Chapter III

PLANNING AND IMPLEMENTATION OF SPATIAL PLANS IN BANGALORE

This chapter describes the City profile of the Bangalore Metropolitan Area. The Geography, growth, economy Institutional, land use management and environmental setting. The discussion is on the Spatial Planning and Implementation in BMA. The scope and extent of the spatial plans, the approach, tools and techniques are within the regulatory framework, institutional landscape, legal frameworks, authorities, Acts and policies. The appraisal of the earlier plans, the role of CDP, Revised Master Plan 2015 and its qualitative review has been dealt in this chapter for implementation breadth.

3.0 Background of Bangalore Metropolitan Area

Bangalore, the capital of Karnataka State is one of India's fast developing city with a average annual growth rate of 4.46 % and population 8,520,435 (Bangalore Urban Agglomeration (BUA, Census: 2011). Today, it is one of India's largest cities, being fifth in position. The city is called by various names such as the “garden city “, “silicon valley”, and with its large cosmopolitan population, with diverse cultures and languages, has over the years changed with the momentum of its industrial and commercial growth unparallel in the country. Bangalore stands at forefront in implementing urban reforms and the city is very attractive for its salubrious climate and as investment destination. The city is endowed with rich cultural and educational institutions.

3.1 Physical Setting:

3.1.1 Physical Setting – Topography: The topography of Bangalore is flat excluding a central ridge running from North, North-East (NNE) to South, South- East (SSE). Bangalore is situated on a ridge which delineating four watersheds, viz. Hebbal, Koramangala, Challaghatta and Vrishabhavathi watersheds. The major rivers include the Arkavathi and South Pennar. The undulating terrain in the region has facilitated creation of a large number of tanks providing for the traditional uses of irrigation, drinking, fishing and washing and helping the maintenance of microclimate. Even in
early second half of 20th century, in 1961, the number of lakes and tanks in the city stood at 262.

3.1.2. Climate and Rainfall: Bangalore experiences a tropical savanna climate and due to its high elevation of 920 m above MSL and with rainfall of about 880 mm with about 60 rainy days a year over the last ten years. The coolest month is January with an average low temperature of 15.1 °C and the hottest month is April with an average high temperature of 33.6 °C. The highest temperature ever recorded in Bangalore is 38.9 °C and the lowest ever is 7.8 °C (on January 1884). Winter temperatures rarely drop below 12 °C (54 °F), and summer temperatures seldom exceed 37° C (100 °F). Winds blow mainly from the directions between the south – west and north – west during the south – west monsoon season. During the rest of the year, wind blows from the direction between north and east. The maximum normal wind speed recorded at Bangalore is 17.5 km/hr in the months of May and July.

3.2 History of Settlement:
Kempegowda I, chief of the Yelahanka Prabhus, established Bangalore in 1537(1510-1570). This fort area and the settlement can be recognised as the Petta area of the city. The settlement was organized as specialized quarters based on functional activities such as Akkipete (rice market), Taragupete (grain market), Aralepete (cotton market), Chickpete (little town), Doddapete (big town). Along with the buildings and institutions, arts and crafts were promoted. Following the reign of Kempegowda, the town came under the Kingdom of Mysore, the Marathas as well as the Mughals. In mid-18th century, Haider Ali attempted to consolidate his military position of the town by building many defense structures. Bangalore became an important place for exchange of silk, textiles, commerce and trade in spices. Roads were built from Bangalore Pettah to Madras, Pondicherry, Salem, etc. In 1760, the Lalbagh garden was built based on the model of Mughal gardens. Haider Ali’s son Tipu Sultan continued the work of his father until his defeat by British forces in 1799. After the battle, new permanent military barracks were built just outside Bangalore, solidifying Britain's long-term commitment to the growth and stability of the city.  

New neighborhoods of Basavanagudi and Malleshwaram were established in 1898 to the South and North of Pettah. Kalasipalyam (near the old fort) and Gandhinagar were established between 1921 and 1931, then Kumara Park in 1947 and Jayanagar in 1948.

After Independence from the British rule, large scale State enterprises (Hindustan Aircraft Limited (HAL), Bharat Heavy Electronics Limited (BHEL), Indian Telephone Industries (ITI), and Hindustan Mission Tools (HMT) were set up giving the town an industrial and scientific foundation. The new residential quarters (Jayanagar, Jayamahal, Rajajinagar, etc.) were developed under the impetus of the City Improvement Trust Board (CITB). In the 1960s, along with the establishment of Peenya, “the largest industrial zone of Asia”, in the West, and much later, Bommasandra in the South residential areas such as Koramangala, Indira Nagar, Banaswadi, and Banashankari, among others were also established. During the 1970s, the city witnessed development of the textile and silk industries. The liberalisation of the Indian economy in early 1990s facilitated the emergence and growth of high-tech and software industries, due to which Bangalore became prominent as technology hub.

3.3. Bangalore Economy:

The growth of the economy can be traced to the growth of the formal and informal sectors. Post-independence and declaration of Bangalore as the capital city has allowed the setting up of Government institutions. The first wave of investment in the city was during the setting up of industries mainly the public sector industries such as BEL, ITI, HAL, etc. The second was the development of the Hardware parks such as the electronic city; etc. The third has been the development of IT and ITES services. The resulting housing demand has kept the real estate market thriving. The changes in the population and the investments have impacted the city structure. With a gross domestic product (GDP) of $83 billion, Bangalore is ranked fourth in India by overall GDP contribution, after only Mumbai, Delhi and Kolkata. Amongst the traditional economy, Floriculture, Garments, Banking and Construction are important. V.K. Tiwari, Sastry, Micheal Goldmann, Janaki Nair, Friedman and James Heitzman have in their respective writings have brought out the changing social and economic structure of the city, the making of Bangalore as a technological and economic hub in the country. The city is highest contributor to the export of software in the country and
is also home to largest number of over 10 Lakhs Indian rupee earners per annum. Bangalore receives the highest share of the real estate investment in country with 20th position in the world followed by Delhi at 34 and Mumbai at 42. Bangalore has witnessed the growth of robust real estate market with good supply and demand positions. It has witnessed growth of all sectors of real estate in the past two decades.

3.4 Bangalore Metropolitan Area
For the planning purposes and overall governance, the Bangalore Metropolitan Area\(^3\) comprises of:

1. The Bruhat Bangalore Mahanagara Palike (BBMP) or Greater Bangalore, it includes Bangalore City Corporation area, the erstwhile seven City Municipal Councils and one Town Municipal Council and 111 villages an extent of 696.17 sqkm. With 84.74 lakhs as per census 2011.

2. Bangalore Development Authority: the local planning authority prepares the master plan for the Bangalore Metropolitan area with an area of 1294 sq.km.

3. The Bangalore Metropolitan Area (BMA) covers an area of 1307 sq.km and comprises the Bruhat Bangalore Mahanagara Palike, surrounding villages and the Bangalore-Mysore Infrastructure Corridor Project Area (BMICPA)\(^4\).

Fig. 3.1: BBMP, BMICPA and Bangalore Metropolitan Areas

Source, BBMPR, BDA Bangalore.

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\(^{2}\) Asia Pacific investment intensity report, Jones Lang Lasalle,

\(^{3}\) The Bangalore Metropolitan Area (BMA): BMA comprising of a Bangalore MahanagaraPalike, seven City Municipal Council and one Town Municipal Council and 111 villages.

\(^{4}\) Bangalore Development Authority, Master Plan: Vision Document – 2015, Bangalore
3.5 Spatial Growth and Structure

From a small urban area of 28 km$^2$ in 1901 (CRRI, 1999), the city had expanded, in all directions and along its major roads, to an area of 565 km$^2$ by 2003 (BDA, 2007). This expansion was characterized by concentric ring-roads and five major and five minor radial roads which converged at the city center. Fig 3.3 shows the spatial growth and urban expansion of Bangalore from 1971 to 2011.

The original concentric and uniformly growth of the city has now assumed a more sectoral and radial (linear) shape. The result is differentiated and unbalanced development in the city and contributing to increase in average distances travelled in the city. With the setting up of the International airport in the north and the industries (Dobspet) in the North western side, the International Exhibitions centre has contributed to the growth of the city to towards the North and North Western side. In fact, the growth of the city has been on southern side from the Anekal to Sarjapura to North and western side along the Tumkur road. The major industries are located in the western and the southern side. See Fig.3.4.

While the electronic city and the Whitefield area have the IT, BT, offices and industries. Commercial development is witnessed on major roads in the city. See fig.3.2. The traditional home based industries are located within the city in a few clusters of home based cottage and micro industries (Benjamin, 2002)
Fig. 3.2 Spatial Structure of Bangalore

Source: Compiled by the author, mapping of the important IT and work centres'
Fig. 3.3 Urban Growth : 1971 to 2011

Source: Author compiled with inputs of the census and IRS bhuvan 2012 data.
Fig. 3.4: Growth Potential and Direction of BMA.
3.6. Demographic Profile of Bangalore

3.6.1. Population Growth Trends: The Bangalore City has experienced rapid growth in different decades due to various reasons, such as the amalgamation of the Bangalore Civil and Military Station with Bangalore City Corporation, Setting up of Public Sector industries, changes in the census terminology and introduction of the Bangalore Urban Agglomeration (BUA) concept. Although the advent of IT is attributed to the late 1980s, major growth and expansion of this industry happened only during the late 1990s. The Census of India, 2011 data reveals that BBMP has 84.74 lakh populations and this places Bangalore as one of World’s fastest growing metropolitan city.

Fig. 3.5: Size of Population of Bangalore City and Cantonment Area 1871-2011

Source: BDA RMP 2015.
3.6.2. Population Density

The overall density of population in BBMP area is about 119.61 persons per hectare. The dense areas are old areas with high percentage of informal housing/squatter settlements within them. The high density areas have in excess of 300 persons per hectare. A wedge from the North (Palace grounds extending to Ulsoor and Bellandur) are large green areas with very low populations. This demarcates the city in almost two parts– Eastern and the Western side of the city connected by Ring Roads, Rail and the Metro, more recently.

The growth of the city has been in the peripheral wards. Decadal growth rate in the peripheral wards is observed to be over 130% in a few sectors. The city is extending outwards in a ring form.

Fig. 3.6 Ward-wise Population Density of BBMP
Table  No 3.1 Table with Key Organizations and the Responsibilities

<table>
<thead>
<tr>
<th>Name of Organisation</th>
<th>Key Functions and Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BBMP</td>
<td>The BBMP, commonly referred to as “Corporation”, is the sole elected urban local body for Bangalore City. The BBMP is solely responsible for performing 18 functions enlisted in the Twelfth Schedule of 74th Constitutional Amendment Act, 1992.</td>
</tr>
<tr>
<td>2 BDA</td>
<td>The BDA was formed under the BDA act 1976, as the Local Planning Authority. The mandate of BDA is to control, monitor, and facilitate urban development in Bangalore Metropolitan Area to ensure sustainable and orderly growth. To achieve this objective, BDA prepares the Master Plan (MP) for the city, defines building norms, creates quality infrastructure, creates plotted development for urban extension, and facilitates integrated urban environment improvement.</td>
</tr>
<tr>
<td>3 BWSSB</td>
<td>BWSSB was constituted under the Act of the Karnataka State Legislature in 1964. The organization provides drinking water to Bangalore and is also responsible for collection, treatment and disposal of sewerage from the city.</td>
</tr>
<tr>
<td>4 BMTC</td>
<td>BMTC was incorporated in 1997 as a separate entity after being bifurcated from the Karnataka State Road Transport Corporation (KSRTC). It operates bus services inside the city and to about 400 villages within 25 kms radius of the city.</td>
</tr>
<tr>
<td>5 BMRCL</td>
<td>BMRCL is the agency responsible for the construction and operation of Metro rail and Monorail services in Bangalore city. The first phase</td>
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<td></td>
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</tr>
<tr>
<td>6</td>
<td>LDA</td>
</tr>
<tr>
<td>7</td>
<td>KSCB</td>
</tr>
<tr>
<td>8</td>
<td>KUIDFC</td>
</tr>
<tr>
<td>9</td>
<td>BESCOM</td>
</tr>
<tr>
<td>10</td>
<td>KSPCB</td>
</tr>
<tr>
<td>11</td>
<td>KIADB</td>
</tr>
<tr>
<td>1</td>
<td>BSNL</td>
</tr>
<tr>
<td>2</td>
<td>South Western Railway</td>
</tr>
<tr>
<td>4</td>
<td>Police Department</td>
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<tr>
<td>5</td>
<td>PWD</td>
</tr>
<tr>
<td>6</td>
<td>Revenue Department</td>
</tr>
<tr>
<td>7</td>
<td>Town Planning Department</td>
</tr>
<tr>
<td>8</td>
<td>KSSLR</td>
</tr>
</tbody>
</table>
There are a number of organizations involved in the planning, service delivery and management of BMA. The list above captures the main organizations and departments. Apart from these institutions, Bangalore has a number of active civil society groups/ professional bodies, lobbies / interest groups and active Resident Welfare Associations.

3.7. Planning and Development in Bangalore:

3.7.1 Bangalore Development Authority (BDA)

The Bangalore Development Authority (BDA) was constituted to control, monitor, and facilitate urban development of Bangalore Metropolitan Area which correlates to the BBMP area. BDA as an organization was formed with the intention of enabling both the planning and development functions of the city in a comprehensive manner. BDA provides housing and sites and services scheme – formation of layouts for housing.

3.7.2 BMRDA:

In 1985, the Govt. of Karnataka constituted the Bangalore Metropolitan Region Development Authority under BMRDA Act and a statutory limit named ‘Bangalore Metropolitan Region (BMR)’ with an area of 8005 sq.km came into existence. The State government has recently approved the revised structure plan for the BMR. Five local planning areas created within the BMR prepared an Interim Master Plan for five satellite towns, as spatial development frames, with an Outer Ring Road and a Satellite Ring Road network linking BMA to the satellite towns. The following are the Planning / Development Authorities functioning in the Bangalore Metropolitan Region (BMR).
### Table 3.2: Authorities Functioning within BMR

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Authorities functioning within Bangalore Metropolitan Region (BMR)</th>
<th>Area in Sq. Km.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bangalore Development Authority (BDA)</td>
<td>1219.50</td>
</tr>
<tr>
<td>2.</td>
<td>Bangalore – Mysore Infrastructure Corridor Area Planning Authority [BMICAPA]</td>
<td>426.24</td>
</tr>
<tr>
<td>3.</td>
<td>Ramanagaram-Channapattana Urban Development Authority [RCUDA]</td>
<td>63.06</td>
</tr>
<tr>
<td>4.</td>
<td>Anekal Planning Authority [APA]</td>
<td>402.30</td>
</tr>
<tr>
<td>5.</td>
<td>Nelamangala Planning Authority [NPA]</td>
<td>735.00</td>
</tr>
<tr>
<td>6.</td>
<td>Magadi Planning Authority [MPA]</td>
<td>501.52</td>
</tr>
<tr>
<td>7.</td>
<td>Hosakote Planning Authority [HPA]</td>
<td>535.00</td>
</tr>
<tr>
<td>8.</td>
<td>Kanakapura Planning Authority [KPA]</td>
<td>412.78</td>
</tr>
<tr>
<td>9.</td>
<td>Bangalore International Airport Area Planning Authority [BIAAPA]</td>
<td>792.00</td>
</tr>
<tr>
<td>10.</td>
<td>Area Planning Zone-1 [APZ-1 ] (Excluding RCUDA &amp; BMICAPA)</td>
<td>462.60</td>
</tr>
<tr>
<td>11.</td>
<td>All Interstitial Zones in Bangalore Metropolitan Region [IZ’s BMR]</td>
<td>2455.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>8005.00</strong></td>
</tr>
</tbody>
</table>

Source: BMRDA.

The structure plan intends to distribute the population and create clusters for development. The BMRDA does not have powers to raise finances for urban development and carry out development on its own. The Local Planning authorities within the BMRDA prepare the master plans for the LPA and administer them thorough “permit and control” mode. Permission for Building and layouts (Subdivision of Land) must be obtained before commencement of development.

Though urban planning and development are essential functions of the municipal bodies as per the Constitution of India, in Bangalore various statutorily constituted Parastatals like Bangalore Development Authority (BDA) and Bangalore Metropolitan Region Development Authority (BMRDA) perform these functions.

#### 3.7.3 Karnataka Industrial Area Development Board (KIADB):

This parastatal organization is enabled through the Industrial Development Act and has powers to carry out Industrial development in any part of the state. The key industrial areas in BMA such as the EPIP, IT City and the Electronic city have

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been formed by this agency. It is observed that many of the industrial estates/ layouts have been formed with its own spatial logic rather than that of the Master plan or spatial planning brief. The land use and zoning has been changed or modified suitably to accommodate the industrial area development. KIADB has powers to acquire farmer’s land though the industrial development act and powers vested with authority through the act allows agricultural land zone parcels to be utilized for the industrial purposes. The industrial estates are developed and allocation is made to various industries who intend to set up the facilities in the estates. The setting up of various industrial areas in the periphery of the city has allowed for the city expansion. The powers for expropriating land under the KIADB have been utilized for the land mobilization for the Bangalore Metro Project, Nandi Infrastructure Corridor Enterprises (NICE) corridor.

3.7.4 Role of Private Sector - Formal and Informal Developments:

The private sector plays an important role in the development of housing. The organized construction entities in form of developers undertake the residential layouts / sub divisions and apartment (multi-dwelling complexes) of varied size, value and location throughout the city. The private citizens also engage construction entities for their own housing needs in form of single/ multi dwelling units. They develop on the land parcels provided by the BDA/ KHB or Developers or even through informal channels (i.e. land developments that have not obtained permissions from Planning authorities). Large institutions either Government or Private sector also undertake development of campuses and projects.

3.7.4.1 Typical Layout Formation Process: (Servicing Land with infrastructure).

A developer interested in putting up a housing project has to obtain the following approvals.

- Permission to purchase agriculture land under the Land Reforms Act from the Revenue department.
- Approval for conversion of agriculture land for non-agriculture use under the Land Revenue Act from the Deputy Commissioner.
• Permission for change of land use (where required) under the Town & Country Planning Act from the BDA.

• NOCs from concerned authorities.

• Approval for the layout / development plans from BDA.

• Approval for building plans from the Bruhat Bangalore Mahanagara Palike if the area comes under Corporation jurisdiction.

In order to assemble land for the development, all the lands need not to be owned by one or for that manner, even a percentage of lands need to be owned. The interested person in assembling can obtain the rights from the land owners by a General power of Attorney (GPA) by entering into Joint development agreement with the land owners. The sub division or development plan can be prepared by the developer and application for sanction made. Before the development is carried out on the ground, necessary No Objection Certificate (NOC) from other stakeholders (BWSSB, BESCOM, etc) need to be obtained. On carrying out the development, the developer is required to relinquish the Open Spaces and Roads and the civic amenity area as stipulated in the zonal regulations, in favour of local authority. On completing this stage, the developer gets the release of rights for sales. Though the amenity site and the roads are maintained by the developer the local authority is actually responsible for owning the asset and the maintenance. The trunk infrastructure and the services are to be laid by the developer, though there are no specifications laid out in the regulations.

The individual serviced plot owners then build by getting the necessary permissions, arrange for their services connection at the house/unit level.

3.7.4.2 DC converted layouts: The land is converted from Agricultural to non agricultural purposes under sec 95 of the KLR Act and these are then sub divided without the permissions from the LPA or the ULB. The sites are then sold to the individuals or investors. The pricing of the plots/sites are reasonably priced and with easy financing such as the equated monthly installments, makes it interesting to the individuals. This is seen as good vehicles for long investment and capital appreciation. To formalize these developments, the possibility is through a regularization scheme such as Akrama–Sakrama scheme. (GOK, 2006). The
outcome such practices lead to the poor physical development, poor infrastructure, etc.

3.8 Spatial Plans (Master Plans) of Bangalore

3.8.1 CITB and its Plans
The activity of formal spatial planning prior to the Independence can be traced to the City Improvement Trust Board (CITB) efforts since 1945 to address the issues of growth and development of residential sites including the earmarking areas for civic amenities. The Development Plan including land use proposals prepared by the Committee were followed by the CITB and many proposals were not implemented for the want of legal backing to enforce the plan (Dr. Ravindra).

3.8.2 Bangalore Outline Development Plan (ODP)
The Bangalore metropolitan Planning Board was setup by the Government to prepare an Outline Development Plan (ODP) under the Karnataka Town and Country Planning Act, 1961 (KTCP ACT) and approved by the Government in 1972. As per the Act before amendment in 2004, mandates a two step plan preparation, the preparation of an Outline Development Plan (ODP) as first step before a Comprehensive Development Plan (CDP) is prepared. The Outline Development Plan (ODP), prepared for a 15 year period between 1961-1976, covered an area of 500 sq.km. Out of this, 220 sq.km inclusive of already built up area of 114 sq.km was proposed for development as conurbation area and the remaining area of 280 sq.km was designated as rural tract to preserve its rural characteristics. Due to delays in Preparation of Comprehensive Development Plan (CDP), the ODP remained in force till 1984. However, due to the growth of the city beyond the Conurbation area as well as the outlined utility of ODP, the plan proposal could not be strictly enforced. Some of the issues highlighted in the ODP include indiscriminate land developments, tank bed encroachments, inadequate housing for the poor, housing shortages and proposals for the formation of inner, intermediate and an outer ring road, formation of new extensions and layouts.

3.8.2.1 Financing the development
The overall cost of improvements was captured in the document and it was anticipated that the funding from the state budget will be utilised for the
improvements. The board also passed resolution\(^5\) to have a full fledged mapping in place that addresses the Administrative (including topography, etc as basemap), Fiscal maps with the properties being mapped along with the possibility of levy of taxes and finally a legal map with properties and record of rights, etc to minimise the unnecessary private litigation and disputes.

### 3.8.3 Four Master Plans-1972-2007

This interim Plan was in force for as long as 12 years when the CDP was published in 1984. In the meantime, the Bangalore Development Authority (BDA) was created in 1976 and was designated the Planning Authority for the Bangalore Metropolitan Area. The CDP was prepared for a period of 15 years i.e. upto 2001 A.D for accommodating a population of 70 lakhs based on the decennial growth for 1971-1981 (76%) and there was a fall in the growth rate of population for the period 1981-1991 (40%). The impact of decentralisation of industries, development of satellite towns, the population was pegged at 70 lakhs by 2001 A.D. The concept of wedge and the corridor development was highlighted in the CDP. The CDP was revised after a gap of 12 years and the revised CDP while retaining the total planning area of 1279 sq km, increased the conurbation to 500 sq km and reduced the size of the Agricultural zone (green belt) proportionately.

The CDP – R1 (1995) recommends the curbing the growth of Bangalore local planning area with the encouragement to smaller and medium towns. The proposals of Mass rapid transit system was discussed in this plan. However the concept was not detailed out in the plans. Taking into account the rapid socio-economic changes, the BDA appointed a French Consulting consortium to prepare the Master Plan on its behalf. After an elaborate exercise, the consortium submitted the draft plan in 2004 which was approved by the government with modifications in 2007.

\(^5\) Extract of proceedings of board meeting held on 26\(^{th}\) March 1962, as stated in the ODP document, 1968.
Table 3.3: Scope of Development Plans for the Bangalore Metropolitan Area

<table>
<thead>
<tr>
<th>Development Plan</th>
<th>Area under the Plan (square kilometers)</th>
<th>Total Local Planning Area (sqkm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conurbation Area</td>
<td>Green Belt</td>
</tr>
<tr>
<td>ODP -1968</td>
<td>220</td>
<td>280</td>
</tr>
<tr>
<td>CDP-1984</td>
<td>439.30</td>
<td>839.70</td>
</tr>
<tr>
<td>CDP-1995</td>
<td>564.60</td>
<td>714.40</td>
</tr>
<tr>
<td>Master Plan - 2015</td>
<td>786.40</td>
<td>455.00</td>
</tr>
</tbody>
</table>


(* Area under Bangalore Mysore Infrastructure Corridor Planning Authority)

Table 3.4 Population, Density and Plans

<table>
<thead>
<tr>
<th>Sl.no</th>
<th>Document</th>
<th>ODP</th>
<th>CDP</th>
<th>CDP R1</th>
<th>MP R2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Projected population (Million)</td>
<td>19</td>
<td>70</td>
<td>70</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>Existing Land use</td>
<td>142</td>
<td>202</td>
<td>284</td>
<td>420</td>
</tr>
<tr>
<td></td>
<td>Existing density</td>
<td>116</td>
<td>144</td>
<td>143</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>Proposed density</td>
<td>72</td>
<td>159</td>
<td>125</td>
<td>110</td>
</tr>
</tbody>
</table>

Source: compiled from plan documents.

3.8.4 Urban Development during the Plan Period (1995-2007)

The seven City Municipal Corporation (CMC) namely Bommanahalli, Byranayapura, Dasarahalli, KR Puram, Mahadevapura, Yelahanka, RR Nagar and 1 TMC merged with BBMP formed under the KMC act only in 2006. Prior to the merger, the total land area of these 7 CMC and TMC was about 530 sq.km whereas that of BMP was 226 sq.km. In other words, 60 percent of land was under the 7 CMC and Kengeri Town Municipal Corporation (TMC). By the year 2001, the population of BMP area was 45 lakhs and in CMC including TMC was 12 lakhs. This sparse population as compared to the BMP area and the large extent of land availability in these CMC became the focus of land use development in BMA. Permissions and sanction for the developments were granted by the
CMC/TMC itself though they were technically ill equipped. Rampant construction led to sprawl with low, medium and high-rise buildings putting pressure on the transport due to the increased trip lengths, increased motorization, and inadequate road networks. Each CMC was responsible for its water supply, UGD, SWM and the provision of all municipal services. Though these areas were Urban Local Bodies, there were no nodal anchor urban facilities to serve the local needs. The 7 CMC and 1 TMC observed varied levels of infrastructure, delivery and sharp contrasts to the BMP area with respect to norms and standards.

The emergence of IT, BT and other activities led to the expansion in the office and work centers. These naturally were located at the CMC and areas beyond such as the electronic city where land was available. Besides, KIADB had acquired vast tracts of land for the EPIP zone in the East and in the South for the Electronic city, Bommasandra Industrial area, Bannerghatta – Jigani Industrial area and quickly developed them, with Hi tech and manufacturing industries occupying them. Based on the existing land use survey 2002, the commercial spaces were saturated and widespread of commercial activity in the residential areas were observed. The economic upswing resulted in demand for housing, retail and office spaces. The separation of the work and residence by large distances forced the development of the areas close to the work centers. The increased population had not only led to the increased traffic and congestion, it led to demand of housing. The conversion of lands and subsequently building activity to maximize the number of dwellings had led to increased densities in the periphery. The illegal developments are observed in several parts of the city, where G+5/6 are found on a road width of less than 6.0 m. The indiscriminate layout developments has led to the destruction of wetlands, encroachments on the lake/tank lands, construction on the storm water drains, often modifying the complete drainage pattern leading to water logging and flooding. The non-availability of UGD systems led to the disposal of the sewer into the natural drains and water bodies.

3.8.5 Land Use Pattern and Analysis

3.8.5.1 Outline Development Plan (ODP):

Land uses: Based on the varying degrees of urbanization, the following scheme of classification was adopted in the document:
• City proper and contiguous built up area in the CITB layout and 36 villages as urban area.
• Bulk of the area adjoining the several highways beyond the urban limits as the Sub urban area.
• The villages lying beyond urban and sub urban area but coming 5 miles limit as the Rural tract.

By Zoning, itis meant the division of planning area into districts for the purpose of regulating land use. The number and kind of districts will vary with local conditions, the number of districts (zones as otherwise called will depend on the size and character of the city. In case of then Bangalore’s population of 1.2 million, diverse land uses a large number of districts or use zones and elaborate classification is necessary. There are 4 residential⁶ zones namely based on densities of 50 persons/acre, 100, 150 and 200 Persons/acre.

3.8.5.2 Comprehensive Development Plan (CDP) - 1984

In these plans, standard classification of land use such as the residential, commercial, etc have been adopted with varying intensities of development based on the zones A, B.C. the central areas of the city comprised of the old city areas and the newly forming central business district MG road. The FAR for development in the central areas were maintained at higher level compared to the Peripheral areas at 3.0 at M.G road, etc. The lowest FAR was seen at the Agricultural zone (Green Belt). High rise development began to follow the regulations. The rate of motorization being low and prevalence of the non motorized transport such as Bicycles, Tongas as well as public transportation were not explicit goals to be considered in the plan. Environmental discussion centres on the maintenance of the parks and open spaces and reservation of parks on private and public lands. The lakes and tanks are not discussed for the water management or ecological aspects. An observation of the Plan was the influx of migrants and the growth of the city in form of layouts.

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⁶A zone is not necessarily limited to a single contiguous area there may be several scattered areas falling under the same zoning classification, it is the prevailing and potential land uses of the different localities that determine the grouping rather than the geographical contiguity.
3.8.5.3 CDP 1995 for a Plan Period Ending 2011

Between 1985 and 1995, Bangalore witnessed tremendous growth and Land development driven by speculation and growth in the economy lead to vast tracts of land being dedicated for industrial and residential development. Though the proposals for the ring roads, circular rail, use of existing rail systems were envisaged, implementation of the same were not carried out on the ground. The dependence on the private vehicles and increase in private vehicles coupled with poor management of traffic on the roads had led to parking issues, congestion and traffic accidents. BDA as development authority intended to prepare layouts and distribute sites/plots for housing. Land for development was required to be within the conurbation area.

In response to the immediate issues, the Revised CDP proposed a series of measures. In continuation to the zonal approach in form of Rings, the RCDP planners had decreased the FAR in the centre and spread the higher intensity of development. Though, the FAR was lower in the periphery, BDA and private developers went ahead in making layouts with densities of less than 100 persons per acre. This led to dependence on private transport/vehicular usage. Wide spread and sporadic development of private layouts added in the periphery facilitated by fragmented administration bodies (CMCs, TMCs, Gram Panchayats) led to poor infrastructure development, encroachments and indiscriminate development of land often leading to the decrease in green cover, tanks and water bodies ecosystem. Adequate conservation measures were not proposed for the tanks and valleys either in the land use maps or regulations. As the percentage of commercial land use allocation and its physical development are not guided adequately, led to widespread commercialization of residential areas. All corridors and roads were impacted by commercial land uses and parking issues. To allow for balanced development, vast open spaces are created by acquiring the lands as regional parks, which did not materialize during the implementation due to the difficulties of acquisition.

The areas close to the Whitefield and Electronic, Kumbalgodu had witnessed growth in housing and other land uses which require to be close to the work centers. This led to the planners identifying them as “spotted developments“. The wedges and the corridor plan were left out and the conurbation was extended upto
the peripheral ring road proposed in the plan. The villages which had experienced growth was included within the conurbation. The villages in the greenbelt were provided with a possibility of expansion for natural growth.

3.8.5.3.1 Mechanisms utilized for the plan implementation:
Land: the following land instruments have been employed:

1. Large scale of acquisition of land
2. Disposal or distribution of land through Public authorities
3. Restrictions on the land use

3.9 Revised Master Plan 2015
3.9.1 Planning process:

As stipulated in the Act, the plan is to be revised once in 10 years. As the Plan was to end by 2011 and already ground situations had changed, it was decided that the city plan be revised on sound planning principles and on robust information database comprising of large scale maps and use of Geographical Information systems.

The Act stipulates the procedure for taking up the planning process. The Stages taken up are shown in the diagram below:

Chart. 3.1: Steps followed for the preparation of the RMP 2015

Source: SCE- Creocean India, Pre-diagnosis report BDA.
3.9.2 Master Plan/ Spatial Plan for Bangalore:

The RMP 2015 for the BMA is a statutory document that identifies growth perspectives, develops land use plans addressing the urban agglomeration area growth and lays out the development control regulation (DCR) to regulate the city’s development.

3.9.3 Vision Objectives and goals:

The Vision for Bangalore according to the RMP 2015 has sweeping statements encompassing high quality of life. The guidelines that have guided the translation of objectives into a spatial plan are:

**Urban Form and Growth:** The RMP 2015 lays emphasis on the compact city and optimizes cost of service delivery. This is achieved by allowing renewal and redevelopment of the city as well as recycling the defunct industrial areas.

**Economic development:** Foster economic development by encouraging all businesses, including the informal sector. A robust and sustainable transportation system to connect the city and its socio-economic activity is proposed.

**Environment and energy:** The physical components of the natural resources comprising of the ground water, natural drainage channels and the water bodies, are to be protected. The emphasis is on renewable energy and to reduce the negative impacts on air, water and noise. The disposal of the waste in socially culturally relevant manner is mentioned.

**People and wellbeing:** Address the needs of community, economically disadvantaged sections through provision of services in a equitable manner.

**Leisure, Art Culture and sports:** Preserve the City’s art, cultural and Heritage values. Development of affordable and accessible infrastructure to support Art, Culture and Sports facilities. The Heritage has to be conserved. Open spaces in the city have strengthened.

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3.9.4 Concept Plan

The Plan intention is to integrate the spatial, economic, social, transportation and ecological planning. It lays emphasis on the principles of “Structured continuity“ through:

i) selective extension of urbanization, while preserving the large parts of the Green belt
ii) access to new extensions through peripheral ring road and
iii) renewal of areas already urbanized.

The plan is indicated through a graphic called the “Structure Plan” and the conceptual diagram serves a guideline for future development of the city.

Fig: 3.8: Concept plan for the RMP 2015

Source: Bangalore Development Authority.

The concept of structure plan lays emphasis on the strategy of integration of land use with the transport offering various options of the Metro, Mono Rail and Commuter Rail System centered on connecting all parts of the city and node development. Non-Motorized form of transport is not adequately found in the plan documents as it envisages all transport to come under the urban transport agency
to be formed by the Government. The Concept plan was introduced for the first time and is static diagram of the future course of development of the city.

3.9.5 Use of Spatial data and Information

The use of technology especially the spatial data through GIS and other techniques are very important for the formulation of the plan and its proposals. The various features such as the referencing the village survey maps digitally to the land use map, the identification of the environmentally sensitive areas, the earmarking of the roads and predominantly to share the information to the public at large through the online tools like “Drusti” are useful and have brought about transparency. The spatial data to be housed independently and be common data sharing platform is yet to be implemented. (Gopiprasad, Dr.B.Shankar, 2016).

For the RMP2015, various sources of data were utilized; key departments were consulted during the formulation. The key data sets include:

*Demographic data, Spatial growth and trends, Land use patterns and distributions, economic activities both formal and informal activities, Road networks and transportation ecological/natural resources, Demand and supply of the infrastructure services, investments factors affecting the growth of the city especially the pull and push factors.*

3.9.6 Housing and Infrastructure:

Housing in Bangalore is characterized by the persistence of small houses and overcrowding in households, stagnation of occupancy status, persistence of tenants in small one rooms and insufficient level of amenities in housing. (Census 2011, BDA RMP 2015). The specific focus of the Master Plan is on budget housing, redevelopment of slums and night shelters for migrant labour. However no mechanism has been devised to proactively address the demand for housing. The current housing initiative includes the Development of houses for the slum dwellers under Basic services for Urban Poor (BSUP) programme. Though affordable housing is being emphasized, the land prices and the real estate dynamics do not allow for the easy realization of these housing goals. The vision document refers to the national housing and habitat policy for the guidance on the
housing strategy for the Government and the BDA. As facilitator and provider the
thrust is on the affordable housing. It says much of the housing can be satisfied
through redevelopment/up gradation of existing built up areas through:

- Shifting from plotted housing to group housing for optimal utilization of
  land.
- Encouraging private sector participation for development/redevelopment
- Encouraging optimum utilization of land and facilitating viable projects by
  removing unnecessary controls on height, setback, etc.

The strategy includes the development of new housing areas, redevelopment of
areas, budget housing, redevelopment of slums, night shelters, rental housing
schemes. The redevelopment of slums through PPP is suggested. Relocation is
only in cases where the environmentally hazardous or danger to health.

Reservation of the land in the projects over 4000sq.mtr of development is
proposed for the affordable housing. The operational details of the proposals have
not been worked out.

3.9.7 Water supply:

In the historical growth of the city, there are still pockets of the city without the
water supply in regular supply and quantum. The recently added 110 villages
within BBMP area also needs to be serviced. The water supply project under
JnNURM has addressed this to some extent. However, the systematic supply and
demand issues are not addressed by the plan.

3.9.8 Sewerage and Sanitation:

Due to the informal developments, lack of sanitation has led to the contamination
of the water bodies, Sullage being let into the Nallahs and drains. The
underground Sewage programme taken up in the JnNURM addresses the problem
of sanitation of providing the UGD in the erstwhile CMC's.
3.9.9 **Solid Waste Management:**

Though the plan has identified a few land fill sites, the demand for disposal in scientific manner including the land filling methods has led into identifying new sites beyond the plan identification. Though the master plan does not directly concern itself as it is municipal function and depends on the interventions of BBMP completely. BDA on its own does not possess the competency to handle solid waste management comprehensively. The use of Private sector participation (PSP) and Public Private Partnership (PPP) in the delivery of services has been put to limited use.

3.9.10 **Drainage:**

Though the city has three distinct ridges with drainage patterns following the topography, indiscriminate development led to the building in the valleys and drainage areas of the city. Futhe dumping of the garbage and construction debris in the low lying areas have aggravated the problem of water logging and blocking natural drainage.

The RMP identifies the drainage and the ecological values of the low lying areas sloping to the drainage to Lakes / Waterbodies as valley zones that have to be protected. This is discussed separately. However the problems related to the drainage are addressed in an engineering solution through the remodeling of the storm water drains under the JnNURM project. The problem is however has a larger scope with its bearing on social, health and people participation. The entire intervention is funded through the tax payer’s funds and the central grants. Private participation models are not yet tested yet.

3.9.11 **Transportation:**

The structure of city reflects a system of ring roads and the radials. The RMP proposes to create a detailed road system with transversal roads / connecting laterally the key radials and major roads. In line with the National Urban Transport Plan (NUTP) and CTTS, the key aspects of the policy and Plan documents are detailed as proposals. The pedestrian facilities, bicycling, reduction in the private vehicles and support to increase the ridership of the Public transport has not been worked. The various facilities that needs to support the policies and
programme needs to be implemented. The Bangalore Metro has been proposed to be implemented and is taken up by the BMRCL.

The Key projects that are highlighted in the RMP 2015 have not been fully realized the institutional issues complicate further this problem for offering mobility in the city.

3.9.12 Education and Health Amenities:

The RMP 2015 identifies the lack of adequate government sponsored education at the lower classes. The existing facilities are not optimally utilized as noted in the various reports (Dr.Ravindra). The Higher education is quite supported and the city boasts centres of excellence for various disciplines. The requirements for the education sector are distinct with sprawling campus, good accessibility, proximity to the residential areas, etc. The education sector is governed by the State Government through its departments. The Civic amenities sites offered by BDA have its own limitations (Gopiprasad, Dr.Shankar, 2011). Mechanism for accommodating the growing educational needs of the city and global.

Similarly the health facilities also require support from the plan. Civic amenities emerging from the relinquishment through layout formation and Group housing over 12,000 square meters will be the sole supply for the provision of amenities. Due to the reservations in the earlier plans and the inability to acquire the same has been learning for the revision of RMP 2015. The Plans have not provided for the land reservation as it is believed that the private sector will take care of mobilization of land on its own.

3.9.13 Recreational Facilities:

The recreational facilities require active and passive recreation facilities. The Parks and playgrounds are nearly 14 %, new areas under the Forest area proposed to be developed. In the category of parks, it is categorized that 365 small parks, 55 well developed parks, and partially developed parks -105 and developed parks -180. The lack of open spaces in form of playgrounds /Maidans is completely amiss in the Plan recommendations.
3.9.14 Economic growth/ Jobs and Office Spaces:

Formal employment centers have been established through the industrial estates and private sector initiatives in form of tech parks and software complexes. Informal economy through is the obligation of the ULB, the Street vendor’s policy and Act has not been translated into action.

3.9.15 Environment

The city is situated on a ridge delineating four watersheds, viz. Hebbal, Koramangala, Challaghatta and Vrishabhavathi watersheds and has a network of drains, valleys and tanks as part of the drainage system. In 1961, the number of lakes and tanks in the city stood at 262. Official figures for the current number of lakes and tanks vary from 117 to 81. The important parks are listed in the Vision document - Master Plan 2015, like, Lalbagh Botanical Garden, Cubbon Park, Bannerghatta National Park, Dhanvantarivana and 365 parks maintained by the Department of Horticulture. The BDA had made mandatory for not less than 15% area be earmarked for Park and open spaces in newly formed layouts.

With remote sensing and advances in understanding the ecological aspects of the lakes and tanks, the RMP 2015 highlights the connections between the tanks in form of valleys and drains along with interconnected lake series. The areas around the tank and tanks are declared non buildable zone allowing for creation of open space as well communicating the strategic intent for protecting the physical environment.

The RMP 2015 establishes a green and blue network for the city and provides opportunity for implementation and further strengthening the network. At the project level, recycling of water is encouraged and has become mandatory.

3.9.16 Energy Conservation

The RMP 2015 makes the strategic trust of encouraging the public transportation in multi modal manner. A separate and detailed plan for covering transport issues are covered in the comprehensive traffic and transportation plan. Though the

8IDIP Report. Prepared by STEM for KUIDFC. pp. 2, Chapter 8
energy is itself addressed through sectoral plans by the respective departments, the vision document envisages power sufficiency through plan and management as well as slew of conservation methods.

3.9.17 Investment Plan

The plan document envisages that the development will be carried in phases and will use the CDP for its implementation. However, the CDP identifies total investment of over 75000 lakhs over the plan period to be mobilized. While a case is made for increased spending on the infrastructure and services delivery, the funds required for the implementation of the RMP 2015 has not been addressed. No mention of the stakeholders responsible for mobilization of funds is there.

No single route for mobilization of funds is possible; especially the fiscal instruments /mechanisms such as borrowing, taxes and grants are limited. Land acquisition is nearly impossible due to very high compensation as stipulated by the New Land acquisition Act provisions.

3.10 Spatial Planning (Master Plan) and the Objectives:

In response to the question on the objectives that need to be considered in the implementation of the spatial plans in Bangalore a large percentage of respondents opined that Mobility, Quality of life, housing, and environment were priority objectives that the spatial plan implementation must focus on:
Figure :3.9 Priority Objectives for Implementation in Spatial Plans.

![Graph showing priority objectives for spatial plan implementation]

Figure :3.10 : Priority Objectives for Implementation in Spatial Plans- Private and Government respondents.

![Graph showing priority objectives for spatial plan implementation]

In the graph the inner values indicate the higher priority, while the out rings depict lower priority among the 8 objectives presented in the questionnaire.
The Private practitioners opine that the spatial plans must address the economic, housing, environment, mobility as priority objectives while the Govt. respondents think that mobility, quality of life followed by housing, governance and environment needs to be priority. The Government respondents opine the spatial plans can offer opportunities for large number of goals to be implemented. The spatial plans could strengthen Governance objectives and while offering higher quality of life for the residents of the city.

3.11 Appraisal of the Master Plan Implementation:

With the appraisal of the RMP 2015 document and earlier plans, it is observed that implementation of the proposals take time for realization, often the implementation is spread in phases across several plan periods. A good example is that of the Ring road for Bangalore. Going by the completion milestone, the ring road is still in want of some physical component to be realized such as service roads, bridges. These delays and phase wise implementation can be attributed to the land acquisition issues, lack of finances, poor contracts, or sometimes that the intended population did not arrive for the infrastructure to be created. A good unit of time for comparison for evaluating the implementation of plan can be period before and after the plan. This translates to roughly a decade and this reasonable for comparison. The main development components proposed by the Master plan and coming within the BDA jurisdiction are taken up for the breadth wise qualitative evaluation. These are review of the development projects and development mechanisms.

3.11.1 Development Initiatives:

1. Land mobilization and development (Layouts)

2. Programmes and Projects:
   - Peripheral Ring road
   - Completion of Outer ring Road – underpasses.
   - Rejuvenation of Tanks and water bodies
   - Housing Schemes – EWS housing and Layouts
Development Mechanisms/ Instruments:

- Regulatory mechanism: The legal mechanism of the regulations – RMP 2015 that enable land use regulation and provide for/ enable development.

- Financial Mechanism: These include the conventional budgetary support and funding under central support such as the JnNURM (City Development Plan/CIP).

- Services delivery mechanism through the PSP and PPP routes.

Development Initiatives:

3.11.1 Land mobilization and development (Formation of Layouts):

BDA acquires land from land owners (mostly farmers) and develops them into large layouts with a mix of plot sizes and infrastructure. Some of the aspects that impact the formation and development of the layouts are discussed below:

- Land acquisition has been through payment of monetary compensation and allotment of site as per the extent of land lost.

- The contagious land parcels must be at least over 100 acres, in many instances, there are number of structures / settlements.

- During the process of land acquisition, lands may be excluded due to various reasons making the land parcels non contagious- the development on such assembled parcels of land will be piecemeal. For instance, one can observe dead ends and poor junctions of road in the formed layouts.

- Pricing of the plots formed are not in line with the market values and do not reflect the underlying land value as BDA buys cheap and develops in such a manner there is cross subsidy.

- Occupancy after the completion of the project is low as they wait for the critical population size, development of amenities, etc.

- The layouts formed are not accessible through a proper transport system- the leading roads to the layouts itself may be very poor.

- There are no economic centers or job centers around these developments.
• The Arkavathy Layout has been ongoing since 2004. The scheme is challenge with land acquisition procedures and constant interference of the various actors involving state and authority by the way of de-notification (deleting lands meant for the scheme from the original notification).

• Based on the RMP 2015, the government had announced plans to create five layouts named after Nadaprabhu Kempegowda, Shivaram Karanth, D.Devaraj Urs, K C Reddy and S Nijalingappa around the city to allot Two Lakh housing sites.

• With compensation terms being revised through the RFCLTA, land acquisition at the market values makes the development unviable.

• Layouts and plotted development BDA performance in the supply of sites was notable between 1999 and 2002, the total number of plots produced was 39,850 over a developed area of 2000 hectares. However this was only for a short stint. Even the sites produced are largely unoccupied and incomplete with infrastructure services.

3.11.2 Programmes and Projects: (Roads, Housing, ) (Airport Link Road)

1. Peripheral Ring road
2. Housing
3. Airport Link Road
4. BETL

Peripheral Ring Road: The length of the PRR was projected to be 116 kms, out of which the first phase was about 65 kms. The PRR will have eight lanes on the main carriageway and three lanes on the toll-free service road on both sides. BDA’s Peripheral Ring Road\(^9\) will connect Tumkur Road to Hosur Road, via Bellary Road and Sarjapur Road in the first Phase. Except some areas in the suburbs, the alignment of PRR runs through the green belt; 60% of it runs through cropland, 17% via agriculture plantation and 16% runs in commercial plantation area. This will integrate many national and state highways around Bangalore -Tumkur Road, Bellary Road, Old Madras Road and Hosur Road. The project has been taken up by BDA and the project is proposed to be funded with the Japan International Cooperation Agency(JICA) loan with an outlay of over INR 5800 Crore. The

\(^9\)The recommendation for clearance can be seen on page 13 of 84th SEIAA meeting proceedings, dated November 18th 2014.
significant portion of the project will be towards the acquisition of land for the Right of way. With the government giving its approval to undertake the land acquisition. Though the notifications for the same has been carried out. The land acquisition will be based on the New land acquisition bill 2013 thereby pushing the costs upwards. The Government has given permission to acquire through a mix of Compensation and issue of TDR. BDA will be executing it, not NHAI (central govt.) and two; it will be a PPP project. The environmental Impact assessment is already carried out. The Social impact assessment will have to be completed as per the land acquisition bill as the plan includes the acquisition of land to the extent of 1920 acres.

BDA proposed a farmer friendly scheme for land acquisition and it is proposed to have compensation for the land acquired in the following three ways. Those selling land can choose any combination of the three ways:

a. **Monetary compensation**: An amount doubles the actual cost of land according to guidance value (The ratio is 1:4 in urban areas and 1:2 in rural areas). (RFCTLARR ordinance).

b. **Transfer of Development Rights**: A part of the land will be acquired, and transferable development rights will be accorded to the land owner for remaining part of the land.

c. **60:40 ownership**: On the 25 metre alongside the PRR, land will be developed free of cost (sites, commercial properties etc). BDA will retain 60% ownership of it and seller can keep 40%.

The project has not been implemented due to the want of funds for the acquisition.

**Housing Projects**: 

BDA has taken up housing for the poor in terms of Economically Weaker Section (EWS) at 18 sites. Though the master plan underlies the importance of the location, accessibility, the proposed projects are at a distance from the city and are not well connected to enable easy mobility.

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10 Visited the site on 03-03-2015 on [http://www.bdabangalore.org/ongoingprojects.html](http://www.bdabangalore.org/ongoingprojects.html) at 1:22 PM.
Development Mechanisms/ Instruments:

3.11.3 Financial Mechanism:

These include the conventional budgetary support and funding under central support such as the JnNURM (City Development Plan/CIP). The City Development Plan (CDP), prepared for the city of Bangalore in 2006 and revised in the year 2009, was a prerequisite for availing financial assistance under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The area covered under CDP is 1351.1 sq.km and includes BBMP, BDA and BIAAPA. The CDP has estimated the population as 99.68 Lakh for the BBMP. With the vision of retain its pre-eminent position as a City of the future, the City shall enable and empower its citizens with:

- Growth opportunities to promote innovation and economic prosperity;
- A clean and green environment;
- High-quality infrastructure for transport and communication;
- Wide-ranging services aimed at improving the quality of life for all;
- Conservation of its heritage and diverse culture; and
- Responsive and efficient governance

The release of grants/funds under JnNURM is linked to the reform programme. The reforms include state level, ULB level with mandatory and optional reforms. A tripartite agreement between the state, Centre and the ULB is made for the arrangement and commitments on the reform.

Though the state has achieved all the reforms- planning enabled and enabling planning reforms are yet to take place effectively. The Area Sabha’s have not been formed or the ward committee, without the intervention of the Court. Seen as funding plan complementary to the RMP 2015, planning proposals have not been taken up under the CDP.

Though the CDP attempted to capture information on the investments required in all the sectors for overall development of the city, the stakeholders mainly BMTC, BWSSB were better prepared to access the funds as the projects taken up under JNURM were already identified in other improvement programmes. BBMP
though has number of services and infrastructure development priorities, it had chosen an engineering project such as the remodeling of the storm water drains.

The Bulk of the BBMP investment under JnNURM has gone into the Storm water drain and road projects. The JnNURM had also envisaged the use of the funds as strategic investment leading to investment from the private investors. Multi stakeholder and people participation at the project level has been very little and the projects tend to often tackle one dimension of the planning problem. According to the CAG report presented in year 2012, the major reasons attributed to the weak implementation were due to:

Some of the reasons for the delay in completing the projects include:

(i) delay in acquiring land;
(ii) deficiency in preparation of projects; and
(iii) Non-identification of beneficiaries which increased the risk of ineligible beneficiaries getting the benefits.

3.11.4 PPP and PSP Participation:

(iv) The PPP participation has been limited to a few projects such as the NHAI initiated projects such as the BETL. Improved road to the Airport by the NH and private players.

3.12 Development Control Regulations:

The Zonal regulations highlight the zones for the development control and land use regulations. The key aspects of the zonal regulations are given below:

The planning districts 47 in number have been organized in three rings:

1. 1st Ring: the core area
2. 2nd Ring: The developed urban areas surrounding the core area
3. 3rd Ring: The urban Extension areas in the City’s Outskirts.

The Delineated PD are based on the common issues shared by the areas as well as the boundaries being co-terminus with that of the village / municipal ward/ boundary for ease in management and implementation.

Each of the report on the PD contains information on the existing situation, the issues and development needs and the vision/direction for the development of the area in total, zonal regulations and the identification of projects. These give an insight for formulating detailed plans and projects for implementation.

The introduction of the social synthetic index at the PD level is useful as it shows the level of social situation in the area. Though the report highlights the need for implementation, the stakeholder or the finances or the mechanism for the implementation has not been discussed or recommended. It has not also spelt out the level of participation for formulation and implementation.

**3.12.1 Appraisal of Zonal Regulations:**

The formulation of the land use zones and the regulations for the RMP 2015 has been carried keeping in view the diversity of developments and the morphological aspects of the city structure and development. The revised master plan lays emphasis on high intensity development by providing higher FAR in central areas and along areas where trunk infrastructure can be extended or where it already exists. The plan breaks away from the zones of A, B, C and recognizes ground realities, demand and supply parameters. The concepts of Mixed Land use with intention of creating work-live environment in new areas and in the existing areas to improve the economic efficiency. The new categories of land use zoning introduce the: Mutation corridors, commercial axes, Hi-tech zones and the mixed use zoning and the commercial areas being distinguished.

**3.12.1.1 Transfer of Development Right:**

Transfer of development right is essentially a market based instrument that can be used by cities under which the development potential of land is recognized and transferred to achieve the development goals without burdening the finances of the city Government (Keare 1996)

The KTCP Act 1961 vide section 14(B) was introduced in June 2004 deals with TDR for acquiring lands for public purposes including widening of an existing road or formation of new roads, for creation of parks and public spaces and civic amenities. As per the 14 B, benefit of development rights where any area within a
local planning area is required by a Planning authority or local authority for a public purpose and the owner of any site of land which comprises such area surrenders it free of cost and hands over possession of the same to the PA or the Local authority free of encumbrances the planning authority

The Total TDR generated in BMA is about 15.75 Lakh square meter translating to about 389 acres of land for about 200 roads. While about 77.81 acres equivalent TDR has been utilized, nearly 181.57 Acres of land is yet to be utilized. In the near future it is proposed to generate 2.21 million Square meter or 22.10 lakh square meter of area.

The success of TDR programme can be measured in terms of the number of transactions and the total area of land made available for the public purpose. The other criteria that can be used to judge the success of the TDR include its effectiveness (whether it has achieved the objectives), efficiency (at lowest cost), equity, manageability and legitimacy. Information asymmetry is one of the reasons for market failure of the TDR. The holders of the DRC are ill informed as to how and where to sell their TDRs as the market for TDR is yet to be developed fully. Tools like FSI calculator will enable to determine the value.

The other reasons as to why the TDR has not picked up are:

1. Small plots.
2. Compensation not commensurate with location.
3. Tenants staying in the Rented properties
4. Equivalent land availability for the sum received from the sale of TDR.
5. Loss of business due to the relocation
6. Lack of platform on which the trading of the TDR can happen-

**3.13 Instruments currently in use for the implementation in the Bangalore Metropolitan Area (BMA):**
<table>
<thead>
<tr>
<th>Sl.no</th>
<th>Planning issue/proposal</th>
<th>Serving the Interest</th>
<th>Stakeholders</th>
<th>Plan recommendation/ Planning process/ type of document embedded</th>
<th>Instrument/ Tool/Technique utilized</th>
<th>Remarks / success achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Development of Parks</td>
<td>Public</td>
<td>Private land owners/ UDA/ ULB</td>
<td>Land use designation on the RMP or reservation in the zonal regulations-10 % of the layout area to be reserved.</td>
<td>Financial compensation as part of scheme- land acquisition. Relinquishment during plan approval.</td>
<td>The regional parks, areas marked in the masterplan are not realisable due to costs of compensation</td>
</tr>
<tr>
<td>2</td>
<td>Preservation of Valleys</td>
<td>Public interest</td>
<td>Private land owners/ UDA/ ULB/ LDA/KSCB</td>
<td>Land use designation on the RMP and consideration as open space within the zonal regulations.</td>
<td>No tools are used or compensation provided.</td>
<td>Committee formed for the fresh approvals. Efficacy to be ascertained</td>
</tr>
<tr>
<td>3</td>
<td>Renewal of the areas in the city such as Basavangudi, Visveswarapuram, Chamarajpet, alleshwaram, Gandhinagar, etc.)</td>
<td>Predominantly private.</td>
<td>Private owners and ULB/ UDA</td>
<td>Land use and Zonal regulations provide for higher FAR and intense land uses.</td>
<td>FAR management based on road width and plot size.</td>
<td>Adhoc increase in FAR. No specific instrument for overall augmentation of infrastructure or capturing the enhanced value</td>
</tr>
<tr>
<td>4</td>
<td>Renewal of the old area as Pettah</td>
<td>Public / Private</td>
<td>Owners of land and buildings, ULB/ UDA</td>
<td>Land use and Zonal regulations provide for higher FAR – relaxation of car parking norms.</td>
<td>FAR management.</td>
<td>Adhoc increase in FAR. No specific instrument for overall augmentation of infrastructure or capturing the enhanced value</td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
<td>Public/Private</td>
<td>Private/ULB/UDA</td>
<td>Identification of lands, land use and zonal regulations</td>
<td>Co-ordinated Planning scheme. The contents and procedure is not defined</td>
<td>Allowed for changed of land use and developed without any public interest adding to the existing issues.</td>
</tr>
<tr>
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<tr>
<td>5</td>
<td>Redevelopment of Derelict industrial land</td>
<td>Public/private</td>
<td>Private and ULB/UDA</td>
<td>Identification of lands, land use and zonal regulations</td>
<td>Co-ordinated Planning scheme. The contents and procedure is not defined</td>
<td>Allowed for changed of land use and developed without any public interest adding to the existing issues.</td>
</tr>
<tr>
<td>6</td>
<td>Infill and vacant land development/redevelopment</td>
<td>Private</td>
<td>Private sector</td>
<td>Land use zoning and zonal regulations</td>
<td>FAR management. Adhoc increase</td>
<td>No value capture. Negatively impacts -no infrastructure is provided for.</td>
</tr>
<tr>
<td>7</td>
<td>Allowance of Mixed Land use</td>
<td>Private</td>
<td>Private/ULB</td>
<td>Land use and zonal regulations</td>
<td>Uses and FAR management dependent on the road width and excessively dependent of enforcement</td>
<td>No value capture for the provision of infrastructure and mitigate negative impacts.</td>
</tr>
<tr>
<td>8</td>
<td>Creation of new roads in periphery and in the core city</td>
<td>Public and private</td>
<td>Private land owners, Institutions and ULB</td>
<td>No compensation. Land owners to relinquish as part of the plan sanction. Compulsory acquisition by use Land acquisition act.</td>
<td>No compensation. Land owners to relinquish as part of the plan sanction. Compulsory acquisition by use Land acquisition act.</td>
<td>Implementing is faced with lack of right tools. Land owners faced with loss are not pro-active.</td>
</tr>
<tr>
<td>9</td>
<td>Creation of peripheral road</td>
<td>Public interest</td>
<td>Land owners and UDA</td>
<td>RMP shows alignment</td>
<td>Land acquisition act. Negotiated settlement.</td>
<td>Is not feasible due to compensation issues. Lack of mechanism for mobilising land and resources.</td>
</tr>
</tbody>
</table>

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<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>10</td>
<td>Creation of double decker corridors- such as electronic city, Tumkur road</td>
<td>Private interest</td>
<td>NHA, PWD and Gok</td>
<td>RMP does not address the roads-extra legal</td>
<td>PPP model with concession awarded by the NHA to private players</td>
</tr>
<tr>
<td>11</td>
<td>Widening of the roads</td>
<td>Public interest</td>
<td>Land/bldg owners, ULB</td>
<td>Listing by the RMP 2015, ZR specifies the width without rationale for taking up the works.</td>
<td>Land relinquishment by voluntary basis during plan sanction. Use of TDR</td>
</tr>
<tr>
<td>12</td>
<td>Integrated Transport terminals</td>
<td>Public interest</td>
<td>Para statals- BMTC, KSRTC.</td>
<td>Objective in the RMP. Allowance of 40% of area to be developed for non transport activity.</td>
<td>Allowance of FAR to be used for commercial viable uses. On site infrastructure is created. Benefits to all. Surrounding areas suffer from lack of infra/support.</td>
</tr>
<tr>
<td>13</td>
<td>Integrated metro terminal</td>
<td>Public and Private</td>
<td>Private , BMRC, ULB</td>
<td>Objective in the RMP. Structured in PPP basis, land and station construction by private sector.</td>
<td>Allowance of higher FAR, 4.0 One project</td>
</tr>
<tr>
<td>14</td>
<td>Parking on street and off street. Complexes</td>
<td>Public and private</td>
<td>ULB and private developers</td>
<td>Relaxation of ZR provisions.</td>
<td>FAR management-incentive Very little supply.</td>
</tr>
<tr>
<td>15</td>
<td>Housing – redevelopment of the Slum areas</td>
<td>Public interest</td>
<td>ULB, Land owners – institutions</td>
<td>Recommendations in the ZR.</td>
<td>FAR management , Coverage, etc Not taken off</td>
</tr>
<tr>
<td>16</td>
<td>Housing- redevelopment of Budget /Affordable housing</td>
<td>Public , private interest</td>
<td>ULB, land owners, Private entities</td>
<td>Recommendations in the ZR.</td>
<td>FAR management, Fiscal incentives, Land reservation in percentage. Not taken off as policy has not been implemented.</td>
</tr>
</tbody>
</table>
3.14 Programme, Plans and Project Implementation in BMA:

The various programme and projects are identified and the project development cycle is analyzed for the steps and inputs that go into translating the proposal to the implementation action. Please see Annexure .3.0 for analysis on the programmes / projects. It is observed that whenever there is dependency on land mobilization, through acquisition, the implementation turns to be weak. All the programmes and projects that have spatial components for implementation are taken up through stages that involve the Engineering – Project Management route. Public consultation is restricted only at validation stage of the formulation of the project. Translating the plan / policy will require devising the program, stakeholders and consultative as well as participative methods.

3.15 Key Issues Related to Implementation of Plan Proposals

Fig . 3.11: Qualitative perception on the effective implementation of RMP 2015

![Graph showing qualitative perception on the effective implementation of RMP 2015](image)

Source : Primary Opinion Survey

The graph shows that the implementation in the areas of the strict enforcement of the regulations for layout and buildings is missing. Though the quality of regulations is high, the large percentages of population who do not approach the
authority for permissions or violate the norms are very high. As one interviewee commented, plan sanctions today are to be provided to the applicants in time bound manner. It has been included in the Guarantee of services (Sakaala). The city core and the older parts of the city have not received adequate attention, large percentage of respondents both in private and Government opine renewal/redevelopment of the old areas must be taken up. Another aspect is the accommodation of the informal economy, the spatial plan has a few provisions but they have not been implemented completely. The informal economy has been thriving due to the lapse of strict enforcement rather than pro-actively accommodating them. However, on pan India comparison, one interviewee found the RMP 2015 regulations to be user friendly and liberal, the approach suitable for large metropolitan area.

“Priority Constraint factors” to the implementation of "Thematic Spatial Plan Proposals". (For instance: conservation/ preservation, housing schemes, mobility, etc that require comprehensive plan implementation).

**Figure 3.12: Priority Constraint Factors – Thematic Spatial Plan Proposals**
Comprehensive spatial plan proposals get rarely implemented due to the dependence on a number of agencies and the multiple legislations. Even when the plans identify the key stakeholders for the implementation, the priority in terms of resources allocation, time and deployment of personnel is not synchronized and co-ordinated properly. The procedures for the implementation too are found to be cumbersome and lengthy.

3.16. Summary:

In this chapter, the main institutions involved with planning and development with respect to their main activities are understood. The BMA today mainly comprises of the BBMP and the villages coming under the Agricultural zone. The developments in the BMA have its influence on the peripheral areas within the BMR region. The BMR’s growth keeping the BMA as strong centre has several implications for co-ordination and overseeing planning as well as development.

In the case of Bangalore, the BBMP has not been granted adequate powers by the State to carry out urban planning and manage the city. Further, the State has created numerous other organizations of its own to manage various services such as water supply, transport, traffic management, energy, housing and law & order etc. The result is the existence of many parastatal organizations, each acting in its own geographic area, leading to complication and confusion in coordinating
different activities. Legimitation of the decisions and authorization through hierarchy is missing for effective implementation.

Currently, the development carried out by BDA and Government agencies, depend on the budgetary supports and additional revenue sources. The main mode for mobilization of land is through the land acquisition route. The development initiatives identified are limited by the organizational skills, dependency on the laws and poor participation of the citizens.

The major task for BDA then is to acquire land, develop and sale of sites to the population. Much of these simplistic land development operations are similar to the private sector actions, except that the demands for subsidization make it difficult to price the sites to the market values. Larger land parcels are required for the ensuring the viability of the scheme and justify the administrative and operative costs. This mandates a larger land parcel to be contagious. For acquisition of the Lands, the BDA has depend on the LAA act and requires the permission of the State in carrying out acquisition through a stated procedure. The extents of the land to be acquired and the exclusion of land from acquisition is determined by the State. This often is carried out with respect to its own logic – such that the layout and development appears to have certain pockets which are land locked and do not allow the infrastructure to pass through. This is observed in several of the layouts developed by BDA- especially SMV, Arkavathy, etc.

Eventually the impact on the land prices, land value capture is restricted to making the farmers as land losers and the compensation is at lower than the market, creating disincentives for the farmers to part with their land. The development of the layouts comprises of the roads, parks and open spaces and provision of civic amenities (CA). These are to provide for the social amenities and infrastructure. However in reality, the layouts are developed and there is a lag witnessed before the layout is occupied. The fully developed layout is then transferred to BBMP for its municipal functions. Several village pockets close to the developments and within the developments are allowed to co-exist with its rural character and functions. In some cases, the Grama Panchayat is allowed to carry out its function including the revenue powers. The distribution function, land provision for the social facilities, adequate infrastructure to service the populations remains a
challenge. BDA has a relatively progressed in the preparation of plans and the use of instruments to regulate the developments. The isolated use of the instruments and plans are adequate for regulating the simple urban development operations such as the housing, single plot layouts, etc carried out by the private sector. The current mode of development is through the use of a mix of engineering and project management techniques as per the analysis. With the changing context, the key assumptions of the conditions required for Implementation also changes.

**Table. 3.6 Programme, Plans and Project Implementation**

<table>
<thead>
<tr>
<th>Existing situation</th>
<th>New situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Availability of funds</td>
<td>Alternate sources for funds</td>
</tr>
<tr>
<td>2 Project mode</td>
<td>Plan mode- negotiation and joint venture for converting to project mode</td>
</tr>
<tr>
<td>3 Single stakeholder</td>
<td>Multiple shareholders</td>
</tr>
<tr>
<td>4 Own lands/ ample availability</td>
<td>Multiple owners/ land as scarce resource</td>
</tr>
<tr>
<td>5 Mainly engineering oriented</td>
<td>Policy, Plan and Program oriented</td>
</tr>
<tr>
<td>6 Without public participation</td>
<td>With public participation</td>
</tr>
<tr>
<td>7 Environmental/ impacts</td>
<td>With impacts/outcome</td>
</tr>
<tr>
<td>8 By Departmental/ weak capacity</td>
<td>Enhanced capacity/ Outsourced competency</td>
</tr>
<tr>
<td>9 Dependent.</td>
<td>Strong autonomy/ Competitive</td>
</tr>
<tr>
<td>10 Dejure</td>
<td>De facto</td>
</tr>
</tbody>
</table>

A breadth wise evaluation of the plan and project documents allows for understanding of the various aspects emerging from implementation. To actually know the effectiveness of implementation, it is important to go into depth of plan implementation. The next chapter intends to provide the effectiveness of spatial plan implementation.