CHAPTER - IV

CITY MASTER PLAN AND ITS SUITABILITY FOR SUSTAINABLE URBAN DEVELOPMENT

4.1 INTRODUCTION

A city master plan is a general plan of the future layout of a city which shows the existing and proposed roads, open spaces, public buildings, and other important land uses. A master plan is prepared either for improvement of an old city or for a new town to be developed in a systematic way. A city master plan is an ideal plan showing the full development of the town at some future date. It is not a fixed plan, but it is possible to amend it from time to time to keep it in pace with and to accommodate the new developments of any revised estimate of the future growth and requirements of the city.

A Master plan is the fundamental tool in city planning because it provides a systematic, proper and broad frame work for future development of the city. It is a legal document containing the planning policies, principles as well as definite land use form for spatial development. It is thus a written document along with land use plan prepared under the act of the Government.

A Master plan is a blueprint for development. It builds upon the uniqueness of the community and it casts grand visions for the future. In India, the idea of preparation of master plan is understood to have been flourished after 1915. When the Bombay Town Planning act was passed and was soon followed by the Madras Town Planning act in 1920. The first comprehensive act requiring the preparation of master plans and authorizing its enforcement is the Bombay Town and Country Planning act, 1954 which actually, came into force in 1957. This act required the preparation of master plans by the concerned local bodies within a specific period. It thus started a new way of thinking for systematic planning. It is understood that about 200 master plans have been either prepared or they are under the process of preparation in India.

ENACTMENTS OF URBAN PLANNING ACTS IN INDIA AND KARNATAKA IN PARTICULAR

The Mysore City Plans have been accomplished under the following stages:
1. The Mysore City Improvement Trust Board Act was enacted in 1903 which was first of its kind in the country. Mysore city which was growing under the royal patronage had the visions of a planned city growth in accordance with the important royal cities of the world. But with the political uncertainty and unrest, during the time of independence, the vision of model town and planned city could not be easily implemented by the then ruling Maharaja Regime. However it was only after the independence that urban planning became a policy issue. With greater social, economic and political stability the realization of the planned city became an important concept in public policy. Subsequent to 1960s urban planning became an integral part of the Indian five year plans. The first important urban policy in the third five year plan was the Town and Country Planning Act 1965 which was enacted to provide regulation for planned growth of land use development, and for the making and execution of Town Planning schemes and providing empowerment to the state governments and the local planning regions to their respective urban areas. Hence forth the town planning process became an obligation to the state government.

2. The Karnataka state government declared the Mysore Local Planning Area on 30.04.1966., in accordance with section 4(A) of the act for an area of 233 square kilometers, comprising of Mysore city Municipal area, 13 villages of Srirangapatna Taluk and 43 villages of Mysore Taluk.

3. The Mysore City Planning Authority was constituted under section 4(C) of the act to prepare the Outline Development Plan (ODP) for Mysore city. The planning authority prepared the first Outline Development Plan for Mysore city which was finally approved by the State Government in its order no. HMA 20 MNP 69 dated 08.06.1972. The ODP was later renamed Comprehensive Development Plan (CDP). The CDP is a master plan which is updated concurrently every 10 years.

4. The state government under the provisions of the Karnataka Town and Country Planning Act 1961, constituted a city planning authority for preparation of development plans for the Mysore local planning area. The planning authority for this local planning area prepared a CDP plan for Mysore city local planning area and the same was approved by government (final) in 1981. The local planning
area was subsequently extended during 1983 to include Nanjangud and Environs, and the total extent of the combined local planning area was 495.32 Sq.kms.

5. The Mysore Urban Development Authority was constituted under the provisions of the Karnataka Urban Development Act (KUDA) 1987 on 16-05.1988 and the Urban Development Authority took up the planning functions as provided under sec (69) of the act. A separate planning wing headed by the town planner member of the authority came into being and the urban development authority started functioning as the planning authority for the Mysore Nanjangud Planning Area.

6. Revision of Master Plan (Revision-I) was taken up by MUDA and the master plan was finally approved by govt. vide govt. order no. HUD/337/TTP96. Dated 16-05-1997, for the plan period up to 2011 AD as per Sec.13 (D) of KTCP act 1961, revision of master plan was supposed to have been taken before 2007. The revision of the master plan (revision -II) includes a total area of 509 Sq.km including the recently added villages to the local planning area.

1. Organizational Reforms:

a) Municipality: Firstly planning and execution was a part of municipality but on account of rapidity in urban growth there was a need to make an independent organization to cater to the urban planning activities. Apart from the mandatory activities related to city management and tax collection the municipality was also undertaking the urban management and planning issues. But with the increase in the urban problems and management issues there was a need for making an independent organization to cater to the needs of a growing urban area. The Mysore City Corporation was governed by the Karnataka Municipal Corporations Act 1976. It was converted as Mysore City Corporation on 10-06-1977. The area of Mysore City Corporation is 128.42 Sq.km.

Mysore Urban Development Authority: The growth and expansion of the city is managed by the Mysore Urban Development Authority (MUDA), which is headed by a commissioner. Mysore can boast of having the first City Improvement Trust Board (CITB), in the Country, set up in 1903. On account of this Act the City has better planned extensions and housing. Under the Town and Country Planning Act 1961 - regulation and
planned growth of land use and development of Town Planning Schemes commenced from 1966.

2. Planning Reforms:

The Mysore City Planning Authority was constituted under section 4(C) of the act to prepare the Outline Development Plan (ODP) for Mysore city. The planning authority prepared the first Outline Development Plan for Mysore city which was finally approved by the State Government in its order no. HMA 20 MNP 69 dated 08.06.1972. The ODP was later renamed Comprehensive Development Plan (CDP). The CDP is a master plan which is updated concurrently every 10 years.

4.2 FACTORS INFLUENCING URBAN LAND USE PLANNING

Geography plays a critical role in development of any built environment. Urban planners must rely on knowledge of geographic space when deciding how best to manage growth. As the cities grow and more rural land is developed, there are many practical environmental problems which also grow, necessitating the need for management. The master plan of any urban region has the potential for guiding growth. Any successful master plan must give importance to the following question:

1. Accessibility and Good Transport network: Transportation is a key concern in many urban areas and presents a unique problem to the urban population. Therefore the Master Plan needs to address the problem of increasing or decreasing traffic, traffic patterns, parking areas and alternative methods of transportation, such as buses, trolleys or trains.

   Businesses, manufacturing and residential activities all require specific geographic locations and accessibility is the key factor for all these factors.

   a) Commercial and businesses are more suitable in the central business district area.
   b) Manufacturing centers are mostly in the urban fringe.
   c) Residential land use is guided by socio economic characteristics of the population.

2. Good infrastructure including sewer, potable drinking water and electricity supply: Good infrastructure is mostly dependent upon governmental financial
investments accompanied with plain terrain which play a vital role in the lying down of the good infrastructural facilities. These basic necessities are the primary amenities which promote not only good urban sustenance but also generate growth and development in any urban area. Therefore provision of good infrastructure must form the basic ingredient in urban policies.

3. Special privileges for the development of urban poor: When policies are enacted for urban planning and land use development, special attention must be given to lower-income housing projects. Mixed housing must be recommended among various income levels which can provide increased educational opportunities for lower income families also.

4. Economic Development: The master plan must contain potentials for stimulating sustainable measures of economic development and boosting the concept of welfare state. The master plan must concentrate on the economics of an urban area because it plays a dominant role in the overall development of the city and it must give opportunity for economic efficiency.

5. Recreational space/parks: The urban policy must also give prominence to open spaces. Cities are overcrowded with people and services they normally lack natural landscape and natural environment. Therefore urban policy must prohibit some areas for development as a means of conserving green space or access to water.

6. Urban renewal: urban policy must give importance to the redevelopment and renewal of the old and dilapidated areas for revitalization of the urban region. These renewal projects may be related to the road widening, reconstruction of the old inner areas, etc. This will help in preventing the rapid decay of the urban conditions. When these areas get developed the land value increases, and it immediately affects the land use, this will also help in warding off anti social activities.

7. Zoning and land use pattern: To facilitate the implementation of a master plan, zoning ordinances and special regulations are imposed on real-estate developers. There are two essential parts to a zoning ordinance:

   a) Detailed maps showing land area, boundaries and the zone under which the land is categorized.

   b) Text describing in full detail each zone's regulations.
Zoning is used to permit some types of construction and prohibit others. In some areas, residential construction may be limited to a specific type of structure.

8. **Aesthetics**: One of the important aspects of the urban land policy and master plan is to improve the aesthetics or the nature of beauty and its expression to be taken into consideration. Planning involves reduction of crowding residential areas, bottlenecks in infrastructure and upgradation of mainstream architectural style. This is evident especially in the conservation of historical parts of many towns. Cities attempt to maintain control over new construction in these areas and may regulate maintenance regulations, and protection of culture or heritage of the region, as well as aspects like natural hazards.

9. **Safety and Security**: Urban planners must consider the importance of safety in the master plan and various other plans of the city. Safety may be in accordance with the industrial location, pollution, and the general health and hygiene of the population.

10. **Suburbanization**: In an urban area due to over crowding there is a general declining satisfaction with the urban environment. This leads to continuous migration of urban population to smaller towns and rural areas. Hence successful urban planning in the master plan supports regional planning and it can bring benefits to a much larger hinterland of the city and help to reduce both congestion along transport routes and the wastage of energy implied by excessive commuting.

11. **Environmental factors**: Another most important factor of consideration in the master plan is that environmental protection and conservation in the urban area. Master plan needs to focus on smaller and larger systems of resource extraction and consumption, energy production, and waste disposal, gardening and other outdoor activities in the daily life of citizens. Hence, there is a need for regulations to sustainable urban environment.
4.3 AIMS AND OBJECTIVES

The objectives of this chapter are as follows,

1. To examine the effectiveness of the city master plans spanning from the past four decades from 1976-2001-2011.

2. To study the impact of master plan on the changing urban land values in residential and commercial areas from 1998 – 2008.

3. To examine the strengths and weaknesses of the sustainability of the city master plan and to evaluate the socio-economic and ecological vulnerability of the plan.

4.4 METHODOLOGY

Data Sources:

The present study is based on primary and secondary data. The primary data pertains to the ground truth verification survey and the different areas to check the policies of land use etc. The secondary data was collected from the MUDA (Mysore Urban Development Authority) and the City Corporation Offices related to the data on different land policies and planning reports from 1976 to 2011.

Analysis:

- Different thematic maps were prepared on the basis of primary and secondary data.

- The urban land use and land cover change was estimated by comparing master plan in different periods.

- Critical analysis of the master plan.

- Sensitivity analysis using raster Overlay was conducted by Arc GIS to analyses the urban land values.
4.5 GROWTH AND EXPANSION OF MYSORE URBAN AREA AND THE MASTER PLAN

4.5.1 OUTLINE DEVELOPMENT PLAN (ODP) – 1976

Outline Development Plan involves two planning operations. The first being redevelopment of the existing developed areas of the city for better living conditions and the second being the planning for future growth of population.
According to the ODP–1976, land use classification was based on the percentages of the total developed area within the municipal limits. The total area under municipal limits is 3692 acres. Out of this; the developed area is 2977 acres. Table no.1 shows the distribution of land use of Mysore city based on Outline Development Plan-1976.

Table No – 4.1 Spatial Distribution Existing Land use in 1976

<table>
<thead>
<tr>
<th>Land use</th>
<th>Area in acres ODP area</th>
<th>% of ODP area</th>
<th>Area in acres Municipality</th>
<th>% of total municipal area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>1194.85</td>
<td>32.36</td>
<td>939.5</td>
<td>31.55</td>
</tr>
<tr>
<td>(Palace)</td>
<td>31.9</td>
<td>0.86</td>
<td>33</td>
<td>1.1</td>
</tr>
<tr>
<td>Unclassified</td>
<td>0.8</td>
<td>0.02</td>
<td>0.8</td>
<td>0.02</td>
</tr>
<tr>
<td>Commercial</td>
<td>95.54</td>
<td>2.59</td>
<td>84.69</td>
<td>2.84</td>
</tr>
<tr>
<td>Industrial</td>
<td>308.5</td>
<td>8.36</td>
<td>158.55</td>
<td>5.32</td>
</tr>
<tr>
<td>Public and semi public</td>
<td>602.96</td>
<td>16.33</td>
<td>471.69</td>
<td>15.85</td>
</tr>
<tr>
<td>Parks and Open Spaces</td>
<td>578.36</td>
<td>15.67</td>
<td>499.33</td>
<td>16.77</td>
</tr>
<tr>
<td>Transportation</td>
<td>714.5</td>
<td>19.35</td>
<td>628.62</td>
<td>21.12</td>
</tr>
<tr>
<td>Public utility</td>
<td>13.34</td>
<td>0.36</td>
<td>10.54</td>
<td>0.35</td>
</tr>
<tr>
<td>Water Sheet</td>
<td>98.61</td>
<td>2.67</td>
<td>98.6</td>
<td>3.31</td>
</tr>
<tr>
<td>Agriculture</td>
<td>52.64</td>
<td>1.43</td>
<td>52.62</td>
<td>1.77</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3692</strong></td>
<td><strong>100</strong></td>
<td><strong>2977.94</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Mysore Urban Development Authority
4.5.2 COMPREHENSIVE DEVELOPMENT PLAN (CDP) – 2001

Comprehensive Development Plan (CDP) involves two planning operations. The first being redevelopment of the existing developed areas of the city for better living conditions and the second being the planning for future growth of population in a comprehensive manner.
Table No – 4.2 Spatial Distribution of Existing Land use in 2001

<table>
<thead>
<tr>
<th>Land use</th>
<th>Area in Hectares</th>
<th>% Area 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>2849.91</td>
<td>39.90</td>
</tr>
<tr>
<td>Commercial</td>
<td>215.95</td>
<td>3.02</td>
</tr>
<tr>
<td>Industrial</td>
<td>962.61</td>
<td>13.48</td>
</tr>
<tr>
<td>Park and open space</td>
<td>981.70</td>
<td>13.74</td>
</tr>
<tr>
<td>Public and semi-public</td>
<td>639.69</td>
<td>8.96</td>
</tr>
<tr>
<td>Transportation</td>
<td>1150.27</td>
<td>16.1</td>
</tr>
<tr>
<td>Public utility</td>
<td>36.48</td>
<td>0.51</td>
</tr>
<tr>
<td>Water sheet</td>
<td>143.99</td>
<td>2.02</td>
</tr>
<tr>
<td>Agricultural</td>
<td>162.33</td>
<td>2.27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7142.93</strong></td>
<td><strong>100.00</strong></td>
</tr>
<tr>
<td>Nehru Loka</td>
<td>2078.14</td>
<td></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>9221.07</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Mysore Urban Development Authority
The major changes observed between these two periods (1976 and 2001)

1. **Increase of built up area**: In these two periods built up area has rapidly increased at a rate of 2949.05 hectares % in 1976 to 5818.43 in 2001 respectively. The kind of rapid development in the built up area is mainly due to the high concentration of IT industries in the study area and expansion of commercial as well as drastic increase in the transpiration.

2. **Decrease of Nehru Loka**: The area under Nehru Loka was decreased from 3209 acres (15.60%) in 1976 to 2078.14 acres in 2001 in the city. This is mainly happened due to encroachment of the local people in that area.

3. **Decrease area under park and open space**: The area under parks and open space decreased at a rate of 578.36 acres (15.67%) to 981.7 acres (13.74%) in 2001 respectively. This happened in the study area mainly due to liberalization policy of government of Karnataka.
4.5.3 COMPREHENSIVE DEVELOPMENT PLAN (CDP) – 2011

The land use pattern in the Mysore urban area can be broadly classified into nine categories, such as residential, commercial, industrial, public and semi public, park and open space, transportation, public utility, agriculture, water sheet etc. the land use map (Fig.No.4.3) shows that the spatial distribution of proposed land use/land cover of Mysore urban area.

Table No – 4.3 Spatial Distribution of Proposed Land use in 2011

<table>
<thead>
<tr>
<th>Land use</th>
<th>Area in Hectares</th>
<th>% Area 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>6097.87</td>
<td>43.45</td>
</tr>
<tr>
<td>Commercial</td>
<td>344.07</td>
<td>2.45</td>
</tr>
<tr>
<td>Industrial</td>
<td>1855.05</td>
<td>13.22</td>
</tr>
<tr>
<td>Public and semi-public</td>
<td>1180.78</td>
<td>8.41</td>
</tr>
<tr>
<td>Parks &amp; Open spaces + Nehru Loka</td>
<td>1055.05</td>
<td>7.52</td>
</tr>
<tr>
<td></td>
<td>1634.82</td>
<td>-</td>
</tr>
<tr>
<td>Traffic and Transportation</td>
<td>2380.56</td>
<td>16.96</td>
</tr>
<tr>
<td>Public utilities</td>
<td>43.35</td>
<td>0.31</td>
</tr>
<tr>
<td>Water sheet</td>
<td>178.95</td>
<td>1.27</td>
</tr>
<tr>
<td>Total</td>
<td>15669.49</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Mysore Urban Development Authority
Table No – 4.4 Land use Change in Mysore City from 1976 to 2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>1227.55</td>
<td>33.24</td>
<td>2849.91</td>
<td>39.9</td>
<td>6097.87</td>
<td>43.45</td>
<td>-6.66</td>
<td>-3.55</td>
</tr>
<tr>
<td>Commercial</td>
<td>95.54</td>
<td>2.59</td>
<td>215.95</td>
<td>3.02</td>
<td>344.07</td>
<td>2.45</td>
<td>-0.43</td>
<td>0.57</td>
</tr>
<tr>
<td>Industrial</td>
<td>308.5</td>
<td>8.36</td>
<td>962.61</td>
<td>13.48</td>
<td>1855.05</td>
<td>13.22</td>
<td>-5.12</td>
<td>0.26</td>
</tr>
<tr>
<td>Parks and Open Spaces</td>
<td>578.36</td>
<td>15.67</td>
<td>981.7</td>
<td>13.74</td>
<td>1180.78</td>
<td>7.52</td>
<td>1.93</td>
<td>6.22</td>
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<tr>
<td>Public and semi public</td>
<td>602.96</td>
<td>16.33</td>
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<td>1055.05</td>
<td>8.41</td>
<td>7.37</td>
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<tr>
<td>Transportation</td>
<td>714.5</td>
<td>19.35</td>
<td>1150.27</td>
<td>16.1</td>
<td>2380.56</td>
<td>16.96</td>
<td>3.25</td>
<td>-95.9</td>
</tr>
<tr>
<td>Public utility</td>
<td>13.34</td>
<td>0.36</td>
<td>36.48</td>
<td>0.51</td>
<td>43.35</td>
<td>0.31</td>
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<td>0.2</td>
</tr>
<tr>
<td>Water Sheet</td>
<td>98.61</td>
<td>2.67</td>
<td>143.99</td>
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<td>178.95</td>
<td>1.27</td>
<td>0.65</td>
<td>0.75</td>
</tr>
<tr>
<td>Agriculture</td>
<td>52.64</td>
<td>1.43</td>
<td>162.33</td>
<td>2.27</td>
<td>898.99</td>
<td>6.41</td>
<td>-0.84</td>
<td>-4.14</td>
</tr>
<tr>
<td>Total</td>
<td>3692</td>
<td>100</td>
<td>7142.93</td>
<td>100</td>
<td>14034.7</td>
<td>100</td>
<td>26.4</td>
<td>-95.04</td>
</tr>
</tbody>
</table>

Source: Computed by Author based on Land use data in Mysore city
4.5.4 CITY MASTER PLAN-2031

The state government has approved the Mysore City Master Plan 2031 to the Mysore Urban Development Authority (MUDA) to issue a notification on the Mysore Master Plan 2031 and place the draft plan before the public for their suggestions and objections, if any, before the submission of a final draft of the plan for its approval. The master plan envisages new proposals for new roads, housing policy and traffic management. As on today the city population is 13 lakh and is expected to reach 23 lakh by 2031, The infrastructure development would be given priority according to the needs of increased population as well as traffic movements. According to the 2031 plan, the local planning area will go up from 495 sq km to 509 sq km with the inclusion of 117 villages. It is also proposed that the local planning area would cover three taluks and the areas under the Mysore City Corporation (MCC). Including those in Mysore and Nanjangud taluks in Mysore district and Srirangapatna taluk in Mandya district. The previous master plan was approved in 1997 and it was in force until 2011. Master Plan 2031 focuses on the city's development for the next 20 years that means it is planned until 2050.

4.6 DEVELOPMENT AND EXPANSION OF MYSORE URBAN LAND USE FROM 1976 TO 2011

1) **Residential land use:** Residential area forms the most prominent of all other land uses. In Mysore urban area, the area under residential is about 1227.55 acres in 1976 2849.91 acres in 2001 and 6097.87 acres in 2011 under residential. Due to increased population and the economic development associated with the liberalization policy there is a tremendous growth in residential areas. The facility of developing the land is extended even to private land developers for the creation of sites by converting the land in the peripheral areas.

**STAGES OF RESIDENTIAL GROWTH**

**Stage 1:** The residential growth until 1976 was stagnant in Mysore urban area. This was because of less influence of developmental policies in the city. The population density was about 5821.15 persons per square kilometers.
Stage 2: The rapid growth of residential buildings in Mysore urban area can be seen in 2001 onwards. The alarming rate at which the city of Mysore is growing can be attributed to the increasing presence/ establishment of IT/ ITeS industries. The city is growing in the peripheral areas as can be seen in large scale residential/ housing layout developments in areas such as Vijayanagar, Belawadi, (along Hunsur Road) Siddalingapura (along Bangalore-Mysore Road), JP Nagar (along Nanjangud Road), Sathgalli (along Mahadevapura Road), Kurubarahalli (along Bannur Road) and Srirampura (along H.D. Kote Road) Vijayanagar and Belawadi localities along Hunsur Road on the North-Western part of Mysore is experiencing rapid growth and this trend is likely to intensify further in the coming years. The spatial expansion of Mysore is largely contiguous and relatively compact.

Stage 3: The residential growth in 2011 is skewed towards Southern Mysore i.e towards Nanjangud. Because of MUDA/ private developers have developed new layouts in the area like, Vijayanagar and J.P. Nagar. Besides, the residential layouts the private developers have lined up an array of proposals to develop malls, convention centres and golf course etc and Mandakalli airport. And another most important policy is that after launching the JNNURM (Jawaharlal Nehru National Urban Renewal Mission) project there is an enormous change in the residential growth pattern in the city.

MUDA has been involved in the planning and development of residential layouts in Mysore city. The design of the proposed ORR complies with part of the guidelines set out by National Urban Transport Policy (NUTP). The details of which have been presented below.

(a) Facilitating non-motorised traffic:

The proposed 6 lane road of 45m width provides pedestrian way of 4m width on either side of the road. Looking at the future development in and around the city along the proposed ORR demands the provision of the pedestrian way and the same has been provided for. Also, the proposed BRTS on the ORR provides for the dedicated lane for the cyclists.
(b) Integrated planning:

As brought out above MUDA is also involved in the development of residential layouts in Mysore city. Planning of the proposed ORR and also the layouts has been in accordance with the Master Plan.

(c) Proposed Bus Rapid Transit System:

Keeping in view the need for promoting efficient and affordable public transport, the proposed BRTS too is being planned on the proposed ORR. As mentioned above, the BRTS also proposes to provide a dedicated lane for the cyclists.

**Fig. No.4.4 Stages of Residential Growth**

![Fig. No. 4.4 (a)](image)

**Fig. No. 4.4 (b)**

![Fig. No. 4.4 (b)](image)

**Fig. No. 4.4 (c)**
2) **Commercial land use:** This is an important category of land use with 95.54 acres in 1976 to 215.95 acres in 2001 and 344.07 acres in 2011. Land under commercial use is comparatively high in the central parts of the city. The Lansdowne building used to be the commercial hotspot of Mysore. On the Sayyaji Rao road with several shops and establishments and Devaraja Urs road, Ashoka road are located in the centre of the city which acts as the nerve centre in the city. In this period, the residential main road was converted into commercial around the city. Some of them are Chamraja Double Road and Applow Hospital Road, Vontikoppalu Main Road, Terission college main road. It shows for the next decades there will be decrease in the commercial lands. Recently outer ring roads also play a dominant role in the development of commercial land in the study area. Because of increased population that leads to expansion of commercial areas in the city.

**STAGES OF COMMERCIAL GROWTH**

**Stage 1:** Land under commercial use until 1976 was comparatively high in the CBD (Central Business District) in the peripheral areas of the city has less concentration of commercial activities. Commercial hotspots of the city are located in the central areas such as D.Devaraja Urs road, Ashoka road, Sayyaji Rao road.

**Stage 2:** In 2001 onwards high concentration of commercial activities were located in Mysore urban area. After renewal of the D.Devaraja Urs road and other roads there is a drastic change in the commercial land. The population density was about 5852.09 persons per square kilometers. Implementation of Transport policy leads to enormous change in the commercial activities in Mysore urban area.

**Stage 3:** Mysore has emerged as a preferred center for numerous software companies. As soon as the IT wave entered the city, the work on improving city's connectivity and infrastructure began so as to further boost the sector. The doubling of railway tracks, modernization of airport, construction of highways etc. are some of the tasks already under progress. As a result, the real estate in Mysore is experiencing transformation with world class structures being built all around the city by leading realty developers. In wake of the IT and other companies setting foothold in Mysore, the need for well furnished and quality commercial property is felt. Since, Bangalore is already flooded with demand and is now unable to cope with constantly increasing pressure for more property, Mysore comes across as an ideal option. Moreover, the property in Mysore costs way less than
the one in Bengaluru making it step higher on the preference list. The availability of land at cheaper prices, the booming economy, the government support, the infrastructural development, the vast scope for growth, etc. make the 'City of Palaces' an emerging real estate hub. It is noteworthy that demand for realty in Mysore is not restricted to the commercial segment but is prevalent in housing and retail sectors as well.

**Fig. No.4.5 Stages of Commercial Growth**

3) **Industrial land use:** The industrial land use comprises 308.5 acres in 1976, 962.61 acres in 2001 and 1855.05 acres land use in 2011. Industries like, large, medium and small scale industries are concentrated in the city. During the 1980s only a few industries were present such as the Vikrant Tyres, Lac and paints and Chamundi Machine Tools.
During 1995, about 1021 ha of land (13.4 per cent) was given to the industries at the Hebbal industrial area and industrial suburbs near J.P. Nagar. Later in 2001, industrial tenure has increased to 13.48 per cent (1962.61) from 13.4 per cent in 1991 due to the establishment of major industries such as the TVS, Mafatlal and some of the major industries of information technologies were given importance by the liberalization of government policies and the expansion of the Vikrant Tyres and the BEML. In 2011, the proposed land for the major IT industries will have come into existence and the land tenure will come to 13.48 percent (1855.05ha). But at this time only information technology industries will needs few land parcels and may indeed make use of all the land. Hence information technology improved good manner than other small and medium industries in the city.

STAGES OF INDUSTRIAL GROWTH:

**Stage 1:** During 1976 only a few industries were concentrated in the city such as Vikrant Tyres, Lac and paints and Chamundi Machine Tools like that small scale industries were concentrated near J.P.Nagar, Hebbal industrial areas.etc. on that time there was a absence of large scale industries due to lack of infrastructural network in the city.

**Stage 2:** In 2001 there was a drastic improvement in the industrial sector in the city. Major industries were started along the Mysore- Bangalore road, near J.P. Nagar, and along T.Narasipura road and also some of the major information industries were also started in the Hebbal industrial area like Infosys, Wipro etc due to liberalization policy of Government of Karnataka.

**Stage 3:** There is a drastic change in the industrial development in Mysore urban area because of Mysore-Nanjangud Corridor, BMIC (Bangalore-Mysore Infrastructure Corridor), ORR (Outer Ring Road) and liberation policy of Government of Karnataka. However these policies influenced a lot in terms of development of the city.
4) **Area under Transport and Communication**: The land under transportation use in the Mysore urban area constitutes 714.5 acres in 1976, 1150.27 acres in 2001, and 2380.56 acres in 2011. In the earlier days during Maharajas period some of the roads are developed systematically, like K.R.Circle, Sayyaji Rao road, Ashoka road etc. after that roads are not planned perfectly due increased residential layouts in the city. The number of vehicles also increased because of increasing development and expansion of urban area increase in the commuter zone. Recently the transportation network rapidly increased because of JNNURM project under the urban renewal policy. But the main drawback is that conversion of agricultural land into transport use has considerably
reduced the productive agricultural lands. If this continues definitely it will effect on reduction in the agricultural land use.

**Stage 1:** In 1976 the transportation network not planned properly due to lack of systematic planning. Most of the roads belonging to the inner and central regions consist of narrow and winding streets.

**Stage 2:** 2001 onwards the roads are systematically planned due to increased population that leads to increased residential layouts in the city. These roads are mostly in the outer residential areas connecting the city. The areas such as Vijaynagar 3rd and 4th stage, Hebbal, Hunsur road, KRS Road, Bhogadi, Rajiv Nagar.

**Stage 3:** Karnataka State Road Transport Corporation (KSRTC), the implementing agency, was established in August 1961 under the provisions of the Road Transport Corporation Act 1950 with the objective of providing “adequate, efficient, economic and properly coordinated road transport services”. Three Corporations viz., BMTC, Bangalore from 15-08-1997, NWKRTC, Hubli from 01-11-1997 and NEKRTC, Gulbarga from 01-10-2000 were formed out, on a regional basis, with KSRTC doing operations covering Southern Karnataka and interstate areas.

1. National Transport Policy 2006, the Karnataka government set up the Urban Land Transport Directorate in March 2007,

2. The Karnataka State Road Transport Corporation (KSRTC) is the major inter-city and intra-city service provider in Mysore. The most important projects are;
   a) Intelligent Transport system (ITS with digital navigation route maps)
   b) Ethanol blended diesel (e-diesel and introduction of high tech city bus like VOLVO etc.)
5) **Land under Public and Semi Public uses**: The land under public and semi public uses comprises 602.96 acres in 1976, 639.69 acres in 2001 and 1055.05 acres of in 2011. It consists of educational institutions, Karnataka government officers, Central government offices, corporation, etc. Mysore has the cultural capital of the state and has many educations institutions during Maharaja period to till now. Because it’s one of the best location for education since historical times. So the most important educations institutions are Maharaja Government College, JSS aided institutions, Marimallappa's College, Mahajana College, Vidyavardhaka Institute of Technology, Vidya Vikasa, Fooriqua Dental College, GSS Institute of Technology; the Government established three first grade colleges, Maharaja Institute of Technology and Srimatha Polytechnic. Some of the educational training institutes are the Chayadevi Trust, Kaginele Trust, Mahajana
Education Trust and Amruthamai Trust. The research institutions are Central Institute of Indian Languages, CFTRI, University of Mysore, Kamataka State Open University, Central Sericulture Board, Anthropological Survey of India and Reserve Bank of India. Hence the city has high proportion of the land under public and semi public.

6) **Recreational land use:** It covers parks, play grounds, open spaces, palaces. The parks and open space includes an area of 578.36 acres in 1976, 981.7 acres in 2001 and 1180.78 acres in 2011. Mysore city is well known for garden from past so many years. Some of the important parks are freedom fighters park in front of the Shanthala Theatre, Vishwamanava Park near JSS Administrative Office, People's Park near suburban bus stand, Vivekananda Park at Vontikoppal, Shivaji Park at N.R. Mohalla, Miland Park at Ashok Road, open spaces are the Doddakere Maidan in Nazarbad, Eidgh Maidan at Bamboo Bazar and open spaces after old Jawa Factory.

It has been observed that there is a drastic decline in the parks and open space in the city because some of the open spaces were utilized for other purposes such as the private bus stand in old APMC market, parking and play ground of the Doddakere Maidan and swimming pool at the freedom fighters park near the Ursu boarding school. In a similar manner, some part of the parks is utilized for the public libraries. Recently some of the parks located in the city rejuvenated by JNNURM projects.

**STAGES OF GROWTH OF RECREATIONAL AREAS:**

**Stage1:** Mysore city was well known for garden from past so many years. Hence city had good climatic condition and attracts people from different parts of the country.

**Stage2:** In 2001 there is a drastic decline in the parks and open space in the city because some of the open spaces were utilized for other purposes such as the private bus stand in old APMC market, parking and play ground of the Doddakere Maidan and swimming pool at the freedom fighters park near the Ursu boarding school.

**Stage3:** Recreational land declined due to expansion of some roads in the city as well as other activities. In 2011 onwards in Mysore urban area some of the parks are rejuvenated by JNNURM projects.
7) **Agricultural land use:** The agricultural land use comprises 52.64 acres in 1976, 162.33 acres in 2001 and 898.99 in 2011. Only a small part of the land is left for agriculture in the city area. This is called the green belt area. The green belt also come down because of some of these lands are converted into commercial as well as other purposes due to liberalization policy of Government of Karnataka.

STAGES OF DECREASE IN AGRICULTURAL ACTIVITIES:

**Stage1:** In Mysore urban area as researcher observed that large amount of agricultural land was existed until 1976. Hence Mysore urban area had good climatic condition that plays a vital role in the environment form of the city.

**Stage2:** The agricultural land in 2001 onwards come down because some of this kind of land area converted into commercial and other purposes due to liberalization policy of Government of Karnataka.
Stage 3: In 2011 enormous reduction in the agricultural land because of construction ORR (Outer Ring Road) and this kind of land area converted into some other purposes by the big industrialists due to attraction of nearest neighbor IT hub Bangalore metropolitan city.

Fig. No.4.9 Stages of Agricultural Growth

8) Land under water bodies: The land under water bodies is about 98.61 acres in 1976, 143.99 acres in 2001 and 178.95 acres in 2011. Mysore city is considered as one of the rich heritage sites having religious, tourism and ecological importance. It has a catchment for Karanjikere, Dalvoykere, Goblikere, Uthanahallykere, Devikere, Kukkarhallikere, Hebbalkere and the Lingabudikere. It has rich bio-diversity with 450 plant species of which about 50 are medical plants, 145 species of birds and 60 species of butterflies. The Karanjikere is the habitat of a large number of migratory and resident birds in addition to
tourist destination. In order to maintain the ecological equilibrium recently some of the water bodies are planned to rejuvenate by JNNURM project.

9) **Nehru Loka:** Chamundi hills are a unique landmark of Mysore city and also considered as one of the rich heritage sites, having religious tourism and ecological importance. It acts as the catchments for the more than ten lakes in the city area. The proposed denotification of the Chamundi hills as Nehru Loka (National Park) should be shelved to continue it as green belt and for planned development of a tree park. During the year 2001, they have demarcated 2078.14 ha but 1634.82 ha of land will be reduced to 9.68 percent in the year 2011. But it will be further reduced by the encroachment of the land by the private people and the mutts of different communities for their own land some of the education institutions have come into existence.

### 4.7 MASTER PLAN AND ITS IMPLICATION ON THE MYSORE URBAN GROWTH AND DEVELOPMENT

Urbanization process is very prominent in more recently emerging cities, such as those where the structure of the traditional city is undergoing rapid changes. Mysore is one of the traditional cities of Karnataka, with a royal heritage. Currently Mysore is growing as a commercial and metropolitan town, with a rapid urbanization and increasing population and changing land use pattern.

It is observed that major changes seen in residential land use from 33.24% (1976), 39.9 % in 2001 to 43.45% (2011). It is clear from the (table-) that the land under transportation is changing from 19.35% (1976), 16.1% (2001) to 16.96% in 2011 and drastic change in industrial land is about 8.36 % (1976) to 13.22% (2011).
It is observed that there is a good relation between population growth and changing land use pattern in Mysore city. The rate of growth of population during 1971 to 1981 was 34.69% where as the rate growth of residential area 35.97%, from 1991-2001 the rate growth of population is about 20.48% but the residential land use was 39.9%.

4.7.1 Economic implications

It is difficult to ascertain whether the land use policies influence to economic development or the economic development changes the land use pattern. These two issues seem to be counter acting with each other and they are the two sides of the same coin. However it is pertinent to compare and study the influence which these two factors influence on the land use pattern.

In earlier times there was less planning in the city. After launching the economic policies there was an enormous change in the economic development of the city. Recently JNNURM there is drastic improvements in the economy of the city.
4.7.2 Spatial implications

As a result of land encroachment and illegal constructional activities there is a decline in the Parks, Open spaces and Water sheets compared to the total constructed area in Mysore city.

**Fig.No. 4.11**

![Graph showing ratio of land uses](image)

Source: Compiled by the author

4.7.3 Environmental Implications

This declining rate of park and open spaces, water sheet will give the more impact on the environmental condition of the city.

However, recently there is an enormous fluctuation in the temperature of Mysore urban area. (See Fig. No.) 1999 onwards city’s temperature was high compared to previous decades. In the observatory of Mysore the summer season is from March to June, followed by the monsoon season from July to November and the winter season from December to February. The mean monthly highest temperature recorded in Mysore was 38.0 °C on May 4, 2006, and in winter, temperatures as low as 10.4 °C have been recorded.
4.8 IMPACT OF URBAN LAND POLICY ON URBAN LAND VALUES

Urban land values constitute an important aspect of study in urban geography. However, the concept of land value may be described as monetary evaluation of land use. It is affected by several factors like, location of the plot, financial resources, taxes, industrial development, environmental awareness, economic policies and others. Hence, the land value of an area is the outcome of an intricate and interrelated phenomenon. Generally the land prices increase rapidly with increasing rates of urbanization, and population growth. The land values are not uniformly distributed in all the places within the city. The city centre records highest land values in almost all cities of the world. The land values decrease as the distance from the city centre increases. However it is also useful to analyze the changes in land value of the urban area. Since these changes occur basically but indirectly from the urban policy changes.

4.9 METHODOLOGY AND SOURCES OF DATA

Sources of data:
The data of residential and commercial land value for the period 1998 to 2008. Was obtained from the office of the Sub Registrar, Mysore. And the supplementary data until 2010 was collected from the website: www.mysoreclick.in and from the real estate agents.

Methodological assumption
Derivation of Land value data: The land value is largely dependent upon the land use regulations. The urban zonal regulations give permission for establishing various services within the urban area. These services later become the main attractions which generate gravity and develop central areas thereby escalating the land values. In this perspective it was essential to evaluate the attractions present in the various areas within the city and find their relationship to the land value.

Methodology
Sensitivity analysis using raster Overlay was conducted using weights for the different urban properties. Such as essential services, transport nodes, commercial facilities, educational services, and recreational attractions for 1998 and 2008. Land
values are highly sensitive to these conveniences but are deterrent to distance. Therefore it is hypothesized that the land value is proportional to urban convenience and inversely proportional to distance.

Total attractions = (E_S+R+C+E) 1998, 2008
Distance (D) central 10 and outer has 2
Land value = 1998, 2008
TA x LV/D (to show how distance is reducing the land value)
AVD_98 & AVD_08 (aggregated value) (total attraction+landvalue+distance)
Where,
E_S = Essential Services
R = Recreational
C = Commercial
E = Educational
D = Distance
TA = Total Attractions
LV = Land Value
AVD = Attractions, Land Value, Distance

To study the change in land values in Mysore Urban Area, the following areas were selected in different parts of the city, each area representing certain land use attraction. Such as Essential services like, (Government Hospitals, Private hospitals, nursing homes, poly clinics, Banks), commercial attraction, educational, Recreational. Etc, can be used to study the impact on land value in Mysore Urban area.

The present study attempts to explain the changes in land prices in Mysore city during the past Ten years from 1998-2008.

Mysore region can be divided into 4 distinct geographic regions based on Real Estate Markets.

- North Mysore consist of areas like Hebbal Industrial area, Kesare Residential Layouts, Bannimantap
- Central Area around the Palace consist of Devaraj Market, Dhanvanthri Road, JLB Road
- East Mysore consists of Gayathripuram
- West Mysore, Jayalakshmipuram, Vijayanagara phase I, II, III, IV, V.V.Mohalla, Gokuluam, Yadavagiri.
- South Mysore, Vanivilas, Siddartha Layouts, Nanjangud Industrial Estates, Upcoming Airport of Mandakalli, Kuvempunagar.
a) **Spatial distribution of urban land values in Mysore (1998)**

The land values are primarily based on essential services, transport accessibility, commercial facilities, educational services, and recreational attractions. Figure 1 shows the cumulative weights of all the above factors. The highest intensity of attractions were found in the areas such as, Devaraja Mohalla, Lashkar Mohalla, Mandi Mohalla, Agrahara, Eranagere, Bannimantap, Metagalli, Lakshmikanthnagara, M.G.Koppal, Brindavan Extension, Vishweshwarararanagara and Nanjangud. Moderate intensity of attractions were found in the Mahadeshwara Layout, Viveknandanagara, Ramakrishnanagara, Jyothinagara, low intensity were found in the areas of Gayathripuram,Gandhinagar,Subbarayanakere, Kumbarakoppal, Tilaknagara, B.B. Keri.

Central wards, such as DevarajaMohalla, LashkarMohalla, MandiMohalla, Agrahara, Eranagere have high land values Because of the proximity to City Railway station, Bus stand, good transport network and commercial centers.

North Mysore: Bannimantap, Metagalli, Lakshmikanthnagara, M.G.Koppal, Brindavan Extension. These are situated in the north parts and have high land values due to good roads, elevated terrain and well planned areas.

South Mysore: Vishweshwarararanagara and Nanjangud Industrial Estates are located in the south of the Mysore city and have high land values due to the new coming Airport at Mandakalli and other attractions.

In 1998, land values were moderate in both the west and Eastern sides of Mysore. Gayathripuram,Gandhinagar,Subbarayanakere, Kumbarakoppal, Tilaknagara, B B Keri were found to have low land values. These areas have poor urban planning, poor infrastructural facilities like educational institutions, health facilities, sanitation and land use attraction.
b) **Spatial distribution of land values in Mysore (2008)**

There is a drastic change in the land values in 2008 compare to the 1998 period. Due to good essential services, good road network, commercial facilities, educational services, and recreational attractions. Figure 1 shows the cumulative weights of all the above factors. The highest intensity of attractions were found in the Devaraja Mohalla, LashkarMohalla, MandiMohalla, Meena Bazar, Nazarbad, Subbarayanakere, Agrahara, Sunnadakeri, Ramachandra Agrahara, Vishweshwararanagara, Nanjungud Industrial Estates Siddharthanagar, Ittegegudu, Bannimantap, Metagalli, Kesare, Kuvempunagar, Gangothri Layout, Saraswathipuram and Hebbal Industrial areas. Moderate intensity of attractions were found in the areas of Mahadeshwara Layout, Viveknandanagara, Ramakrishnanagara, , Jyothinagara, Gayathripuram, Jyothinagara, N.R. Mohalla and Rajivnagara, low intensity were in the Medar Block, Gunduraonagar etc.,

**Fig. No. 4.12 Urban Land Values and Land use Attractions from 1998 to 2008**

![Spatial Distribution of Urban Land Values in Mysore Urban Area - 1998](image)

**Fig. No. 4.12 (a)**

![Spatial Distribution of Urban Land Values in Mysore Urban Area - 2008](image)

**Fig. No. 4.12(b)**

![Legend](image)

**Legend**

- VERY LOW
- LOW
- MEDIUM
- HIGH
- VERY HIGH

Land value – 1998

Land value – 2008
Central wards, such as Devaraja Mohalla, LashkarMohalla, MandiMohalla, Meena Bazar, Nazarbad, Subbarayanakere, AgraBhara, Sunnadakeri, Ramachandra AgraBhara. These are situated towards the central part of the city and have high land values. Because these wards are closer to the City Railway station, Bus stand and good transport network as well as all the commercial developments and other attractions. Major commercial streets are the Dhanvantri road, DevaraBajaurs market, Sayyaji rao road are the commercial nerve of the Mysore city.

South Mysore: Vishweswararanagara and Nanjangud Industrial Estates are located in the southern parts and have high land values due to the new coming Airport at Mandakalli and other attractions.

East Mysore: Siddharthanagar and Ittegegudu are situated on the foothills of famous Chamundi hills and adjacent to historical Lalitha Mahal Palace, Beautiful Karanji Lake and Race course.

North Mysore: Bannimantap, Metagalli, Kesare, Kuvempunagar North are situated in the north and has high land values due to commercial attraction as well good transport network. Apart from this, BMIC (Bangalore Mysore Infrastructure Corridor) has also added a hike to the land values in this part of the area, as this infrastructure Corridor will reduce the travel time between Bangalore and Mysore to a great extent and people will prefer to stay back in Mysore and work in Bangalore.
West Mysore: Gangothri Layouts and Saraswathipuram is just 2 KMS from Mysore city and has high land values due to educational attraction (Mysore University Campus), and these are situated adjacent to Kukkarahalli Lake.

In recent periods land values are high predominantly in North western, North Eastern and South due to

- Hebbal industrial Area, due to IT/ITES sector
- North side of Mysore city due to BMIC
- South of Mysore city towards Nanjangud and new coming Airport at Mandakalli.

Good essential Services, like hospitality Market, the new upcoming hotels should move to the northern/southern part of the city, especially areas around Hebbal Industrial Area and adjoining new BMIC Corridor, and good transport network.

And also, Medar Block and Gunduraonagar have low land values due to lack of land use attraction and locational factors.

In addition the other important maps such as essential services, transport nodes, commercial facilities, educational services, and recreational attractions maps are shown separately, those are play an important role in determine the land values of Mysore Urban Area.

Fig: 4.13(a) Essential Services - 1998

Fig: 13(b) Essential Services – 2008
Fig: 4.14(a) Commercial Attraction-1998  
Fig: 4.14(b) Commercial Attractions – 2008

Fig: 4.15(a) Transport Nodes – 1998  
Fig: 4.15(b) Transport Nodes – 2008

Fig: 4.16(a) Recreation – 1998  
Fig: 4.16(b) Recreation – 2008
c) **Recent trends in residential land market**

In recent periods Residential land market is very active in Mysore. The general aspiration of people in Mysore is to have possession of their own land and construct house on it. The land market situation in Mysore urban area has suddenly taken a high stride owing to the demand arising from the multinational companies. The land value has increased not only within the city but also in the fringe areas as far as 20-30 Kms of Mysore. This has instigated the land investors to purchase land because of greater profits in land market. Causing increase in land prices all across the micro markets. Apart from this, BMIC (Bangalore Mysore Infrastructure Corridor) has also added a hike to the land value in the city, as this Infrastructure Corridor will reduce the travel time between Bangalore and Mysore to a great extent and people will prefer to stay back in Mysore and work in Bangalore because of the peaceful nature of the city. The land values of residential land market from 2000-2010, shows drastic change chiefly owing to economic development and population growth. Fig.1 shows the Change in Land Price in Mysore Urban Area period from 2000-2010. The highest value is observed in 2008-09; Kuvempunagar and Jayalakshmipuram areas recorded the highest prices.

**Fig. No.4.17: Change in Land Price (2000-2010)**
**d) Recent trends in commercial land market**

The commercial destination of Mysore Central, sites in or around Lands down Building, Sayyaji Rao Road, Devaraja Urs road, KT Street, 100 ft Road, Irwin Road and MG Road are among the hottest office spaces in Mysore. Fig: 16 show the land values of most important commercial land values of Mysore city.

![Commercial Land Values in Mysore City (Per Square Feet)](image)

Land value is the function of urban land use attractions as well as distance. There is a rapid change in the Land values in 2008 compared to 1998. Hence, all the above said factors are play an important role in determining the urban land values. Given the factors of development in infrastructure, corporates activities and subsequent interest of buyers and investors, the realty sector of Mysore is among the most promising ones in Karnataka. And perhaps the best times are yet to come ahead. Based on the observation of the study that the land values are directly determined by the land use attractions of the city. Based on above said factors that keep Mysore as the most preferred commercial and residential destination after Bangalore.
4.10 CRITICAL ANALYSIS OF THE MASTER PLAN IN VIEW OF SUSTAINABLE URBAN DEVELOPMENT

The major land use changes occurred in Mysore urban area during the period of 1976 to 2011 is the growth of built up land. It is clear that the growth and direction of urban agglomeration is towards northern and southern parts of Mysore due to industrial development along the Mysore Nanjagud Corridor and the development of BMIC (Bangalore Mysore Infrastructure Corridor) has enforced development on this part of the city. According to the CDP (2011) for Mysore, presently the city’s expansion is highly directed towards Mysore South, including the industrial areas located in Nanjagud. Future growth of Mysore will be determined by the major developments happening in the city. However, southern parts of the Mysore city consist of rich agricultural land. That’s why the protection of these lands in master plan is essential because of land encroachment.

An incredible progress can be seen in 2001 onwards due to the development of transport network and growth of industrial zone.

Fig.No. 4.19 Growth and expansion of Mysore city
4.10.1 Importance of sustainable urban land use planning

The concept of sustainable development arose in the mind of the world community in the 1970s. From that time there have been discussions in different forums on how to formulate a sustainable development policy. The discussions continued and finally the World Commission on Environment and Development was formed. In 1987, this Commission prepared and presented a report on the environment and development which is known as the Brundtland Commission Report 1987. This Commission was formed under the United Nations. The Brundtland Commission Report defined sustainable development in a broad sense which is often-quoted by academic scholars and planners of sustainable development. The definition in the Report was “Sustainable development is the development which meets the needs of the present without compromising the ability of the future generations to meet their own needs” (Brundtland Commission Report, 1987). This report of the United Nation's Brundtland Commission in 1987 marked the beginning of the sustainable development concept that has generated a lot of literature and commentary on the issue. Even though many of the concepts of sustainable development existed before, the Commission's report started the process of making sustainable development as an important issue on the world stage from 1987. Sustainable development is not a one way traffic; it involves not only economic development but also social and environmental development. We have to bear in mind that while we are developing our country to meet the needs of people, we must not destroy the environmental and ecological balance. We have already caused a lot of harm to the environment which is nowadays known as ‘global warming’ and ‘climate change’ and we are suffering from its adverse effects. So, sustainable development ensures a developed world with secured and healthy environment for all – human beings, animals and plants. (www.ccsenet.org/jsd Journal of Sustainable Development Vol. 3, No. 3; September 2010)
4.10.2 Sustainable land use planning for inner city development in Mysore urban area

As far as the indicators of ecological changes are considered, such as green belt and open spaces and water sheets, they are recognized as key ecological service providers to urban dwellers with multiple functions and also an important pillar of sustainable development. They have a vital role to play in the sustainability of towns and cities as they are considered as important parts of natural life support system. Hence in order to understand the importance of ecological indicators for obtaining ecological sustainability in Mysore urban area it is essential to improve urban environmental quality for people by supporting biodiversity conservation and preserving the natural resources.

4.10.3. Sustainable land use planning in Sub urban Area of Mysore

The northern and southern regions of Mysore urban area consists of rich agricultural land with high productivity of agricultural products are supplying to the urban population of Mysore. There is a greater need to secure these lands, since these parts of Mysore are drained by the river Cauvery and the Kabini in the north and south respectively. Since the land in the east-west sides of the city are comparatively lesser productive.

The direction of the growth and expansion of urban area is also not guided by careful thought. The northern and southern regions being drained by the two important rivers such as the Cauvery and Kabini. They are in fact at a closer proximity to the expanding city. The master plan has to be curtailing the growth in these directions in order to protect the catchment area of two rivers. The large scale construction activities of the urban area including structure for residential, commercial, industrial, educational, transportation…etc, construction of roads, railway line, bridge etc. will prevent the normal course of the flow of the streams, diverting the water away from the main rivers of the Cauvery and the Kabini.

This is one of the harmful impact on the ecosystem. The option for city expansion instead of north and south direction can be altered to east – west direction.
4.11 IMPACT OF URBAN LAND POLICY IN MASTER PLAN ON GREEN BELT AND OPEN SPACE, WATER SHEET IN MYSORE URBAN AREA:

4.11.1 Green belt and Open Space:

The green belts were a part of master plan even until 1980s. The idea of green belts at that time was to have a pleasant urban area consisting of natural environment at the vicinity of urban areas. But owing to the failure of the implementation of the policy world wide, the green belts were relegated in the subsequent periods. Nevertheless in recent years the growing awareness of the concept of urban heat island, global warming etc, calls for the need to have more green space in urban areas. Trees are considered as carbon sinks, since they consume carbon dioxide and release oxygen and purify the
space. In the present context with rapid industrialization and increase in population and the generation of heat has tremendously increased. Under the present situation the master plan needs to reserve open space and give more prominence to the planting of trees, but contrary to this there is a visible disappearance of green open spaces in the master plan.

The Chamundi hills are an intrinsic part of the environmental, cultural and spiritual heritage of Mysore. And this remained endangered for its green cover as large tracts of forestland around the Hills have been encroached upon and destroyed. These hills were not considered as important area of ecological concern even in 1976 master plan. However these hills have been made as reserve forest since 1995 and they are a part of the Comprehensive development plan only since 2011. Nevertheless, the other areas consisting trees are along the roads the most important roads to mention in recent years are KRS road, Hunsur road, T.Narasipura road, JLB road and Vinoba road where, with road widening most of these trees are encroached upon and felled.
According to Karnataka Parks, Playfields and Open Spaces (Preservation and Regulation) Rules, 1985, the only building that can be built in a park is a small quarters for the watchman. And also, Sec. 39 of the Karnataka Urban Development Authorities Act, 1987, prohibits conversion of any portion of parkland for other uses. But some of the important open spaces have been violated the law.

1. **The Chamundi Hills** is already under tremendous stress due to land encroachment at the foothills and construction works taken up on the top. Thousands of pilgrims visit the hills during the weekdays and more than 20,000 during weekends. The Government should take steps to conserve Chamundi Hills and its ecosystem instead of implementing the project, which will add to the ecological stress. Mysore is in danger of losing its green cover as large tracts of forestland around the Chamundi Hills have been encroached upon and destroyed. Chamundi Hills not only provides green cover and lung space for Mysore, but is also a major watershed and helps in ground water recharge and regulating the micro climatic conditions. Apart from destruction of a 2-km long/length 10-meter wide strip of forestland for the cableway/ropeway, the construction of pylons for the cableway at every 50 meters will require clearance of forest on the hillside for access paths for construction and maintenance. This will lead to further encroachment of forestland by construction workers' hutments and small/petty shops. The cable car stations at the two ends of the cableway will require large areas of land for the machinery, standby generators and vehicle parking space, and this will mean more land taken away from green cover.

2. **Cheluvamba Park**: MCC has violated Karnataka Parks Act by using a part of the land for non greenery purposes thereby there is a reduction in the area of the park.

3. **People’s Park**: Many buildings have been constructed in violation of the law by encroaching into the Peoples Park since the ’80s, there is still a demand of converting this park into a bus stand. A couple of years ago private bus services had encroached into a part of the Peoples Park.

4. **JLB (Jhansi Rani Lakshmi Bai) Road**: A few years ago several full-grown roadside trees were axed to widen the road. The forest department had promised
that it'd plant roadside trees beside the widened road that would grow like rockets. But it was not kept.

4.11.2 Water sheet:

The protection of water bodies in master plan is essential because they are not only areas for ground water recharge but they also support the growth of trees and make micro ecological regions favorable to produce city environment more closer to nature. There is a constant decline in the area covered by water sheets in the master plan compared from the last 35 years. This is one of the greatest lacuna in the urban planning.

Water bodies are ecological security zones and true indicators of sustainable urban development. In Mysore urban, Kukkarahalli, Karanji, Lingambudi, Dalvoy, Devnoor are the 5 man made lakes. These lakes were constructed during Maharaja’s rule during 19th century to fulfill the needs of water like, water supply for drinking, irrigation, industries and other related works. The source for those lakes was mainly rainwater and urban runoff. In 1910, with the introduction of electrical services, pumped freshwater from river cauvery reduced drinking water dependency on these lakes. But at present situation condition of the tanks and wet lands have been neglected and systematically encroached upon. Sewage, garbage and silt inflows into these lakes have devasted few of
these lakes. Land encroachment or diversion of natural runoff from the lakes, illegal construction, cutting of foreshore trees leading to soil erosion, discharge of sewage, silting are the major problems faced by these lakes. These urban water bodies have become dumping grounds for the untreated sewage and garbage of the city and are due to lack of scientific management approaches by planners with comprehensive action plans.

**Old and Dried Lakes:**

Before 1950s, **Jurankatte** was a small pond, which was being used as water storage to supply water to Mysore city for drinking purposes. This water was the breeding grounds for various germs and diseases especially malaria and cholera. And therefore it was necessary to dry this pond as soon as the water from KRS was able to be connected to Mysore city. Several full-grown trees were axed in and around the green Jurankatte Grounds in the ‘80s and ‘90s, however eradication of germs could have been conducted using more scientific methods using chemical sprays and yet preserving the water and green cover.

**Doddakere Maidan:** For more than a century ago Doddakere was a big lake, but presently it is denuded of its full-grown trees. The lake was shrunk during the 1930s. The partially dead and stagnated lake was a cause of worry for the health of royal folks as malaria was a major concern. Doddakere was drained. At present it is surrounded by creeping urbanization and ‘modern’ structures on the lake bed of an erstwhile sprawling water body.

In fact the site of the place was influenced by the presence of this lake. Between the foothill and the edges of the palace fort was a placid lake. Possibly it is the biggest lake in Mysore, much bigger than the still surviving Karanji Lake and the Kukkarahalli Lake. The Doddakere grounds can be again revived into its past glory. The grounds which is left vacant right in front of the palace giving an ugly scene and used only for the annual exhibition could be shifted to other sites. And by the use of good planning these grounds could be made into a lake, this will not only enrich the ecological character of the city but enhance the beauty of the palace.
**Hebbal lake:** Hebbal lake is one of the most important lake near Hebbal Industrial Area, Mysore. The lake is of 62 acres and Mysore Urban Development Authority has fenced the area. At present, there are about 5 major and 20 smaller water bodies greatly contributing to ecological integrity. Presently many lakes in and around Mysore have been acquired in the name of development and there is an urgent need to protect the lakes, especially this lake because of the conversion of Hebbal lake into sites. The land was sold to B&B Industries Limited, Harihara Estates Private Ltd. of Hyderabad and S&S Athithi Hotels, Bangalore on Aug. 25, 2007. This has purchased six acres of land to set up a tourism resort. (Source: Star of Mysore, Daily News Paper, November-26, 2010).

This lake definitely should be protected for the environmental sustainability of the Hebbal area because this region is dominated by industries. This will also support a wide variety of flora and fauna including several species of migratory birds add aesthetic value to the city.

![Photo No.1 : A View of Hebbal Lake](image)
4.12 RESULTS AND DISCUSSION

The master plans for the years 1976, 2001 and 2011 have introduced some major innovations in urban management. But its implementation needs a new regulation for above said geographical factors such as protection of the catchment area, greenbelt and open space, water sheet etc. and there is a need of strong planning. As per the observations (survey) from the city the development is taking place in a non-contiguous manner. Private developers make developments on small pieces of land around the city. There are a few recommendations for the city expansion especially related to the direction of the city sprawl, owing to the fact that the northern and southern regions have high irrigation and good agricultural productivity. Firstly, the city could more likely be expanded towards the east-west direction since the land is mostly un-irrigated and lacks agricultural productivity. By doing so not only the green agricultural lands are protected but the un-irrigated dry lands can be appropriately used. Secondly, the catchment area of the two rivers could be protected by avoiding extensive construction. Thirdly, the master plans should revive the water tanks in order to protect the ground water recharge and the dried lakes needs to be rejuvenated of its greenery by the MUDA/ Master plan.

However, it is essential for planners to give more importance to the geographical factors in the planning in terms of urban development. Because of these factors are indicators of sustainability in urban growth and development.

4.13 CONCLUSION

Mysore urban area is sandwiched between Cauvery river in the north at a distance of 18 Kms. and Kabini river in the south at a distance of 20 Kms. The expansion of Mysore urban area in both the northern and southern directions will pose problems for the catchment areas of the two rivers. The construction of structures, roads, bridge, railway lines, etc., will change the natural slope thereby diverting the flow of water from their normal course leading to reduced inflow of water into these rivers.

The other problems associated with urbanization in Mysore is the built up area which may pose a threat for the ground water recharge, and it may give way to constant city floods. Therefore it is necessary to have a lower ratio of built up land with the open
lands. Built up area generally consists of the constructed area for residential, commercial, transportation, educational, industrial etc.

The other factors affecting land use is the lack of affordable housing, disappearance of inner residential areas and green belts. The absence of green belts in the master plan is one of the greatest dangers of the urban planning. This subject is one of the most crucial in the present situation when the concept of green belts is most conspicuous by its absence. Planting trees is a great way to offset carbon footprint and become carbon neutral. Through photosynthesis trees absorb carbon dioxide to produce oxygen and wood. Through this process, carbon dioxide is converted into stored carbon, and this is why trees are sometimes referred to as ‘carbon sinks’. By taking this carbon dioxide from the atmosphere, trees clean the air, and offset our polluting lifestyles. Each tree planted is anticipated to offset environmental impact by ‘breathing’ in around 1 ton of CO2 over its first 50 years. The debates on global warming and urban heat islands converge on the idea of giving greater importance to all those factors controlling climate change. The rapid growth of urban areas is giving way to the depletion of urban trees. Planting trees will offset CO2 emissions and passing on to future generations a fascinating and highly valuable ecological heritage.

The technological revolution especially in transportation industry has resulted in the transformation of urban land use pattern. Such change has brought a direct impact on the outer growth of the urban area. This processes of urban sprawl has shows impact upon the residential zones in outer areas

In Mysore, there is a need of the ecological sustainability of Comprehensive Development plans or Master Plan seems to continue to maintain their importance in urban planning. Because it is essential sustainability related concerns are incorporated into the master plan. However this could be formal because of stringent environmental regulations.

It is advisable to give more importance to the geographical factors in the CDP or master plan in order to protect the environmental condition of the city. The best way is to identify the projects under the JNNURM in CDP in conformity with master plan proposals, which will also give an edge to the better planning for environmental
regulations. Hence well functioning and efficient infrastructure ensures our development is environmentally sustainable and eco-friendly.