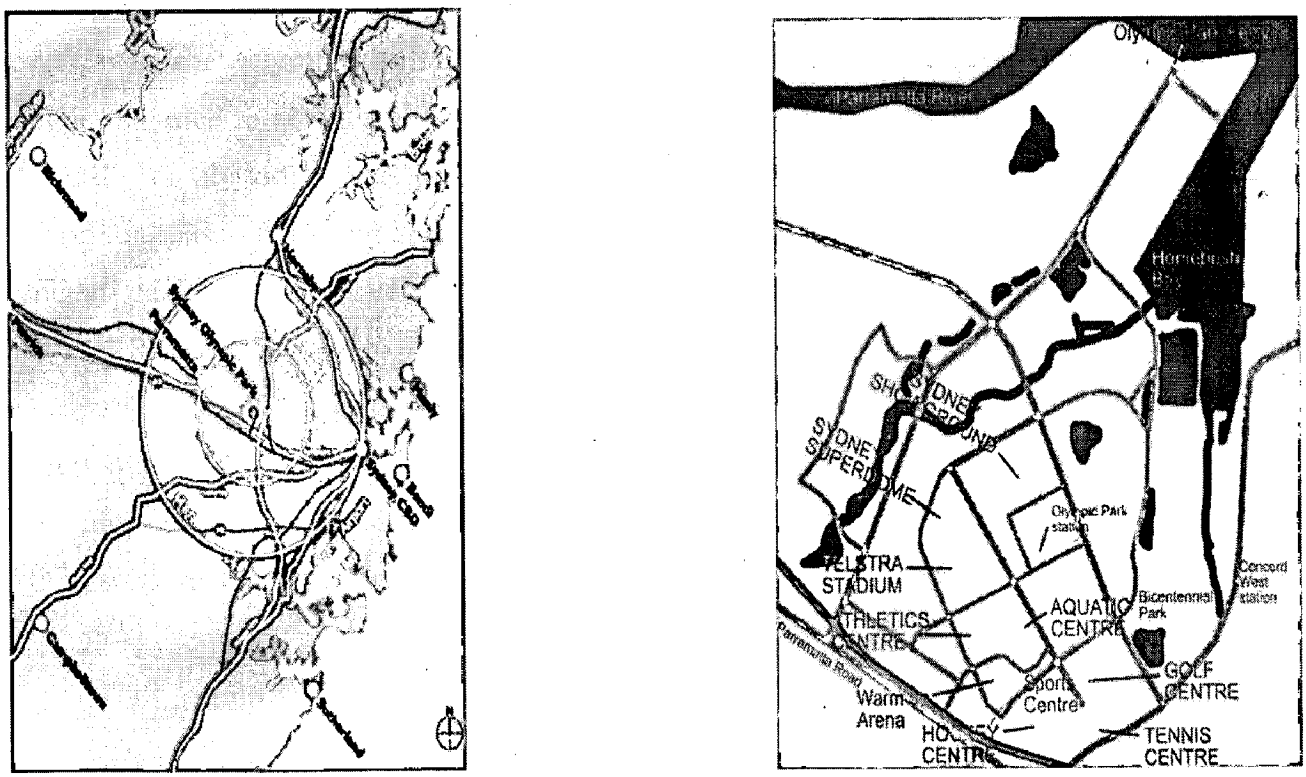
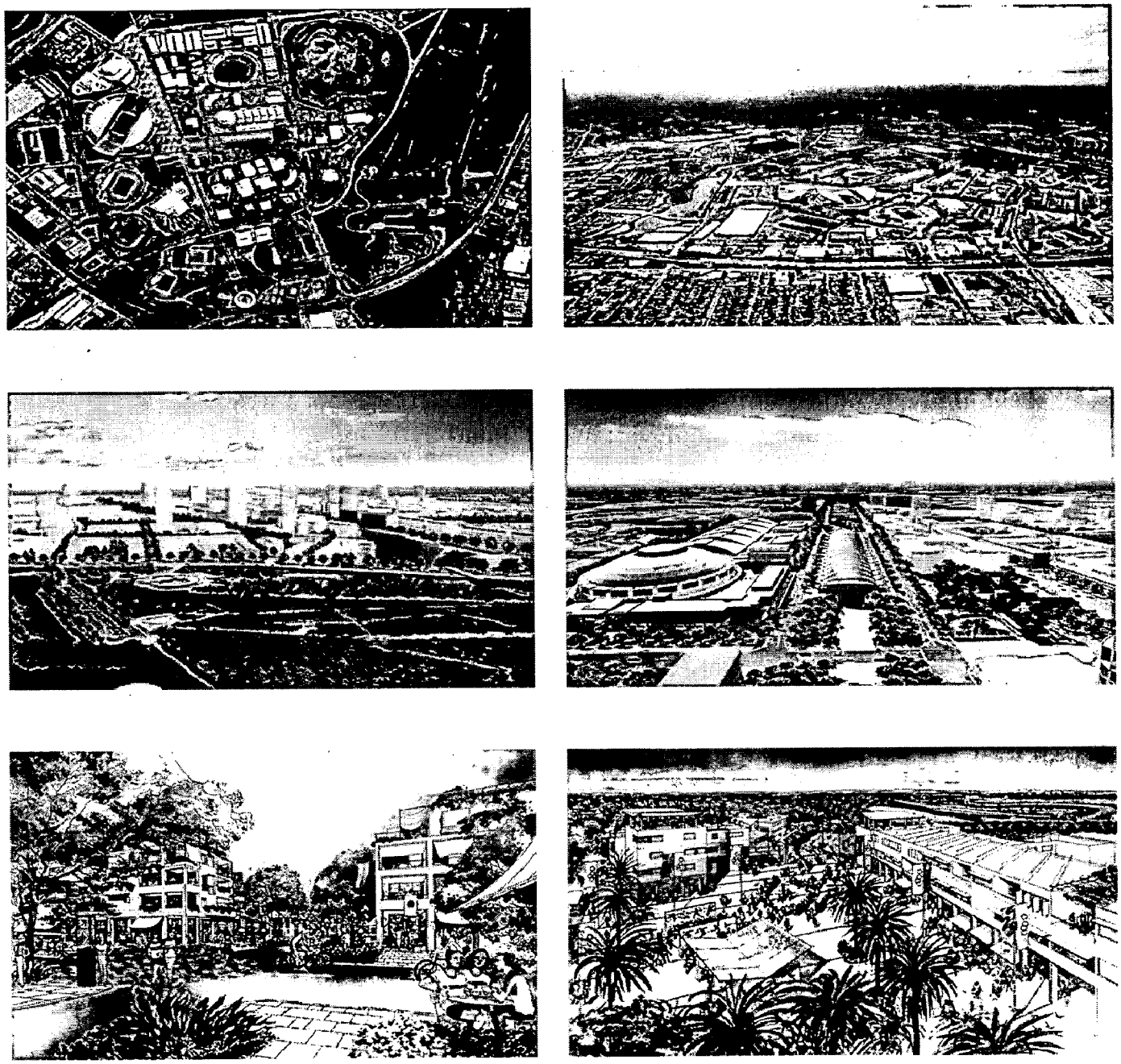


Figure 3.8: Homebush Bay (The Games Village Site)



3.3.2 LAND VALUE

House prices more than doubled between 1996 and 2003. Rents increased significantly. Brownfield sites were being used for high density 'infill' developments such as in ex-industrial areas at Pyrmont and Ultimo. The main Olympic stadium itself was to be one of these

Brownfield developments as was the Olympic Village. Preparation of Olympics brought in a significant increase in Sydney's housing Prices since mid 1990's. For instance house price in Home bush Bay, a former Industrial sit rose by 70 % in run – up to the Olympics, compared to a 50% increase in other parts of Sydney.

Table 3.3: Land Price Rise Pre Games in Sydney

	1995	2000	% increase over 5 years
Homebush	$248,000	$422,000	70%
Sydney	$197,000	$295,000	50%

Source: NSW Department of Housing, 2001

A report published in June 1998 found that 160,000 Sydney households faced little choice but to live on the city's fringe leave Sydney altogether or pay more than 30 per cent of their income in rent closer to the city.

Rents were going up faster than the rate of inflation. For example, the *Rent and Sales Report* for the December quarter of 1998 revealed that rents in most areas across Sydney had been steadily increasing. In the South Sydney local government area rents for one bedroom units increased by 9.5 per cent; in the CBD rents for three bedroom dwellings increased by 15 per cent. Of particular note was a 29 per cent increase in median rents for 2 bedroom units in Concord, a suburb adjacent to the Olympic Games Village site.

3.3.3 CONCLUSIONS

Thus we notice that in Sydney also area chosen for games village was not a destined location Pre Games but Post Games its became a coveted address. House prices more than doubled between 1996 and 2003. High rise in rent was noticed in areas close to Games Village.

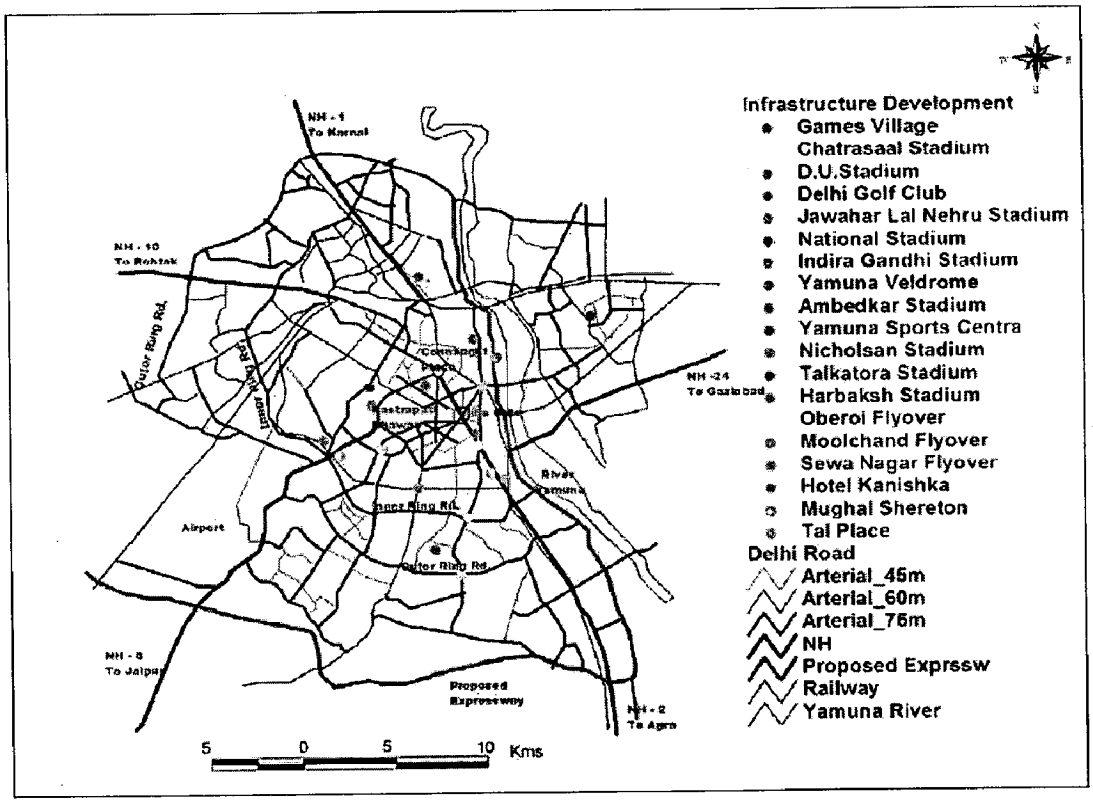
3.4 DELHI ASIAN GAMES 1982

The city began to develop only after 1982. The build up to the games saw an unprecedented construction spree in the city with stadiums, the games village, hotels, flyovers and roads, even Pragati Maidan being built, all with 1982 as the deadline. The skyline of the city literally changed overnight.

3.4.1 INFRASTRUCTURE DEVELOPMENT

The construction at the time can be broadly categorized into four groups and can be seen from fig.3.9:

Figure 3.9: 1982 Asian Games Infrastructural Development



1. Stadiums-The Jawaharlal Nehru Stadium was the centrepiece of the games, being the venue for the opening and closing ceremonies and athletics. The other major stadiums built at the time were the Talkatora Stadium, the Indira Gandhi Indoor stadium and the Yamuna Velodrome. One notices that with the exception of the National Stadium, which

was an earlier construction, most of the venues for the 1982 Games were new constructions.

2. Asiad Village-The Games village, where all the participating athletes and officials were to stay was a large project developed in the Siri Fort area.

3. Hotels- A number of hotels came up at the time like the Kanishka, the Mughal Sheraton, and The Taj Palace.

4. Roads and Flyovers-The city's love for flyovers began with the Asian Games when four flyovers were built to facilitate smooth movement of traffic between the venues and the Games village.

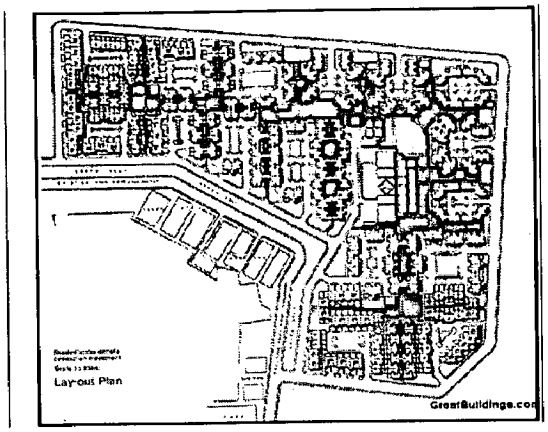
ASIAN GAMES VILLAGE

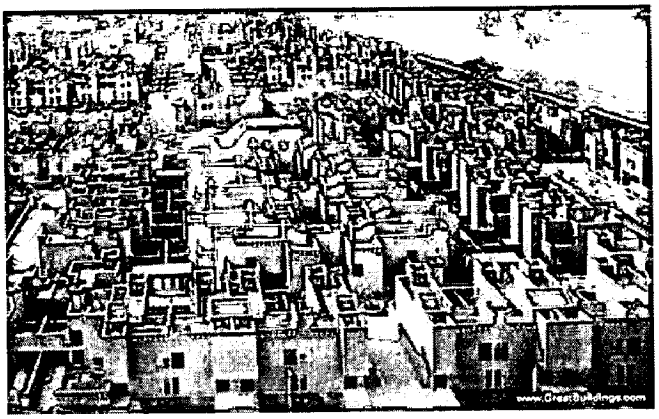
Asian Games Village was built in 1982 to house athletes for the games. 500 housing units were designed as a group housing in 35 acres. The aim was to create an urban pattern of low rise high density based on a sequence of open spaces linked by shaded pedestrian pathways. The peripheral roads are connected to the cul-de-sac parking squares which in turn give way to individual garages or car porches attached to the houses or apartment blocks.

The concept is based on a sequence of open spaces, interlinked with narrow pedestrian streets shaded and kept alive through a careful mix with recreational and communal area. The streets are consciously broken up into visually comprehensible units, often with gateways, so there are pauses, point of rest and changing vistas.

The central spline of the layout is reserved for pedestrian courts and streets of various clusters. About eight percent of the houses and apartments have access from pedestrian enclosures as well as parking squares.

Figure 3.10: Asian Games Village

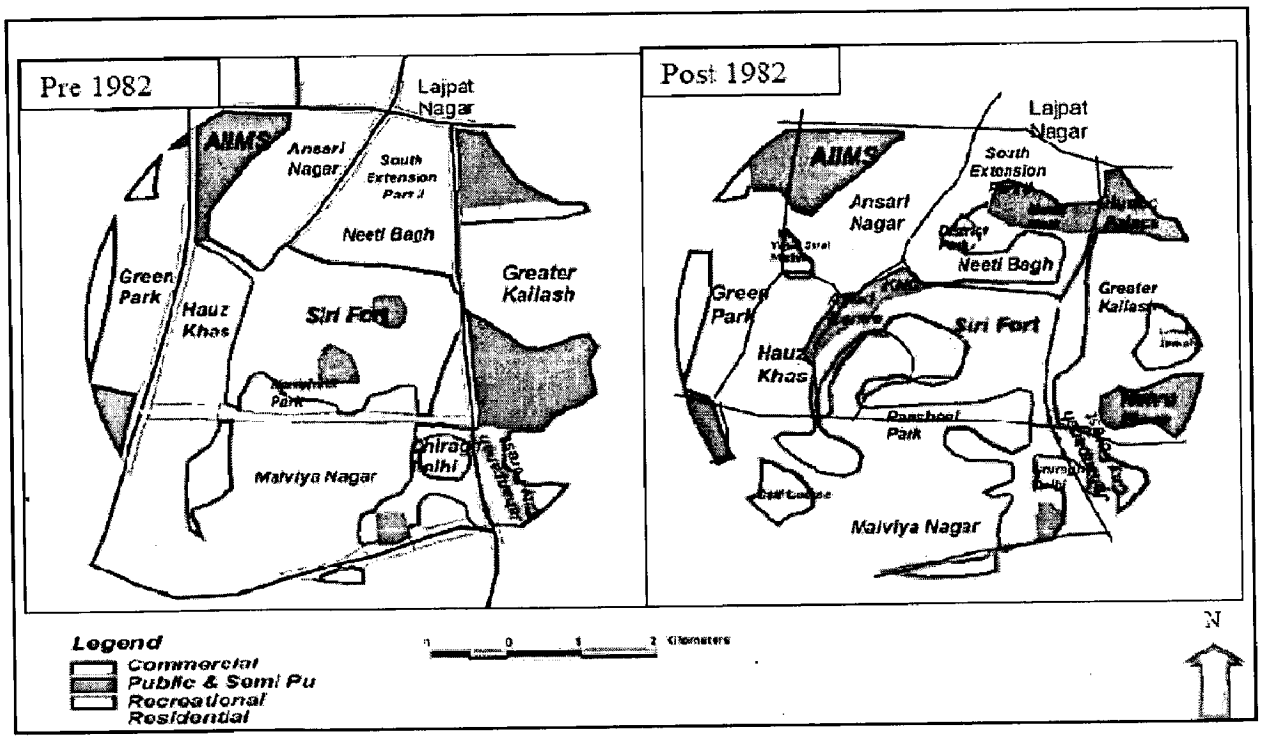




3.4.2 LAND USE CHANGE IN GAMES VILLAGE

In order to study the land use change in and around the Games Village a 2km radius was taken and land use pre and post Games was studied.

Figure 3.11: Pre and Post 1982 Land Use



The infrastructural development had a long lasting effect in the area. It led to land use and land value change in the Delhi. The core of the Asian games was the village that was developed by

the DDA, in the Siri Fort area. The development of this site probably had the largest urban impact on the city due to its correlation with the development of south Delhi. South Delhi was a region that had already begun being developed, but it was only after the 1982 games that saw this region increase in importance. Three of the four flyovers developed at the time, the Moolchand, Sewa Nagar and Oberoi flyovers were in south Delhi. The city, which had been growing rapidly, was running out of space and this region seemed perfect for development.

The area where the village was developed, Siri Fort, was originally a Master Plan green but at this time was reallocated for the use of the village. The reason that the games had such a deep impact on the development in south Delhi was because they provided the region with the necessary infrastructure to develop. It provided the region with broad roads and flyovers for swift movement of traffic and other infrastructure as well such as water, electricity and other civic amenities.

Major land use change occurred in the area after 1982. Recreational area reduced from 25% to 22% a reduction of 0.39 sq.km areas (Refer table 3.4). Residential development increased so was the commercial area. Higher level of commercialization evolved in the area, the area witnessed the opening big local non branded showrooms especially in South Extension. Smaller shops Shifted to the Yusuf Sarai Rd. and led to the development Yusuf Sarai Market. This led to location many institutions like Institute of Home Economics, Siri Fort Auditorium. In Later Years this area saw to the opening of the city first Mall Ansal Plaza.

Table 3.4: Land Use Pattern of Games Village 1982

Land Use	**1962**		**2001**		**2021**	
	Area in sq.kms.	In Percent	Area in sq.kms.	In Percent	Area in sq.kms.	In Percent
Residential	6.64	52.82	7.16	56.94	7.49	59.58
Commercial	0.04	0.30	0.21	1.70	0.20	1.58

Govt. Land	0.00	0.00	0.00	0.02	0.03	0.22
Public & Semi Public	1.66	13.18	1.43	13.41	1.69	13.41
Recreational	3.11	24.73	2.71	21.59	2.57	20.42
Circulation	1.13	8.96	1.05	8.34	0.60	4.80
Total	12.57	100.00	12.57	100.00	12.57	100.00

Source: Master Plan of Delhi 1962, 2001 and 2021

Many posh colonies developed around the village like Hauz Khas, Green Park, Greater Kailash, Neeti Bagh, South Extension, Panchsheel Park. Residents of the area informed that in these areas wearied a deserted looks after 8 o'clock in the night resident feared moving out after that time. Land use change lead to rise in the Land Value.

3.4.3 LAND VALUE

As studied in literature review it was seen that rent of a place decreases as we move away from the centre the rent decreases. Thus keeping Games Village as the centre three localities were selected Greater Kailash, South Extension and Malviya Nagar were taken. South Extension being in 500mts from the Games Village, Greater Kailash being 1kms distance and Malviya Nagar in 2kms. A comparison was drawn between rest of the city to analyze the Price rise around Games Village and rest of the city.

Table 3.5 shows Land Rates in Delhi Pre and Post Games of 1982. It seen that Residential land prices in the Greater Kailash increased three times after the announcement of the games village location. Construction work started in the year 1979. It was seen (refer table 3.5) that after the games the price raised four times the price of pre games. It was seen that even Malviya Nagar, which was not a preferred destination pre Games prices of the area grew tremendously post games. At the same time it can be seen (refer table 3.5) that in rest of Delhi except for Central

Delhi during that period of time the price rise was between 30 – 50 % post Games but area surrounding Games Village witnessed a annual growth of 67 –75 %. This trend continued till 81 – 85 but from 85 – 91 the prices stabilized and witnessed only a rise of 9% during the same period in case of residential price.

Table 3.5: Land Price Change Pre and Post Games Of 1982

LAND RATES	% Change									
	74-79		79-81		81-85		85-91		91-98	
Commercial	Resi.	Com.	Resi.	Com.	Resi.	Com.	Resi.	Com.	Resi.	Com.
CENTRAL DELHI										
Connaught Place	33	0	50	75	75	74	67	0	87	74
SOUTH DELHI										
Greater Kailash	25	25	67	78	75	75	9	0	79	71
Malviya Nagar	25	25	75	75	72	72	9	0	83	84
South Extension	14	14	71	81	75	75	9	0	79	71
NORTH DELHI										
Kingsway Camp	33	33	45	63	53	67	64	0	69	72
Kamla Nagar	43	43	36	43	42	51	54	0	68	84
WEST DELHI										
Patel Nagar	33	33	42	53	47	66	59	0	70	75
Moti Nagar	20	0	36	43	42	51	54	0	68	84

Source: DDA, L & DO Office

Once again prices of residential and commercial increased post liberalization. Thus we can notice that the prices of the area increased at much higher rate than the rest of the area. Amongst themselves in three areas South Extension witnessed highest rise in Commercial Prices and Malviya Nagar in residential prices.

3.4.4 CONCLUSION

We can say that the area closest to Games Village witnessed change in commercial activity and commercial land prices of the area also witnessed tremendous growth. South Delhi became a preferred location and much-coveted address.

3.5 LESSONS LEARNT

Planning constructions of venue and upgrading infrastructures strategically, the hosting city could create a legendary effect in terms of improved city image and suburban renewal. The cities undergo through a process of changing its image from a dull city to a dynamic meeting place for business and leisure. By positioning itself as an international cultural and business meeting point, cities compete with some world-class cities such as London, New York, and Paris.

Table 3.6: Lessons learnt from case studies

SECTORS	CHANGES CAUSED BY SPORT EVENTS
Transportation	Improved and new public transportation system. E.g. improvement in roads and construction of ring roads in Barcelona '92
Sports facility structure	Influence on the sports facilities structure in the city. Creation of adequate and sufficient sports and training facilities for all sports at an international level. After the games, these facilities are often available for leisure sports.
Housing	In most cities, Olympic villages are newly constructed. The question of the social distribution of the newly created housing units is reviewed. The Olympic Villages sold to the middle and lower upper classes.
Urban culture	The general embellishment of a city, an improved transportation system, additional leisure time facilities and numerous ecological projects frequently lead to a revival of the city centre by improving the 'city

	atmosphere.
Land Market	Prices of land and housing and rents shoot up sharply during and after the Games. areas surrounding Games Village witness maximum rise in the land prices. Higher income group people move to the area. Areas that benefit from improved facilities and better transport links see the maximum hike in real estate prices. Public and private lower – cost housing development are pushed out of preferred areas. Commercialization of the area takes place.

3.6 CONCLUSIONS

Mega events do not necessarily have an immediate positive impact on the economy, and the motivation of cities competing for hosting does not depend on the one – time profit it could possibly gain. Nevertheless, by planning constructions of venue and upgrading infrastructures strategically, the hosting city could create a legendary effect in terms of improved city image and suburban renewal.

Thus we find that when a game is organized it benefits the city. The city witnesses large infrastructural projects. These lead to land use change in the area, growth of commercial activity in the area and changes in the land prices.

CHAPTER 4: INFRASTRUCTURE DEVELOPMENT FOR THE COMMONWEALTH GAMES

Delhi was awarded to host the games in November 2003. Advantages that the Delhi has over other cities:

- Experience of conducting a mega sport event in 1982
- Sport infrastructure already available
- Good transport network
- Good connectivity with other parts on India

Delhi (National Capital Territory) has an area of 1483 sq.km. The population as per 2001 census is 13.78 million. Master plan 2021 has projected that the population of Delhi will be 230 lakhs by 2021. Delhi has been divided into 15 zones, from A to P – 8 Zones are in the urban area; 6 are in the rural area and 1 is in the river bed. [14]

In preparation for the games, and to cater to the needs of thousands of sportspersons and visitors expected during the event, Delhi is undergoing massive exercise. Just as the time of the Asiad 1982, a range of infrastructure is being developed and upgraded at a much larger scale. This includes sports stadia and complex, transport facilities such as flyovers, roads, buses and airports, hotel, etc. The key stakeholders are: [15]

- Commonwealth Games Federation (CGF)
- Indian Olympic Association (IOA)
- Organising Committee (OC)
- Government of Delhi comprising the Delhi Development Authority (DDA) and the Delhi Police
- Government of India comprising the Ministry of Home Affairs, Ministry of External Affairs, Ministry of Youth Affairs and Sports, Ministry of Commerce and Industry, Ministry of Tourism and Sports Authority of India (SAI),
- Participants in the Games
- Citizens of the host city

4.1 INFRASTRUCTURE DEVELOPMENT

4.1.1 GAMES VILLAGE

A Commonwealth Games village is being built on the banks of Yamuna on NH – 24 next to Akshardham Temple. It is spread over an area of 63.5 hectares (158.4 acres). The residential complex developed under the Pubic Private Partnership (PPP) model has 14 blocks, 34 towers and 1,168 air-conditioned flats to comfortably accommodate 8,000 athletes and team officials. There will be a number of apartment types ranging from two to five bedroom units, each with en-suite facilities which, with only two occupants per room.

Apart from this it will contain training areas for athletics (400m eight-lane synthetic track and separate area for throwing events); swimming (50x25m, kids and leisure pool); weightlifting; wrestling; and a fitness centre. Temporary structures will house the International Zone, Village Operation and Support Areas.

The Games Village located within easy access of all competition and training venues and it also lies in close proximity to some of Delhi's well-known landmarks such as the Bahai Temple, Humayun's Tomb, the Akshardham Temple and India Gate.[16]

About 27000 families were displaced from the banks of river Yamuna for the following reasons:

- To make land available for the construction of the Games Village
- To the promote the notion of 'world class city' and save the city from the embarrassment of its poverty-stricken population

They have been shifted to resettlement colonies in Narela, Rohini, Papankalan, etc. [17]

Figure 4.1: Games Village

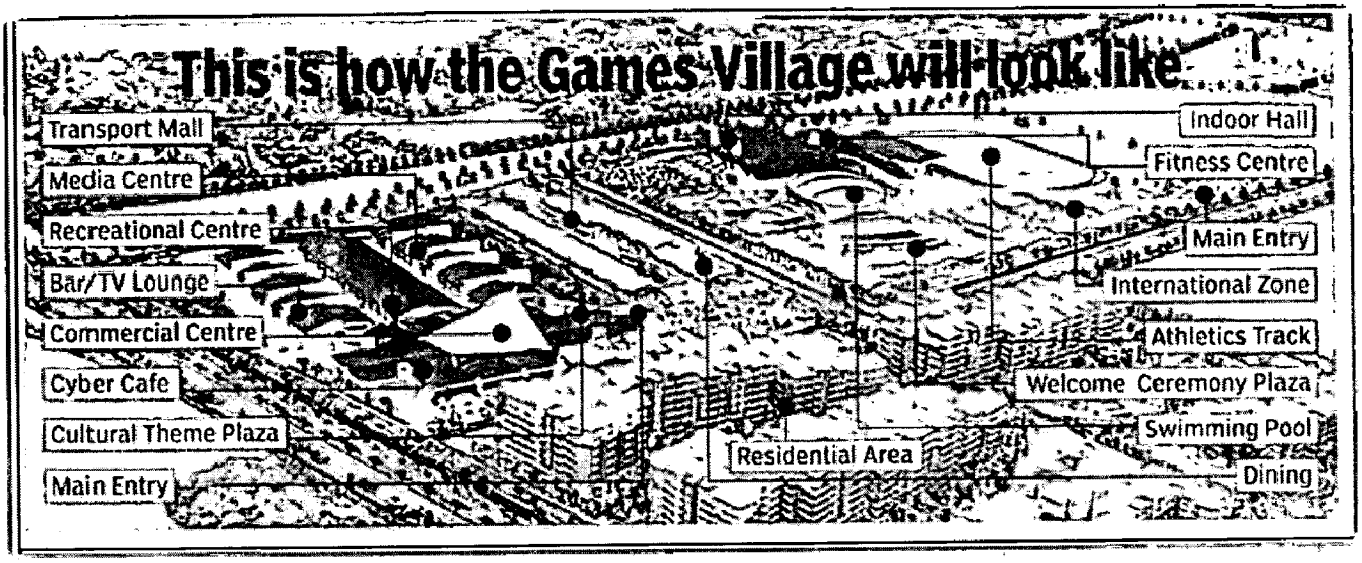


Figure 4.2: Games Village Site and its Distance to the sports venues

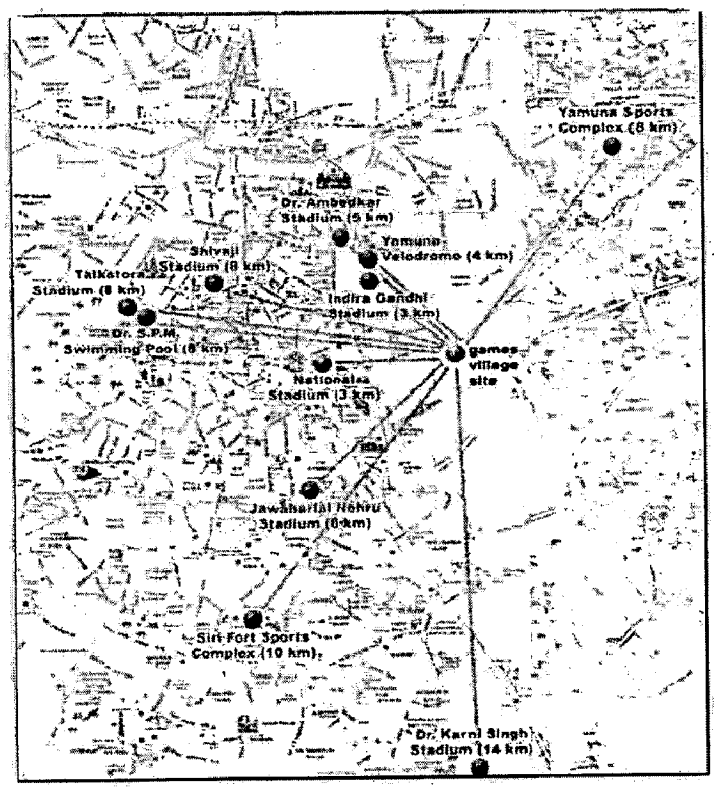
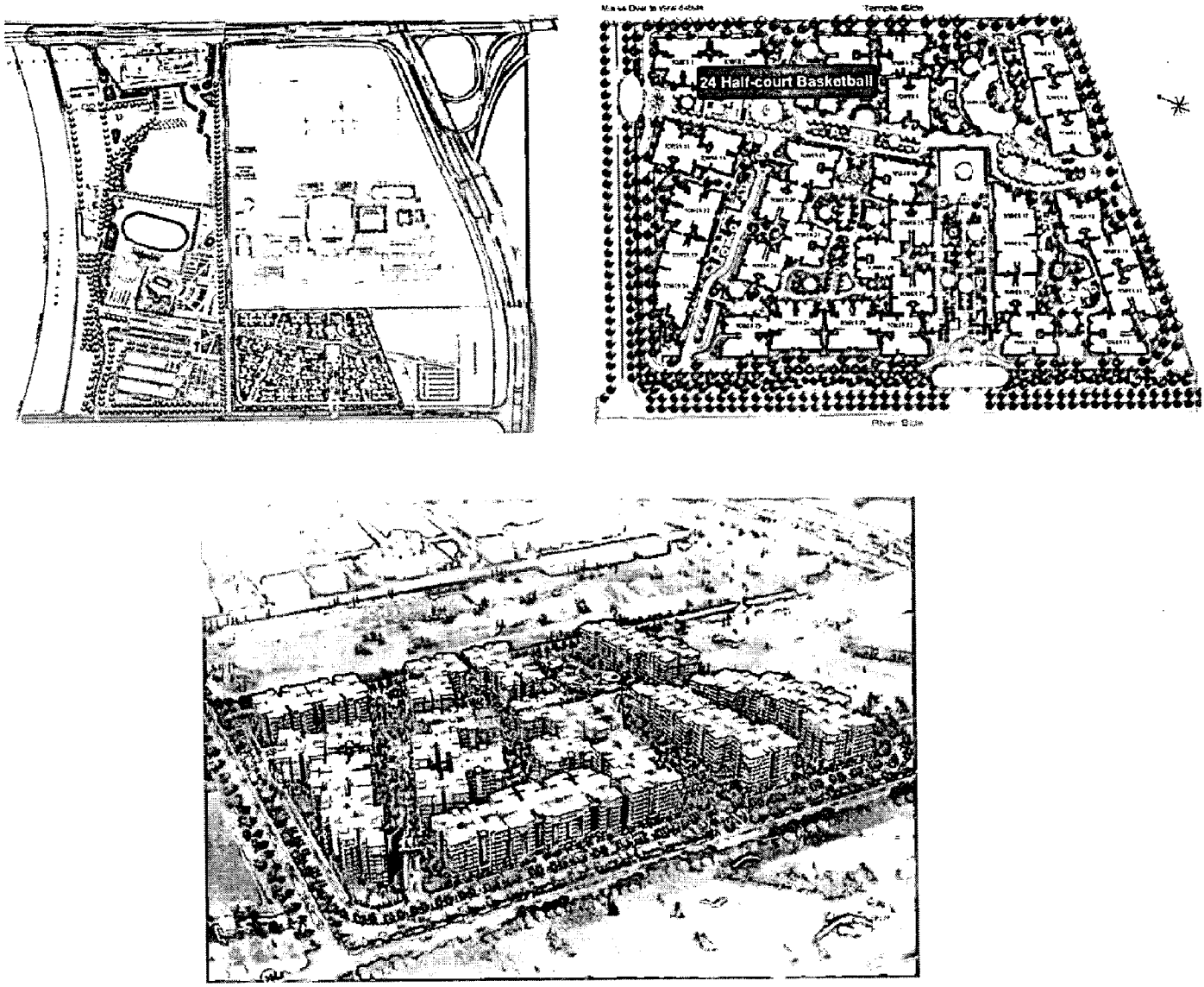


Figure 4.3: Games Village Site



4.1.2 SPORTS VENUES

15 sports will be included in the 2010 CWG: Aquatics, Athletics, Badminton, Boxing, Cycling, Gymnastics, Hockey, Lawn Bowls, Rugby 7s, Shooting, Squash, Table Tennis, Weightlifting, Wrestling and Netball. For this the Delhi Development Authority (DDA) has planned new sporting venues including the Yamuna Sports Complex in Surajmal Vihar, five new outdoor stadia and two indoor stadiums. Land measuring 40000sq.m has been earmarked.

The sports complexes that were built for Asiad Games are to be upgraded. These stadiums will have new illumination systems, changing rooms, galleries, leak – proof roofs and air conditioning plants etc. [18]

Table below gives the list of sport venues for commonwealth Games 2010 along with their capacity and investment made for their up gradation.

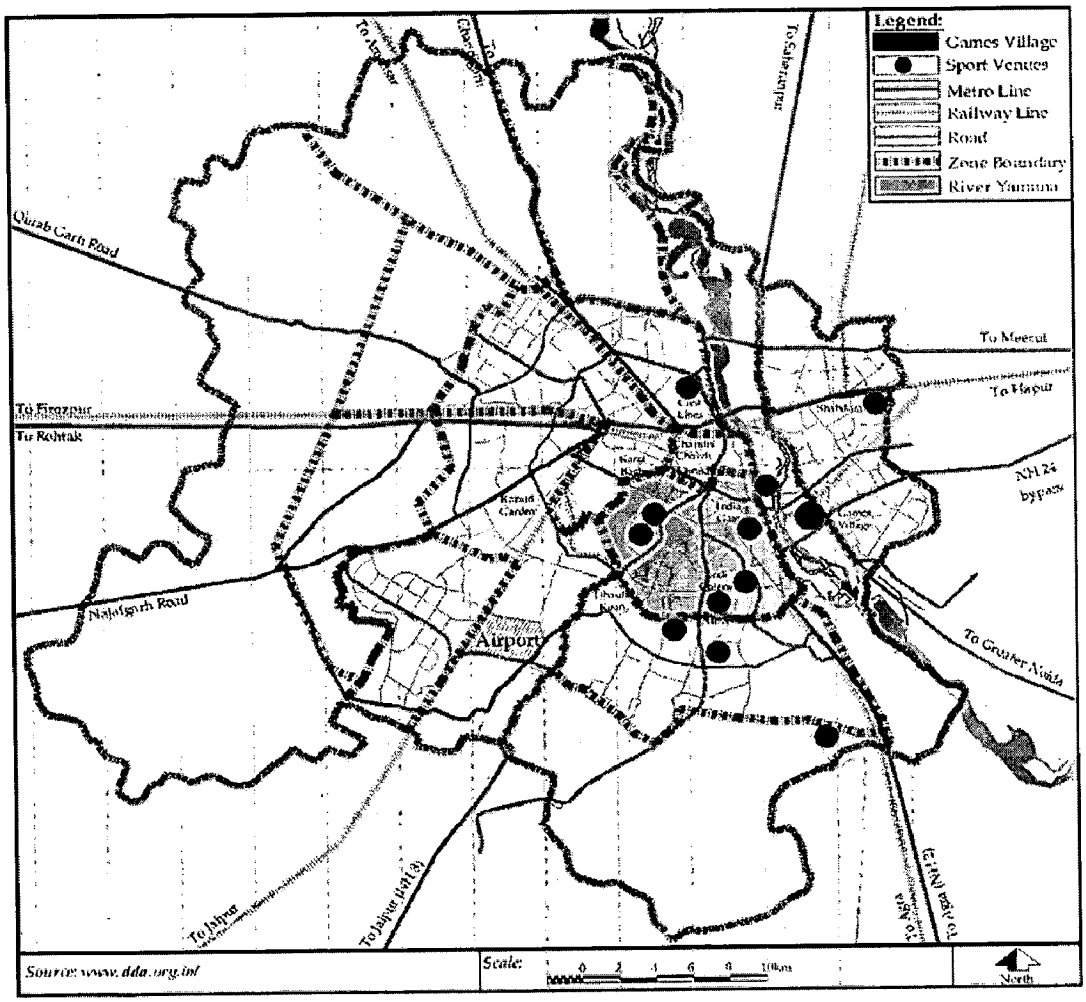
Table 4.1: List of sport venues for Commonwealth Games 2010

S.No.	Venue	Sports	Capacity	Investment (in crores)
1	Jawaharlal Nehru Stadium	athletics, lawn bowls, weightlifting	75000	550
2	Major Dhyan Chand National Hockey Stadium	hockey	25000	125
3	Indira Gandhi Indoor Stadium	cycling, gymnastics, wrestling	25000	512
4	Talkatora Indoor Stadium	Boxing	3035	295
5	Dr. Shyama Prasad Mukherjee Swimming Pool	swimming	5000	145

6	Yamuna Sports Complex (new)	archery	3500	100
7	DDA Siri Fort Sports Complex	badminton, squash	7880	300
8	Thyagaraj Sports Complex	netball	4500	100
9	Dr. Karni Singh Shooting Range	shooting	500	150
10	Delhi University Rugby Ground	Rugby	2000	200
11	R K Khanna Tennis Complex	Tennis	6000	150

Source: Sports Authority of India

Figure 4.4: Location of the sport venues & Games Village



4.1.3 HOTELS

There are a number of hotels present in Delhi, but the still the city faces shortage of hotel rooms.

DDA has identified 39 hotel sites spread all over the city. Out of these 39, 30 hotels will come up before the Games. These have been auctioned and are being developed by private builders. Most of the hotels are in the Zone E. These will add about 6000 rooms to the existing hotel infrastructure. [19]

Delhi at present has about 20000 rooms approximately. With these 6000, the number of rooms will rise to 26000. In a study conducted by Indian Institute of Tourism and Travel Management (IITTM), it has been estimated that on a peak day the hotel room requirement can go up to 40000. Therefore, even these new hotels being constructed for the Games, Delhi will not be able to meet its peak demand.

From the 1982 Asiad games experience we have seen, that the hotels were occupied to about 85% of their capacity. So, maybe these will be enough to cater to the demand of the commonwealth games 2010. These are also being supported by 'Bed and Breakfast' scheme by the government. .In order to further meet the requirement of accommodation DDA is working with Indian Tourist Development Corporation (ITDC) to convert its residential apartments at Vasant Kunj and Jasola into hotel accommodation for the period of Games, there by adding more than 5000 rooms in 2 locations. [20]

Table 4.2 gives the list of the location of hotels with their respective number of rooms followed by Figure 4.5 which shows the location of these hotels in the city.

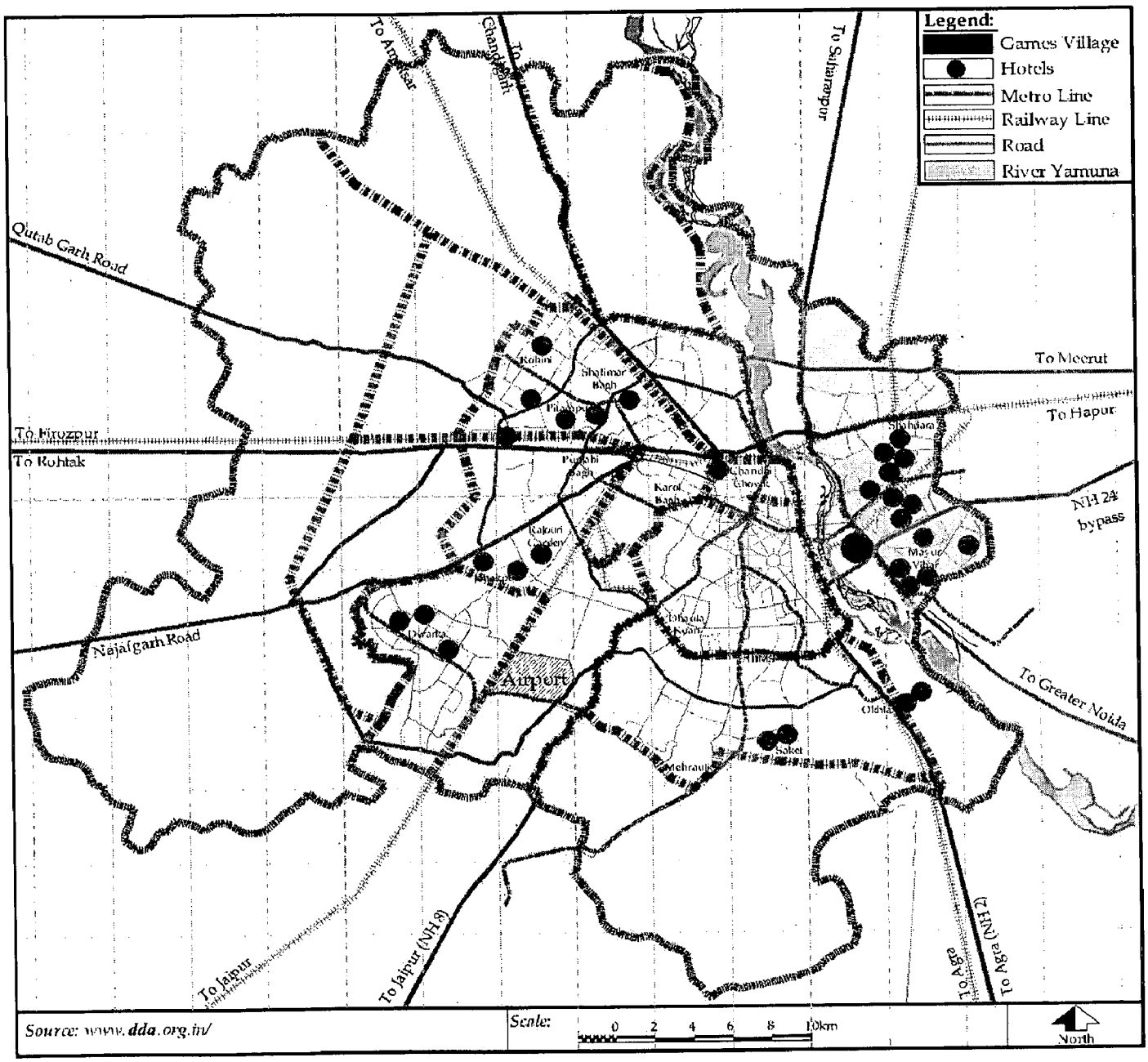
Table 4.2: List of location of Hotels and Number of Rooms

S. No.	Location	Number of rooms
1	Shalimar Bagh	138

2	Motia Khan	190
3	Janak Place, Janak puri	204
4	Pitampura	72
5	Rohini	158
6	District centre, Rohini	219
7	District centre, Paschim Vihar	288
8	Dwarka	329
9	Dwarka	350
10	Community centre, Okhla	181
11	District centre, Saket	116
12	District centre, Saket	100
13	District centre, Wazirpur	194
14	District centre, Wazirpur	181
15	Kondali Gharoli	100
16	Laxmi Nagar	115
17	Mayur Vihar	200
18	Mayur Vihar	164
19	District Centre, Mayur Vihar	100
20	CBD, Shahdara	512
21	CBD, Shahdara	136
22	CBD, Shahdara	60
23	District centre, Hari Nagar	40
24	Hari nagar	50
25	Hari nagar	40
26	Community centre, Vivek Vihar	50
27	Community centre, Mandawali Faizalpur	50
28	Community centre, Mandawali	50

	Faizalpur	
29	Jasola	129
30	Jasola	122
	Total	**5985**

Figure 4.5: Location of hotels



4.1.4 TRANSPORTATION

To ensure smooth ride for the sportspersons and tourists between the airport, sports centres, hotels and tourist places, new transport facilities are underway in the city.

4.1.4.1 AIRPORTS

Airport has been renovated and upgraded. The key projects include: (Refer Annexure I)

1. Third runway
2. Taxiways, fire stations and associated infrastructure
3. Upgrading of international terminal
4. Developing new interim domestic terminal
5. Terminal building
6. Parking bays
7. MRTS link
8. Multilevel car parking
9. Up gradation of utilities

4.1.4.2 METRO

Delhi metro project is going on in full swing in the city. The metro, whose presentation before the Commonwealth Games evaluation team made a sizable impression, is at the core of developing an efficient mass transport system in the city with Phase 1 of the metro being fully operational. However more importantly, Phase 2, aimed at extending the network much further in the city, is already under construction, and is set to be ready before the games. The second phase is going to provide a vital transport link to East Delhi, with a dedicated Games Village station. The metro, which is already beginning to have an impact on the city's congested roads, will be able to make a much larger impact as its network and reach grows. The second phase,

originally planned to be ready by 2010-2011 is now going to be operational before the games. The new line will extend up to the airport. It will further connect Delhi with Noida.

MRTS will have the following impacts:

- It will provide employment to about 2300 people for operation and maintenance.
- It will help in lowering the number of road accidental deaths.
- Petrol and diesel consumption will get reduced
- There will be less air pollution
- It is estimated that the number of buses will to 10000 from 14000 once the Phase 2 is fully operational.

The metro (phase 1) carries about 6,50,000 passengers per day and has reduced about 40,000 vehicles from the road. According to a study done by Rites, phase 2 will help in further reduction of 50,000 cars from the road.[21] (Refer Annexure II)

4.1.4.3 FLYOVERS AND ROAD PROJECTS

Many road projects are being taken up the government for smooth flow of traffic during the games.

18 new flyovers are being planned and constructed in the city. These flyovers are being made to provide smooth flow of traffic between the Games Village and the various sport venues. [22]

Table 4.3 gives the list of flyovers that are being built in the city.

Table 7.3: List of flyovers

S. No.	Location
1	Geeta colony Bridge
2	Bridge at Neela Hauz
3	Bridge at R.R. Kohli Marg
4	Shastri Nagar Bridge

5	Bridge at RTR Marg
6	Bridge at Nelson Mandela Marg
7	Bridge at Africa Avenue
8	Gazipur flyover on NH-24
9	Muberka Chowk Bridge
10	Naraina Bridge
11	Mangolpuri Bridge
12	Azadpur Bridge
13	Bridge near Behra Enclave
14	Bridge near Nagloi on NH 10
15	Bridge near Shyam Lal college near GT Road
16	Bridge near Apsara Border
17	Bridge on U.P. Link Road
18	Bridge on road no. 63

A new elevated road is under construction, which will connect the Games Village to the Jawaharlal Nehru Stadium, to reduce the travel time between the two destinations. This road is being constructed over the Barapullah Nallah.

About 150km of road widening projects have been taken up by Government of National Capital Territory of Delhi (GNCTD).[20]

All the major roads around the Games Village and the sport venues are undergoing a process of beautification which includes changing of street lights, changing of pavement stones, installing street furniture, improving the landscape, improving the riding quality of road, improving the drainage system, road signage, etc.

4.1.4.4 PARKING

As is known, parking facility in the city of Delhi is highly inadequate. The organisers of the event have planned to provide 8 new parking lots in several parts of the city keeping in view the locations of the sport venues. The location and the capacity of these parking lots are given in the following table:

Table 4.4: New parking lots for Commonwealth Games 2010

Location	Type	Capacity (no. of 4 wheelers)
Kamala Nagar	Multilevel	834
Gandhi Nagar	Conventional	400
Model Town	Conventional	140
Hauz Khas	conventional	400
Munirka	conventional	250
Sarojini Nagar	Multilevel	824
Baba Kharak Singh Marg	Multilevel	1408
Kasturba Gandhi Marg	Multilevel	1582
Total		5838

The location of the flyovers and the parking lots has been given in the Figure 4.6

Figure 4.6: Location of flyovers & parking lots

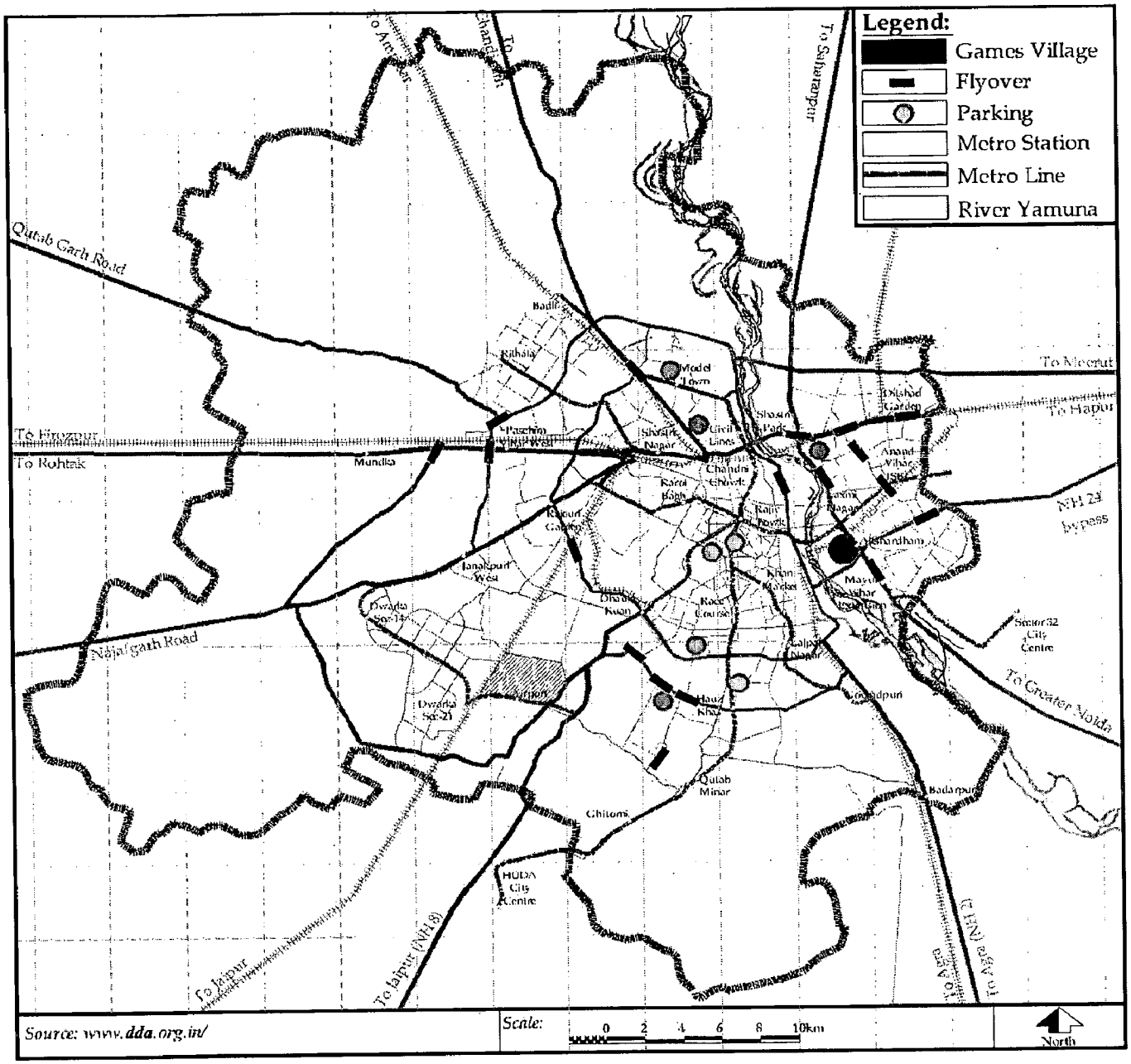


Table 4.5: Proposed Budget for Commonwealth Games 2010

TRANPORT DEPARTMENT	
PURCHASE OF	**RS. IN CRORES**
200 new modern a/c buses for athletes	80
800 deluxe buses for parks and ride	160

100 a/c mini buses	20
1000 quality radio taxis	Private Owners
Renovation of ISBT and Signage's etc.	10
Total	**270**

PUBLIC WORKS DEPARTMENT	
CONSTRUCTION	**RS. IN CRORES**
Tunnel : Nizamuddin to Lodi Road	135
2 Bye – Passes At Masoodpur and Mahipalpur	30
24 new flyovers (estimate)	1900
Widening of 37.8 Kms	81
Beautification of 129.20 Kms	68
Total	**2214**

MUNICIPAL CORPORATION OF DELHI	
CONSTRUCTION	**RS. IN CRORES**
Underbridge at Vivek Vihar	40
Improvement on JLN Marg	4.55
Improvement of Mehrauli Gurgaon Marg	6.00
Total	**50.55**

Source: Ministry of Urban Development

4.1.5 HEALTH AND SANITATION

The Health Department has proposed to construct a state – of – the- art sports specialty hospital near Games Village with network connectivity to super specialty hospitals and has also underlined the need for 50 new high – tech ambulances for places near different venues of the games for sports persons. The Municipal Corporation of Delhi has also laid the plans for: Improvement of surrounding of railways stations, parking and bus stands at Old Delhi, New

Delhi, Nizamuddin and Sarai Rohilla. Procurement of mechanical sweepers and garbage recycling stations as also accessories and uniforms for sanitations staff etc. Upgrading storm – water drains.

4.1.6 WATER SUPPLY & SEWAGE DISPOSAL

A dedicated 1 MGD plant would be set up for at the Games Village for supply of filtered water. The water requirement of Delhi by 2011 will be 1,140 MGD against the production of 919 MGD.

A sewage treatment plant would also be installed of 1 MGD.

The city produces about 912 MGD of sewage. The present installed capacity of STPs is 512.6 MGD, thus a wide gap of almost 400 MGD.

Table 4.6: Delhi Jal Board Expenditure

DELHI JAL BOARD EXPENDITURE	
WORKS	**RS. IN CRORES**
Upgrading water supply at Games Village	16.50
Sewerage and STP at Games Village	23.50
Total	**40.00**

Source: Ministry of Urban Development

4.1.7 POWER

To meet its power requirements for the event, Delhi has commissioned a 350 MW gas- based combined cycle Pragati – 11 power plant at an estimated cost of Rs. 13 bn and has decided to purchase 4,38.17 sq.mts land from the Delhi Development Authority (DDA) for 15.5 million towards building a 66 KV grid sub – station at Uttam Nagar. The Delhi Government has also allowed private companies to set up a 1000 MW power plant in Bawana. [20]

4.2 COST OF THE INFRASTRUCTURE PROJECTS

The Initial Bid Document to the Commonwealth Games Evaluation Commission in 2002 laid out a total budget of $422 million (Rs 1772 Crores). A provision of approximately $235 million (Rs 986 Crores) had been kept for infrastructure, with the bulk ($163) million going for constructing the Games Village.[23]

The cost break up has been given in the table below. The total cost of these projects is Rs. 22000 crores. The government has made this investment short period of 3 years. (Refer Annexure III)

Table 4.7: Investment Made In Each Sector

Sector	Expenditure (in crores)	Percentage
Games Village	970	4.6
Sports Facilities	1760	8
Transport	14560	66
Water Supply	45	0.2
Sewerage Network	45	0.2
Power	4620	21
Total	22000	100

CHAPTER 5: DATA ANALYSIS

5.1 POPULATION & MIGRATION STUDY

5.1.1 INTRODUCTION

While doing the population study for the Games, one has to understand that the population coming to Delhi would be estimated in terms of short and long term. It means that the former would include people coming to Delhi for viewing the games i.e. the spectators and also for services, volunteer ship etc. and latter includes the migrant population as construction labourers, businessmen, traders etc.

Commonwealth Games, 2010 has brought with it an idea or a conception not just among the common man but the professionals and experts as well that the migrant population of the city would increase due to the Games. However, the trends and the projections demonstrate a different scenario. The techniques that have been commonly applied to the population projection of Delhi are Dynamic Logistic Model and the Cohort Component Model. The former also known as the variable carrying capacity model projects the population based on the city's carrying capacity and has been applied for projections of the Master Plan-2021. However, the latter uses the Crude Birth Rate, Crude Death Rate and the Migration data as the basis for projections and has been included in the big city count. It is very difficult almost impossible to project the short term migration into the city, however long term migration to an extent can still be evaluated. The details of the scenario would be mentioned as we go further.

5.1.2 SHORT TERM POPULATION CHANGE

Population Directly Associated With Games

To estimate the population coming to Delhi for a short period of time is a difficult task to perform and which many demographers can also probably not project. However, in this study an estimate of the people directly related to the Games and the spectators has been done. The people

directly associated with the Games include Athletes, Team Officials, Technical Officials, Sponsors, VIPs, Board members etc. The details of which have been given below:

Table 5.1: Estimation of People Directly Associated With Games

Competitors/Officials	
Athletes	5200
Team Officials	1800
Technical Officials	2400
VIPs	
Sponsors	2600
CGF	600
Govt./ VIPs	1000
Board Members	50
MEDIA	
Host Broadcast & Right Holders	1600
Non Right Holders	2000
ADMINISTRATORS	
D.G/By D.G/Directors/Assistant Directors	112
Consultants/Contractors	80
Committees/Working Parties	102
Service Providers	7600
VOLUNTEERS	
Executive Management	32
Ceremonies & Events	8800
Human Resources	1250
Finance & Administration	625
Sports & Venues	2450
Operations	2500

Marketing & Communications	1700
Technology & Broadcasting	700
TOTAL	43200

Source: BID Document by India for Commonwealth Games, 2010

Out of these people just the athletes and the team officials will be housed in the Commonwealth Games Village. Rest of them will be accommodated in various hotels and guest houses in and around Delhi. 53 such hotels from 1 star to 5 star have been already been identified in Delhi.

THE SPECTATORS

The number of people coming to a city for watching the games depends on the scale, number and types of disciplines of the Games and also on the host city, as in its accessibility etc. To estimate the number of spectators, past trends and events have been studied and certain assumptions have been made. However to estimate the spectators from within the country and from outside it is further more difficult. Hence, certain standard assumptions or criterias are taken as standards.

Procedure

The procedure followed for evaluating the number of spectators is by observing the seating capacities of the various stadiums used for events. As per the schedule finalized for games to be hosted from October 3 to October 14, 2010 days 3 & 4 would witness the maximum number of events and hence the maximum number of spectators.

Assumptions & Trends

The underlying assumption for the process is that 100 percent or all seats of the stadium will be occupied during any event being conducted there. Also the upper limit of the daily spectators expected is calculated and assumed to be constant for the entire event. However, as per trend each game session in a stadium has not been separately accounted for. It is so because tickets are sold based on the entire programme in a stadium/day irrespective of the number of sessions. The Manchester Commonwealth Games, 2002 are the most recent games held and they observed a

daily visitor tally of 90,000 persons, which has also been considered. Based on such assumptions and trends, projections given below have been made:

Table 5.2: Estimates of the Daily Visitor Tally

S.No	STADIUMS	SESSIONS	CAPACITY
1	J.N Stadium	2	75,000
2	Major Dhyan Chand National Stadium	1	25,000
3	Indira Gandhi Indoor Stadium	3	25,000
4	Talkatora Indoor Stadium	1	3,035
5	Dr.S.P. Mukherjee Swimming Stadium	3	5,000
6	Yamuna Sports Complex	3	3,500
7	DDA Siri Fort Sports Complex	3	7,880
8	Thyagaraj Sports Complex.	1	4,500
9	Dr. Karni Singh Shooting Range	1	500
10	Delhi University Rugby Ground	1	2,000
11	R K Khanna Tennis Complex	1	6,000
TOTAL			**1,57,415**

Source: Stadiums Capacities from the Sports Authority of India

We can see that the maximum number of visitors expected on the daily basis can be ranged from 1,00,000 – 2,00,000 persons. This includes the Manchester experience and above given calculations which have been extrapolated to take care of any temporary seating created. However this range would not remain constant for all days as this has been evaluated taking the upper limit of all the assumptions. Moreover games culture is not very developed in India and not many people from outside come due to the expenses they would need to bear. However, to estimate the number of spectators from within and outside India expert's viewpoint has been taken. The experts from tourism department say that since it is very difficult to estimate the exact percentage of various people coming as it varies based on scale and type of event so a basic standard is assumed. According to the standards or criterias used for facility provision 50 percent spectators from Delhi, 25 percent from outside Delhi and 25 percent from outside India can be

expected. However, certain studies are going on for calculating the breakup of type of spectators in Hyderabad during Afro Asian games which can probably be used in estimations for Commonwealth Games, 2010.

5.1.3 LONG TERM POPULATION CHANGE

Total Population

To envisage and project the exact population or migration figures for the Games would be a difficult task to do even for a demographer. However based on certain assumptions, past trends and experiences certain projections have been done. To begin with it's important to evaluate the differences in the population projections and the actual figures in various decades so that a correction factor, if any can be calculated and applied to future projections.

Table 5.3: Population Study of Delhi for Various Decades (In Millions)

Year	Projected Population (A)*	Actual Population (B)	Difference (B-A)	Growth Rates
1971	3.92	4.06	0.14	53%
1981	6.18	6.2	0.02	52.70%
1991	9.24	9.42	0.18	51.90%
2001	13.77	13.72	-0.05	45.60%

Source: Census of India, 1981, 1991, 2001

*Paper by Prof. P.N Mari Bhatt, Population Projections for Delhi: Dynamic Logistic Model versus Cohort-Component Model

Hence we can see that the projections done in the past have been more or less exact with the maximum difference experienced only in 1991 of some 2 Lakhs. This if compared to the total population of that decade is very insignificant percentage of some 0.32%. Therefore, such a difference in the projected and the actual can be simply ignored. Inspite of the Asiad Games, 1982 which has been believed to have attracted a lot of migrants as lot of development took place in a short span of less than two years specifically for Asiad, there has been no significant

increase in the actual population than what was projected. Also for various other decades the projected population has almost tallied with the actual figures. It is so because the increase in population is mainly due to natural increase and migration forms just a small part of it. The former is almost at a constant pace and the latter is generally as per trend because some or the other impetus in the form of developments or other opportunities are always there in a city which provides a 'pull' factor. Infact growth rate had been constantly declining. So a sudden increase in the population due to the Commonwealth Games, 2010 is not really envisaged because just like other decades the developments in this decade would also be there and population would increase as per trend. Moreover, to say that population might increase because of games would be incorrect as developments in the form of Metro, flyovers, upgradation etc. was anyways planned to happen. As far as employment opportunities generation is concerned then these opportunities would be mostly availed by the resident population of Delhi. Hence we can say that the population of 2011 would be 18.24 million approx. as projected. This projection is by Dynamic Logistic Model which takes care of carrying capacity of Delhi.

Infact it is important to note that the models that are applied for population projection are based on such detailed studies and techniques that take care of most of the factors, even the developments, migration and various other activities that they cannot be challenged. Hence to believe in their projections is advisable than envisaging a scenario which is not based on data or facts but wrong perceptions.

MIGRATION STUDY

For studying the migration pattern of Delhi, past trends were evaluated and demographers and experts were consulted. According to Prof. P.N. Mari Bhatt, Head, Population Research Centre, Institute of Economic Growth:

"Migration of Construction labourers to Delhi particularly for the Games would be hardly any because lot of construction activity is already going on wherein labourers are engaged and they keep moving from one site to another. If there would be any migration then it would be of

temporary nature. Also other supporting population coming to Delhi will be trend based and as projected."

However to understand the migration pattern past trends needs to be studied. Table below shows the details of migration, wherein projections are done using Cohort Component Model (applied to city having population over 1 crore)

Table 5.4: Migration Pattern of Delhi over Decades (In Millions)

Year	Actual Migrants	Projected Migrants*	% of migrants to population
1961-71	0.63		15.50%
1971-81	0.95		15.30%
1981-91	1.4		14.80%
1991-2001		1.6	
2001-2011		1.9	

Source: Census 1971, 1981, 1991, 2001 (under preparation)

*term paper by Prof. M.K Premi, Delhi's Migration Pattern

Here in we see that migrant population have been increasing at a constant rate of some 2-3 lakhs or 15 percent approximately every decade. May be in absolute numbers the population migrating to Delhi in 1981-91 is greater than previous years but the rate of migration (14.8%) had been comparatively less. This also denotes that population increase in 1991 is predominantly because of other factors like natural increase than migration as it was thought that Asiad, 1982 had brought in a lot of migrants.

However to understand that the games may not tremendously increase the migration past records of migrants as Lifetime, Intercensal and Current should be studied. Wherein Lifetime migrants are those who came to the place of enumeration at some point during their lives and have been living there ever since, whether this happened just a week before the census count or a few decades ago. When the movement is counted on the basis of last residence, it is the unbroken

period of the shift from the previous to the present place. Intercensal migrants are with length of residence in Delhi of less than 10 years and that of current migrants is less than 1 year.

Table 5.5: Classification of Migrants of Delhi Based On Place of Last Residence

	In migrants	Out migrants	Net Migrants	Net migrants as % of total population
Lifetime Migrants				
1971	1908812	397658	1511454	37.1
1981	2665186	503458	2161728	34.8
1991	3574526	573889	3000637	31.9
Intercensal Migrants				
1971	875928	241621	634307	15.6
1981	1291057	277688	1013369	16.3
1991	1587492	281946	1305546	13.9
Current Migrants				
1971	140494	53574	86920	2.1
1981	180770	43585	137185	2.1
1991	130366	28328	102038	1.2

Source: Migration Tables, 1971, 1981, 1991

Term paper by Prof. M.K Premi, Delhi's Migration pattern

It is very evident from the above given table that migration pattern is declining from 1961-71 to 1981-91. As is clear that lifetime migrants have been declining at a constant rate which can even be attributed to the reason that the intercensal and current migrants have been declining. Also Asiad, 82 was considered as a massive 'pull' factor for migration has been proven wrong after knowing the figures of intercensal population in 1981-1991. The net migrants as percentage of total population have declined to 13.9% from 16.3%. Therefore, to believe that a sports event of

huge scale would bring about great changes in demographic projections and trends may not be wise.

Hence, for Commonwealth Games a very different scenario, contradicting the trends may not hold true. Infact as per M.K Premi, professor of Demography, formerly at the Centre for the Study of Regional Development, JNU, New Delhi:

"Construction activities in the city are always on and hence particularly for the Games construction labourers will not migrate. Also out of these migrants 85-90% of them return back and just 10-15% stay. At the same time other people are likely to migrate as per trend."

Therefore, any significant difference in the migration values is not envisaged and is contrary to the hype created that migration would tremendously increase.

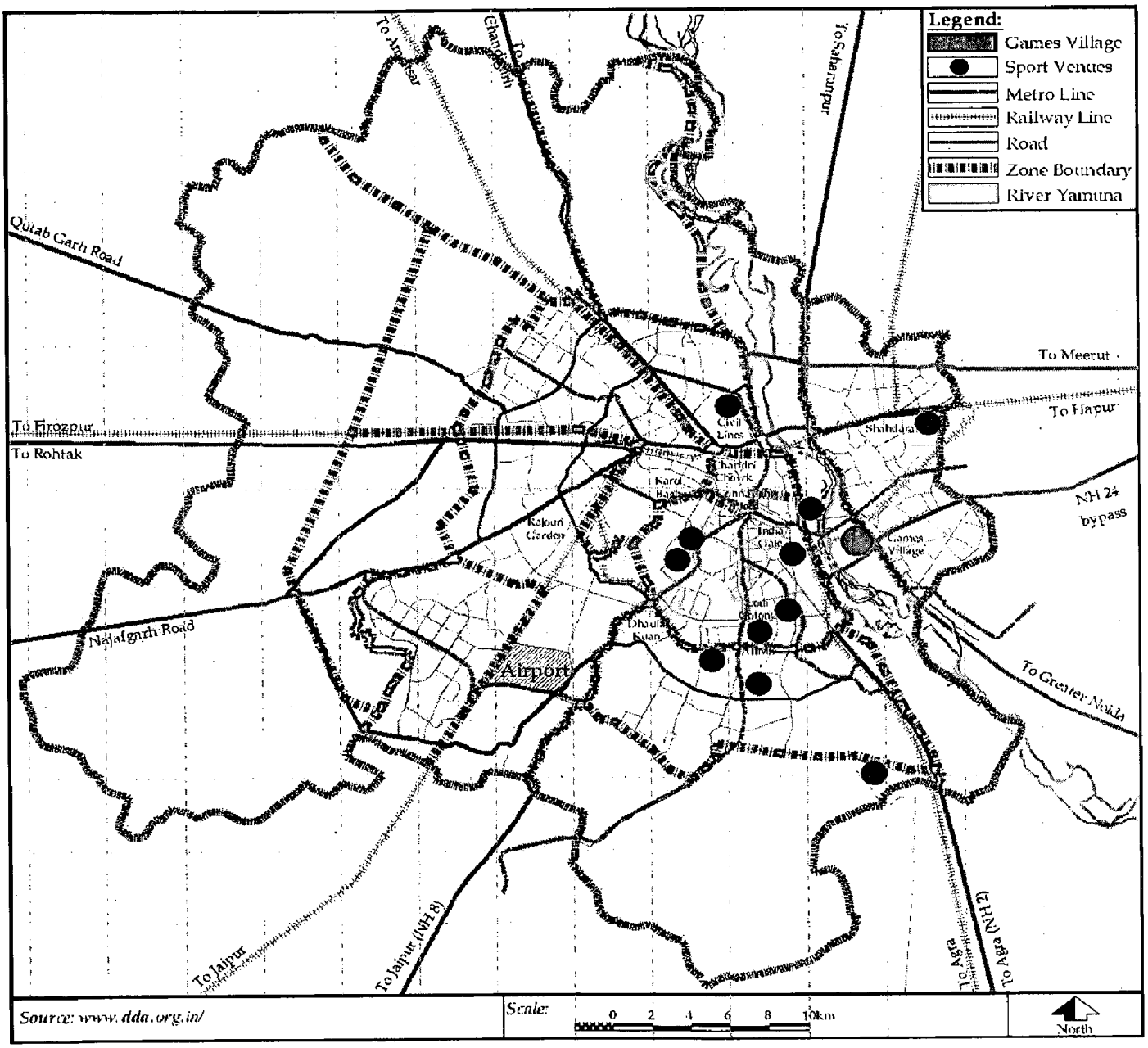
5.1.4 OBSERVATIONS

- People who are directly associated with games include athletes, technical officials, team officials, media persons, sponsors etc. and are estimated to be 43,200. Out of these most of them would be from outside India.
- The daily spectators tally would range from 1-2 lakhs on an average. However the number of spectators from Delhi itself, from outside Delhi and from outside India is estimated to be 50, 25 and 25 percent respectively
- As per the study the population increase and migration in the city in 2011, after the Commonwealth Games, 2010 is expected to be as per the trend and a significant surge in the migration is not envisaged.
- The projected population for 2011 is 18.24 million as per Dynamic Logistic Model, which is not likely to surpass by the actual figure by the marginal difference.

5.2 TRANSPORT NETWORK

A very major impact due to the Commonwealth Games, 2010 is expected to be on the transport network or linkages of Delhi.

Figure 5.1: Metro Route in Delhi



5.2.1 ROUTES LIKELY TO BE USED DURING GAMES & THEIR TRAFFIC DENSITY

Based on the study of existing networks and terminals and the requirements of the Game a congestion route compromising of 20 stretches has been identified. This route is likely to be most busy during the games as it connects major hotels, venues and Games Village. The table below shows the details of these stretches.

Table 5.6: Stretches Forming Congestion Network during Games

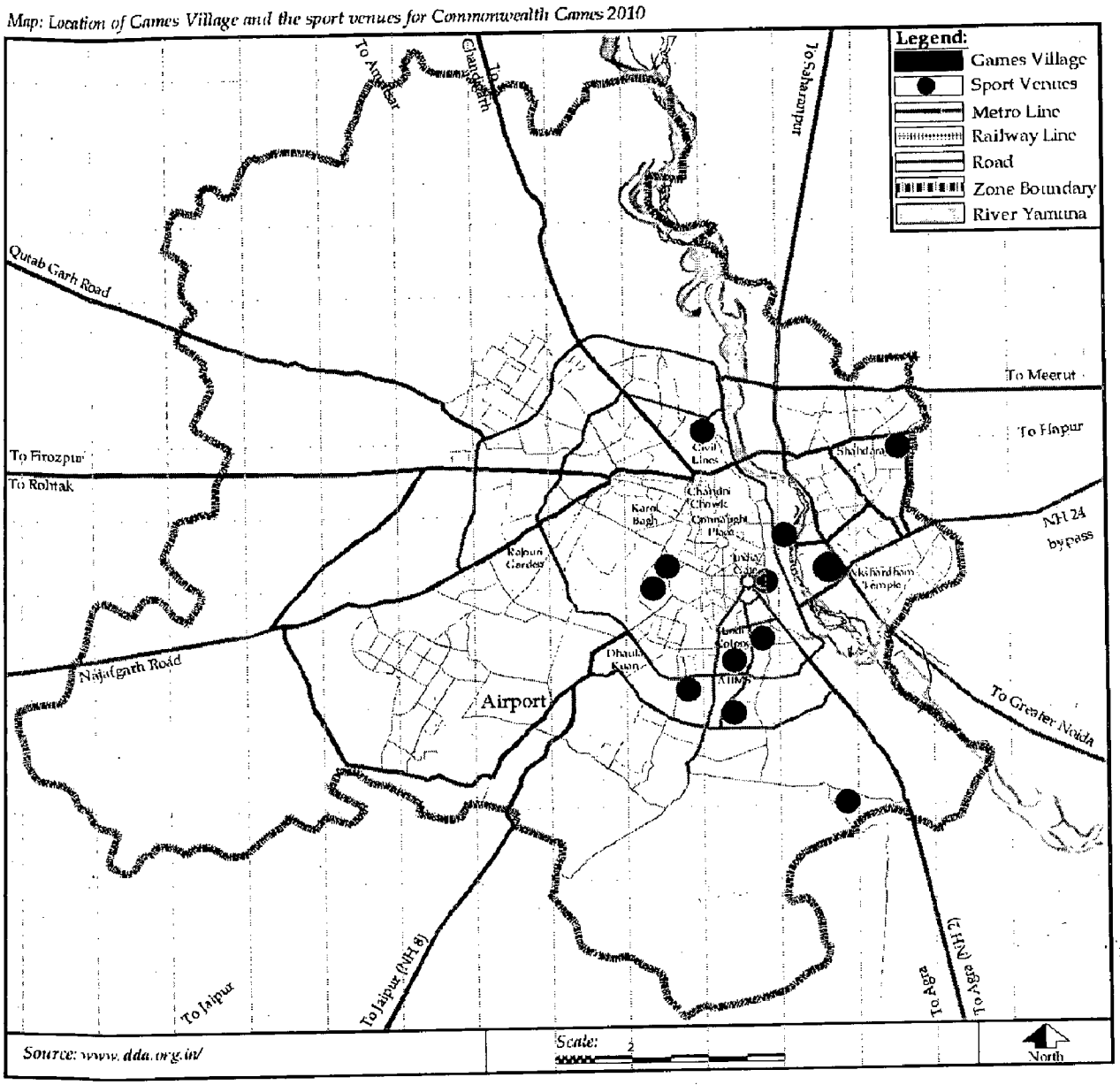
Sr.No.	Road Name	Link Distance (Km)	Volume (PCU/Hr)	Capacity (PCU/Hr)	v/c ratio
1	Vikas Marg	5.5	7889	5400	**1.46**
2	Bhartendu Harish Chandra	2.2	3478	5400	0.64
3	Indraprastha Marg	0.8	4118	5400	0.76
4	Tilak Marg	1.5	7547	5400	**1.39**
5	India Gate C Hexagon	1.2	5704	7200	0.79
6	Subramanium Bharti Marg	1.4	3300	4300	0.77
7	Mathura Road	4.5	3229	5400	0.6
8	Bhairon Marg	1.3	2408	4300	0.56
9	Ring Road	8.8	3482	5400	0.65
10	Samrat Mihir Bhoj (NH-24)	3.7	4302	3600	**1.19**
11	Ghazipur Road	3.6	2786	4300	0.65

12	Maharishi Raman Marg	1	2376	4300	0.55
13	Bhisham Pitah Marg	2.5	3788	4300	**0.88**
14	August Kranti Marg	2.2	3640	5400	0.67
15	Lodhi Road	1.6	2176	4300	0.5
16	Prithvi Raj Road	1.7	3277	3600	**0.9**
17	Aurobindo Marg	3.6	5081	5400	**0.94**
18	Siri Fort Marg	1.2	3689	3600	**1.02**
19	Josip Broj Tito Marg	1.3	3985	4300	**0.92**
20	Gamal Abdul Nasir Marg	4.5	11951	5400	**2.21**
	TOTAL	54			

Source: RITES

The highlighted routes are the ones which have their v/c ratio above 0.85 because that or less is the acceptable limit as traffic moves with speed equal to or greater than 30Km/Hr.

Figure 5.2: Stretches Forming Congestion Network during Games



5.2.2 TRAFFIC PROBLEM IDENTIFICATION ON NETWORKS, TERMINALS, METRO & GAMES VENUES

Analysis - Networks

- A network likely to be congested during the games has been identified based on its connectivity between the venues, village site & hotels and the shortest convenient distance joining them.

- Central Delhi & South Delhi would be the most congested area identified. There are 9 such stretches.
- Ring road is to be made an expressway but still certain nodes like Moolchand intersection etc need to become free as no proposals have been formulated for them.
- Local rail network may not contribute significantly in movement of outside spectators. However, spectators may find it's usage at certain points e.g. Rail network connecting Tilak Bridge to Ghaziabad etc.
- Park and Ride concept would be required for stadiums with capacity greater than 18,000 or which already do not have its own parking space. These would include Jawahar Lal Nehru, I.G, National Stadium, Shivaji and Ambedkar Stadium.

Analysis – Terminals

- NH-8 is the only road connecting to the airport and out of all the traffic it carries 53% is the Airport bound traffic. Its widening is already under process which will decongest the area especially before and during Games when visitors will fly to Delhi.
- The development of new railway stations will facilitate easy movement of spectators to Delhi and within Delhi.
- The bus terminals are quite efficient but upgradation of certain aspects of the terminals like provision of more parking bays etc need to be done before the Games.

Analysis – Metro

- Metro corridor would pass by near most of the venues planned to be used for the Games except Karni Singh & Yamuna Sports Complex.
- This will lead to easy movement of spectators to various venues and most of the hotels are located in central and south Delhi which would also be served by the metro.
- Shuttle or coach services if provided at metro stations near venues would help in quick movement of spectators and would also decongest the road network.

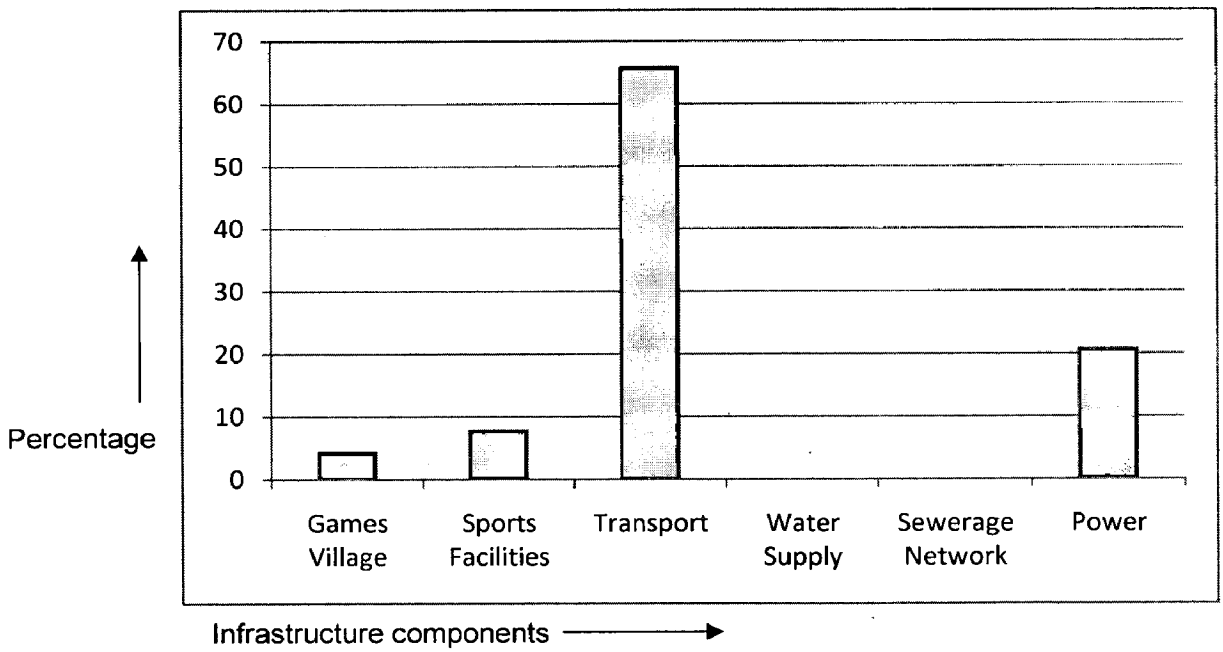
5.3 INVESTMENT IN INFRASTRUCTURE

The information gathered on the infrastructure development for Games and the investment made in each has been analyzed.

22000 crores of investment has been made to develop the infrastructure facilities for the games. The government has made this investment short period of 3 years.

As seen in the table, 66% (14560 crores) of the total cost of the infrastructure development has gone into the up gradation and construction in the transportation sector. This is followed by the power sector where 4620 crores (21%) have been invested to meet the power demand during the games. The breakup of the investment made has been shown in the figure below.

Figure 5.3: Percentage of investment in various infrastructure projects

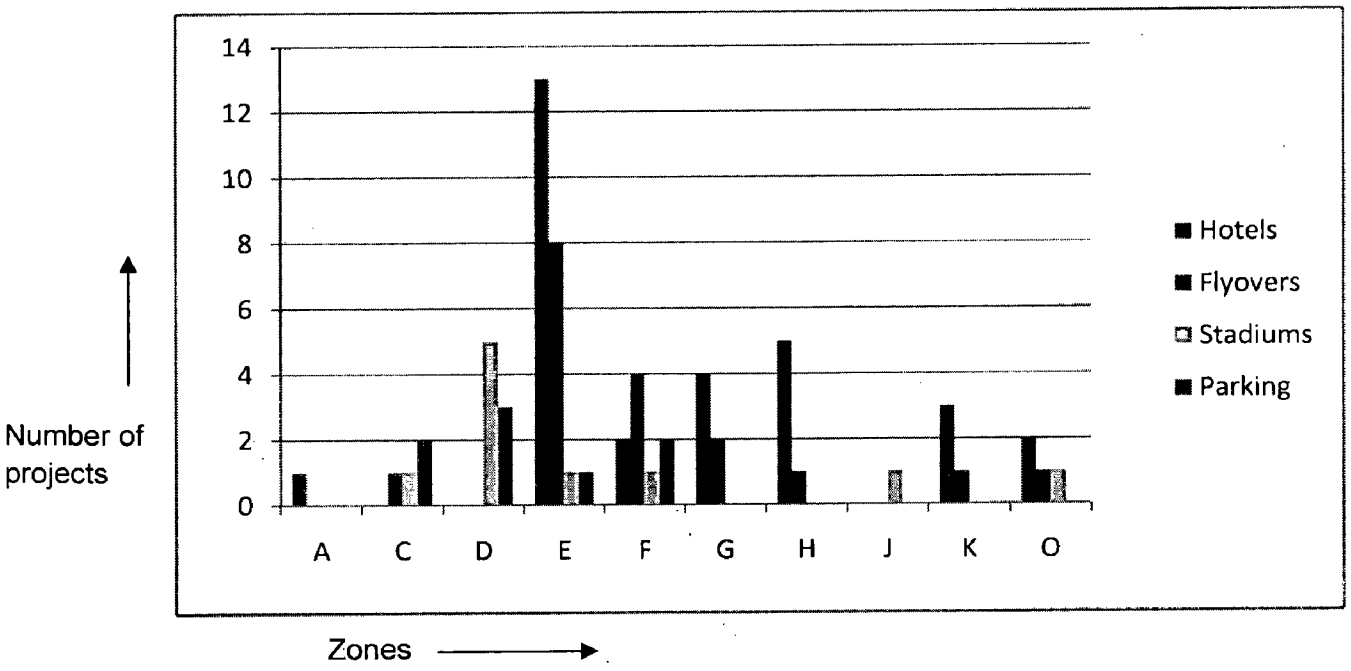


5.3.1 DISTRIBUTION OF PROJECTS

It is the public money that has been invested for the development. Therefore, it becomes necessary to see as to where this investment is going in terms of the location of the projects and

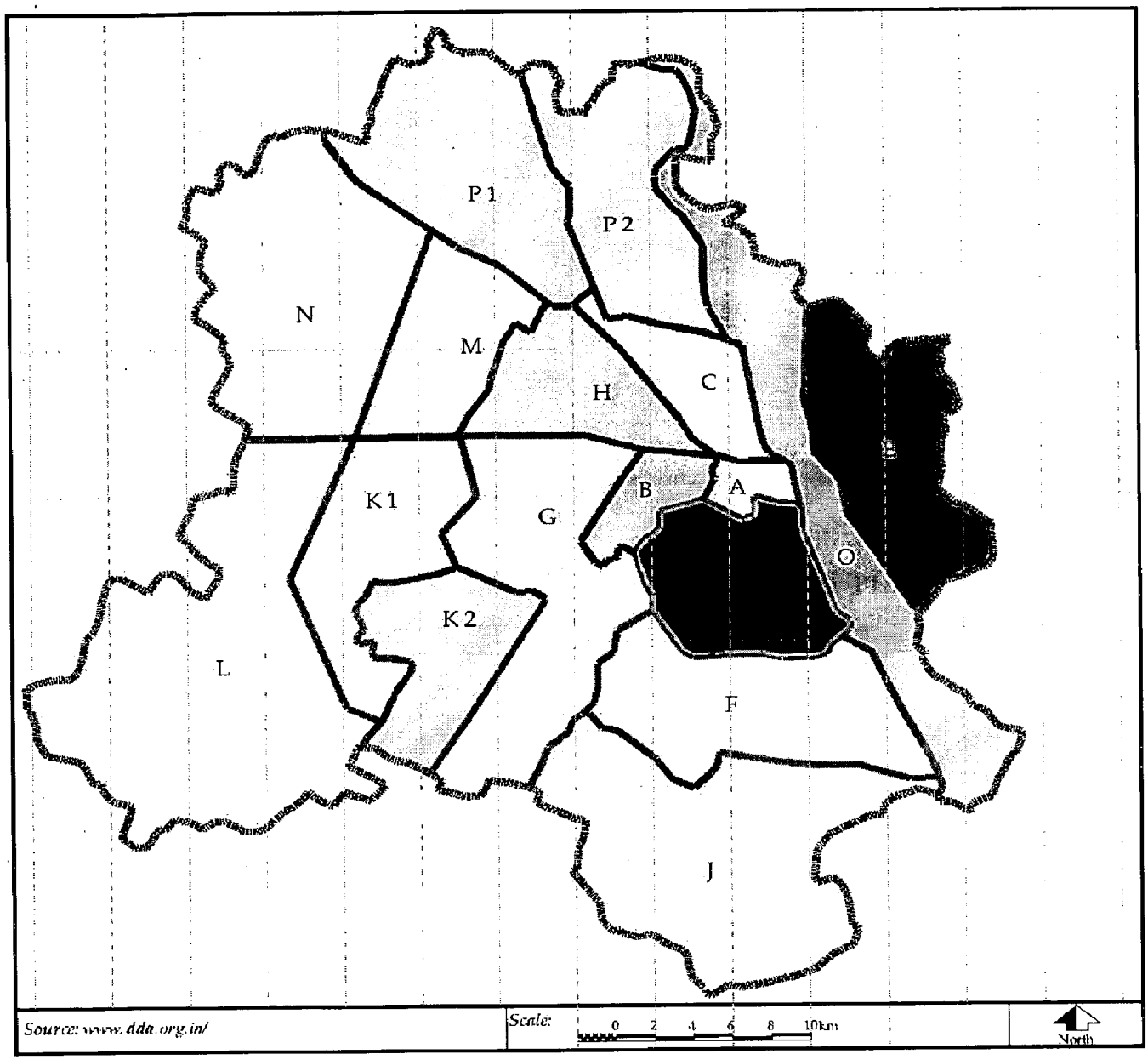
whether this is benefitting the city at large. The figure shows the zone-wise distribution of projects.

Figure 5.4: Zone-wise distribution of projects



Also, 5 out of 11 sport venues are located in Zone D. Most of the venues are the ones which were constructed during the Asiad Games, 1982. This is why most of the parking lots are also located in zone D as these parking lots have been located near the sport venues. Map below shows the zonal plan (as per Delhi master plan 2021) of Delhi highlighting zone E & zone D.

Figure 5.5: Zonal plan of Delhi (as per Delhi Master Plan 2021)



Since maximum of the projects are located in Zone E, this indicates that a lot of investment has gone into the infrastructure development in this zone. Therefore this zone has been studied in detail in terms of the imlications that the infrastructure development has on its land use and land values.

5.3.2 CONCLUSIONS

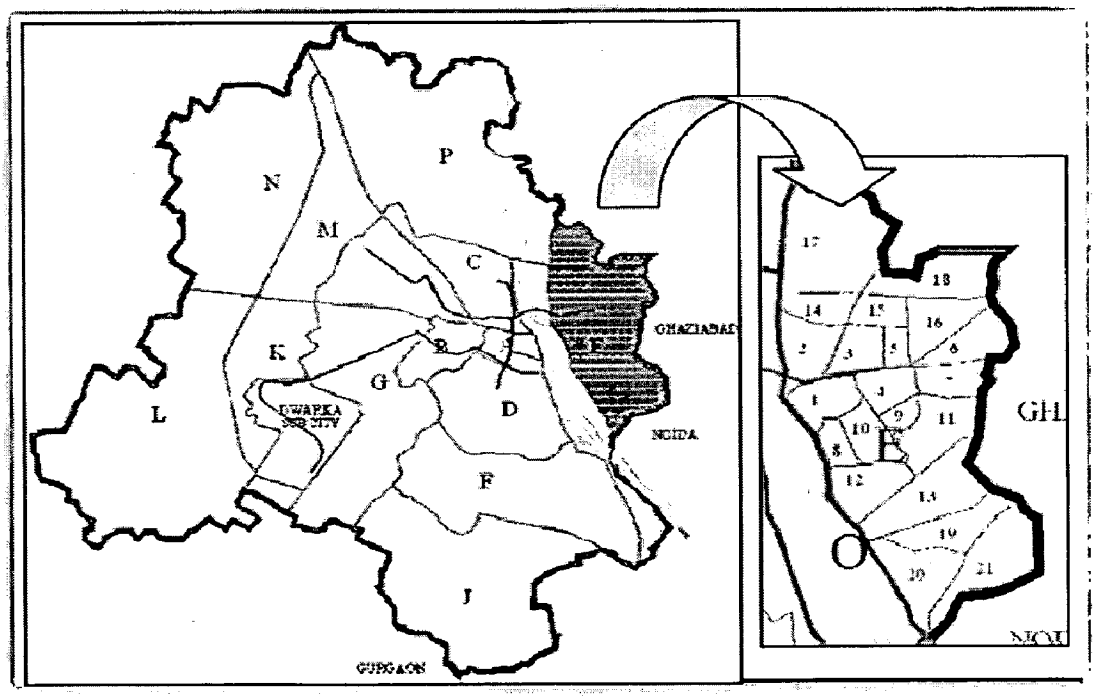
Since maximum of the projects are located in Zone E, this indicates that a lot of investment has gone into the infrastructure development in this zone. Therefore this zone has been studied in detail in terms of the implications that the infrastructure development has on its land use and land values.

CHAPTER 6: ZONE E

6.1 INTRODUCTION

As learnt from literatures and case studies that once infrastructure is developed land use and land value of the area changes. Thus games village as the focal infrastructural development the study is undertaken to analyze its impact on the land use and land value. First the study will be done at a macro level keeping Planning Zone E as the focus. Detail study of the areas surrounding Games Village will be studied subsequently.

Figure 6.1: East Delhi Location in Delhi



6.2 EAST DELHI

Zone E covers an area of 8800 Ha. As per 2001 census the zone has a population of 2798000, with a density of 320 pph.[24] On comparing Zone E with other zones of Delhi we see that it has

got comparitively high density (figure 6.2). Also, the land prices in Zone E are amongst the lowest in the city as shown in figure 6.3.

Figure 6.2: Density of various zones of Delhi

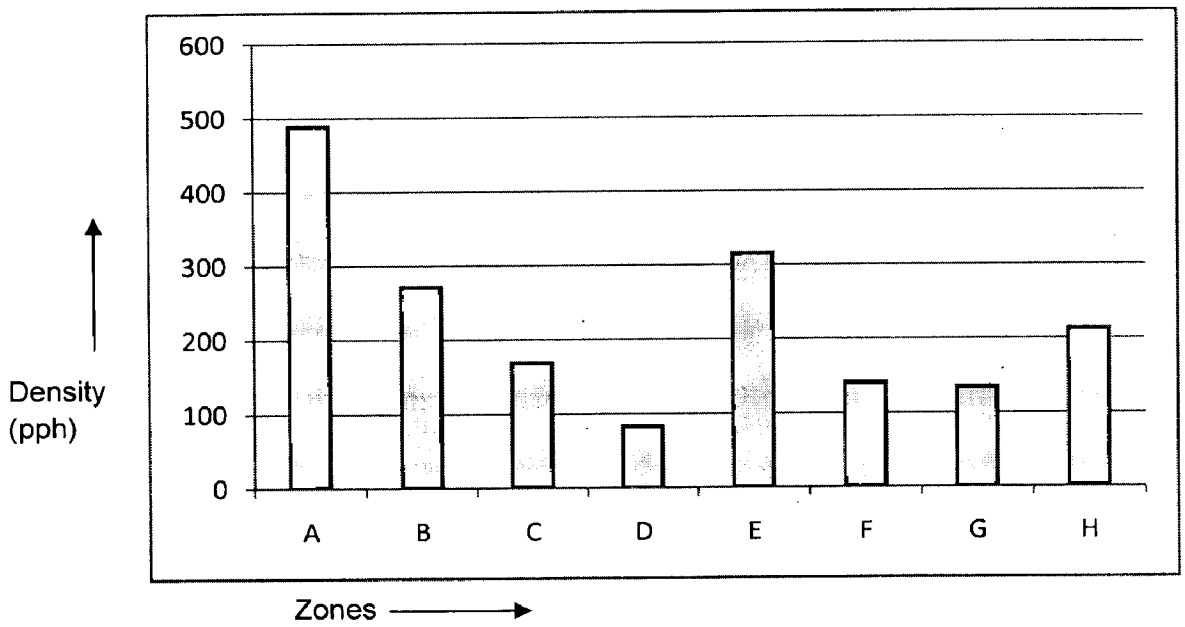
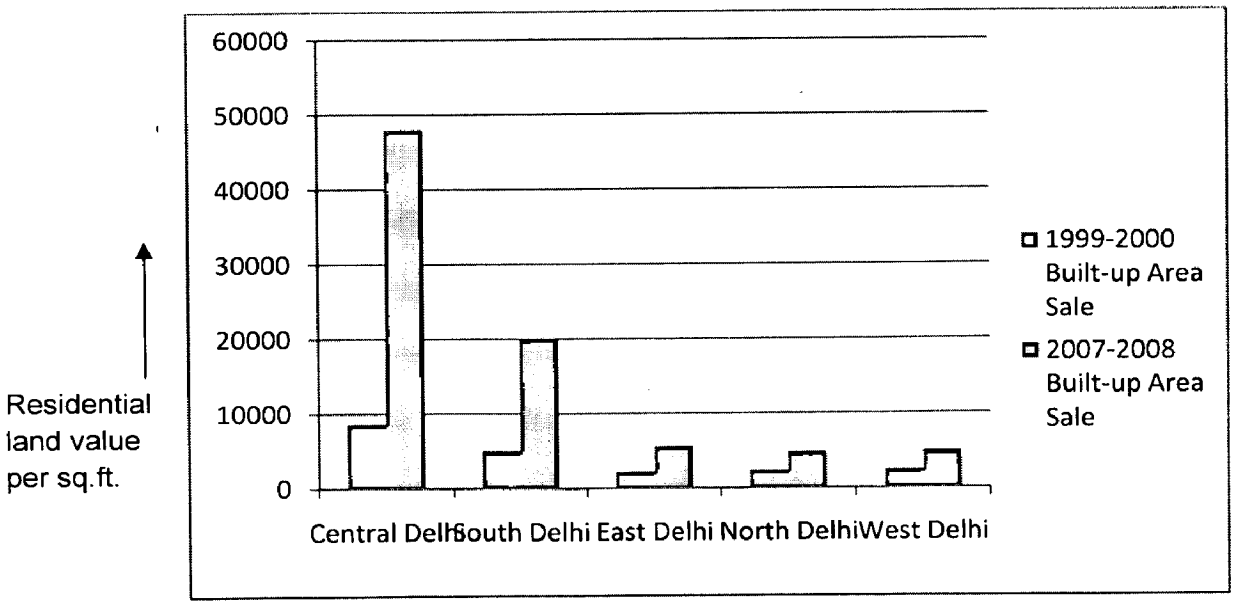


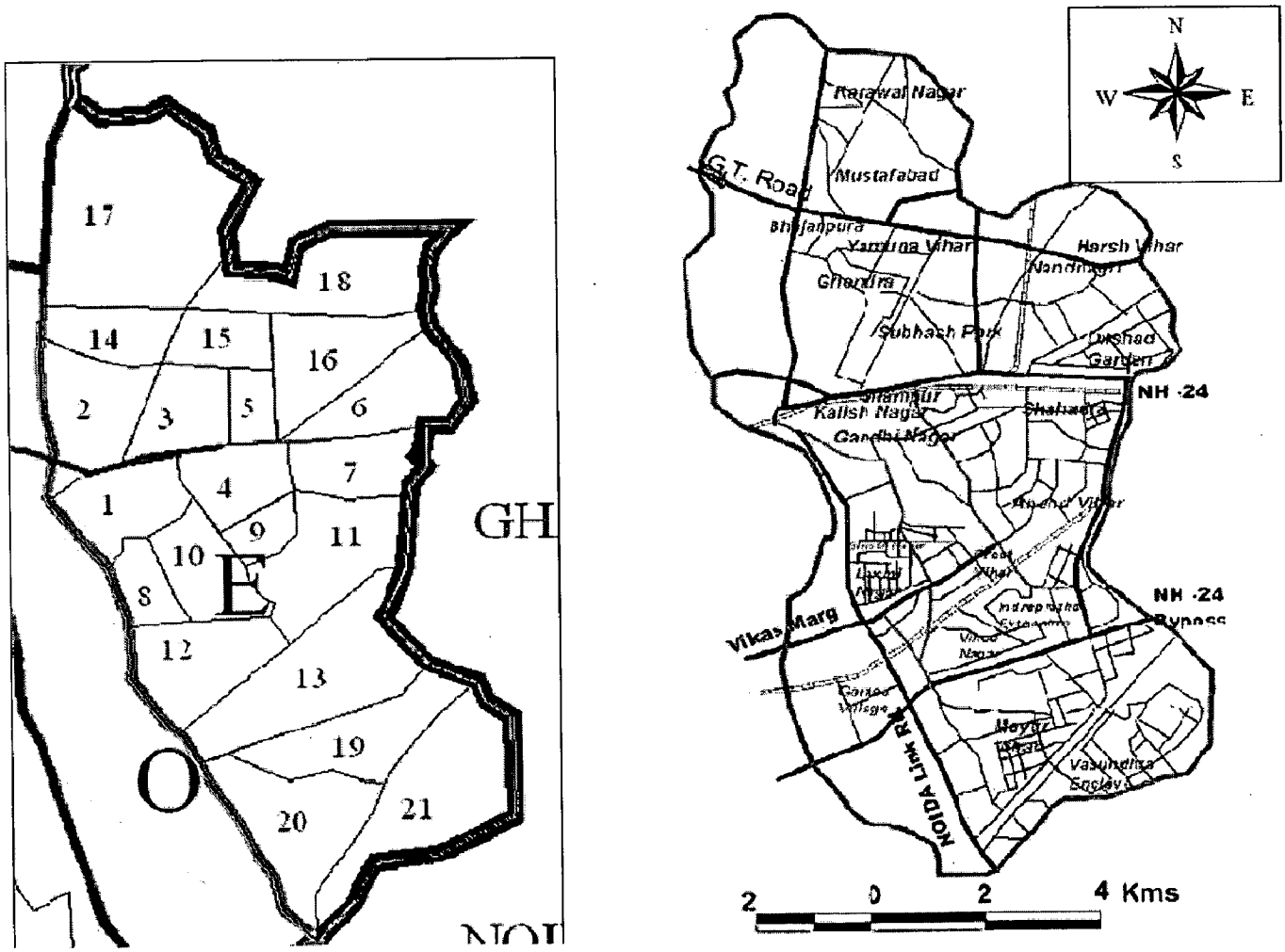
Figure 2.3: Land Values in various parts of Delhi



6.2.1 HISTORY OF EAST DELHI

Up to 1960 it had very small area like Shahdara, which was inhabited. It was connected with other parts of the National Capital Territory by only one road-cum-railway bridge near Redfort. In addition, one Pontoon bridge used to supplement as additional access except during monsoon season, when it was dismantled, leaving only one link with Trans-Yamuna Area. TYA, being Gateway of Delhi from the Eastern parts of the country, this rail-cum-road bridge used to get choked by all sorts of traffic, including through traffic from/to Uttar Pradesh.

Figure 6.4: Map of East Delhi



At the beginning of the implementation of the Master Plan in 1962, Trans-Yamuna Area remained vacant except for some old developments like Shahdara, Geeta Colony etc. As per

MPD 1962, this area was planned for a balanced development to contain about 7.5 lacs population. During the above period, three more road bridges and one railway bridge was constructed to relieve the pressure on old road-cum-rail bridge. Anticipating the additional linkages to the Trans- Yamuna area by way of Indraprastha Bridge, Wazirabad Bridge and Nizammuddin Bridge in future, a large number of unauthorized colonies developed at the entry point of these bridges on the trans-Yamuna side due to its proximity to walled city C.B.D., Connaught Place and other central areas. Large areas, which were meant for recreational and other public facilities, were thus encroached upon. With the result, most of the trans-Yamuna area became a Sub- Standard Area. To counteract and improve upon the situation, DDA embarked upon provision of sites for co-operative house building societies on the one hand and construction of DDA housing on the other. The scenario, thus emerged, was that now the planned colonies emerge distinctly within large scale unauthorized colonies.

In the course of urban development and expansion during the last decade, the population has reached more than 20 lacs as per 1991 Census and even the existing bridges became insufficient and two more road bridges were added near ISBT Kashmere Gate and Madanpur Khadar. Though Master Plan for Delhi 1962 had made provisions for large facilities, services and work centers but due to large-scale unauthorized encroachments, these facilities to the extent required could not be provided. To balance off the situation, Master Plan for Delhi 2001 evolved the concept of facility centers and service centers to group two or more facilities in available areas for providing required social infrastructure and servicing facilities. Between the period of 1993 – 2007 following major infrastructure initiatives were taken for this area:

- Parallel bridges on River Yamuna at I.T.O. and Nizamuddin.
- DND Flyover under Public-Private Partnership
- MRTS Network

This has improved the accessibility at the population with the other Zones and as such they can access facilities, which are deficient in TYA. [24]

According to the census of 2001, the population of East Delhi was 1.448770 million. East Delhi lying at the other side of Yamuna River does not mean that it is having a different culture and

tradition. The culture, tradition and lifestyle are almost the same as New Delhi. We find people from all religions and major festivals are celebrated here with the same vigor and enthusiasm.

East Delhi has been successful in accommodating large population of outsiders from different parts of the country. This is the reason why Delhi and other parts of Delhi have a cosmopolitan culture. This is very vivid from the fact that Mayur Vihar Phase-III has a decent population of South Indians, while Mayur Vihar Phase I and Phase II is a home to Bengalis and Christians. Other areas of East Delhi like Seelampur have a good number of Muslims with places like Geeta Colony being dominated by Sikhs and Punjabis (Jain V. 2005).

Traffic problems in some parts of East Delhi have been reduced with the advent of Delhi Metro which runs through a part of East Delhi and terminates at Shahdara. BRTS is also being planned for the area.

Major Sub Divisions in East Delhi are: Preet Vihar, Vivek Vihar, Shahdara, Mayur Vihar, Patparganj and Lakshmi Nagar.

About 30% of the zone area (2640 Ha) is under unauthorized settlements. These settlements lack social and physical infrastructure. Many of the unauthorized colonies are in the process of regularization. The Figure 6.3 shows the location of the unauthorized colonies in Zone E. These unauthorized colonies also have high densities as shown by the Figure 6.4.

Figure 6.5: Location of Unauthorized Colonies and Planned Development

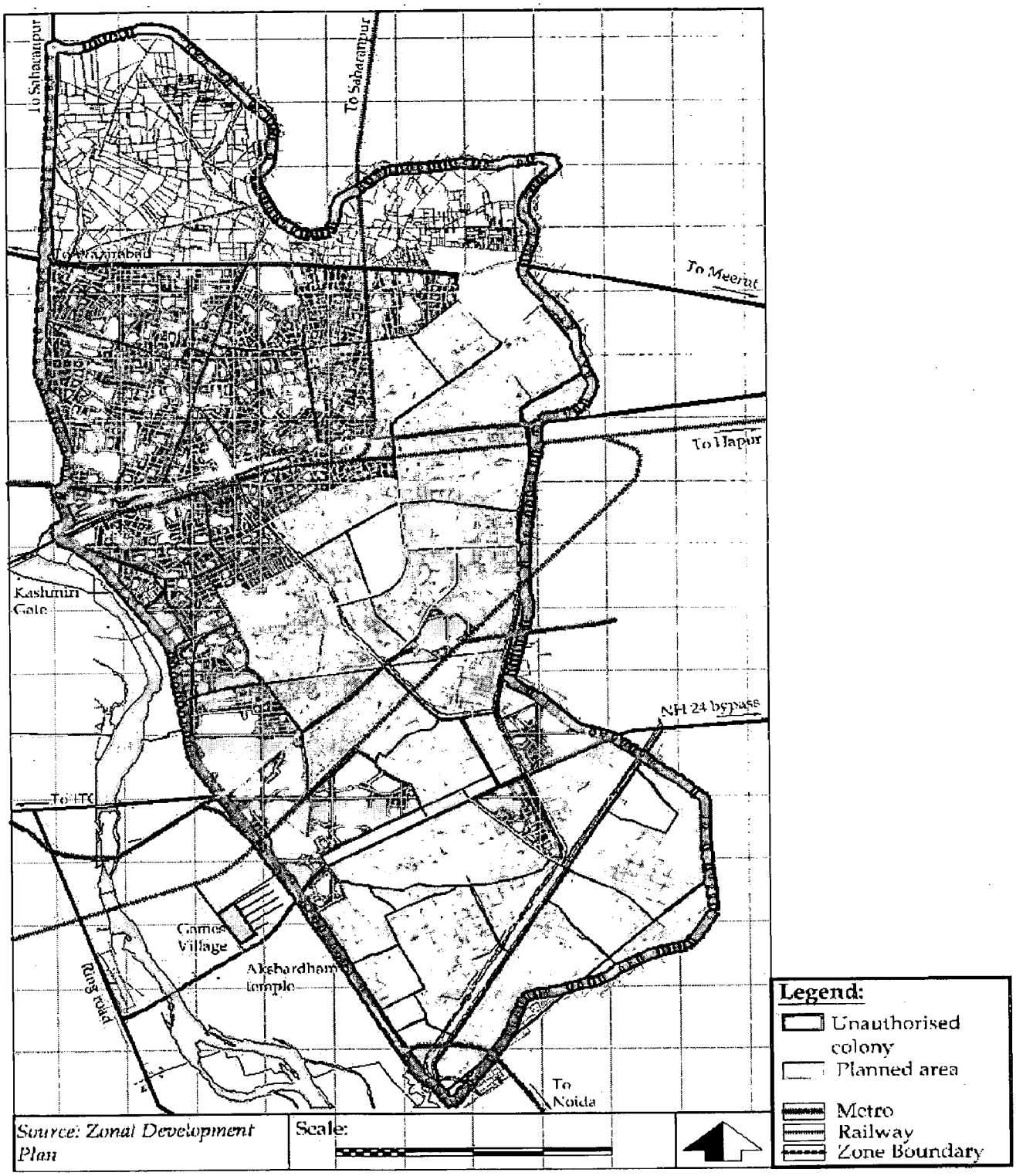
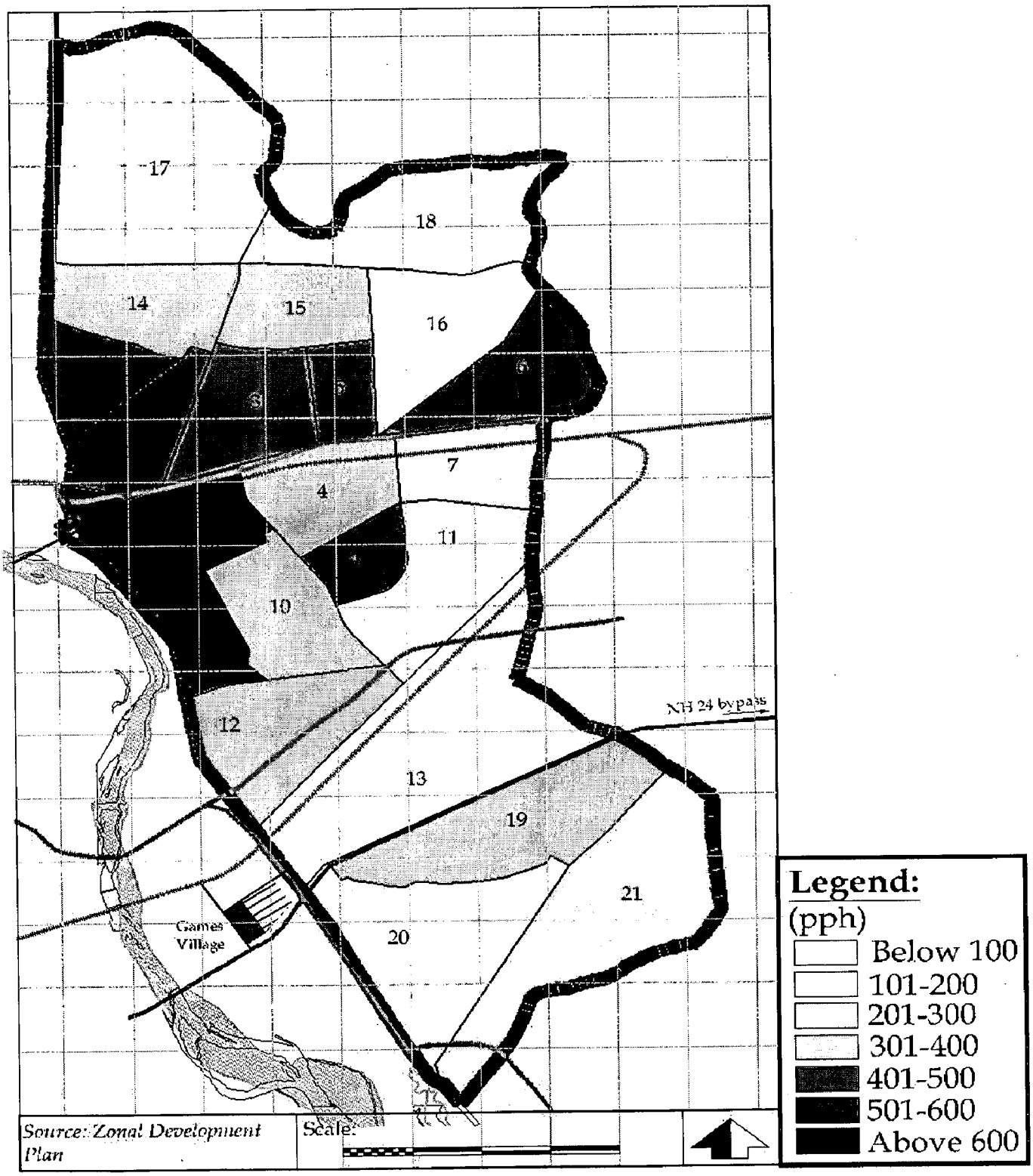


Figure 6.6: Density in subzones of Zone E



6.3 LAND USE OF ZONE E

Land use distribution in zone E has been shown in table 6.1.

Table 6.1: Land use distribution in zone E

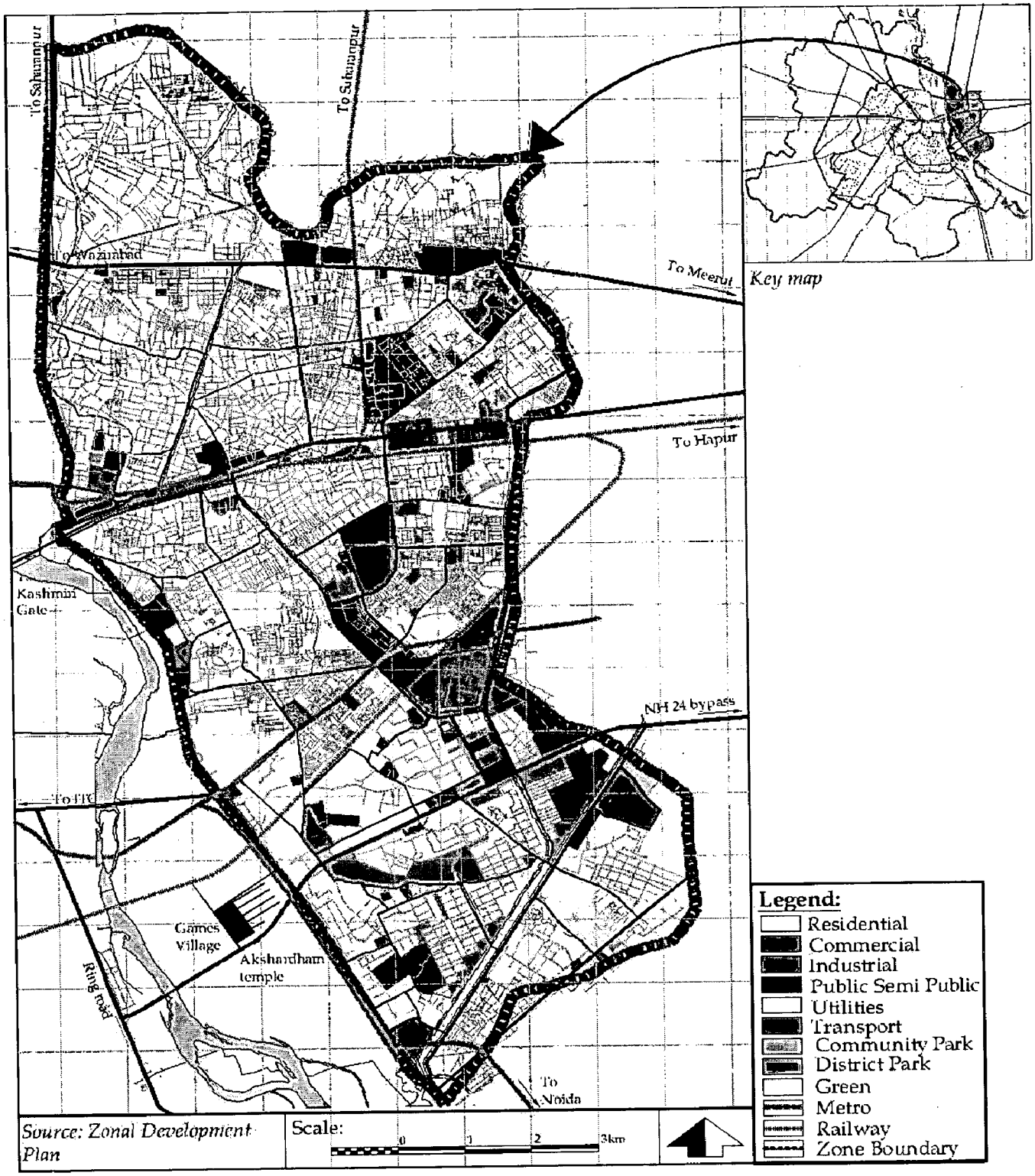
Land Use	Area (in Ha)	Percentage	Percentage as per MPD
Residential	5896	67	45-55
Commercial	176	2	3-4
Industrial	176	2	6-8
Public & Semi Public	616	7	8-10
Utilities	264	3	
Transportation	704	8	10-12
Recreational	352	4	15-20
Vacant	616	7	
Total	8800	100	

The residential area is 67% of the total area which is very high as compared to the standards given in the Delhi Master Plan 2021. This indicates that a large part of the area is unplanned, which is the case as 30% of the area is occupied by unauthorised colonies.

The area lacks in basic infrastructure, i.e, recreational facilities, commercial activities, etc. According to UDPFI guidelines, per person requirement of recreational facility is 10 sq.m. - 12 sq.m. In Zone E recreational facility per person is 1.25 sq.m.

Land use map of Zone E has been shown in Figure 6.7.

Figure 6.7: Land use of Zone E



The district centres and other facilities which were to be constructed till 2021 have already come up due to the Commonwealth games.

Therefore, this infrastructure development for the commonwealth games will help in the upgradation and improvement of Zone E. The developments will have an impact on the areas around it in terms of land use transformations and change in land values.

6.4 Infrastructure development for Commonwealth Games in Zone E

The location of the infrastructure that has come in Zone E due to the commonwealth games has been shown in the Figure 6.10. The map indicates that the infrastructure development in Zone E has taken place around the Games Village. These developments have already started making an impact on the land use and land values of Zone E.

Land Use

Transformation on the metro corridors have started taking place. But these tranformations are in conformity with the master plan 2021. The master plan allows for the redevelopment of 500 m stretch along the metro corridor and also permits mixed land use on roads having ROW equal to or more than 18 m.

The transformations have taken place on the Shahdara – Dilshad Garden metro route where residential area have been converted into commercial, and on the Lakshmi Nagar – Anand Vihar route where residential is being replaced by mixed land use (commercial and institutional). This is clear from the following photographs taken on site.

Figure 6.11 shows the location of these transformations in Zone E.

Figure 6.8: Transformations near Shahdara

Figure 6.9: Transformations in Lakshmi Nagar

Figure 6.10: Location of the infrastructure being developed for the games in Zone E

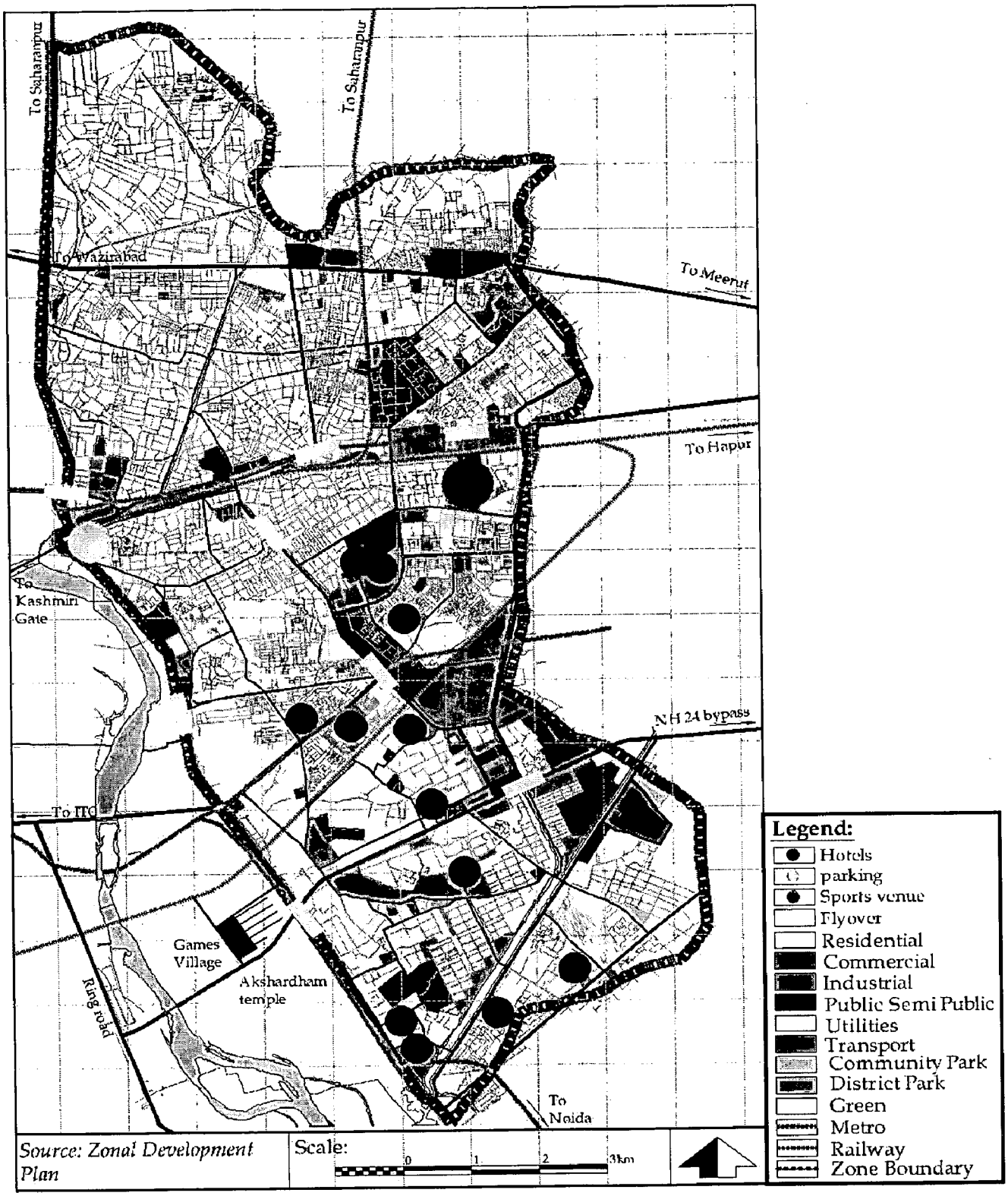
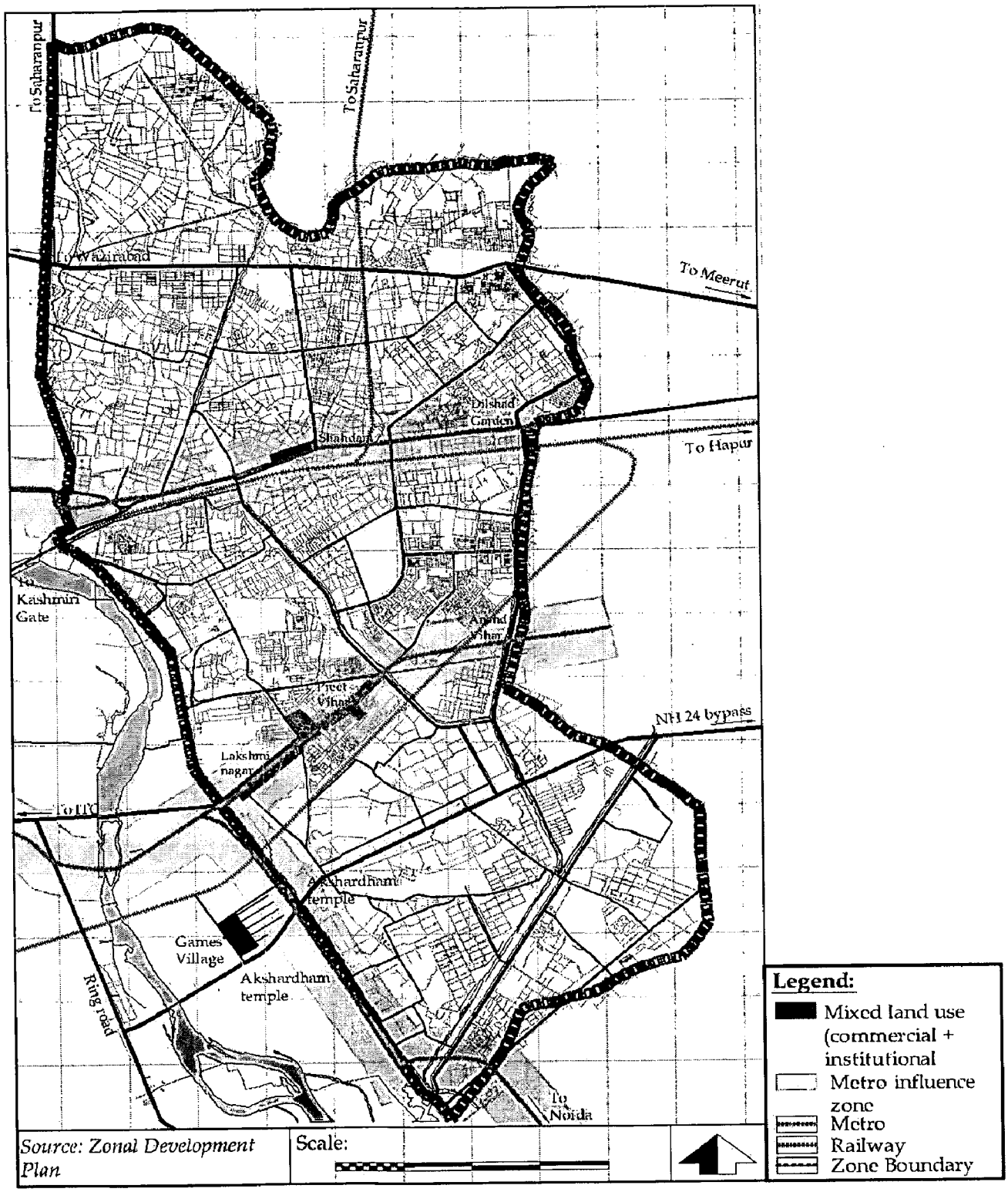


Figure 6.11: Transformations along the metro route in Zone E



6.5 CONCLUSIONS

Major land use change has occurred. Recreational land has been converted to commercial, Public & Semi Public and Residential land uses. Trans-Yamuna Area with a projected population of 28.0 lacs in 88 sq.kms. is deficient in open area. As per MPD 2001, 15.20% of the total city area should be for recreational use. In this case, there should have been minimum 15% of 88 sq.km. i.e. 1320 ha. But this Zone has 5.3% of the total area as recreational area. It is recommended that 785.4 hec. would be earmarked, planned, developed as recreational in river Yamuna bed. This area could be earmarked between eastern water coast of river Yamuna and left marginal bund, at two places, one between. Indraprastha barrage and Nizammuddin Bridge and the second in the North of old roadcum- railway bridge.

We can make out from the zonal Development plan that the further requirement of the social and ecological infrastructure will be met from zone O planning area as this is the area in vicinity where vacant lands are available. With the recent development in Delhi already 40 hectares of land have been converted for Games Village. Thus in future it can be perceived that this area will be utilized for recreational purpose.

6.6 REAL ESTATE

6.6.1 INTRODUCTION

The term 'real estate' is defined as land, including the air above it and the ground below it, and any buildings or structures on it. It is also referred to as realty. It covers residential housing, commercial offices, trading spaces such as theatres, hotels and restaurants, retail outlets, industrial buildings such as factories and government buildings. Real estate involves the purchase, sale, and development of land, residential and non-residential buildings. The main players in the real estate market are the landlords, developers, builders, real estate agents, tenants, buyers etc. The activities of the real estate sector encompass the housing and construction sectors also.

6.6.2 REAL ESTATE DEVELOPMENT IN EAST DELHI

In East Delhi, prices of 2-room apartments have escalated from Rs. 20-40 lakh to Rs. 40-75 lakh. The countdown to the Commonwealth games will see further dramatic changes in this part of Delhi. The east has many attractions going for it: construction of the Commonwealth Games Village and the Akshardham temple complex. But probably the most important reason for the east's popularity is its proximity to most of the happening spots and cultural centres of the capital, particularly New Delhi. And the connectivity is only going to improve further, thanks to the extension of the Metro rail up to Noida via Mayur Vihar.

As a result, real estate experts say, prices have jumped almost 100% in the past two years and over 200% in the past 10 years. "For instance, a two-bedroom flat available in 2002 for Rs 12 lakh to 15 lakh is now available at between Rs 22 and Rs 28 lakh, and the cost of a three-bedroom flat may touch Rs 35 lakh. In the last six months, particularly in Mayur Vihar-I. East Delhi, which covers a 64 sq. km area and is separated from New Delhi by the Yamuna river, is home to 1.8 million people (Delhi has a total population of about 17 million).

According to the study, the market size of East Delhi, as defined by its annual household consumption expenditure, is Rs9, 511 crore. At Rs149 crore per sq. km, East Delhi's market has the highest concentration of spenders and spending per sq. Km.[25] According to the study, 94% of East Delhi's residents earn in excess of Rs1.5 lakh a year. And more than a third earn more than Rs3 lakh. India's per capita gross domestic product is around Rs35, 000.

Although East Delhi's average urban per capita income is eroded by people belonging to lower income and poor households to Rs82,000, still third among all of Delhi's nine districts after Central and Southwest Delhi. East Delhi is also India's fifth-biggest market in terms of per capita consumer expenditure and seventh in buying vehicles.

The real estate prices in suburbs like Pitampura, Rohini, Patparganj, Mayur Vihar, Dwarka and Paschim Vihar are ruling at around Rs 3,000 per square feet. Even for satellite cities like Noida,

Gurgaon and Indirapuram, which are around 15 km to 30 km from central locations like Connaught Place in Delhi, the price of apartments are in the range of Rs 2,700 to Rs 3,500 per square feet. That means, a two-bedroom flat on 1000 sq feet is available at around Rs 30 lakhs and a three bedroom flat on 1,400 sq ft is quoting at upward of Rs 40,000. One to two years earlier, the same flats were available in less than half the prices mentioned.

6.6.2.1. RESIDENTIAL MARKET

Table 6.2: Residential Value of East Delhi (In Sq. Mts.)

Subzones	2003	2004	2005	2006	2007	2008
E1	200	220	250	350	430	650
E2	180	220	240	260	300	350
E3	290	300	310	320	550	520
E4	250	290	330	400	600	700
E5	260	270	280	300	310	320
E6	110	120	140	160	180	200
E7	230	240	250	280	330	400
E8	420	440	470	520	600	720
E9	300	310	330	370	430	520
E10	110	130	150	160	180	200
E11	210	230	240	250	300	350
E12	490	510	550	600	700	830
E13	350	370	390	450	550	650
E14	150	160	170	180	200	240
E15	120	140	160	180	190	200
E16	320	340	400	430	470	520
E17	120	120	140	150	170	200
E18	200	200	210	240	270	320
E19	320	320	340	450	550	700

E20	250	260	270	460	570	680
E21	70	70	80	90	100	110

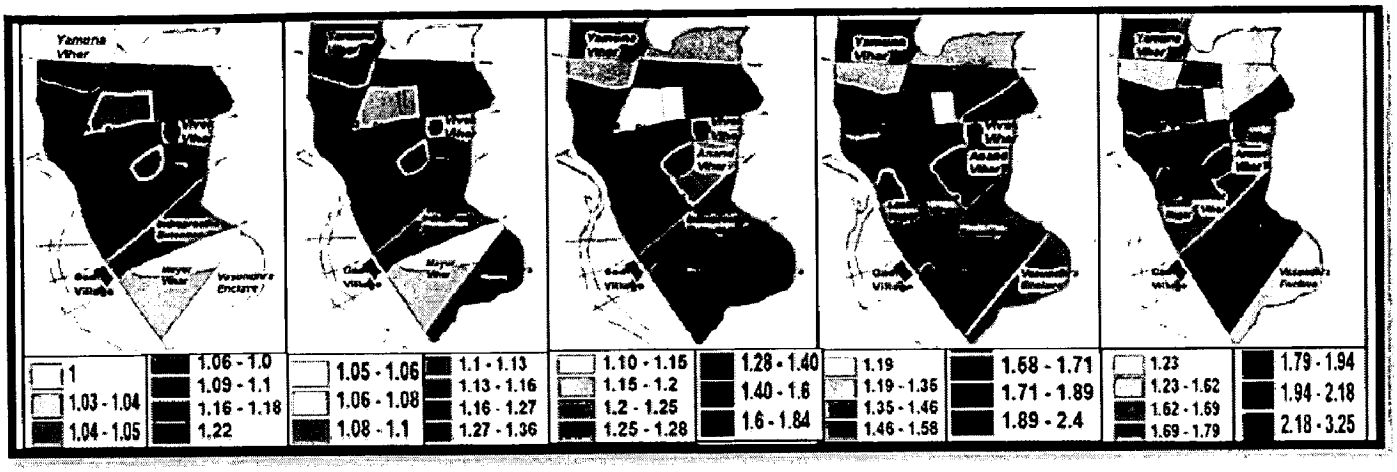
Source: Kumar Linkers (Estate) Pvt. Ltd., 2009

An overall increase in land values since 2006-2007 can be found in all the sub zones, with 2008 showing maximum growth rate. Table 6.2 Zone E7 in 2001 had Rs. 230 /sq.mts residential values same as E20 which had 20 Rs more. Its value being 250 Rs. Sq.mts. but we notice that land prices of the E20 increased to 680 Rs. / sq.mts while in E7 there was a marginal increase of 400 Rs. / sq.mts. Thus E20 witnessed an increase of 430 Rs. / Sq.mts., in E7 area there is a proposal of metro connectivity but still the price rise is much below when compared with E20 zone. Thus it can be stated that metro is not only the reason for this much rise. It is accompanied by the location of Akshardham temple and Games Village coming up in the area. It is observed that the area for games village was allotted in 2004 and E20 witness a rise of 190 Rs. / Sq.mts in the gap of one year from 2005-2006.

The comparison between E11 and E13 also shows us the same trend in 2003 there was a price difference of Rs 140 / sq.mts in 2005 was 150 Rs. / sq.mts but from 2006 the difference increased to 200, 250 in 2007 and 300 in 2008. E11 is the area where Anand Vihar has ISBT; Railway station, Vikas Marg passes through the area thus it has good connectivity. Hence physical attribute and location wise this area is good. As reviewed physical attribute, location are some of the factors that determine the land value of the area.

Figure 6.10 shows land value increase in East Delhi keeping 2003 of the area as one. It can be clearly seen that before 2006 the prices rise in the sub zone E13, E19 and E20 was less than 1: 1.11 ratio but after 2006 ratio difference increased. In 2006 E13, E19 and E20 observed an increase of 1.28, 1.40 and 1.6, 2007 the ratio was 1.58, 1.71 and 1.89 and 2008 they were 1.79, 1.94 and 2.18 increases respectively. While the ratios increase of sub zone E8, E10, E12 and E11 remain stagnant between 1.22 to 1.62. There was a gradual increase in these areas. The ratios of E21 showed an increase of 1.27 in 2005 and in 2006 it increased to 1.84 but in 2007 and 2008 the increase slowed down to 1.36 and 1.23 respectively.

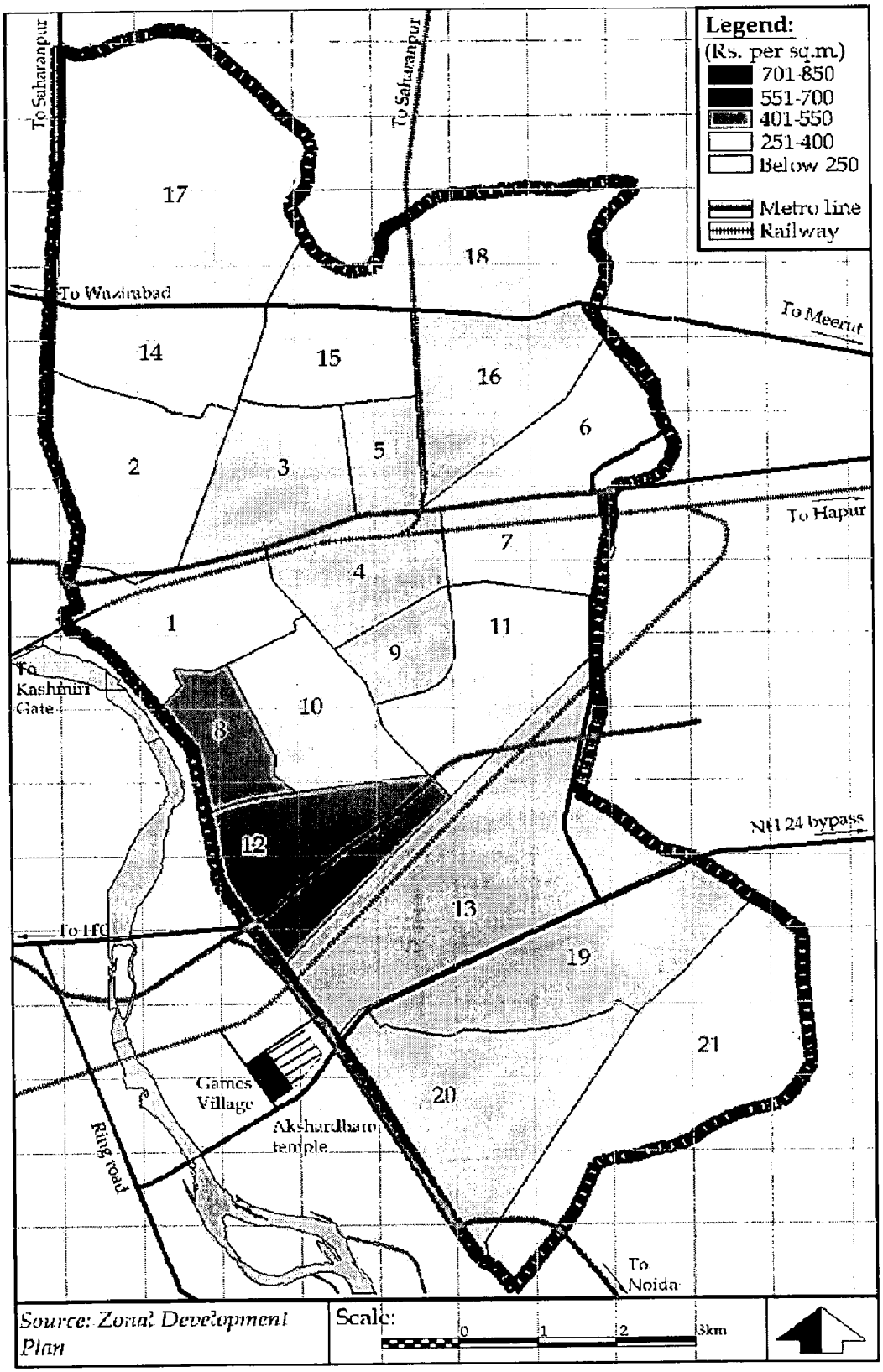
Figure 6.12: Residential Value Increase In East Delhi



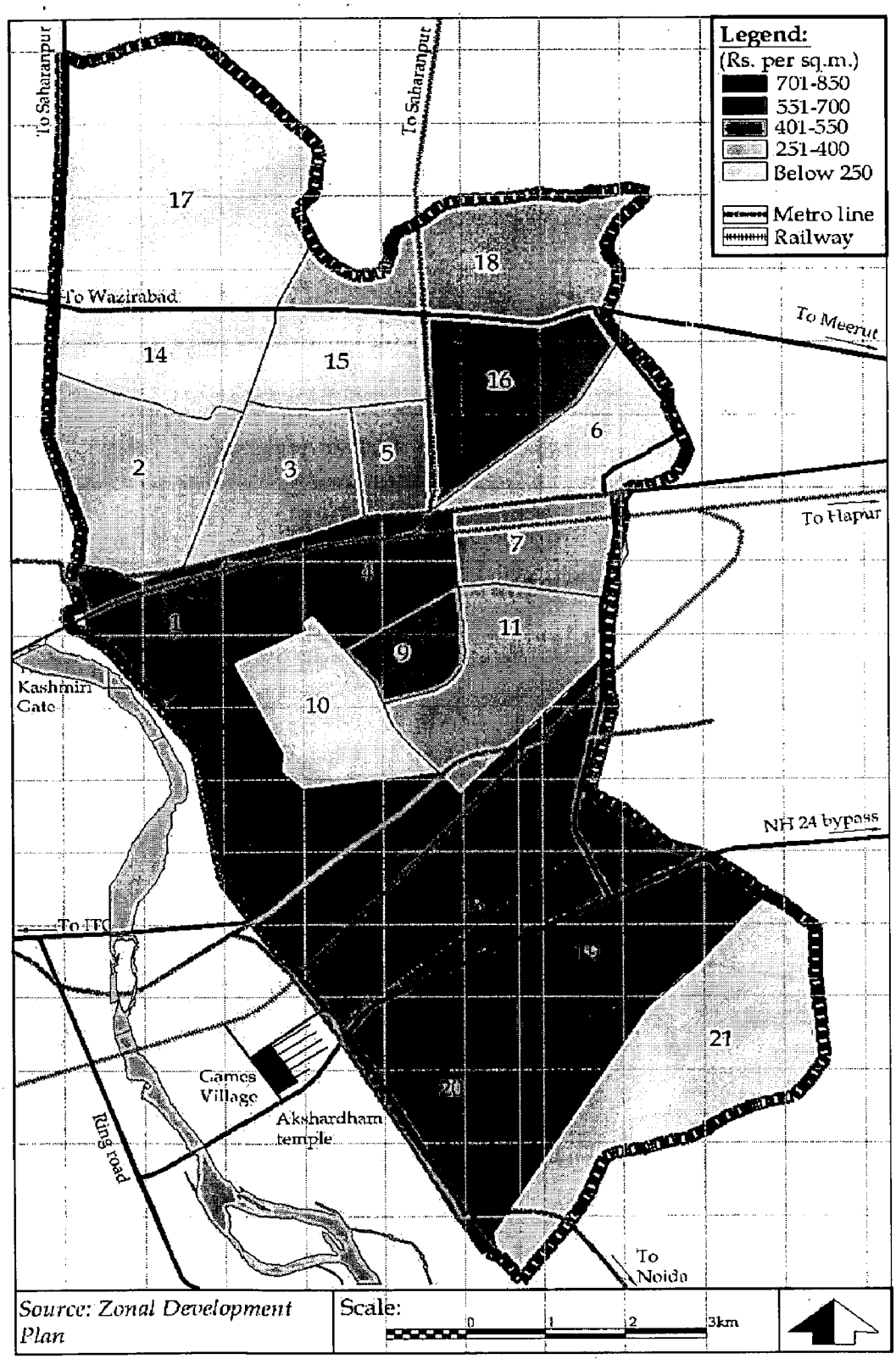
6.6.2.1.1 CONCLUSIONS

Thus we find that as in the case studies it is noticed that the area around Games village has witnessed rise in land value and in the rental value. The rise is happening in this region due to the location of Games Village in vicinity. Main region where the residential property value have increased are the Sub zone E13, E19 and E20 after the location of games Village.

Figure 6.13: Land values in 2002 in Zone E



Map 6.14: Land values in 2007 in Zone E



6.6.2.2 COMMERCIAL MARKET

Commercial values have undergone tremendous change during past five years in East Delhi. Five years back it was not seen as a desirable location for the malls compared to South Delhi or rest of the location. Now East Delhi new hotbed of retail consumption. On any given Sunday, the 1,000 car parking lot at Crossriver Mall is full. Shoppers, unable to find parking here, have parked their cars on the pavement, and even on the road leading to the mall. Many of these cars are premium sedans from Japanese car makers such as Honda Motor Co. and Toyota Motor Co.[I]

The top floor of the 250,000 sq.ft mall, which houses a bowling alley and a gaming parlour, is filled with young people, mostly dressed alike and sporting brands such as Levi Strauss, Benetton and Reebok. Fashion designer Ritu Kumar has an outlet in the mall, as do regulars such as Pantaloon, Sony and The Dollar Store.[II]

That's pretty much like a scene from any of the malls across India, where developers and retailers are building and stocking outlets at a frenetic pace to cater to a rising demand in a strong economy that is estimated to grow by over 8.75% this year.

Only, the Crossriver Mall is in East Delhi, long considered one of the capital's poorer locales, looked down upon by residents who live in, say, South Delhi or increasingly in suburbs such as Gurgaon. One year back two malls opened up in Mayur Vihar Phase I. Star City Mall and Galaria by DLF. Hence the East Delhi is changing its character.

From Table 6.3 we find that E16 and E9 had a similar price as that of E19 and E13 respectively in 2003. It is noticeable that E16 had Rs. 100 / Sq.mts. higher in 2005 than E19. In 2006, Rs. 50 / sq.mts higher but in 2007 and 2008 E19 witnessed a rise of Rs. 100 and 650 Rs. / sq.mts. E7 where metro connectivity is on card had Rs. 60 / sq. mts less than E20 in 2003. Price of E20 scored a marginal increase in 2005 and was Rs.60 / sq. mts more to E4 and in 2006 and 2007 the prices of the area shot up and the increase was Rs. 550 / sq.mts. E9 and E13 had same price in

2003. The commercial price of E13 increased to minimal Rs. 50 / sq.mts. In 2005, there was a remarkable increase of Rs. 200 sq/mts. in 2006 and 900 Rs. / sq.mts for E13.

Table 6.3: Commercial Value of East Delhi

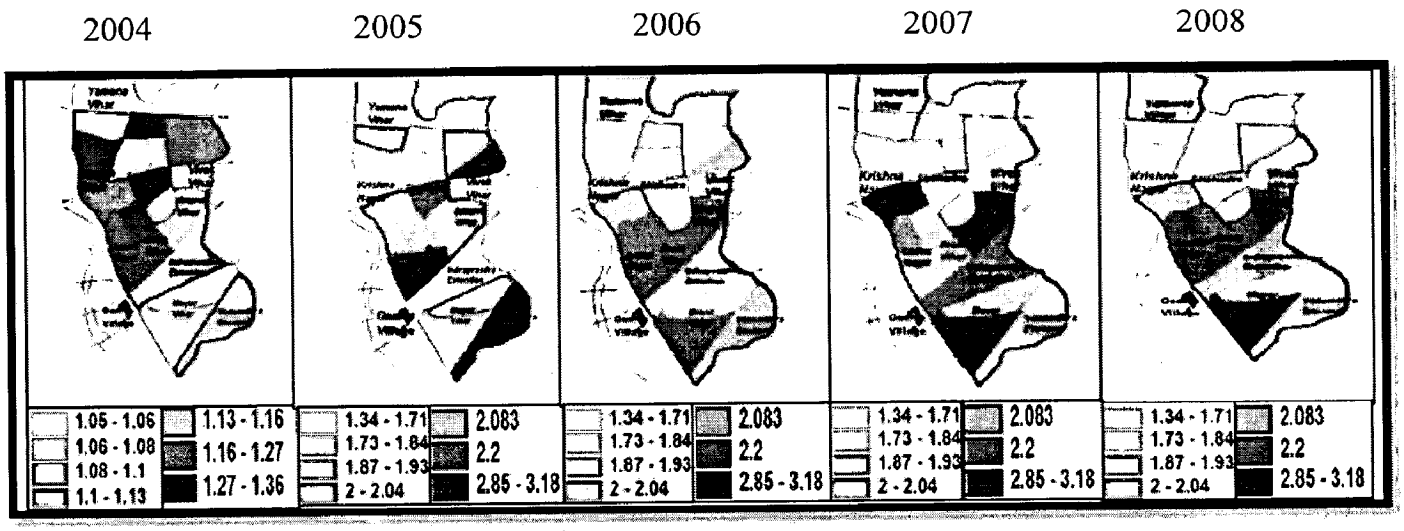
Subzones	2003	2004	2005	2006	2007	2008
E1	350	450	500	700	850	1300
E2	250	300	350	400	450	500
E3	470	500	470	550	600	700
E4	550	580	610	650	700	1000
E5	350	380	400	430	450	480
E6	350	360	370	380	400	450
E7	400	430	470	670	750	1000
E8	800	850	900	1750	2050	2400
E9	600	630	690	710	750	1050
E10	210	290	400	480	520	600
E11	430	450	480	850	1000	1300
E12	950	1000	1850	2000	2350	2600
E13	600	650	700	900	1600	1950
E14	300	300	320	330	340	480
E15	200	220	230	240	250	260
E16	650	700	800	900	950	1050
E17	250	260	270	950	550	650
E18	350	370	400	430	500	550
E19	650	680	700	850	1050	1700
E20	460	500	550	1100	1350	1550
E21	200	290	390	410	450	490

Source: Kumar Linkers (Estate) Pvt. Ltd., 2008

Figure 6.15 shows land value increase in East Delhi keeping 2003 of the area as one. We find that the 2004 the prices of E13, E20 and E19 had a slow increase of 1.05 – 1.08 times while E21

had a rise 1.27 times of same was E 12 and E10. In 2005 the E12, E10 had an increase of 2.85 – 3.18 times while E19, E13 and E20 had an increase of 1.34 – 1.93 times price of 2003. 2006 E12, E10 E13, E19 and E20 the increase was 2.2 – 3.18 times. E21 witnessed an increase of 2.04 times and 2008 also followed the same trend.

Figure 6.15: Commercial Value Increase In East Delhi



6.6.2.2.2 CONCLUSIONS

The comparison of the two maps clearly shows that the land value of sub zone E1 has increased by 200% within a span of 5 years. The values of sub zone E8, E13, E12, E19 & E20 have risen by almost 100%.

These changes in land values have taken place along the metro corridor and near the Games village site. Also transformations are taking place in those areas where there has been a rise in the land values.

These transformations are creating parking problems in that area, which is leading to chaos. Also, this transformation will further marginalize the low income population thereby creating a social divide.

CHAPTER 7: SITE ANALYSIS

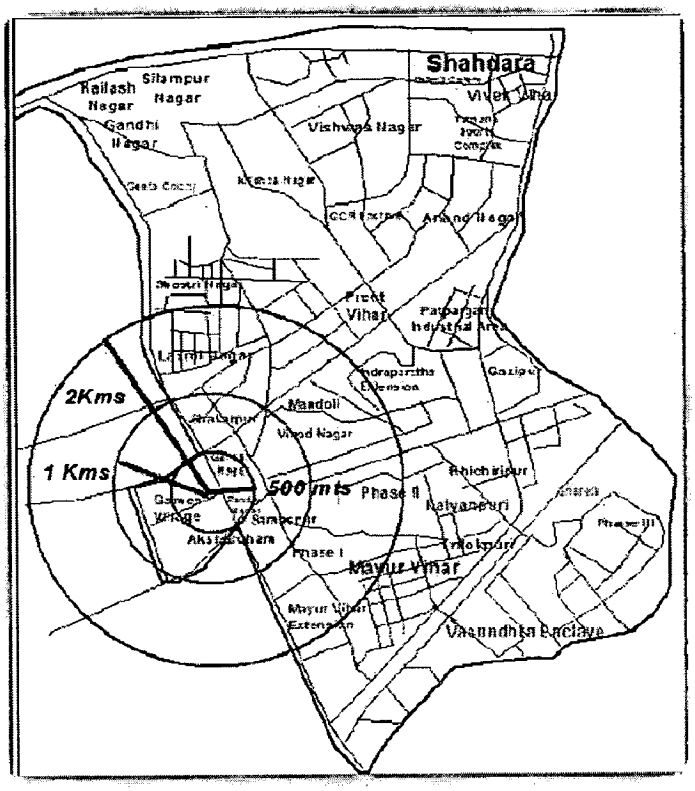
As seen in last chapter that the prices increased in sub zone of E13, E19 and E20 after the announcement of the Games Village in the area. Delineation for the micro level study of the impact was done keeping these intricacies in mind.

7.1. DELINEATION OF THE STUDY AREA

Assuming that with infrastructural development in the city organizing the game event, the city real estate prices goes up, population gentrification takes place. This is because the capital value & rental price of the area is so high that people sell their property and move on to other places. Thus keeping these factors in mind the study was conducted in order to analyze impact on land use and real estate market. It is seen that maximum price rise occur in the vicinity of games village. Hence keeping games village as the focal point study area was delineated. In literature review it was studied that the rental & land price decreases as we move away from the centre .Thus, assuming that distance closer to games village will witness maximum change in terms of price rise and land use a distance of 500 m, 1km and 2km radii (East of site as in the west lies river Yamuna) was selected for delineation of the locality to be studied. Thus the areas that were included are:

- 500 mts: Pandav Nagar & Ganesh Nagar
- 1Kms: Mayur Vihar Phase I, Phase II and (i) areas were included.
- 2 Kms: Indraprastha Extension, Vinod Nagar, Shakarpur and (ii) were included.

Figure 7.1: Map of East Delhi



Another parameter for delineation was selected to be Housing Typology so that analysis is done for various typologies prevalent in the area. Housing Typology that exists in the area is:

- Plotted housing type
- Co- operative housing type
- DDA flats housing type

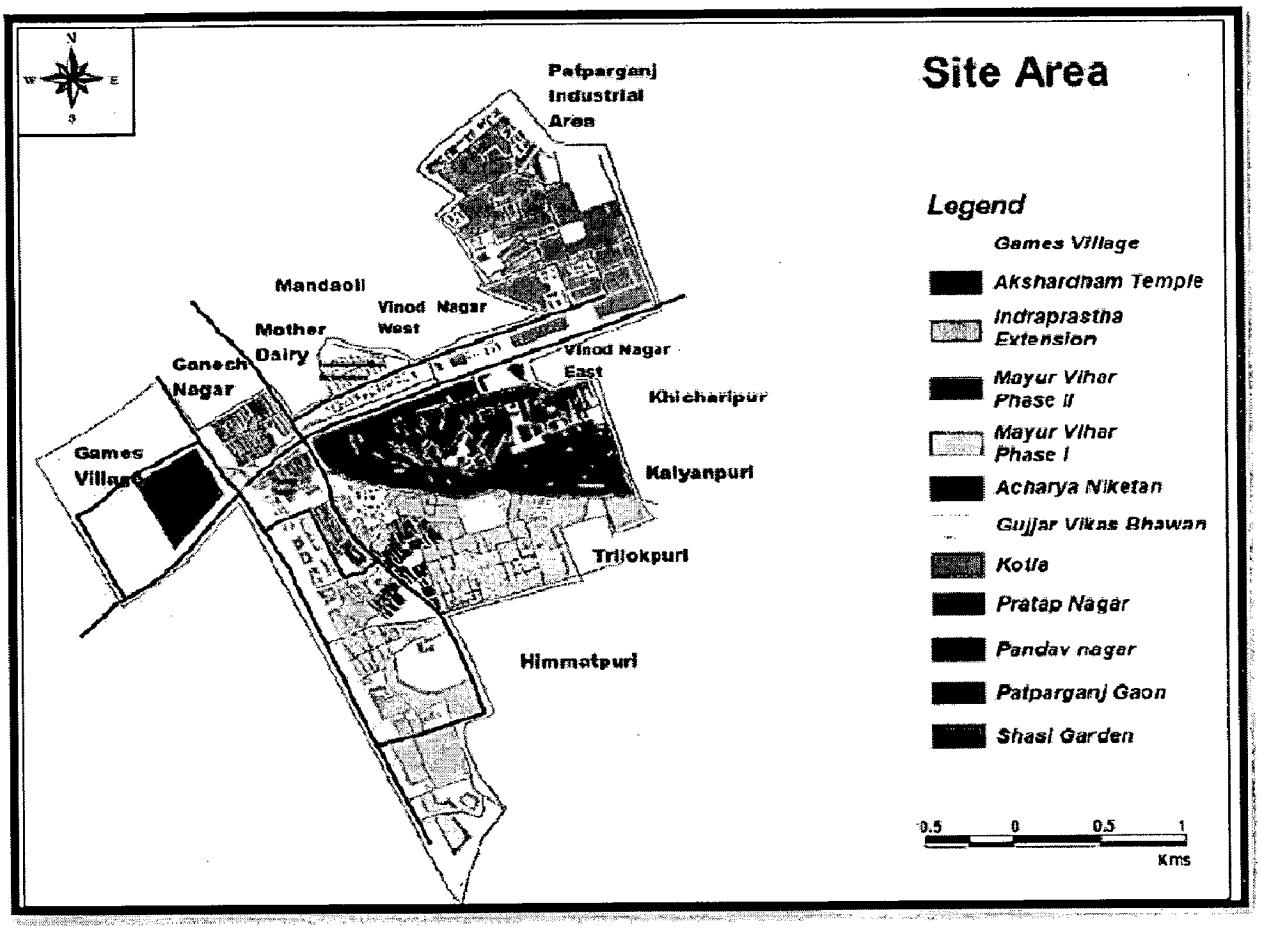
Area having more than 50% of above typology was taken. Plotted housing type occurred in the Ganesh Nagar, Pandav Nagar, Vinod Nagar and Shakarpur. Co – operative housing type existed in Indraprastha Extension and in Mayur Vihar Phase II DDA Flats existed. In Mayur Vihar phase I it was witnessed that there are both DDA Flats and Co- operative Societies in the area. Thus in order to study the impact in various typologies four areas were selected. For plotted housing type Pandav Nagar was selected as this area was closest from the Games Village. Thus areas selected were:

- Plotted housing type: Pandav Nagar

- Co- operative housing type: Indraprastha Extension (Patparganj)
- DDA flats housing type: Mayur Vihar Phase II
- Mixed DDA & Co operative Housing Type: Mayur Vihar Phase I

7.2 INTRODUCTION TO SITE AREA

Figure 7.2: Location Map of Site Area

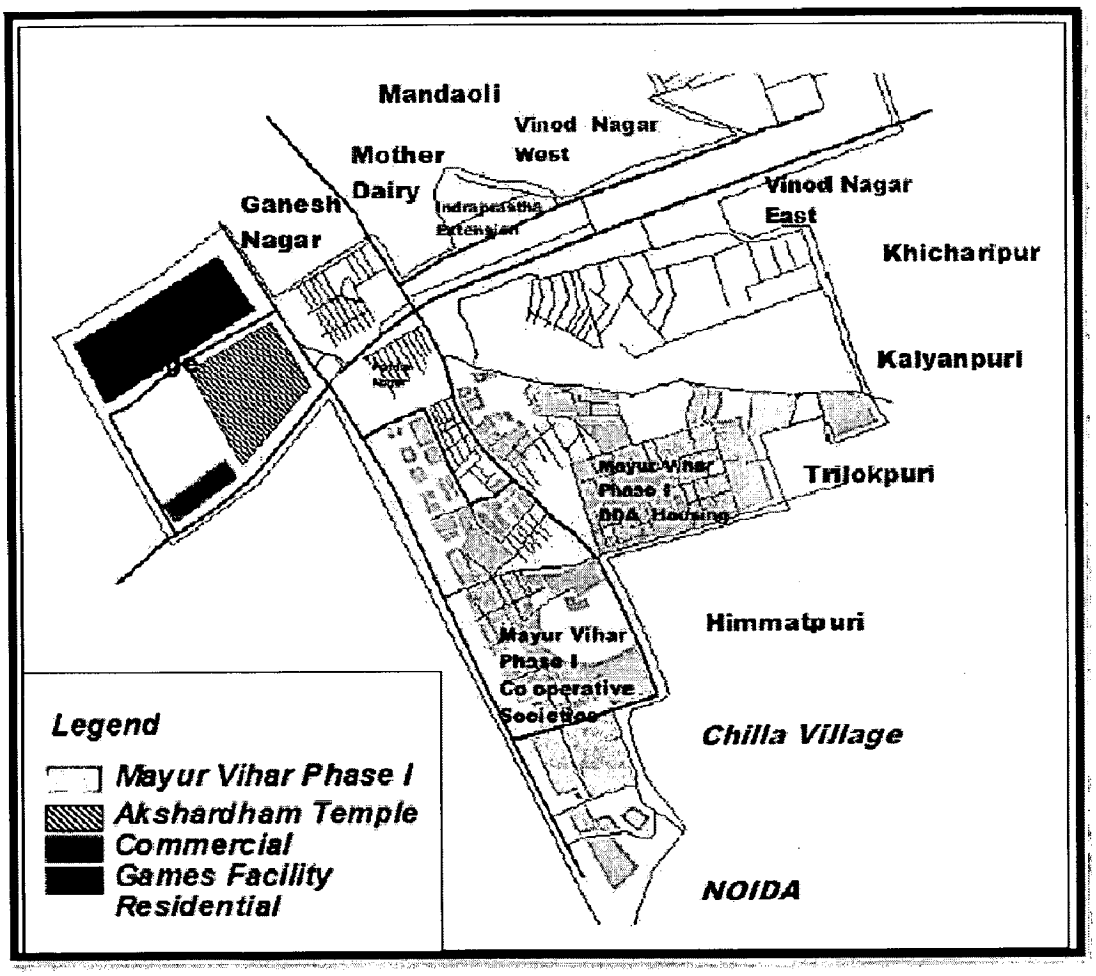


Study area is bounded by Himmatpuri in the south Trilokpuri in south east , Khichiripur in the east Patparganj industrial area in north east Vinod Nagar and Mandaoli in the north, Ganesh Nagar in north west games village in the west and cultivated area in south west. Apart from Mayur Vihar phase I & II, Pandav Nagar and Indraprastha Extension in order to maintain homogeneity Pratap Nagar, Acharya Niketan , Shasi Garden and villages like Patparganj Village and Kotla have also been included in the study area. It is spread over an area of 5.7 sq.kms.

Mayur Vihar is a residential suburb in East Delhi. It is situated across the Yamuna River of the main city of Delhi. The new upcoming CommonWealth Games village is also very close by. The proximity to Hazrat Nizamuddin Railway Station, Connaught Place and southern parts of Delhi make it an attractive area. This is also boosted by the fact that a great part of Mayur Vihar is to be connected to the Delhi Metro Rail. Mayur Vihar is a relatively recent suburb of Delhi. It has been developed in three phases.

7.2.1 MAYUR VIHAR PHASE I

Figure 7.3: Map of Mayur Vihar Phase I



It is situated between NOIDA, Old Patparganj, Trilokpuri, Chilla Village and River Yamuna. Mayur Vihar Phase-1 is used to refer to the main DDA flats, Housing Co-Operative Society

Buildings, East-End Apartments, Samachar Apartments, Lovely Apartments, Aashiana Apartments, Dronacharya Apartments, OCS Apartments, Medha Apartments, Glaxo Apartments and nearby Ashok Nagar across the Hindon 'nallah' which drains itself into the Yamuna River.
The DDA flats here are organized into five pockets, named numerically from One to Five. Mayur Vihar Phase I houses the famous Uttara Guruvayoorappan Temple which is built on the exact lines of the most famous shrine of Kerala. This is a landmark which on its own lends the colony a unique character. People from all over the city visit this temple. Some parts of Mayur Vihar Phase I however have been crassly commercialised. The most popular market area is the 'Acharya Niketan' market which houses brands of various commodities.

Some prominent schools are Ahlcon International School, Ahlcon Public School, ASN School, Amity International and Queen Mary's School.

Also, there is a temple "Sri Ram Temple" in Pocket-I, where Ramlila is performed by the "Mayur Youth Club" every year. Also, there is a Shirdi Sai Baba Temple, known as the Shirdi Sai Temple Mayur Vihar Phase 1, in walking distance from ASN School and a major shopping mall is coming opposite Glaxo Apartments

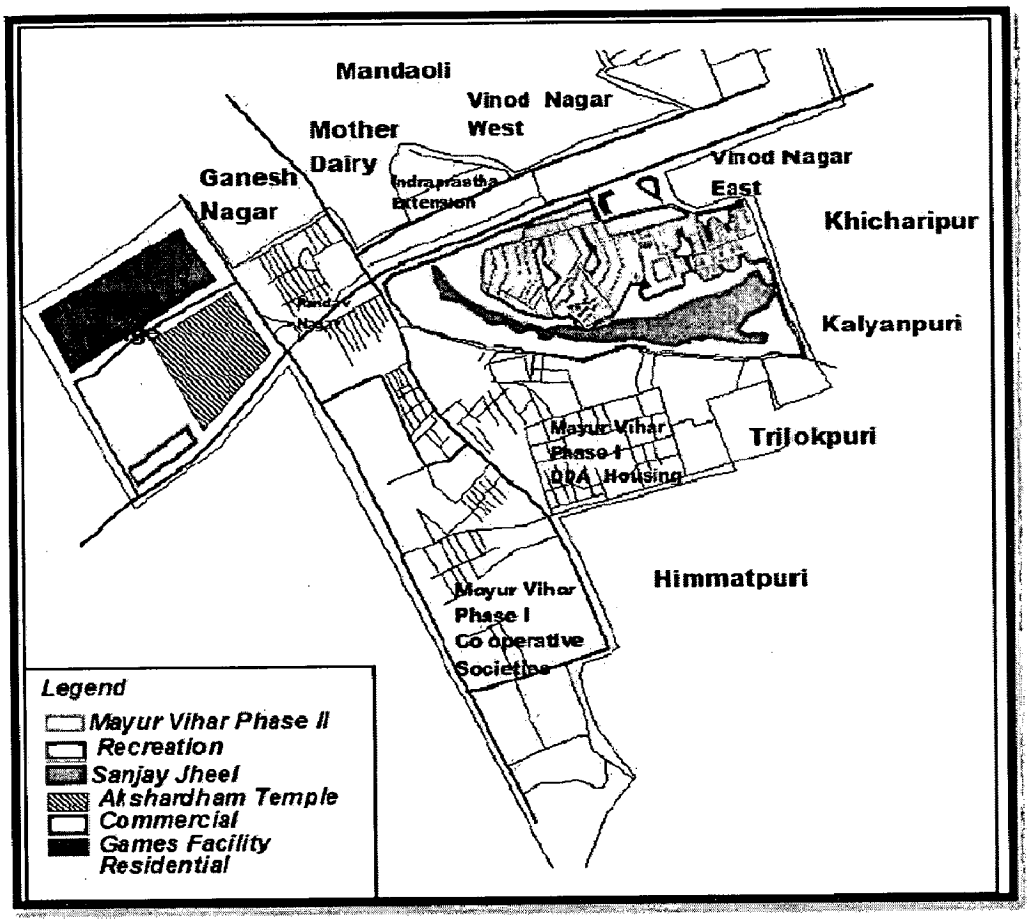
7.2.2 MAYUR VIHAR PHASE II

Mayur Vihar-II situated in East Delhi, is adjacent to Vinod Nagar, Sanjay Jheel Park and KalyanVas Janta Flats. It was set up in 1984. One characteristic of flats in this area is that each is planned to face a park or green belt.

Sanjay Jheel Park increases the aesthetic sense of this complex. As you travel from Delhi towards Ghaziabad, about two kilometers past the Akshardham Temple, you take a right turn to enter this locality (the turn is marked by two adjacent petrol pumps). The whole area is divided into pockets alphabetically named A, B, C, D, E and F. There are markets and commercial complexes too for everyday shopping. One speciality of this place is that it has ATMs of almost all banks. There are several nursing homes and clinics too. Many schools of Delhi operate buses

so that students from here can be picked up. Bal Bhavan Public School in Pocket-B and Neelam Mata Temple constitute the landmarks of Mayur Vihar, Phase-II.

Figure 7.4: Map of Mayur Vihar Phase II



Mayur Vihar II has been neglected by DTC, the Government-owned Delhi Transport Corporation, that people here have to depend on taxis and autorickshaws to travel out. The DTC has taken up a plot in this colony to construct a depot called the East Vinod Nagar Depot but operates buses to remote villages in Uttar Pradesh from here. It may be shocking to note that there is no bus from here to any of the major landmarks in Delhi. In fact the other two phases of Mayur Vihar are not connected by buses so that residents have to shell out huge amounts to autorickshaws to reach Phase I or Phase III. Noida is another country altogether. Another problem with this place is the lack of eateries, especially good south Indian eateries considering that a large percentage of the population here is South Indian (although some sweet shops cum

modest restaurants have recently sprung up). If one is hungry, one has to cook food or else take an auto or taxi to travel far away for food. Another problem is that the Sanjay Lake Park, the pride of this area has been taken over by hoodlums and the Municipal authorities pay little attention to what could become a prime tourist attraction (although the park is fairly green and lots of families do walk here in the mornings/evenings). Also the arterial road connecting the locality to Central Delhi, NH24 is so clogged by traffic that commuting becomes a nightmare. Another serious problem is the monkey menace.

But sadly, while the Commonwealth Games are to be held very near Mayur Vihar Phase II, and as we are led to believe, the Asian Games and the Olympics too, no developmental plans are in place for this locality. The Delhi Metro has bypassed Mayur Vihar Phase II, which must be one of the very few Delhi localities that will not be connected by Metro. So have all other transport facilities, malls, shopping complexes, hospitals, so much so that residents of Mayur Vihar Phase II feel that they have been deliberately excluded from the goodies that other regions of East Delhi have been getting in the name of Commonwealth games

7.2.3 INDRAPRATHA EXTENSION

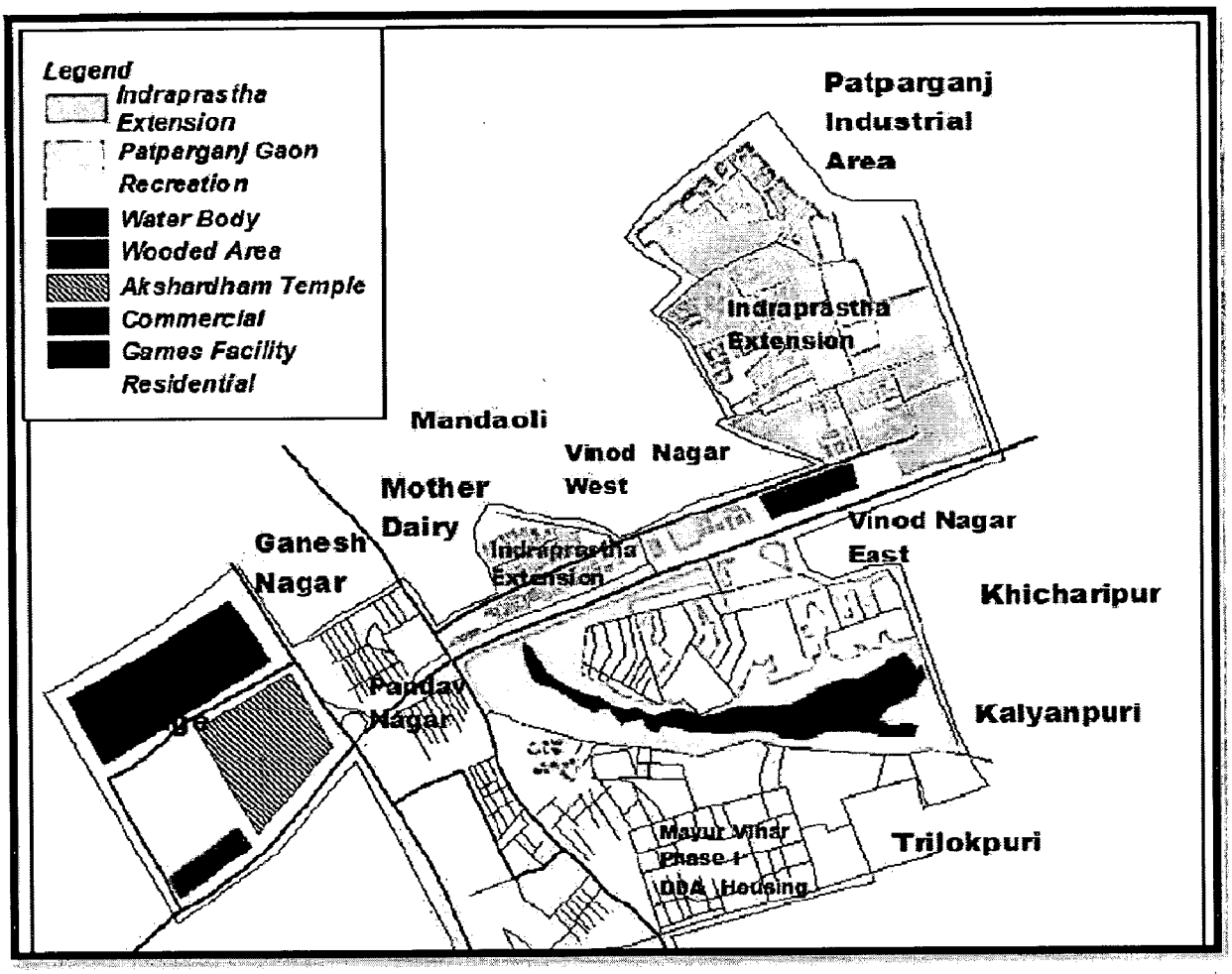
Patparganj is one of the first few developed colonies in East Delhi. The area has been divided into two parts. One includes residential apartments while other is the industrial area. With the advent of several branded retail outlets and markets, it has slowly developed into a commercial center.

It is also known as IP-extension (Indraprastha extension).It has got a large no. of C.G.H.S (cooperative group hosing societies) referred by a name (e.g.; Arya Nagar Appartments, Jai Appartments).

From a hair pin to a car, you can find almost everything here. The area is among the best planned areas in East Delhi. The area was developed by Delhi Development Authority which is playing a

major role in making this place grow. DDA has developed many Group Housing Systems (GHS).

Figure 7.5: Map of Indraprastha Extension



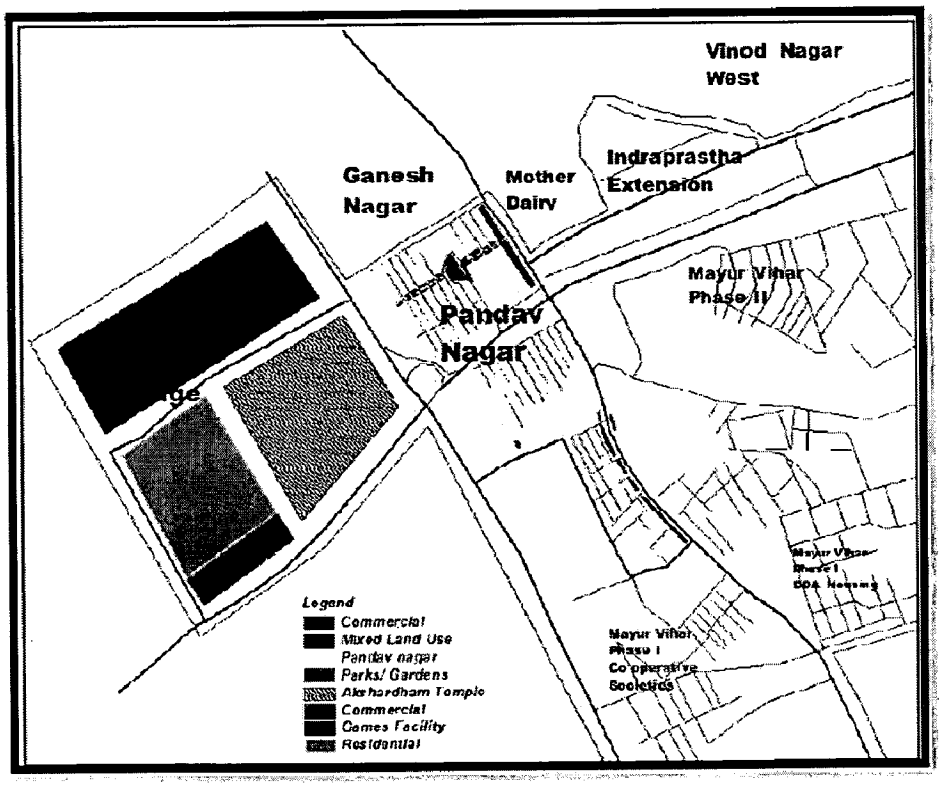
Roads are well laid and connected to different parts of the city. The area is well linked with other places in Delhi like CP, Nehru Place, ISBT, Old and New railway stations. One would have hassle free journey across the city from this region.

This area is also rich in necessities that are generally required by the people. Markets, parks and health clubs can be found very easily. Nursing homes, Schools and Bus Terminal makes this region all the more comfortable to stay/reside.

7.2.4. PANDAV NAGAR

It lies on both side of the NH – 24 bypass. It is part of Samaspur village and was agricultural land. It was developed mainly after 1947, with the large influx of refugees in to Delhi. One of the land speculator Banwari Lal bought the agricultural land, sub divided them in an area 50 sq.yard and 100 sq.yard, minimally developed the plots and sold it to willing buyers at prices within their reach and cashed on the displaced persons psychological need for finding roots in the new city. The residential areas that were developed were mainly unauthorized regularized colony. Markets and shopping in this area grew spontaneously on movement corridor. The nature of market had always been local shopping kind.

Figure 7.6: Map of Pandav Nagar



It consisted of fruit, vegetable market and grain market etc. A planned hierarchy of shopping, catering to various income group of population is predominantly lacking in the area. Pratap Nagar, Shasi Garden and Acharya Niketan also developed in same manner have same characteristics.

7.3 LAND USE

Residential area covers 48.71 % followed by recreational green area 22.92%. From figure 7.7 it is clear that is mainly in Mayur Vihar phase II that the recreational / green area is predominant. Table 7.1 points out the area ideally should have been for activities as per DDA norm for urban extension. It can be seen that commercial activities in the area are on higher side of the norm in addition to this we have mixed land use with an area of 0.04 in which residential is combined with commercial along the corridor. In totality there is an increase in the commercial activity. This area is also following the trend as shown in table 6.1 in the last chapter whereby the commercial land share was 2% of the total area. However the site area has an advantage over rest of East Delhi which is short of recreational space.

Figure 7.7: Land Use of the Site Area

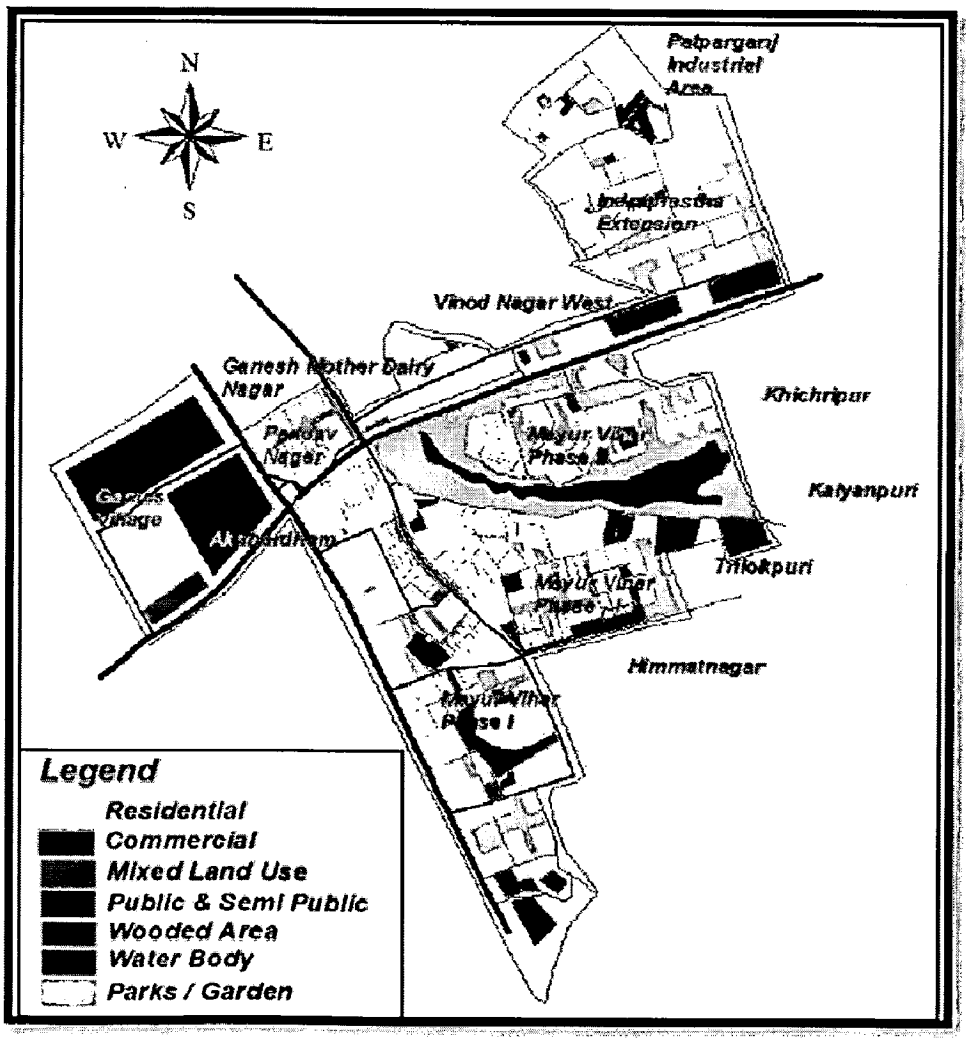


Table 7.1: Land Use Pattern of Site Area

Land Use	According to DDA Norm for Urban Extension*	Area in Sq Kms.**	In Percent
Residential	2.63	2.82	48.71
Commercial	0.19	0.23	3.58
Public & Semi Public	0.47	0.14	2.37
Recreational / Green	0.88	1.32	22.92
Mixed Land Use	-	0.04	0.69
Circulation	0.58	0.54	9.27
Water Body	-	0.41	7.17
Total		5.78	100

Source: * EICHER Goodearth Ltd., 2008 ** MPD 2021

Site area has a total of 22.92 % of recreational area above DDA norm for urban extension. While east Delhi has 5.3% (refer table 6.1) which is less than DDA norms for urban extension. Residential area is also on the higher side.

Table 7.2 shows Land Use Distribution of different localities. It can be seen that more than 70% of the areas are Residential in Pandav Nagar, Shasi Garden and Pratap Nagar. They are high above the norm. These areas are with plotted development (refer figure 7.8) where unauthorized, uncontrolled development took place after 1947. These areas are not planned as compared to Mayur Vihar and Indraprastha Extension. In Indraprastha Extension we find that residential area is more than the norm. However, it is to be noted that this area is predominantly dominated by Co –Operative Societies (refer figure 7.8), hence the boundary of these societies have been taken as residential but these societies too have a small portion of land for open & recreational spaces. Mayur Vihar has its residential area within the DDA norm.

Pandav Nagar, Shasi Garden and Pratap Nagar are short of Recreational space. While Mayur Vihar phase I & II have excess of recreational spaces. Mayur Vihar phase II has 47% of its total land under recreational & green space while its residential area is only 22.67%. Hence we find that total increase in recreational area as shown in table 7.1 is due to Mayur Vihar in general and Mayur Vihar Phase II in particular.

Mayur Vihar phase I has twice the recommended area for commercial activities. Acharya Niketan close to Mayur Vihar phase I has as high as 33.93% of its total area for commercial activities. It caters to the needs of Mayur Vihar phase I, Trilokpuri, Himmatpuri societies apart from its own.

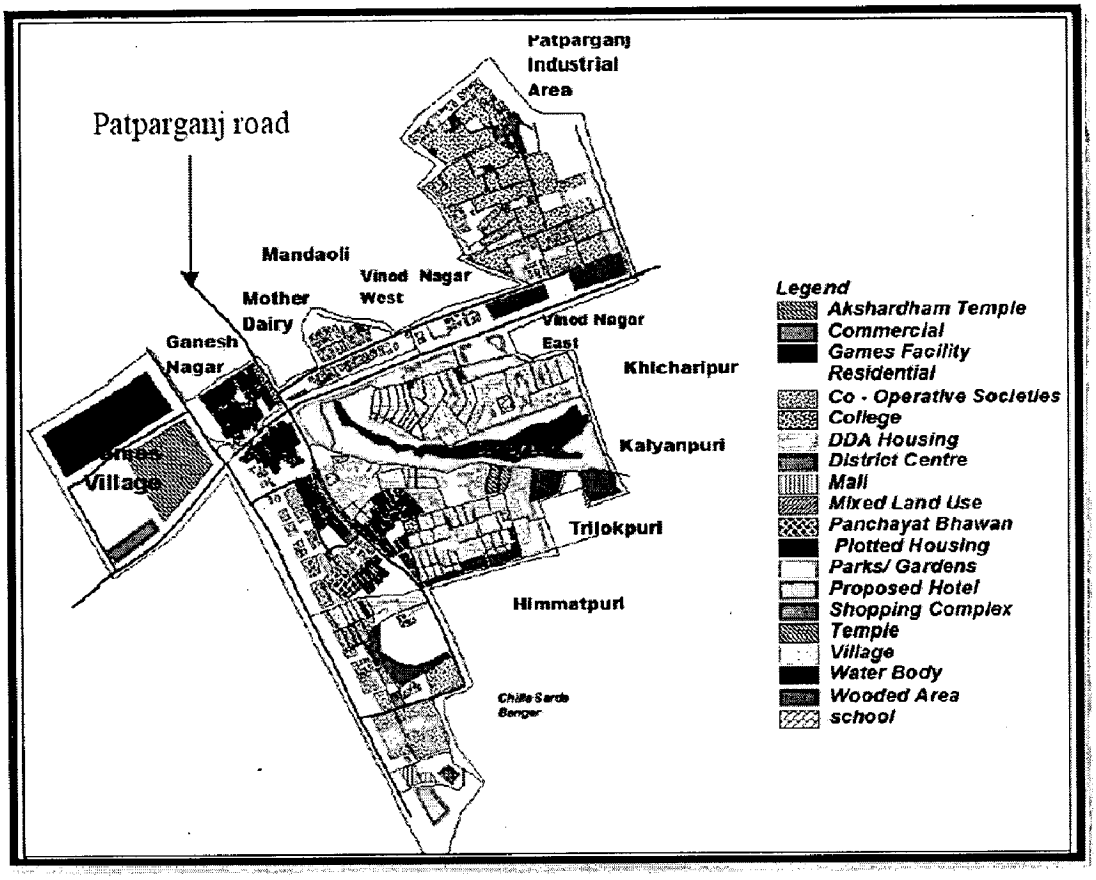
Table 7.2: Land Use Distribution

Land Use Area Wise		M.V.I		M.V II		Indraprastha Extension		Pandav Nagar		Acharya Niketan		Shasi Garden		Pratap Nagar	
	Delhi Master Plan 2001 Norm in %	Area In Sq. Kms	In Percent	Area In Sq. Kms	In Percent	Area In Sq. Kms	In Percent	Area In Sq. Kms	In Percent	Area In Sq. Kms	In Percent	Area In Sq. Kms	In Percent	Area In Sq. Kms	In Percent
Residential	45.55	0.81	42.45	0.41	22.67	0.93	53.36	0.30	85.35	0.05	44.27	0.06	76.34	0.03	80.08
Commercial	3.4	0.13	6.61	0.03	1.78	0.04	2.76	-	-	0.04	33.93	-	-	-	-
Mixed Land use	-	-	0.00	0.00	0.00	0.00	0.00	0.01	3.50	0.01	8.16	0.01	7.87	0.00	6.32
Recreational / Green	15.2	0.61	32.06	0.86	47.04	0.27	18.07	0.01	1.93	-	-	-	-	-	-
Public & Semi Public Area	8.1	0.08	4.40	0.01	0.77	0.01	0.82	-	-	-	-	-	-	-	-
Water Body		0.00	0.00	0.31	16.77	-	-	-	-	-	-	-	-	-	-
Circulation	10.12	0.28	14.47	0.20	10.97	0.22	14.99	0.03	9.22	0.02	13.64	0.01	15.79	0.01	13.59
Total		1.90	100	1.82	100	1.47	100	0.35	100	0.11	100	0.08	100	0.04	100.00

Source: EICHER Goodearth Ltd., 2008

Mixed land use of residential and commercial is high on the cards of Pandav Nagar, Acharya Niketan, Shasi Garden and Pratap Nagar. All these areas except for Acharya Niketan do not have any defined shopping complex and thus mixed land use have developed along the corridor.

Figure 7.8: Housing Typology and Land Use of Site Area



Circulation wise this area seems to be good except for Pandav Nagar as per the norm. Public & Semi public facilities are lacking in this area.

Table 7.3: Detail Land Use Distribution

TYPOLOGY	AREA IN SQ. KMS.	IN PERCENT
DDA Flats	0.91	15.81
Co-operative Societies	1.43	24.7€
Plotted Housing	0.43	7.42
Village	0.04	0.72
Mall	0.03	0.52
District Centre	0.02	0.26
Proposed Hotel	0.05	0.86
Shopping Complex	0.11	1.94
Mixed Land Use	0.04	0.69

Park / Garden	1.32	22.92
Wooded Area	0.41	7.17
Temple	0.03	0.54
School	0.04	0.78
College	0.02	0.38
Panchayat Bhawan	0.04	0.68
Water Body	0.31	5.29
60M RW	0.06	1.12
30M RW	0.07	1.22
24M RW	0.05	0.92
18M RW	0.35	6.00
TOTAL	5.78	100

Source: EICHER Goodearth Ltd., 2008

Table 7.1, 7.2, 7.3, 7.4 and 7.5 gives us the detail land use distribution of the area. We find that Cooperative societies occupies 24% (refer table 7.3) of the total area and covers 49% of the total houses of the site area (refer table 7.4). Of the total Co – operative Societies 70% is in Indraprastha Extension and rest 30% is in Mayur Vihar Phase I (refer table 7.5).

DDA Flats are distributed mainly in Mayur Vihar Phase I & II. They comprise of 34% total housing types with 52% in Mayur Vihar Phase I and 47% in Mayur Vihar Phase II (refer table 7.4, 7.5).

Table 7.4: Housing Typology

TYPES	AREA IN SQ. KMS.	IN PERCENT
DDA Flats	0.91	34.35
Co-operative Societies	1.32	49.52
Plotted	0.43	16.13
Total	2.66	100

Source: EICHER Goodearth Ltd., 2008

Plotted housing comprise of 16.13% of the housing typology of this Pandav Nagar shares 67.53% Shasi Garden 13.75 and Pratap Nagar 7.18% and Acharya Niketan 11.53% (Table 7.4 & 7.5) 0.04 sq.kms comprises of village areas like Samapur, Patparganj Gaon and Kotla Village. These areas are characterized by shanty, dilapidated house and narrow lanes.

Table 7.5: Area Wise Housing Typology

Locality	Housing Typology	Area In Sq. Kms.	In Percent	In Percent Of Total Respective Housing Typology
Mayur Vihar Phase I	DDA Flats	0.48	18.08	52.65
	Co – Operative Societies	0.39	14.55	29.39
Mayur Vihar Phase II	DDA Flats	0.43	16.26	47.35
Indraprastha Extension	Co – Operative Societies	0.93	34.96	70.61
Panday Nagar	Plotted	0.29	10.89	67.53
Acharya Niketan	Plotted	0.05	1.85	11.53
Shasi Garden	Plotted	0.06	2.21	13.75
Pratap Nagar	Plotted	0.03	1.15	7.18

Source: EICHER Goodearth Ltd., 2008

Commercial activities comprises of malls shopping complex hotel and DDA shopping complex. Mall is the recent development in the area and occupies 13.13% of the area. Incidentally both the malls are located in district centre of Mayur Vihar Phase I. out of 10 ha. Of land allotted to District centre only 2ha was developed till three years back and comprised of DDA Shopping Complex rest of the area in last two years was allotted to mall and hotel.4ha. (Refer table 7.6 & 7.7)

Table 7.6: Commercial Area

TYPES	AREA IN SQ. KMS.	IN PERCENT
Mall	0.03	13.13
DDA Shopping Complex	0.02	6.61
Proposed Hotel	0.04	17.62
Shopping Complex	0.14	62.62
Total	0.23	100

Source: EICHER Goodearth Ltd., 2008

Shopping complexes are mainly located in the Mayur Vihar phase I &II, Indraprastha extension and Acharya Niketan sharing 21.97% , 9.60% 13.28% and 14.32% respectively.

Pandav Nagar, Shasi Garden and Pratap Nagar have commercial activity mixed with residential which comprises of 0.04 sq.kms and 0.69% of the total area. These are mainly located along the main corridor. Patparganj road is predominantly occupied by mixed land use (refer figure 7.8).

Table 7.7: Area Wise Commercial Activity

TYPE	LOCALITY	AREA IN SQ. KMS.	IN PERCENT	IN PERCENT OF TOTAL RESPECTIVE COMMERCIAL ACTIVITY
Mall	M.V.I	0.03	13.13	100
DDA Shopping Complex	M.V.II	0.02	6.61	100
Proposed Hotel	M.V.I	).04	17.63	100
Shopping Complex	M.V.I	).03	13.76	21.97
	M.V.II	).03	14.29	9.60
	Indraprastha Extension	04	17.87	13.28

	Acharya Niketan	0.04	16.71	14.32
Total		0.23	100	

Source: EICHER Goodearth Ltd., 2008

Site area is well connected with rest of Delhi and within. NH-24 bypass passes through the study area and divides the area into two. With Pandav Nagar and Indraprastha extension in the north and Mayur Vihar Phase I & II, Acharya Niketan, Shasi Garden and Pratap Nagar in the south. NOIDA link road acts as a boundary to the west. These are the arterial road of the area. Table 30 shows that the area has a good road network. But looking into the development happening in the area the area needs to broaden its existing road. 18m.R/W road occupies 64.78% of the area. 24m R/W road is only 10% and 30m. R/W 13.17%. 24m. R/W and 30 m. R/W roads proportion needs to be increased. Internal road like Patparganj road connecting Patparganj Gaon till Mayur Vihar Phase I crossing leading to Samachar Apartment suffer from traffic congestion & jams especially during peak hours. In the area mixed land use with shops in the ground floor and no parking space for vehicle adds to the traffic problem of the area.

Table 7.8: Circulation

TYPE	AREA	IN PERCENT
60M RW	1.12	12.11
30M RW	1.22	13.17
24M RW	0.92	9.95
18M RW	6.00	64.78
TOTAL	9.27	100

Source: EICHER Goodearth Ltd., 2008

7.3.1 CONCLUSIONS

It was found out that following major land use change has occurred:

- The Recreational areas is less in the where plotted housing, unauthorized colonies and unplanned areas like Pandav Nagar, Pratap Nagar, Acharya Niketan, Shasi Garden.

- Commercial activity is on rise in Mayur Vihar Phase I. Commercial activities like hotel, malls have developed in the area in last 3 year.
- In circulation the area is above norm but we find that 18m.R/W road in larger proportion and 24 and 30 m. R/W road is less in proportion.(refer table 7.8)

7.4 LAND PRICE

7.4.1 RESIDENTIAL MARKET

Mayur Vihar and Indraprastha extension is better known for its high class populace, who are either employed in commercial hubs like Connaught Place or IT companies located in Noida. The place has certainly earned an excellent rapport in recent times. In these areas it is mainly the service class that resides over here.

Easy accessibility to important locations of NCR makes Mayur Vihar Phase-I a preferred choice. Located in east Delhi the residential area Mayur Vihar Phase-I is spread over a vast expanse of land. Its proximity to ITO, Sarai Kale Khan along with Noida and the Akshardham Temple add to the convenience of the denizens of the locality. The proposed construction of Asian Games Village and Metro Rail close to the locality adds to its real estate value.

Most of the housing complexes have been developed in Mayur Vihar and Indraprastha Extension are for the middle and high income group. In the last couple of years the property rates of DDA and society flats have been peaking to new highs. Earlier a well finished DDA constructed MIG apartment with marble floors, stylish bathrooms complete with a kitchen cost between Rs 14 to Rs 18 lakh in 2001of 69sq.mts but today the rate of the same flat ranges from Rs 45 to Rs 50 lakh.

Three types of flats are available for accommodation. The DDA constructed LIG; MIG and HIG flats are available for the lower, middle and high income class. The price of an LIG flat varies from Rs 14 lakh to Rs 20 lakh (area 400-500 sq ft). While the price of MIG type flats varies from

the area. Thus we see that where in 2001 in a plot of 450 sq.ft where only 16 people lived now there are 32 people residing. In these areas it is observed that most of houses were G+4 thus above the DDA norm.

It is observed that the buyers are mainly mostly people from BPO, call Centres who work in NOIDA and Gurgaon. Their age group is between 30 -40 yrs. It was seen that they have brought the flats mainly because it's near to their offices and they perceive that due to location of Games Village the prices may go high in near future. They have brought the flats from investment point of view. 90% of the flat buyers plan to move to other areas like Indrapuram, Gaziabad etc. They feel that by that time both their income and property value will rise and hence they can afford those localities. It is also observed that these flats are taken on personal loans from the banks and not on housing loans.

Ideally if we see if a person suppose, an investor bought a property for Rs 25 lakhs two years back on loan. His total investment including the cash down payment (the upfront contribution that a buyer has to make to secure loan, which is around 10% of the flat's cost) is around Rs 8 lakh till now. The outstanding loan amount on his loan would be in the range of Rs 21 lakh. The flat that cost him around Rs 25 lakh two years back, is commanding around Rs 50 lakh today. That means, if he sells the flat today, he can earn around Rs 21 lakh after repaying all the loan to banks on his investment of Rs 8 lakh. Hence there should have been rise in resale of property in the area. But the case is not so for Mayur Vihar and Indraprastha Extension. The reason is explained below.

It is observed that the resale of flats in societies and DDA flats have been less as compared to plotted house. When enquired property dealers responded that in case of societies and DDA flats people are particular about the mode of transaction. In that case due to high prices the purchaser willing to pay 90 % in cheque and 10% in cash as they take housing loans from the bank but the seller wants the 25% in cheque and 75% in cash. This has lead to resale of property more in Plotted housing area as in that case as the prices of these plots have been low they can afford to take personal loans and pay 75 % cash and rest 25% as housing loan. However in LIG flats of

DDA and societies 10 % of the resale of property has taken place. Reason the reason for the resale being the same as in plotted housing.

It is observed that people who have sold out their plots or flats have bought three bedroom flats in Indrapuram and Gaziabad, if they are resident of Delhi. It is noticed that the flats that went off for sale in Mayur Vihar were mostly service class and after retirement since they were getting high amount sold the property and moved to their native place. There with the same amount they were able to buy larger plots. These cases were observed mainly when the residents were from South Indian States like Andhra Pradesh, Karnataka, Tamil Nadu and Kerala.

7.4.1.1 CONCLUSION

Major changes occurring due to change in land value for **Residential Area** is:

- Plotted housing type the low income business class being replaced by middle income service class.
- Resale of property is high on the plotted housing. Plotted housing types being converted to flats, thus increasing the density of the area.
- DDA and Societies Flats have witnessed rise in property prices. Purchasers are willing to resale the property but due to clash in mode of transaction and exorbitant rise in price, the resale of property is less in the area.
- Gentrification process is witnessed more in the Plotted housing development of Pandav Nagar, Acharya Niketan, Shasi Garden and Pratap Nagar.

7.4.2 COMMERCIAL MARKET

Mayur Vihar, Indraprastha extension serves as an important upmarket that further enjoys a strategic location. Mayur Vihar is fast emerging as one of the major commercial hubs of East Delhi as from the land use data from last section. A number of prominent Indian real estate developers including DLF and Mahatta Towers have constructed Galaria mall and Star City Mall

at the district centre , Mayur Vihar Phase I. Close on the heels are Eros, Sikka, TSL, and Anupam.

Mushrooming mall culture and upcoming real estate activities are giving a push to the land rates here. Malls in Mayur Vihar are receiving large attentions from famous brands. Developed by Mahatta Towers, the Star City Mall has got Reliance store into it. The company has booked 40,000 sq ft. of space in the mall to kick start its retail revolution in Delhi. Now, move adjacent to the Star City Mall. One can find another swanky mall, DLF Galleria, the name which itself is enough to speak for its developer. This along with Star City Mall will house some of the biggest retail brands.

The advent of the Metro Rail and the Commonwealth Games are two watersheds that have spurred demand for property development in these regions," says A S Aggarwal of MSX Developers people behind the Golf Gardenia project at Greater Noida. We realized the economy of Mayur Vihar and Indraprastha Extension was on the growth path, as there was a discernible boom in consumer spending," points out Sujit Kumar, CEO and president, Mahatta Towers comments. Kumar's positive feedback on the region probably led the group, a real estate and infrastructure conglomerate, to set up area first Mall Star City mall in the area.

The Eros Group has also acquired land for their upcoming hotel projects. Likewise, Mahatta Towers are also coming up with two commercial towers behind the mall that are to be spread over a large area of 3 lakh sq ft. Cinema complex is also coming up behind the mall. The company has launched the shopping mall and given the possession in July last year.

Mayur Vihar Phase I enjoys great connectivity to Noida, central, and East Delhi. The completion of flyover connecting Phase I to DND flyway directly, the area is well connected to peripheral locations of South Delhi and to the four proposed stadiums of Commonwealth Games.

In Indraprastha Extension, Mayur Vihar and Acharya Niketan exists good banking system. Last

three years saw to the opening of banks ATM like Bank of Baroda, Bank of Maharastra, Canara Bank, State Bank of India. ATMs of almost of the banks are located in these areas. Some of the rare ones are IDBI, Bank Of Baroda, Ing Vayasa, Industrial Bank and Deusche bank Centurian bank, Bank of Travancore.

In Indraprastha Extension , Mayur Vihar and Acharya Niketa small shops have been replaced by showrooms of Nokia, Reliance Mobile, John Players, Koutons, Peter England, Samsung, Liberty, Relaxo, Tata Indicom and BATA, Zodiac to name a few. Old grocery shop have been replaced by Subhiksha, Apple, and Reliance fresh.

Three years back in Sachdeva Plaza of Mayur Vihar Phase II 80%of the shops were vacant but now only 20% of the flats remain vacant. So was the case of Samachar market but now there is 100% occupancy mainly due to its closeness to district centre where most of the development taking place.

In case of Pandav Nagar, Shasi Garden, Acharya Niketan and Pratap Nagar. If the plot is located on the main road then ground floor is under commercial activity. It is observed that most of the shopkeepers were owner of the shops. However, these shopkeepers who once had grocery shop or small stationary shops have upgraded themselves. They have brought the franchisee of branded retail and have opened exclusive showrooms especially in Acharya Niketan.

Commercial activities in Pandav Nagar, Shasi Garden, and Pratap Nagar have not witnessed much change. Showrooms have not opened the area. But the same shop which use to keep local made readymade garments now have stocks of branded clothes like Peter England, John Players etc. exclusive showrooms are missing in the area but these shops have all branded items. Even in stationary shops local stationary which they were able to sell earlier now they can't and they have stocks of Navneet, corporate etc.

It is observed most of the shopkeepers are the owners of the shop. Big shopkeepers with large shops have taken the dealership of companies and running the showrooms.

Partha Sarathi Mitra is the archetypal Mayur Vihar resident. He is 40, works as a chief technical officer for Indo-Asian News Service, a newswire, at a salary of about Rs7 lakh a year, and has been staying in Mayur Vihar for more than a decade now. His wife, a homemaker, and 13-year-old son are delighted that the malls are coming up so close to their home. He states now, we get all the brands that we want right next door, while earlier we had to travel to Connaught Place. The (Delhi) Metro's arrival and the government's decongestion plan have helped immensely," said Mitra.

7.4.2.1 CONCLUSIONS

Major changes occurring due to change in land value for **Commercial Area** is:

- Brand value of the area has changed. Mayur Vihar, Indraprastha Extension and Acharya Niketan have maximum change. Acharya Niketan shops being close to Mayur Vihar Phase I have witnessed maximum change among plotted, non planned housing area.
- Pandav Nagar, Shasi Garden and Pratap Nagar have witnessed slow change commercial market. Exclusive showrooms are not there but shops with all branded items are seen to be mushrooming. Thus people of the area have become brand conscious.
- The lifestyle of the area has risen mainly due to the change in people residing in the area. We have seen that in this area people from low income business class have changed to middle class service class.

CHAPTER 8: ISSUES & OPPORTUNITIES

8.1 Issues (Delhi city)

- The infrastructure development is taking place around the Games Village and the sport venues on a priority and at a faster pace whereas development in other areas has slowed down.

- Construction work for the Games started only in last 3-4 years due to lack of coordination between the agencies, release of funds, etc.

- The Games Village is being built on the flood plains of river Yamuna. Environmentalists address special concern to the effects Games Village will have on the Yamuna River. There are a number of environmental issues which have been downplayed by the government and special action has been taken so that the construction of the township moves in full swing.

- A sum total of Rs.22000 crores have been spent on infrastructure development for the Games. There is no long term plan or a strategy as to how this huge expenditure can be made beneficial for the citizens of the country in general and sport persons in particular. Cost recovery through revenue earning does not appear to be a prime motivating factor.

- A lot of investment has gone into upgrading and construction of the sport venues. From the past experience of 1982 Asiad Games, it has been seen that these venues were never used to their full capacity after the games were over, but money has to be spent for their maintenance and upkeep.

- About 3 lakh construction workers are working on various commonwealth games projects. There is no strategy at the moment as to what will happen to them once the games are over.

- About 27000 people were displaced to make way for construction activity at the games village. Though they have been rehabilitated but they face a problem in commuting to their work places as they have to spend a lot of money in transportation.

- As has been established from the background study, developing countries usually fail to attract a large number of spectators for the event. Hence the stadia and hotels are not occupied as expected and the tourism prospects linked with the Games may not be achievable.

- Huge construction activities, not only on the games site, but also in various parts of the city have caused terrible inconvenience and disruption and diversion of traffic due to lack of advance planning of activities.

- There is usually an absence of long-term vision, which there in Delhi's case also. There is no plan indicating the development strategy in the post game period.

- There has been no real public consultation or transparency in the planning process for the infrastructure development for the games.

8.2 Opportunities (Delhi city)

- The infrastructure development which has taken place in a span of 3-4 years due to commonwealth games would otherwise have taken longer.

- Most of the projects are located in Zone E. The development in this zone was neglected in the previous plan periods. This area will be greatly benefitted because of huge investments on infrastructure projects.

- The sport venues will encourage more sport activities in the city and will witness national and state level sport events. Citizens of Delhi specially the youth will have great source of entertainment.

- The additional power generation for the city will meet the requirements of the citizens of Delhi, atleast for some time.

8.3 Issues (Zone E)

- The zone lacks in basic infrastructure facilities like green spaces, commercial centres, etc.
- About 30% of the Zone area is under unauthorized colonies which are under the process of regularization. These areas have high density and lack basic facilities.
- Even within Zone E, the infrastructure development is near the Games village site and focus is on the event and not on the general upliftment of the zone.
- The transformations that are taking place along the metro corridor are creating their own problems like lack of parking space, etc. This will further create a social divide and marginalization of low income group.

8.4 Opportunities (Zone E)

- The infrastructure development has already started attracting investments (which can be seen in the type of commercial activities coming up on the Laxminagar-Anand Vihar metro route), which will improve the condition of the zone.
- With its proximity to Noida, and a metro link connecting Delhi with Noida, this zone will attract people and investments, leading to higher densities and better infrastructure.

CHAPTER 9: IMPLICATIONS AND STRATEGIES

9.1 Implications

Implications have been discussed in previous chapters in detail. It has been summarised below.

9.1.1 Planning period:

- Due to the commonwealth games speedy urban development has taken place. Infrastructure development and up gradation has taken place in a span of just 2-4 years, which otherwise would have taken much longer.

- It is not an all round city development as the projects are concentrated around the venues for the Commonwealth Games. (Zone D & Zone E have more number of projects due to the locations of the sport venues and proximity to the Games Village respectively). Though the city will not experience an all around development but it will give a further boost to urban development.

- With the planning of the Games Village in Zone O, the building activities continue on the flood plains of Yamuna. This may have the following effects:
    - Groundwater recharge capability of the area may reduce
    - The structures on the flood plain my get damaged during floods as per the study done by NEERI

9.1.2 Construction period:

- **Inconvenience is** caused to the local people due to the construction work leading to traffic jams, congestion, accidents, time loss and inefficiency.

- Construction of the Games Village led to eviction of 27000 families from the flood plains of river Yamuna. They have been rehabilitated in the outskirts of Delhi and spend a lot of money in commuting to their work place.

9.1.3 Post Game Period:

- From the past experience of 1982 Games it is known that the sport venues may not be used to their full potential and will require substantial investments for their maintenance.

- The sport venues that have been upgraded will provide an opportunity for the youth and the sport persons to practice in a world class facility following international standards.

- 3 lakh construction workers may stay back in the city and will join the potential job market. They will require being sheltered; otherwise there will be more of unauthorized colonies and squatter settlements.

- The increase in the number of rooms in the hotel infrastructure will add to the tourism prospects and encourage planning of other tourism infrastructure like convention halls, etc.

9.1.4 Implications on Zone E

- The infrastructure development in zone E will lead to land use transformations and change in land use along the major transportation routes and Games village.

- Rise in land values will call for a more intensive and high density development. This will give rise to service sector and bring about a change in the skyline.

- The transformations on the Lakshminagar-Anand Vihar route and on the Shahdara–Dishad Garden route, which is also experiencing a rise in land values, may create a social divide and may push the low income group out of that place.

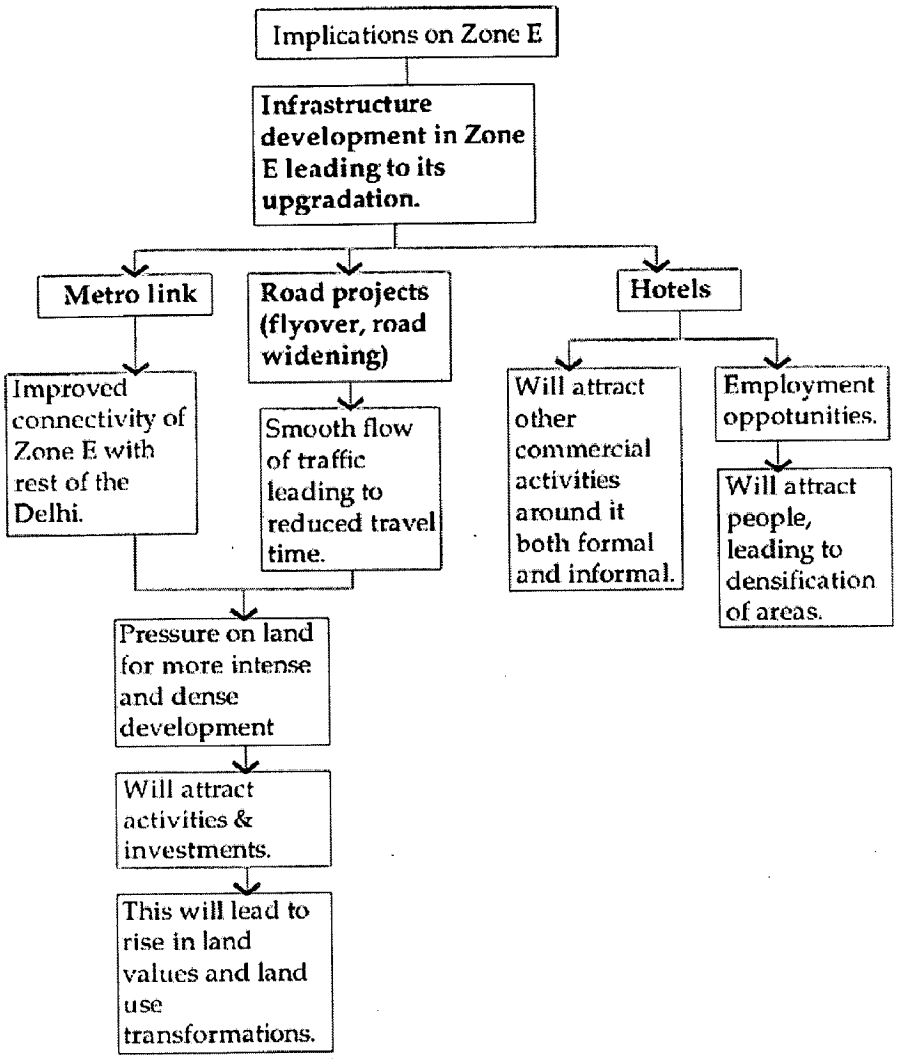
- On the contrary, these developments will also promote growth in this zone and create job opportunities, which will ultimately lead to the improvement in quality of living environment.

- The area around the Games Village will attract informal activity and people, to provide service to the high class living in this new township.

- The land in Zone O (flood plains of river Yamuna, next to the metro line (Akshardham-Mayur Vihar-Noida route) will face a lot of pressure for development due to its proximity to the Akshardham Temple and the Games village and also due to the metro line.

The implications on Zone E have been schematically shown in the following figure:

Figure 3.1: Implication of infrastructure development in Zone E



9.2. Strategies

9.2.1 Strategies (in general)

- As soon as the Games are over, the areas that were given lower or no priority should be given higher priority for development.
- No further building activity should be permitted in the flood plains of Yamuna.
- Along with rehabilitation, the members of the families should be given skill training for improved job prospects; otherwise it will lead to increase in unemployment thereby threatening the social fabric and law and order situation.

- The DDA holds a 50% share in the housing created in the Commonwealth Games Village. The remaining share lies with Emaar MGF which has already begun the sale of the luxurious flats. Keeping this in mind it can be proposed that the flats under DDA may be auctioned or sold at the maximum price available and the money earned from the same can be transferred to the Slum Wing operational under the DDA for the construction of houses for displaced slum-dwellers, based on a workable housing strategy.
- More sport events should be encouraged and organised in the city to keep the venues in regular use which will help in their maintenance and encourage participation of youth in sport activities.
- The ownership of the stadiums and sports complexes can be under a PPP model (Public Private Partnership) implying that government and private enterprises will share the risk of operating the stadium for more efficient management, use and maintenance of the venue and to provide accessibility to all sections of society, from the poor to the rich.
- In addition to hotels, tourist infrastructure like, theme parks, convention centres, etc, should be planned and developed. These will be available to the citizens of the city, in addition to the tourists.
- There is a need for integration of multi model transportation system available in Delhi so that the personalized vehicular traffic and delay on the roads are reduced on a long term basis. As a short term strategy, inter agency coordination in availing mass transport facility like, rail, bus, metro, etc, for route scheduling, time table, etc could be formulated.
- Construction workers are the backbone of all projects and once the games are over, they should not be forgotten. A rehabilitation strategy should be formulated by the government in consultation with the stakeholders, so that the future of the workers in terms of job, shelter, education, etc, is attended.
- Institutional strengthening for improved facilities for all type of sports and funding strategy is required to be formulated.
- Development along the metro corridor and station air space should be planned and taken up as a priority.

9.2.2 Strategies (specific for Zone E)

- A re-densification strategy needs to be adopted, especially where the land values are high. This will also help in making land available for the provision of amenities.
- Different strategy of development needs to be formulated for the areas along the metro route based on the specific local conditions.
- Area around the Games Village will attract informal activities, therefore, there is a need to accommodate this in the planning of the area in the beginning itself to avoid any chaos. The informal activity can be permitted in a limited manner at vantage points.
- The Games village will also attract people who will provide service to the people living in the township, therefore certain area needs to be earmarked for this population.

➢ **Infrastructure / Facility Augmentation**

- Provision of health facilities & Community halls as they are already lacking.
- Provision for Improvement of services like Water facilities electricity supply, sanitation etc to serve the densification occurring which will lead to increase in population and hence pressure and stress on these facilities.
- Road widening required in the areas where Mixed land Use have taken to exist. Commercial activates lead to chaos in the area. Road networks like Patparganj and Vikas Marg are to be upgraded for better movement of traffic in future.

Relaxation In Norms / Standards

- Increase in FAR norms from 150 to say 250 for plotted development to cater to needs of densification existing and expected to increase in future.
- Strict enforcement of bye laws and development controls needs to be implemented.
- Permissibility of Guest houses in addition to PG accommodation, hostel etc. in residential zone.
- Mixed Use to be allowed along the Patparganj road and some collector roads linked to it as the trend is already in practice.
- There is a need to set a norm for the establishment of commercial activities.

Redevelopment Scheme

It is to be prepared & implemented before the Games

- Revision of zonal plan guidelines for the area considering existing situation.
- Participation of residents of the area in preparation of redevelopment scheme.
- Amalgamation, subdivision and reconstitution of the plots in the scheme.
- Sufficient parking facilities to be provided as per the scheme.
- Open spaces are to be provided in area as per minimum standards to ensure breathing / lung space atleast.
- Social & Physical Infrastructure facilities to be improved.
- Strict enforcement of byelaws and development controls to be implemented after redevelopment.
- Hostels & Guest Houses to be provided in area for usage of students later.

Environment

- After development of Games Village, the area needs to be protected from the catalyst reaction of further developments by enforcing strict regulations as per guidelines.
- River Yamuna treatment measures to be taken up for atleast giving a better view to residents of CWG village site as promised in the bid document, so should be taken as an opportunity for cleaning the river.
- Great care to be taken as it is situated on an ecologically fragile area.
- Ground water recharge pond, plantations & recreational areas should be developed simultaneously for a balanced development.
- Proper solid & liquid waste management practices must be ensured & in no case the waste shall be permitted to be discharged on the riverbed.
- No modification of topography (except minor leveling using soil from the riverbed itself) should be permitted.
- The riverbed slope towards the water channel should be maintained.

9.2.3 Strategies for hosting mega events

- The development for the games should be an integrated development which can benefit the entire city.
- The planning for such a mega event should be able to achieve much more than just successfully hosting the event, for example, such events can be used to rejuvenate and redevelop the blighted areas, etc
- There should be advance planning for the event to ensure minimum dislocation and discomfort to citizens at large
- For the success of the events, all the decisions and strategies should be formulated in consultation with all the stakeholders like, the organizers, local government, various agencies, citizens, etc.

9.3. Conclusion

Hosting of a mega event is a matter of prestige for the host city and a lot of investment is made in a short period to for the success of the event. Though the focus is primarily on delivering a successful event, but the interest of the citizens and the city at large should not be forgotten. These events give an opportunity to integrate the city development with the infrastructure development for the event, keeping in mind the general objectives (economic, social, cultural, civil, national, international) which are beneficial for the country as a whole during the Games and thereafter.

REFERENCES

1. http://en.wikipedia.org/wiki/Commonwealth_Games, accessed in March 2010
2. Chalkley and Essex, *Urban Development through hosting international events: a History of the Olympic Games,* Planning perspectives 14 (1998)
3. Hamnett, Chris, *Gentrifiers or lemmings? A response to Neil Smith*, Transactions of the Institute of British Geographers, 1992
4. Matthewman Richard, Kamel Karima and Bearne Mandy, *Economic impact of Olympic games*, 2009
5. http://cwg2010cwc.org/cwGames.php, accessed in April 2010
6. Cashman Richard, *Impact of the Games on Olympic host cities,* University of New South Wales, Australia, 2002
7. Owen, Kristy Ann, *The local impacts of the Sydney 2000 Olympic Games,* 2001
8. Uppal Vinayak, *The Impact of the Commonwealth Games 2010 on Urban Development of Delhi,* NIUA, 2006
9. *http://olympicstudies.uab.es/pdf/wp030_eng.pdf,* accessed in March *2010*
10. www.businessday.co.za/articles/topstories.aspx, accessed in March 2010
11. *http://www.sportdevelopment.org.uk/manimpactcpc.pdf,* accessed in March 2010
12. *http://www.sportdevelopment.org.uk/manimpactcpc.pdf, accessed in March 2010*
13. Mohan N Chandra, *Sprucing up for the Games,* 2008
14. Delhi Master Plan 2000 & 2021, Delhi Development Authority
15. http://www.commonwealth2010.in/2010-commonwealth-games.htm, accessed in February 2010
16. http://www.thecommonwealthgames.org/delhi-2010/, accessed in February 2010
17. Ch-06, Urban Poor and Slum, *CDP of Delhi (2005)*, JNNURM
18. www.cwgdelhi**2010**.org, accessed in February 2010
19. www.dda.org, accessed in March 2010
20. *Progress report, Commonwealth Games 2010*, Ministry of youth affairs and sports
21. http://www.financialexpress.com/news/Delhi-Metro-has-26-increase-in-ridership/258329/, accessed in April 2010

22. http://delhi.gov.in/wps/wcm/connect/doit_udd/Urban+Development/Our+Services/Common+Wealth+Games+Cell+%28CWG%29/, accessed in April 2010
23. Bid Report for Commonwealth games 2010
24. Zonal plan of Zone E, 2001 & 2021, Delhi Development Authority
25. "Housing Skyline of India 2007-08", a study by research firm, Indicus Analytics.
26. Ministry of sports , Official Report IX Asian Games, Vol I,II,III, New Delhi, 1986
27. Census of India, Population & Migration Tables, 1971, 1981, 1991
28. An introduction to the sociology of sports mega-events , John Horne and Wolfram Manzenreiter
29. Barcelona: Urban Transformation and 92' Olympic Games, Brunet Ferran.
30. Spatial planning challenges in Barcelona, Spain ,Tanjil Sowgat Lecturer, Khulna University, Khulna, Bangladesh , Shilpi Roy Postgraduate Student ,Oxford Brookes University, Oxford, UK
31. Barcelona Metropolitan Economic Strategy , Gundy Cahyadi and Scott Ten Brink Global Urban Development Prague, Czech Republic
32. Environment Management Plan for Rejuvenation of River Yamuna In NCT, Oct. 2005, National Environment Engineering Research Institute.
33. Premi, Mahendra, Migration to cities in India, Term paper, Centre for the study of Regional Development, JNU, New Delhi, 1988
34. Dr. Sharma, B.K, An Overview of Migrated Labour in Delhi, Term Paper, Yozana, Delhi, 1994
35. Bhatt, Mari, Population Study of Delhi, Term Paper, Population Research Centre, Institute of Economic Growth, D. University, New Delhi, 1998

ANNEXURES

SECONDARY SURVEY

DELHI DEVELOPMENT AUTHORITY

1. How do you take the commonwealth games as an opportunity for the development of the city?
2. What is the procedure followed for development of any site, from site selection to public notice to final permission? How is change of landuse incorporated in this procedure?
3. What are the other options that were considered before selecting the games village site? (Other options : DU Hostels, Safdarjung Flying Club)

LAND USE

4. What are the criteria for choosing the Commonwealth Games Village site? Elaborate in terms of location, land use, connectivity etc.
5. What impacts do you envisage due to Games Village site on land use, environment, growth rate and other development?
6. Is there any housing provisions planned for accommodating the tourists and other supporting population? Is yes, elaborate?

FACILITY OPTIMIZATION

7. What procedure was followed to decide to give away the Games Village to DU Hostel? Elaborate
8. How would any other Games, maybe Olympics 2016, planned to be accommodated in the developments for 2010?

ENVIRONMENT

9. What steps have been taken to select the site on the Yamuna river bed?
10. What precautions have been taken to prevent the site from floods?

MINISTRY OF LABOUR & EMPLOYMENT

1. How many labourers come to Delhi every year on short & long term basis?
2. What is the % break up of the states where they come from?
3. What is the estimate of labour required for various construction activity? (give a list)
4. Are there any housing provisions for these people or they just squat anywhere? If yes, elaborate.

MINISTRY OF TOURISM

1. What are the projections done for tourists coming to Delhi from other states and countries for these Games?
2. What are the ratio of spectators from other states/countries to the domestic ones for Afro Asian Games/Asiad,1982?

MINISTRY OF ENVIRONMENT & FORESTS/ENVIRONMENTALISTS

1. What are the criteria or guidelines for Environmental Impact Assessment? (Elaborate)
2. What is the procedure followed for EIA?
3. What impact do you think are likely to be there on environment due to Games Village site, as the site is on Yamuna bed? (pollution, floods etc)
4. What is the procedure followed for permitting any development on the river bed? Elaborate.
5. Does the building of bund solve the problem of flooding?

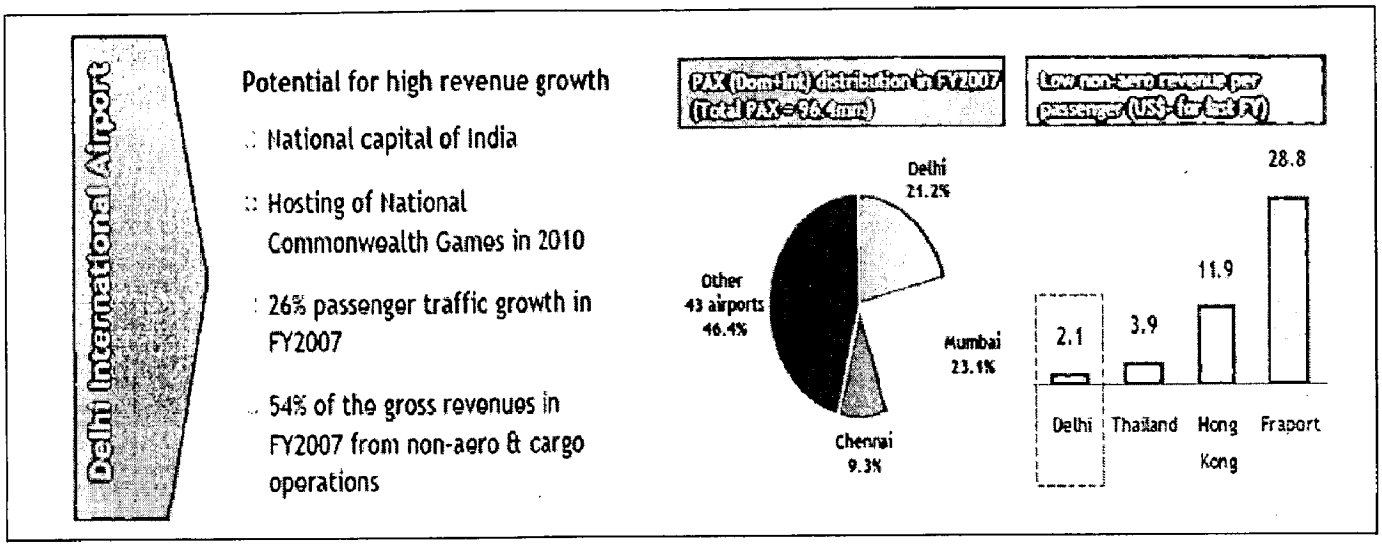
DEMOGRAPHERS

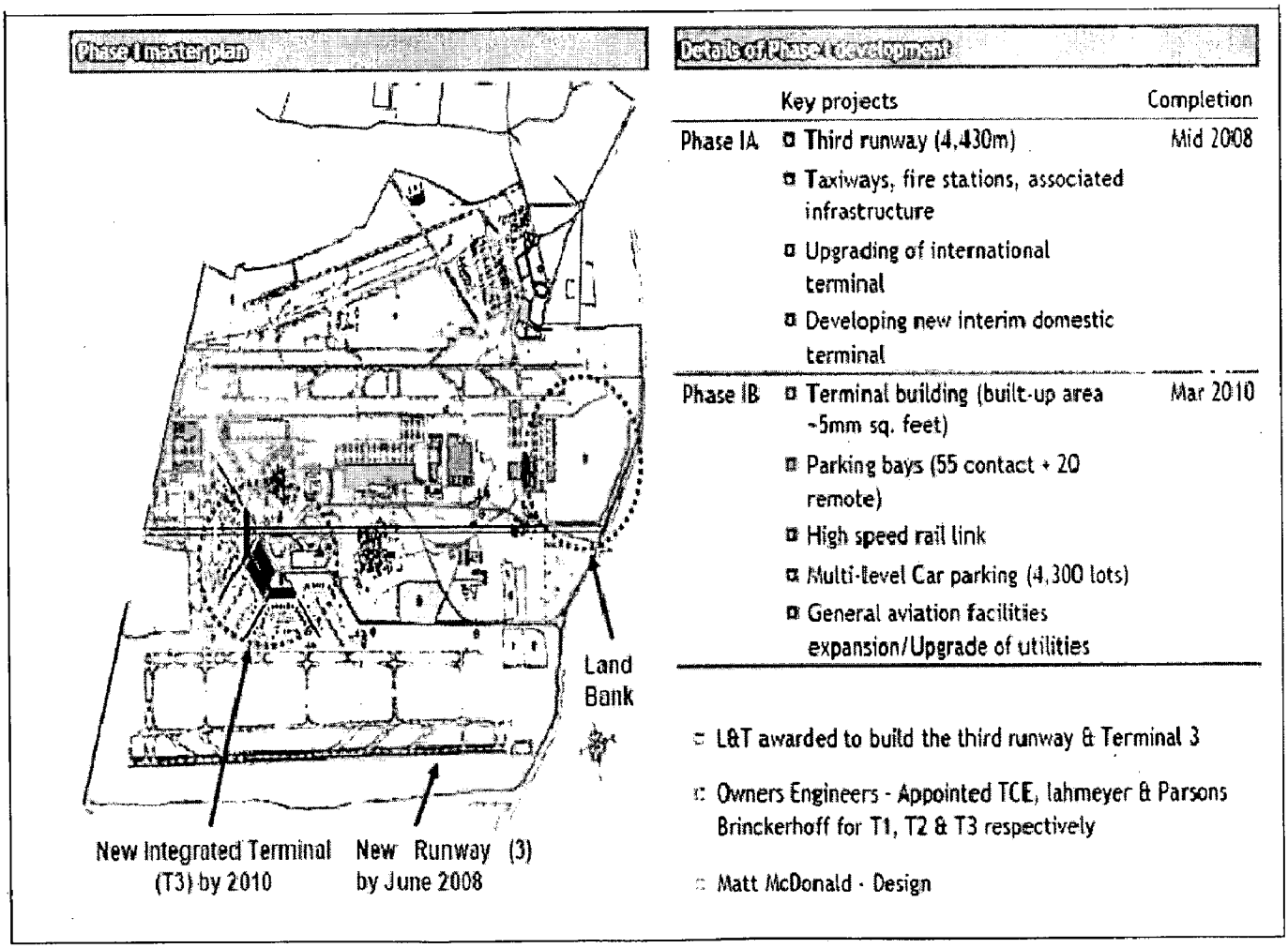
1. What are the population and migration pattern envisaged for the year 2011?
2. How far can the impending Games change the projected figures due to increased inflow of people, incase there would be any?
3. How far did projections and the actual figures of population differ due to ASIAD 1982?
4. What are the basic techniques used for population projections and what all components does it take care of?

MINISTRY OF URBAN DEVELOPMENT

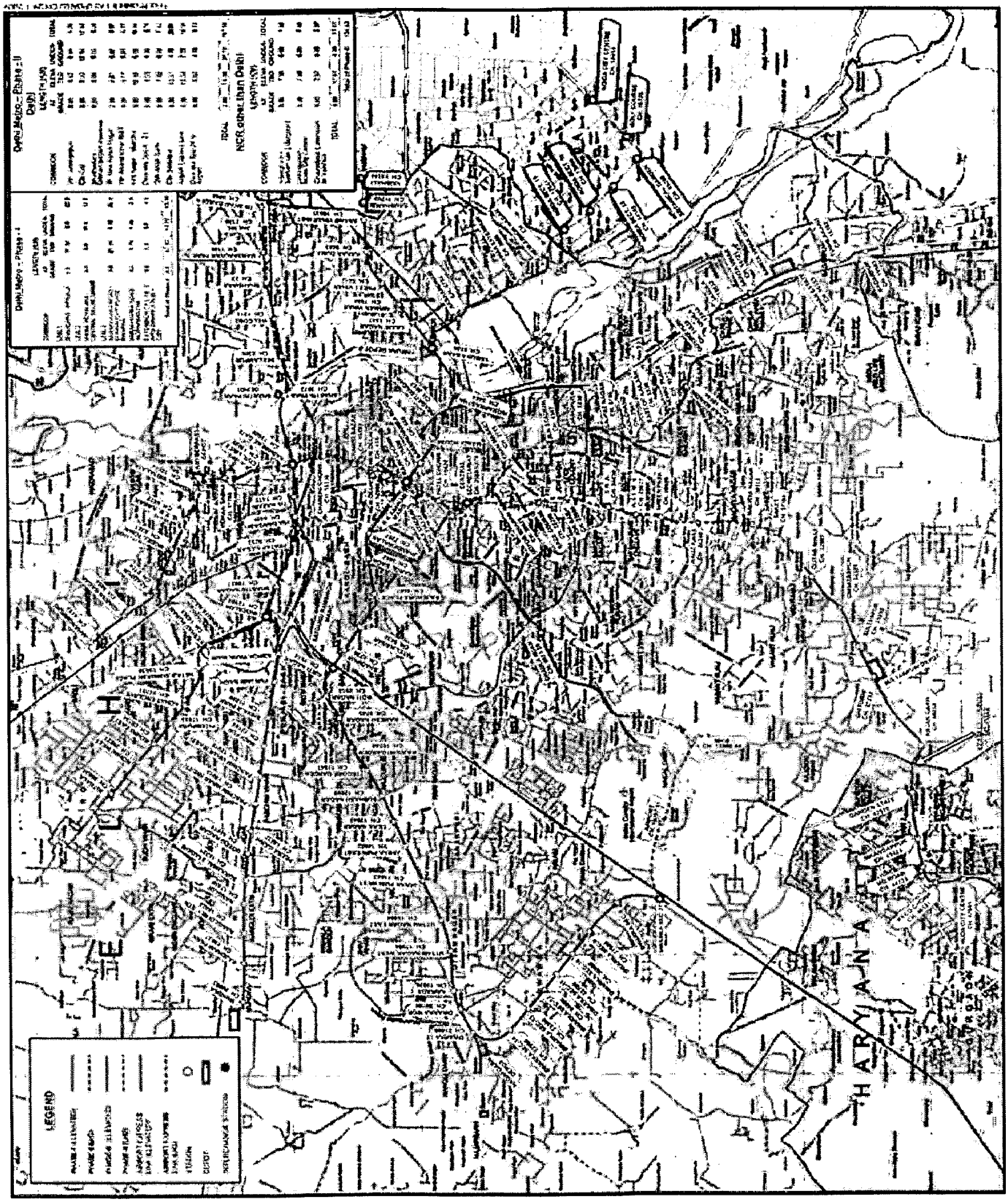
1. How do you take the Commonwealth Games as an opportunity for the development of the city?
2. How do you plan to address the problem of high population inflow for short term in the city in terms of housing, transportation and other basic civic amenities? Elaborate
3. What are the overall development (construction/upgradation) envisaged for the event? Give details.
4. What were the criterias for site selection? By what procedure was change in land use incorporated?
5. How would these development help in hosting the Olympic games, 2016?

ANNEXURE I: MASTER PLAN OF DELHI AIRPORT





ANNEXURE II: METRO ROUTE IN DELHI



ANNEXURE III: DETAILS OF PROJECTS SANCTIONED FOR COMMONWEALTH GAMES

SECTOR	ITEMS	RS. CR
TRANSPORT	200 A/C Buses	80
	800 Deluxe Buses	160
	100 A/C Minibuses	20
	1000 Quality Ratio Taxis ISBTs Signage	10
	Metro Phase II	8000
PUBLIC WORKS	Nizamuddin – Lodhi Road Tunnel	135
	Masodpur – Mahipalpur Byepass	30
	37.8 Km Road Widening	81
	192.2 Km Road Beautification	68
	24 New Flyovers	1900
ROAD & RAIL INFRASTRUCTURE	Railway Modernization	3600
	Airport Modernization Connectivity	
	Ring Road to Expressway 270 Km 3rd Ring Road	
	Special Lane for Athletes	
	2 Bridges across Yamuna	464
	Metro to NOIDA Airport	
	7 HCBS Corridors	160
	Bus Shelters Multi – Level Parking	
	Improved Street Lighting	
	Electronic Trolley Bus	
NEW STADIA	Wrestling	
	Martial Arts	
	Rugby	
MUNICIPALITY	Vivek Vihar Underbridge	40
	Jawaharlal Nehru Marg	5
	Mahatma Gandhi Road	6
HEALTH & FAMILY WELFARE	12 Health Post	1
	Games Village Polyclinic	15

	Ambulance Service	5
	Equipment for Hospitals	20
	Disaster Preparedness	5
LHI JAL BOARD	Games Village Water Supply	17
	Games Village STP	24
POWER	350 MW Pragati II	1300
	Land for Uttam Nagar Grid Station	2
	1000 MW Bawana (Pvt.)	3560
HOUSING	40000 Low Income Units	
HOTELS	19 New 5 Star & Budget Hote	
	10000 more 5 Star Rooms	
	5000 more Budget Rooms	
UPGRADED STADIA	National Stadium	1700
	Ramjas College	
	Yamuna Complex (A)	
	SRCC Ground	
	Siri Fort Auditorium (A)	
	JLN Complex (A)	
	Dhyanchand Stadium	
	SPM Aquatic Complex	
	IG Sports Complex (A)	
	Karni Singh Range	
	Thyagaraja Complex	
	Talkatora Indoor (A)	
	St. Stephen's Grounds	
	Hindu College Ground	
	Daulat Ram Ground	
		RS. 21907 CR