

# DETAILING 5 RECOMMENDATIONS

Expert Committee : BBMP Restructuring  
2016 - 2017



**BBMP**  
RESTRUCTURING

Chairman: B. S. Patil, IAS (Retd)  
Members: Siddalah, IAS (Retd)  
V. Ravichandar



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## **BBMP RESTRUCTURING 2016-17: DETAILING 5 RECOMMENDATIONS**

### **BACKGROUND**

In Sept 2014, the Government of Karnataka (GoK) set up a 3-member Expert Committee for BBMP Restructuring. The report of the committee was submitted in June 2015. The report highlighted the current structure and functioning of Bruhat Bengaluru Mahanagara Palike (BBMP) and other civic agencies in Bengaluru. It went on to recommend a new Governance architecture (5 Corporations with a Greater Bengaluru Authority (GBA) at the city scale), made the case for uniform wards (~ 400 in lieu of 198), strengthening ward committees, integrated city scale activities including parastatals at GBA level, advocated a City Finance Commission, an Ombudsman and a move to a directly elected mayor system. The report suggested setting up the Metropolitan Planning Committee (MPC) at the Bengaluru Metropolitan Regional Development Authority (BMRDA) scale and a new act for Bengaluru. There were recommendations to professionalise the human resources at BBMP, consider new city planning models, an Economic Development Agency and be proactive in municipalising urban villages on the outskirts.

The Government of Karnataka vide its Order No.UD 484 MNY 2013 dated 27-01-2016 had extended the tenure date of the Committee upto 31-03-2017. During this period, the Committee worked on 5 reports which are set out in this document. These are elements of the original recommendations that have been detailed. A summary of these 5 reports are set out below.

### **RECOMMENDATIONS DETAILED**

#### **• Cadre & Recruitment (C&R) Rules for BBMP**

In the initial report, we had set out some of the key lacunae in the C&R rules for BBMP – these mainly dealt with improper organization of departments, C&R Rules that have not been changed for over 45 years, lack of specialisation, problems due to deputation, frequent transfers, negligible training, etc.

During 2016-17, based on extensive discussions with BBMP officers, we have suggested reorganization of the BBMP departments from 25 to 16. These departments would be across 7 functional areas – Resources, Engineering Services, Healthcare, Urban Planning, Ecology and Environment, Welfare). The report suggests which of these functions could be integrated at the city scale (across Corporations at the Greater Bengaluru Authority) whenever the transition is to be made.

The key recommendations for C&R rules:

- While revised C&R rules were drafted a few years ago, it has not yet been notified. We recommend that the guidelines set out in our report here be adopted while notifying the revised C&R;



- Written examination for all posts (except Pourakarmikas) and doing away with interviews;
  - Outsource recruitment to credible external agencies, typically reputed colleges / universities;
  - Discontinue deputation;
  - Minimise inter-department transfers;
  - Lateral entry for senior positions.
- **New Planning models for Bengaluru**

Existing planning frameworks for a dynamic mega city like Bengaluru such as the dated Karnataka Town and Country Planning (KTCP) Act, 1961, traditional land use based master plans (static in nature), development control regulations (which are often violated) have proved to be weak instruments to tackle the several challenges and needs of the city. Further the current master planning exercise is unable to integrate activities across the various silos of government agencies be it water, sewerage, transport, energy, environment, etc nor effectively provide space for citizen participation. The chapters in the Master plan report tend to be academic exercises and does not address the pressing issues of a rapidly growing city like Bengaluru.

We recommend a significant overhaul of the planning process from the business as usual model. The key recommendations for planning Bengaluru:

- The city should set out key guiding principles for the planning exercise built around improving sustainable living indices;
  - The KTCP Act 1961 should be revised and there is a case for a Bengaluru specific planning provisions in the proposed GBA Act;
  - Negotiated plans between elected representatives and citizens required across the spectrum from starting at the Ward level and up the chain with Zonal, Corporation, City scale and Regional plans;
  - Based on activity mapping, planning and execution should be done at the level(s) best placed to do so (Ward, Zone, Corporation, GBA);
  - The Metropolitan Planning Committee (MPC) should be at the BMRDA level and not at BDA scale. The future lies in City – Region planning;
  - Adopt Strategic Spatial Planning and Strategic Projects as a useful vehicle to align agency activities to city priorities and ensuring interdepartmental coordination and cooperation.
- **Municipalisation to address Urban Expansion and Urban Villages**

The previous expansion of the Bengaluru Mahanagara Palike (BMP) to become the Bruhat Bengaluru Mahanagara Palike (BBMP) in 2007, did not see the expected gains on ground with a high level of disparity in infrastructure provision (water, sewerage, roads) between the core (225 sq kms) and the newly added areas (483 sq kms with 110 villages). The existing challenges as well as any future expansions of the corporation will need to be resolved through evolving a clear road map for municipalisation, and proactive priming of urban and rural bodies in the city's

peripheries to prepare them for future amalgamation and stringent measures to address the rampant change of land uses in far flung peripheries.

We are already witnessing haphazard growth patterns outside the BBMP limits within the Bengaluru Metropolitan Area (BMA). High rise buildings and large property tracts are being given permissions without adequate provisioning for road width / connectivity, water, sewerage, etc. The key recommendations to address Municipalisation are:

- Set up a Municipalisation committee to proactively plan and provision infrastructure in rapidly growing peripheral areas before any future amalgamation into BBMP;
  - The revised Structure Plan of the BMRDA needs to be the guiding document for the region;
  - Land use changes in Bengaluru's peripheries needs stringent criteria and restricting the powers of rural local bodies to grant development permissions through amendments in KTCP Act, 1961 and Karnataka Land Revenue (KLR) Act, 1964;
  - Upgrading urban village settlements in BBMP area by appropriate retrofit of infrastructure and involving ward committees;
  - Using Bengaluru Coordination Committee as vehicle for integration of services across agencies.
- **Land Procurement Mechanisms for Public Purposes**

Several key infrastructure projects in Bengaluru's city and region have been stalled primarily due to land acquisition hurdles and related cost and time over runs. With the higher compensation packages to be offered under the newly enacted land acquisition Act (RFCTLARR Act 2013), many government agencies are financially unable to meet the expenses related to acquisition. A classic example is the much-delayed Peripheral Ring Road (PRR) project which has seen a five-fold increase in costs in 13 years.

The key recommendations about facilitating Land Procurement for Public Purposes:

- Area development approach and not a 'strip' development approach for projects like the PRR;
- Six methods detailed and a hybrid mix needed based on nature of project and ground conditions
  - Town Planning Schemes, Land Pooling Schemes, Notified Areas Scheme (NAINA), Transfer of Development Rights (TDR), Cluster Development, Joint Development.
- Amendments to KTCP Act 1961 to enable alternate mechanisms;

The most important aspect of planning and executing large scale infrastructure projects involving land is political will backed by administrative commitment and appointment of strong leaders to drive the project on the ground.



- **Bengaluru Spatial Information Centre (BASIC)**

Bengaluru's rapid and unmanageable growth necessitates uniform, highly detailed and accurate spatial information for proper planning and monitoring of various developmental activities. Prominent city agencies in Bengaluru like the BBMP, BDA, BESCOM, BWSSB, BMTC, BMRDA, etc. have their own spatial datasets created by multiple consultants which are typically fragmented, inconsistent and do not follow National Spatial Data Infrastructure (NSDI) guidelines or vendor neutral and inter-operability procedures.

The key recommendations related to setting up a spatial datasets agency:

- Set up a Bengaluru Spatial Information Centre (BASIC) to cover the Bengaluru Metropolitan Region (BMR) through a Government Order ;
- Pass a Geospatial Act along the lines of Delhi region;
- BASIC will be a separate statutory agency housing all spatial datasets across all agencies;
- Have clearly defined norms on ownership, updation responsibilities and protocols for sharing datasets (inter agency and with citizens);
- Follow Open Data protocols.

Done right, BASIC can transform the planning, execution and provision of citizen services radically and allow for greater crowd sourcing of solutions.

## **GOING FORWARD**

The Committee plans to detail its recommendations in a few other areas. There is a need for a draft legislation for the new Bengaluru specific Act that includes the provision for a Greater Bengaluru Act – this legislation needs to study the separate Acts that govern the functioning of agencies like BDA, BESCOM, BWSSB, BMTC, BMRCL, etc. and align them to meet the spirit of the Committee recommendations. The design of uniform wards taking into account population, growth rates, geographical area needs to be undertaken – this requires data to be studied at the 2011 census block level to decide on the optimum ward groupings. The Committee is confident that the Property tax receipts can be significantly enhanced using GIS and unique property identity mechanisms – a proposal to overhaul the back-end systems has been submitted. Proactive planning for the future is desirable – when the government is ready to implement the Committee's suggestions, the original report and the detailing of some of the elements would form a handy guide for quick execution.

**ACKNOWLEDEMENT**

The Committee thanks the GoK for its faith and support in the BBMP Restructuring exercise. Multiple government officers in BBMP and across agencies have helped us in compiling this report. Special mention needs to be made about the support of Azim Premji University (Mr. A Narayana) and World Resources Institute India (Ms. Rejeet Mathews, Ms. Tintu Sebastian, Mr. Sreekumar, Mr. Surya Prakash, Ms. Kate Traynor, Mr. Gaurav Mittal, Mr. Raj Bhagat, Mr. Rajeev Malagi,). We thank them for extending their support to make Bengaluru a better place.

**B S Patil**  
Chairman

**Siddaiah**  
Member

**V. Ravichandar**  
Member



# CADRE & RECRUITMENT RECOMMENDATIONS

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# Re-organization of Departments and Revision of Cadre & Recruitment Rules: BBMP

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*Acknowledgement: The Expert Committee – BBMP Restructuring thanks Azim Premji University and Mr. A Narayana for their suggestions and support in compiling this report.*



## 1. Introduction

The Expert Committee for Restructuring Bruhat Bangalore Mahanagara Palike (BBMP) constituted by the Government of Karnataka, under the chairmanship of former Chief Secretary B.S. Patil in its final report submitted to the Government of Karnataka in June 2015, *inter alia* made a wide range of recommendations for restructuring and professionalizing the BBMP's human resources. These recommendations followed a careful examination of the existing state of affairs with the human resources of the BBMP which revealed the following:

- i. The key departments of the BBMP are not properly organized leading to a lack of effective top-level management and insufficient control over the lower level staff. For example, the resource-generating departments such as revenue, advertisements, markets etc., are not under a single head of the department. Often the difference between a department and a wing or a cell in a department is not clear. Different official documents list departments and organizational charts differently. The regulatory departments have poor enforcement capacity. For example: officials of the Markets Department admitted to their difficulties to revise the rentals or to recover the arrears as they faced threat from anti-social elements (pp 133-4).
- ii. The BBMP has been using C&R Rules framed over 45 years ago. Although these C&R Rules were revised in 2013-14, the draft is yet to receive the state government's approval. As a result, BBMP recruitments are governed by a set of outdated rules and procedures. These Rules do not take into account the requirement of skills and competencies among the staff to meet the current challenges of urban governance. They do not cover a large number of posts which have since been created in view of the newer responsibilities that the BBMP has come to shoulder under the 74th Constitutional Amendment and because of the manifold increase in the city's population. The Rules do not recognize the need for specialized knowledge to perform certain kinds of jobs in urban governance. For example: Engineering department recruits general engineering graduates and then deploys them to departments where their roles call for specialist knowledge. Engineers with a civil engineering degree man town planning department where specialist skills of an urban planner is required. (pp 132)
- iii. A number of important posts in the BBMP are being filled by way of deputation from various departments of the state government without ensuring that the staff so deputed possesses the required competence to discharge their responsibilities. While the overall number of deputed staff constitutes less than 10 per cent of the total strength, it is important to note that in some key departments the staff on deputation constitute a very large proportion of the total cadre strength. For example, in town planning department 69 per cent of the staff were on deputation and in engineering works department it was 53 per cent. While deputation may be unavoidable in certain cases for reasons such as lack of expertise among the BBMP staff or difficulties in maintaining an independent cadre for small departments, large scale deputation in key departments such as works, town planning etc., has adversely affected the capacity of the administration as admitted by senior officials of the BBMP. The staff on deputation often lack a sense of ownership and are difficult to be held accountable (pp 133).

- iv. Section 14(1) of the Karnataka Municipal Corporations Act says that a municipal commissioner will ‘...ordinarily hold office for a period not less than two years.’ However in the past five years (2010-15), the BBMP has had six commissioners with terms ranging from four months to 18 months. Other key officials in the leadership position such as special commissioner and zonal commissioners also do not have security of tenure for them to undertake any systemic changes and reforms (pp 134).
- v. While outdated C&R Rules and deputation of staff without relevant experience demand regular training and upgradation of skills among the working staff, there is no proper provision for training. The BBMP has a HR department which is not properly equipped to meet the professional training needs of the staff. The refresher programs that are conducted now are neither well organized, nor are they regular. No induction program is conducted for the newly recruited employees and they are directly assigned responsibilities without training or orientation. Due to the lack of orientation and training, the dependency of new recruits on seniors even for procedural and administrative matters is high (pp 134)

Based on the above findings, the committee recommended that the functional departments of the BBMP be restructured in accordance with the proposed splitting of the BBMP into smaller corporations overseen by a Greater Bangalore Authority (GBA), and the proposed reorganization of governance in each of the corporations by making the wards and the zones the pivotal points. The committee also recommended that the existing cadre and recruitment rules of the BBMP should be revised keeping in view the capacity expected of the corporation staff in the changed circumstances of the city’s governance. The committee also gave a broad outline for restructuring and re-organization of the departments and for the revision of cadre and recruitment rules.

After the committee submitted its report which contained above recommendations along with its overall recommendations for restructuring the governance of Bangalore city, the Government of Karnataka wide its order AE-484-MNY-2013 dated January 27, 2016 extended the term of the committee to prepare and submit a detailed plan to implement the recommendations. With particular reference to the recommendations relating to manpower, the committee was mandated to prepare a detailed plan (i) for re-organization of the departments in view of the proposed splitting of the BBMP and the proposed emphasis being placed on the zonal and the ward-level administration (ii) for revising the cadre and recruitment rules in respect of all cadres of staff and officials across the departments of the proposed corporations and the GBA.

Accordingly, the committee held detailed discussions and consultations with various stakeholders including representatives of all the existing departments of the BBMP. The committee discussed with them the recommendations made in the first report and further measures to be taken up keeping in view of the objectives set out above. Based on the outcomes of these discussions and consultations, the committee has prepared this report. In the ensuing sections, the report first presents overall recommendations emerging from this exercise (Section 2) and department-wise recommendations for reorganization, restructuring and revision of cadre and recruitment rules (Section 3).



## 2. Overall Recommendations

### 2.1. Reorganization

At present the BBMP website lists 25 functional departments (Table 1). The committee is of the view that in the interest of better coordination and in order to avoid functional overlaps, some of the departments should be merged and some other departments should be split for clear demarcation of responsibilities. This is also necessary in view of the smaller size of the proposed corporations.

**Table 1: List of the existing Departments of the BBMP**

Sl.no.	Departments
1	Accounts
2	Administration
3	Advertisement
4	Animal Husbandry
5	Engineering
6	Education
7	Estate
8	Forests
9	OFC
10	Horticulture
11	Health
12	Land Acquisition
13	Legal Cell
14	Markets
15	Solid Waste Management
16	Revenue
17	Town Planning
18	TVCC
19	Welfare
20	Public Relations
21	Project Central
22	Storm Water Drains
23	Information Technology
24	Road Infrastructure
25	Lakes

Accordingly, the committee recommends that these 25 departments be reorganized into 16 compact departments by bringing together various smaller units performing similar functions and by upgrading existing wings of some departments performing independent functions into full-fledged departments. The list of proposed departments is presented in the table 2. The proposed departments can be placed under seven functional categories as shown in the table 2. These functional categories are resources, engineering services, healthcare, ecology and environment, welfare, and human resources and internal administration.

**Table 2: List of proposed departments after re-organization organized according to functional categories.**

Sl No	Functional categories and the departments falling under them	Explanation
<b>Resources</b>		
1	<b>Department of Resources</b>	By merging the existing Revenue, Market and Advertisement Departments
<b>Engineering Services</b>		
2	<b>Department of Engineering Works</b>	The existing works department which is in charge of all maintenance works has been renamed.
3	<b>Department of Electrical Engineering</b>	By upgrading the existing electrical engineering wing in charge of streetlights, electrical crematoria and electrification of all the installations of the BBMP
4	<b>Department of Projects and Road Infrastructure</b>	By merging the existing Projects and Road Infrastructure wings of the engineering department
5	<b>Department of Storm Water Drains and Lakes</b>	By merging the existing storm water drains and lakes wings of the engineering department
6	<b>Department of Technical Vigilance and Quality Control</b>	The existing Technical Vigilance Cell under the Commissioner to be upgraded into a full-fledged department to be placed at the GBA
7	<b>Department of Information Technology and E-Governance</b>	The existing Information Technology cell to be upgraded into a full-fledged e-governance department. Besides providing IT support to various departments of all the five corporations and the GBA, it will also be responsible for planning and executing e-governance projects
<b>Healthcare</b>		
8	<b>Department of Public Health</b>	Carved out of the existing Health Department and will include the existing Animal Husbandry wing and Birth and Death Registration wing
9	<b>Department of Medical Services and Family Welfare</b>	Carved out of the existing Health Department and will be responsible for the management of hospitals
<b>Urban Planning</b>		
10	<b>Department of Urban Planning</b>	With the merger of the existing Planning Department and the planning wing of the BDA.
<b>Ecology and Environment Services</b>		
11	<b>Department of Solid Waste Management</b>	Existing Solid Waste Department with independent staff
12	<b>Department of Trees and Parks</b>	By merging the existing Horticulture and Forest Departments
<b>Welfare</b>		
13	<b>Department of Urban Poverty</b>	The existing Welfare Department

Sl No	Functional categories and the departments falling under them	Explanation
	<b>Alleviation and Welfare</b>	
<b>Human Resources and Institutional Management</b>		
14	<b>Department of Administration</b>	The existing general administration department including estates, public relations and land acquisition
15	<b>Department of Law</b>	The existing legal cell to be upgraded as a separate department
16	<b>Department of Accounts, Audit and Finance</b>	Existing accounts wing is to be made a separate department to look after finances, accounts and audit

In the re-organized departments all but the three departments that are included under the category of Human Resources and Administration will have a direct interface with the public. The departments listed under the category Human Resources and Administration are those which deal with the personnel, financial and general administration of each of the proposed corporations and the GBA.

The committee in its first report suggested that certain departments which are responsible for works with city-wide implications need to be shifted to the GBA. In the re-organized list of departments, those which need to be shifted to the GBA are clearly identified and are listed in table 3. The other departments will operate out of the respective corporations. However, the GBA will play a coordinating role with respect to all the departments including those housed in individual corporations. To facilitate this, all departments coming under each of the functional categories will have a GBA-level officer.

**Table 3: List of the departments to be housed in the GBA after re-organization**

Sl No	Departments
1	Department of Administration
2	Department of Projects and Road Infrastructure
3	Department of Storm Water Drains and Lakes
4	Department of Technical Vigilance and Quality Control
5	Department of Information Technology Services and E-Governance
6	Department of Urban Planning

- The committee recommends that the existing departments of Revenue, Advertisement and Markets be merged to form a new Department of Resources. This has been recommended in order to bring the responsibility of collection of all kinds of municipal levies under one department. The department will be housed in individual corporations. The policy decisions affecting the revenue collection of all the five corporations will be taken at the GBA level. The details of organizational structure of the proposed Resources Department at the corporation and GBA level are presented in Section 3.1

- The engineering services of the BBMP are currently organized under many departments and wings. The committee has noticed that there has also been confusion in the names and functional lines of various wings and departments rendering different kinds of engineering services. In view of this, the committee recommends the re-organization of various departments and wings coming under engineering services into six clearly demarcated independent departments. These are the Departments of Engineering Works, the Department of Electrical Engineering, the Department of Storm Water Drains and Lakes, the Department of Projects and Road Infrastructure, Department of Information Technology and E-Governance and the Department of Technical Vigilance and Quality Control. With this re-organization, the post of the engineer-in-chief currently in the BBMP would be shifted to the GBA. All the engineering services departments housed in the GBA as well as five corporations will come under the overall supervision of the Engineer-in-Chief. A chief engineer, a superintendent engineer or an executive engineer will head the engineering departments housed in each of the corporations. The existing posts of chief engineers at the zonal level is to be discontinued. The details of the restructured departments under engineering services is discussed in Section 3.2.
- The existing Department of Town Planning in the BBMP functions mainly as building-plan issuing authority and hardly carries out any urban planning function as the urban planning functions are vested with the Bangalore Development Authority (BDA). As part of the overall reorganization plan of governance of Bangalore proposed in the Committee's Report submitted in June 2015 the BDA, along with other parastatal agencies, would be housed in the GBA. With this, the Committee recommends that there is no need for the continuation of a full-fledged Town Planning Department at the corporation level. The function of issuing building permits up to a certain limit allowed at the corporation level can be performed by the engineering department. The proposed restructure of the Planning Department is discussed in Section 3.3.
- The existing Health Department of the BBMP is responsible for both public health and clinical health related functions. The health department also performs regulatory functions such as issuing of trade license, under the provisions of the Karnataka Municipal Corporations Act 1976. As part of the re-organization, the committee recommends that the public health and clinical health (renamed as medical services and family welfare) wings of the Health Department should function as two separate departments at the corporation level, each headed by a health officer reporting directly to the commissioner. The posts of the Special Commissioner (Health) and the Chief Health Officer at the BBMP should be shifted to the GBA. The Special Commissioner will coordinate the functions of the both Public Health and Medical Services functions of all the corporations. The details of the restructured Health Department is presented in Section 3.4. The existing department of Animal Husbandry is to be renamed as the Veterinary Services wing and it will be part of the Department of Public Health.



- An independent Department of Solid Waste Department has been created in the BBMP in accordance with the Supreme Court guidelines on the solid waste management. However, the Department lacks its own staff and its operations are carried out by the personnel and officials from the Department of Engineering and the Department of Health. The Committee recommends a restructured independent Department of Solid Waste Management with an independent cadre. At the GBA level, a Special Commissioner (Environment) will coordinate the functions of the department across the corporations.
- The committee recommends the merger of the existing Department of Horticulture and the Department of Forests as a single Department of Trees and Parks at each of the five corporations. The Department will be under the overall supervision of the Special Commissioner (Environment) at the GBA. The details of both the Department of Solid Waste Management and the Department of Trees and Parks are discussed under Section 3.5 under the environmental services function.
- The Department of Welfare in the BBMP will continue to exist in each of the corporations with appropriate restructuring. The Department is recommended to be renamed as the Department of Urban Poverty Alleviation and Welfare as the committee is of the view that it should take up a wide range of programmes aimed at promoting the welfare of the weaker sections rather than being an agency to spend the mandatory allocation for the scheduled castes and the scheduled tribes. A special commissioner (welfare) housed in the GBA will coordinate the functions of this department across the corporations. The details are discussed in Section 3.6.
- For the internal administration of the GBA and the corporations the committee recommends three independent departments. They are: the Department of Human Resources, the Department of Finance, Accounts and Audit and the Department of Law. The Department of Human Resources will also include the Public Relations and Estates. As the GBA is going to be vested with the management of all the Group A, B and C cadres of personnel in the re-organized governance arrangement, the Department of Human Resources will function from the GBA. Only the cadre of Group D personnel will be managed at the corporation level with a wing of Human Resources Department present in each of the corporation. The Law and Finance Departments will also be housed in the GBA with substantial presence at the level of each corporation also. Details are presented in Section 3.7

### 2.2. Revision of Cadre and Recruitment Rules

Along with reorganization and restructuring of the departments, the committee has also made detailed recommendations detailing out the qualification and methods of recruitment for all the cadres at the GBA and the corporations. The committee recommends that the existing cadre and recruitment rules should be revised based on these recommendations.

- It should be noted that this report has not prepared new cadre and recruitment rules. Instead the committee has taken note of the fact that the BBMP has already submitted revised Cadre and Recruitment Rules which have been awaiting approval by the Government in the Department of Urban Development (UDD) for approval. The committee recommends that the Cadre and Recruitment Rules before the UDD should be further revised keeping in view the recommendations made in this section of this report with regard to the qualifications and mode of recruitment.
- The Committee's recommendations regarding the revision of the Cadre and Recruitment Rules are presented along with restructure plan for each of the departments. The committee recommends that a written examination should be made mandatory for all kinds of direct recruitments of the staff of the corporations and the GBA, excepting the case of the recruitment of *pourakarmikas*. The Committee also recommends that interviews should be completely dispensed with in the recruitment process.
- Further, the committee recommends that the task of conducting written test for direct recruitments should be outsourced to a suitable external agency. The agency could be the Indian Institute of Management for recruitments to the Departments of Revenue and the Indian Institutes of Technology or the National Institutes of Technology for the recruitment of Engineering Cadres and Rajiv Gandhi University of Health Sciences for recruitments in the Departments of Public Health, the Department of Medical Services and Family Welfare. For Group C cadres, the recruitment test can be outsourced to the Karnataka Examination Authority.
- The Committee in its previous report has recommended that deputation of staff from various state government agencies to the corporation should be discontinued forth with. The committee would like to emphasis this once again here that deputation from the state government departments should not be resorted to except in those cases where deputation is unavoidable. Even in such cases, the committee recommends that deputations should be based on clearly laid-down guidelines.
- The Committee also recommends that the staff and officers appointed to one department of the corporation should not be randomly transferred to other departments based on extraneous considerations. The committee has taken note of the fact that such practices are being resorted to rampantly in the BBMP. During the consultation with senior officials it was brought to the notice of the committee that there is an organized practice of joining some junior-level posts to gain entry into the rolls of the BBMP and then getting a transfer to the so called more lucrative departments by bringing various kinds of pressure. This has created an artificial shortage of trained personnel in some cadres. The committee therefore recommends that there should be a transfer policy for the inter-departmental and inter-corporation-level transfer of the staff and officers. While the inter-departmental transfers should be generally discouraged and done under unavoidable conditions, the inter-corporation-level transfers should be decided and monitored at the GBA-level based on a

clear policy. A counselling system should be adopted for transfers as it is the practice in several departments of the state government. A cooling off period of minimum five years should be made mandatory for being posted to the corporation where the employee would have worked in the past.

- The committee recommends that at least some proportion of the fairly senior posts in all the departments should be filled through lateral entry. Such a change in the recruitment of municipal bureaucracy is urgently called for in order to infuse dynamism and fresh ideas into urban governance in Bangalore.

### 3. Re-organized Departments with suggestions for C&R Revisions

This Section presents the revised structure and the recommendations for revising C&R Rules with respect to each of the departments. The departments are presented under seven categories based on the nature of their functions as explained in Section 2.

#### 3.1. Resources

The BBMP mobilizes resources for its functions by collecting a number of levies on the citizens under the provisions of the Karnataka Municipal Corporations Act. The most important of these levies is the Property Tax. Other sources of the BBMP's resources include advertisement tax, market rentals, license fees, OFC rentals, building plan fees and road cutting charges. Currently, the Department of Revenue is responsible for the levy and collection of property taxes. A separate Department of Markets is in charge of imposing and collecting market rentals while the Department of Advertisements is responsible for the collection of fees for hoardings and billboards. Similarly, various license fees are collected by the departments vested with powers to issue such licenses, including building plans, road cutting charges and OFC-related levies.

The committee is of the view that in order to promote efficiency in resource mobilization and to achieve better coordination, a single department should be in charge of collection of all levies. This department should be called the Department of Resources.

#### i. The Department of Resources

**The Committee recommends that the Department of Resources should be created by merging the existing Departments of Revenue, Markets and Advertisement.**

The existing Revenue Department is headed by a special/additional commissioner assisted by a deputy commissioner at the corporation level. There are zonal-level deputy commissioners who manage the functions of the department at the zonal level and report to the head office through respective zonal commissioners. The Department, in addition to levying and collecting property tax is also in charge of issuing, maintaining and managing property documents called *khata* and is also in charge of collecting all fees relating to the creation, registration, mutation and transfer of *khata*s and betterment charges whenever new areas are added to the BBMP limits. The department staff at the zonal level and below also perform general administration functions such as census, elections and issuance of domicile certificates etc. This is one of the most important departments of the BBMP as it performs functions related to the civic body's revenue, property records and general administration.



The existing department of Markets maintains markets and levies and collects rentals from the lessees of the market. The Department is headed by a Deputy Commissioner at the BBMP.

The existing Department of Advertisement is headed by an Assistant Commissioner and It is responsible for the collection of fees for display of hoardings.

### a) Reorganization: Resources

The proposed Department of Resources should be placed in charge of all kinds resources that the BBMP is mandated to raise. In addition to property-related levies, the department should also be placed in charge of such other levies as market rentals, lease charges, advertisement charges, building plan related fees, trade license charges and all OFC-related rentals and rentals from play grounds and other immovable properties of the BBMP. This is necessary to bring all revenue related functions under one department for effective control and better revenue collection. The power to raise demand will continue to vest with the departments concerned but actual collection will be done by the department of resources.

The Department of Resources will also continue to perform all the property records related functions which the Department of Revenue is currently responsible for. These include *khata* registration, *khata* transfer, *khata* amalgamation and *khata* bifurcation.

The Department of Resources will continue to perform all the general administration functions which the present Revenue Department is responsible for. These functions include election related works, census-related works, natural calamity-related works and works related to implementation of the welfare schemes of the state and union governments.

In respect of trade licenses, buildings plans, commencement certificates, occupancy certificates and OFC rentals, rentals from play grounds, mobile towers etc, and demand will be raised by the departments concerned and communicated to the department of resources to enable collection at the appropriate levels

### b) Structure: Resources

The Committee recommends the following structure for the Resources Department at the Ward, Zonal, Corporation and GBA levels.

- **Ward Level:**

Currently, officials of three different ranks function at the ward level. They are Tax inspector/bill collector, Revenue inspectors/Assessors and Senior Revenue Inspectors. The committee is of the view that the functions among the three overlap to a great extent. Therefore, given the nature of the functions that they perform, the post of revenue inspectors and assessors could be clubbed. The designation of the bill collector for the tax inspector can be dispensed with. The Committee also feels that there is no need for the continuation of the posts of senior revenue inspectors. Thus there will be only two posts at the ward level, namely, tax inspectors and revenue inspectors.

Tax inspectors collect/recover dues and verify backlogs. Currently there is a tax inspector for every 4000 to 5000 properties and the only function he performs is the collection of property taxes. The Committee recommends that an appropriate number of properties each tax inspector is responsible for has to be determined afresh as the tax inspectors are now responsible for the collection of all levies in their jurisdiction.

With the abolition of the post of assessor, the post of revenue inspector is recommended to be upgraded in the pay scale of the assessors. The revenue inspector with a higher pay scale will oversee the work of tax inspectors. Revenue Inspectors are also responsible for accurate assessment of tax for all properties in their jurisdiction. It is the responsibility of the revenue inspectors to ensure that there is no under-estimation or suppression of tax. Further, Revenue Inspectors are also responsible for works relating to *khata* registration, transfer, amalgamation, bifurcation and mutation of *khata*. Revenue Inspectors are responsible for all the election and census related work assigned to them. The number of Revenue Inspectors is to be decided based on the work-load in a particular ward.

- **Zonal Level: Resources**

Deputy Commissioner (Resources) heads the department of resources at the zonal level. The Deputy Commissioner holds the overall responsibility of resource collection, *khata*-related work and will report to the Zonal Commissioner.

Below the Deputy Commissioner there will be Revenue Officers at the Divisional level. A division coincides with a Legislative Assembly Constituency. There will be two to three divisions in a zone. The Revenue Officer's Post may be re-named as Assistant Commissioner (Resources) in view of the renaming the Department of Revenue as the Department of Resources.

Below Assistant Commissioners, there will be Assistant Revenue Officers whose post can be at the sub-divisional level. There will be two to three sub-divisions in a division. The number of wards per sub-division is to be decided based on the total number of wards to be formed after the reorganization. The Assistant Commissioner will supervise all the Assistant Revenue Officers in his/her jurisdiction, which is a division. The AROs will supervise all the Revenue Inspectors and Tax Inspectors in the wards coming under his/her jurisdiction, namely a sub-division.

- **Corporation Level: Resources**

At the corporation level, there will be a Joint Commissioner (resources). The Joint Commissioner (Resources) will be responsible for all the functions related to resource mobilization and *khata*, besides statutory administrative functions assigned to the Department of Resources.

The Joint Commissioner (resources) would be in charge of all the resource-related functions. Since the size of the corporation is to be reduced and/or the administrative units at the lower level are going to be rationalized as part of the proposed restructuring of the BBMP, the committee feels that it should be possible for the Joint Commissioner (Resources) to manage all revenue related functions at the corporation level unlike the existing Special Commissioner/Joint Commissioner Revenue who is in charge of only property-related levies.

- **GBA Level: Resources**

There will be a Special Commissioner (Resources) at the GBA who will be responsible for planning and executing resource mobilization in all the corporations under the GBA.

### c) Recommendations for C&R Rules: Resources

The Committee makes following recommendation regarding the recruitment for various posts in the department of resources. The recommendations are summarized in table 4. The relevant C&R Rules should be revised incorporating these recommendations.

**Table 4: Recommendations for C and R Revision, Resource Department**

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
<b>Tax Inspectors</b>	No to be decided based on the number of property/volume of work in the jurisdiction	Only Direct Recruitment through written test. No interview.  Outsource the recruitment process to a suitable agency.	Minimum Qualification: A bachelor's degree in Economics, Statistics, Mathematics, Commerce or physics, Business Management	Induction training compulsory for six months  No promotion of D Group Workers as Tax Inspectors is to be allowed.
<b>Revenue Inspectors</b>	Number to be decided based on the number of property/volume of work in the jurisdiction.	50 per cent direct recruitment through a written examination, no interview. Outsource the recruitment process to a suitable agency (the standards of test to be higher than/different from that for TI) 50 per cent promotion	A bachelor's degree in Economics, Statistics, Mathematics, Commerce or Business Management  <b>For Promotion:</b> Five years of experience minimum as TI (Seniority cum Merit) Departmental Examinations	Induction training for six months compulsory
<b>Assistant Revenue Officers (AROs)</b>	An ARO for every three or four wards	50 per cent direct recruitment through a written examination. No interviews  The level of the examination is to be on a par	Minimum Graduation (Economics, commerce, physics, mathematics, statistics and business management).	



Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
		with that of the Gazetted Probationers' Examination conducted by the KPSC for the State Civil Service. Recruitment process should be outsourced to a suitable agency. 50 per cent promotion	Recruitment process to be outsourced  <b>For promotion:</b> Minimum of five years of service as Revenue Inspector (Seniority cum Merit)	
<b>Assistant Commissioner (Resources)</b>  <b>Currently known as Revenue Officers</b>	For every Assembly segment (Division)	Promotion only.	Minimum Five years of experience as Assistant Revenue Officer	<b>Recommendation:</b> Revenue Officers and above to be borne on GBA. There shall be a common seniority list of AC(R)s at GBA for the purpose of promotion.
<b>Deputy Commissioner</b>	For Every Zone	Promotion from the rank of Assistant Commissioner (Revenue).	Minimum five years of experience as assistant commissioner (Resources)	
<b>Joint Commissioner</b>	One for every Corporation	An officer of the IAS or KAS selection grade or lateral entry		For lateral entry the Indian Revenue Service officials may be considered
<b>Special Commissioner</b>	GBA	An officer of the IAS in the rank of Secretary to the Government or lateral entry		A Senior Officer of the Indian Revenue Service or an IAS officer outside the state cadre but with specialization in Municipal Finance may also be considered for this position

### 3.2. Engineering Services

The Engineering Department is a major department of the BBMP headed by the special commissioner (projects). The Department has several wings, each headed by a chief engineer, under the overall supervision of the Engineer-in-Chief. These wings are: Central Projects Wing, the maintenance works wing (BBMP Office Buildings, road maintenance, street lights and other day-to-day maintenance works) wing, Road Infrastructure wing, Storm Water Drains wing and Lakes Wing.

The Central Projects wing is in charge of major projects like flyovers, underpass, eight-lane corridor, registration of bore-wells, installation of water treatment plants, registration of civil and electric contractors, multi-level car parking, building works, maintenance of all existing buildings in the head office premises etc.

The Maintenance Wing is responsible for providing basic physical infrastructure such as laying the pavements, construction of BBMP buildings, installing street-lights, rainwater harvesting etc., and maintenance works of roads, storm water drains, pavements, buildings and so on. The maintenance wing operates from the zonal office under the supervision of the zonal chief engineer.

The Road Infrastructure wing is in charge of major roads, tender sure roads, construction of road over bridges, road under bridges, traffic engineering works, skywalks and allied works. The Storm Water drain wing is responsible for construction of retaining walls of the primary drains, secondary drains, construction of bridges, chain link fencing, and protection works of drains, and allied works. Lakes Wing is in charge of development of lakes, maintenance of lakes, protection works of lakes and allied works. The Engineering Department currently also houses the TVCC and the Town Planning Department.

The Committee held wide-ranging discussions with the representatives of the engineering departments including the engineer-in-chief, the chief engineers of various wings and zonal-level chief engineers. The committee recommends the following changes for the rationalization of the engineering department in view of the proposed formation of multiple corporations to be overseen by the GBA.

#### Reorganization: Engineering Services

In view of the smaller size of the proposed corporations, the major/central projects and road infrastructure wings may be merged and shifted to the GBA.

In view of the smaller size of the proposed corporations and in view of the overlapping nature of works, the Lakes wing and the Storm Water Drains Wing may be merged and shifted to the GBA.

TVCC should also be shifted to the GBA and should operate from the office of the technical advisor to the Engineer-in-Chief in GBA. The OFC wing should also be attached to the office of the technical advisor to the Engineer-in-Chief.

The existing maintenance wing may be renamed as the Engineering Works Department and it will be in charge of all kinds of regular maintenance works and will have a clear structure at the ward, zonal and corporation levels. The electrical wing which is in charge of maintenance of street lights will also operate from each corporation.

The Planning Department will function from the GBA for all its urban planning functions are concerned. The plan approval functions will continue at the corporation level. The engineering works department at appropriate level to be vested with the powers to sanction building plans and issue occupancy certificates since the Town Planning wing is to be shifted to the GBA.

The field-level staff of the Engineering Works Department should be free from the responsibility of solid-waste management since a separate department will take over solid waste management.

Consequent to the above re-organization in the Engineering Department, the posts of Engineer-in-Chief at the Corporation level and Chief Engineer at the Zonal level should be discontinued. The zonal head of the engineering department to be a Superintending Engineer instead of a chief engineer in view of (i) reduced size of the zone and (ii) the creation of separate departments such as SWM and Ecology and Environment.

### **i. The Department of Engineering Works**

The Department of Engineering works which is currently known by various names such as Works Department, Maintenance Department, Civil Engineering Department etc, is the main engineering department at the corporation level, with its operational units at the ward, sub-division, division and zonal level. It will be headed by a chief engineer at the corporation level. The Department will be in charge of all kinds of day-to-day maintenance works except the Solid Waste Management works which have been shifted to a separate Department.

#### **a) Structure: Engineering Works**

- **Ward Level:**

At the ward level, there will be an assistant engineer or a junior engineer. They are responsible for all kinds of maintenance related work at the ward level and are assisted by work inspectors and gang-men. For every two to three wards (sub-division) there will be an assistant executive engineer who will supervise the works of all the assistant engineers under his/her jurisdiction. For every seven or eight wards called divisions (two or three sub-divisions and coinciding with a legislative assembly constituency within the city) there will be an executive engineer who will be responsible for supervising the works of all assistant executive engineers and assistant engineers/junior engineers in his/her jurisdiction.

- **Zonal Level:**

Two or three divisions make a zone which is the main administrative unit above the wards and below the corporation. At the zonal level, the Engineering Works Department will be headed by a Superintendent Engineer who is responsible for supervising the works of all maintenance related works in the divisional, sub-divisional and ward levels his/her jurisdiction.



- **Corporation Level:**

At the corporation level, the Engineering Works Department will be headed by a Chief Engineer who reports to the Commissioner.

**ii. Department of Electrical Engineering**

The Electrical Engineering Department is responsible for providing street-lights and lighting to other public spaces such as parks, play grounds, Corporation premises in the city in coordination with the Bangalore Electricity Supply Company (BESCOM). The Department is also responsible for the upkeep and maintenance of Electrical Crematoria in the city.

**a) Structure: Electrical Engineering**

The Department will have the following structure:

- **Zonal Level**

There will be an Executive Engineer at the Zonal level assisted by two to three Assistant Executive Engineers. Under each assistant executive engineer there will be two to three assistant/junior engineers depending on workload.

- **Corporation level**

At the corporation level there will be a superintending engineer who will report directly to the commissioner.

- **GBA level:**

At the GBA level, a Chief Engineer will coordinate the electrical works in the jurisdiction of all the corporations.

**iii. Department of Storm Water Drains and Lakes**

This department combines the existing Lakes and Storm Water Drains wings of the Engineering Department. The department is responsible for planning and execution of all major storm-water drains and related works such as building retention walls, capacity building and desilting of the drains. It will also be in charge of works relating to lake conservation in the entire city and as such the department will be housed in the GBA.

**a) Structure: Storm Water Drains and Lakes**

The department will be headed by a chief engineer at the GBA level reporting to the engineering chief. Under the chief engineer, there will be superintending engineers, executive engineers and assistant/junior engineers, and the number of each of these cadres will be based on the workload.

**iv. The Department of Projects and Road Infrastructure**

This Department which combines the existing road infrastructure wing and central/major projects wings will be responsible for planning and executing major projects such as arterial and sub-arterial roads, junctions, grade separators, footpaths, flyovers and so on across the city. Therefore, the department will be housed at the GBA.

**a) Structure: Projects & Road Infrastructure**

The Department of Projects and Road Infrastructure will be headed by a chief engineer at the GBA level, reporting to the engineer-in-chief. Under the chief engineer there will be two Superintendent Engineers, one for projects and one for road infrastructure, and executive engineers, two per each corporation. Under the executive engineers, there will be assistant executive engineers and assistant/junior engineers as per requirement.

**v. Department of Information Technology and E-Governance**

This department will be responsible for all the Information Technology related services of the corporations. It will also plan and execute e-governance projects to make the administration and the citizen-corporation interface more efficient, transparent and accountable.

**a) Structure: IT & E-Governance**

The Department will be housed at the GBA level and will be headed by a Special Commissioner assisted by a Technical Advisor (IT) of the chief engineer cadre. While the Department will coordinate the IT needs and e-governance projects of all the corporations from the GBA level, there will be an IT unit headed by a project manager in each of the corporations to take care of the regular maintenance and upkeep of the IT infrastructure.

**vi. Department of Technical Vigilance and Quality Control (TVQC)**

The existing Technical and Vigilance Cell under Commissioner (TVCC) in BBMP will be upgraded and housed in the GBA to perform technical vigilance functions relating to all engineering works.

**a) Structure: TVQC**

TVQC will be attached to the office of the Technical Advisor to the Engineer-in-Chief. The TVQC should be headed by an independent technical expert and technically qualified members drawn from outside the municipal cadres.

**b) Recommendations for C&R Revisions: Engineering Services**

The engineers working in the above mentioned departments under the cluster of engineering services will constitute one single cadre and they are inter-changeable amongst the departments except the electrical engineering department. Existing C&R provides for 75 per cent deputation from the Department of Public Works, GoK and several other agencies and for only 25 in house strength. The committee recommends a fully in-house engineering cadre and the discontinuation of deputation forthwith.

There will be two cadres, namely, one of assistant engineers constituting 75 per cent and junior engineers constituting 25 per cent but both coming through direct recruitment. This has been the pattern currently followed in BWSSB, KPTCL, KPCL and other similarly paced institutions for some time and the outcomes have been very encouraging.

The cadre strength will be determined on the basis of number of wards, sub-divisions, divisions, circles and workload across the various departments coming under the engineering services. Recommendations on specific changes in the cadre and recruitment rules are presented in the table 5:

Table 5: Recommendations for the C&amp;R Revision, Engineering Departments

Designation	Nos	Mode of recruitment	Qualifications	Miscellaneous
<b>Gang Men</b>	Based on workload	Only direct recruitment.	Seventh standard pass  Physical fitness is the sole criterion	The recruitment process to be outsourced to the police (CAR or KSRP) department
<b>Work Inspector</b>	Based on workload	Direct recruitment based on a written test;  No interviews	ITI in civil engineering	
<b>Assistant Engineer/Junior Engineer</b>	One per ward	Direct Recruitment based on a written test. No interview  Assistant Engineers 75 per cent;  Junior Engineers 25 per cent  No interviews	Assistant Engineer: Bachelor of Engineering (Civil)  Junior Engineering: Diploma in Civil Engineering	Recruitment process is to be outsourced.  Three to six months of induction training compulsory
<b>Assistant Engineers/Junior Engineers (Electrical)</b>		Direct Recruitment  Assistant Engineers 75 per cent; Junior Engineers 25 per cent	BE in Electrical Engineering for Assistant Engineers  Diploma in Electrical Engineering for Junior Engineers	The recruitment process is to be outsourced ; Three to six months of induction training compulsory

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Designation	Nos	Mode of recruitment	Qualifications	Miscellaneous
<b>Assistant Executive Engineer</b>	One per every sub-division	Direct Recruitment: 40 per cent  Promotion from the cadre of Assistant Engineers 60 per cent	Bachelor's degree in engineering  For Promotion: Five years of experience as assistant engineers or seven years of experience as junior engineers	A rigorous test to be the basis for direct recruitment and the entire process should be outsourced to a reputed technical institute. No interview.
<b>Assistant Executive Engineer (Electrical)</b>	Based on workload	Promotion from the cadre of AE (Electrical)	Five years of experience as assistant engineers or seven years of experience as junior engineers	
<b>Executive Engineer</b>	One per division	By promotion	Five years of experience as assistant executive engineer	Based on merit cum seniority
<b>Executive Engineer (Electrical)</b>	One per zone	By promotion	Five years of experience as assistant executive engineer (Electrical)	Based on merit cum seniority
<b>Superintending Engineer</b>	One per zone	50 per cent by promotion from the rank of Executive Engineers and 50 per cent lateral entry	For promotion five years of experience as executive engineer.  For lateral entry: substantial industrial experience.	
<b>Superintending Engineer (Electrical)</b>	One per Corporation	By promotion or lateral entry	For promotion: five years of experience as executive engineer;  Lateral entry: relevant experience in private sector	

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Designation	Nos	Mode of recruitment	Qualifications	Miscellaneous
<b>Chief Engineer</b>	One per corporation and one each for the departments of Storm Water Drains and Lakes, Department of Roads and Infrastructure and the Department of IT and E-Governance	By promotion or lateral entry	For promotion: five years of experience as Superintending Engineer.  Lateral entry: relevant experience in private sector	
<b>Chief Engineer (Electrical)</b>	One at GBA	By promotion or lateral entry	For promotion: five years of experience as Superintending Engineer (Electrical)  Lateral Entry: Relevant experience in private sector.	
<b>Engineer-in-Chief</b>	One at GBA	By promotion or lateral entry	For promotion: Five years of experience as Chief Engineer  Lateral entry: relevant experience in private sector.	
<b>Special Commissioner (Engineering Services)</b>	One at GBA		Senior IAS officer or an officer of the Indian Engineering Service on deputation	



### 3.3. Urban Planning

#### i. Department of Urban Planning

Town Planning Section of BBMP has been formed to regulate the buildings as per Chapter XV of KMC Act 1976. The Town Planning Section deals with sanction of building plans, issue of Commencement Certificate and Occupancy Certificate. The section is headed by Additional Director of Town Planning and supported by Two Joint Directors at Head Office and Asst. Directors at Zonal Office. The Department performs the following functions:

- Sanction of Building plans, issue of Commencement Certificate & Occupancy Certificate as per the provisions of Zoning Regulations of Revised Master Plan- 2015 and Building Bye-laws;
- Preparation of Building Bye-laws;
- Furnishing Technical opinion on Town planning issues;
- Registration of Architects / Engineers / Supervisors at Head Office;
- Furnishing Technical opinion of Transfer of Development Rights;
- Any other work referred by Commissioner.

#### a) Reorganization: Urban Planning

The Committee having discussed with several functionaries of the BBMP as well as in the Department of Town Planning (GoK), is of the view that the present system of running the town planning wing of the BBMP with people having no expertise and qualifications in urban planning has seriously undermined the quality of work and the credibility of the department. It has also been brought to the notice of the committee that the present planning does not do much planning functions as its main responsibilities are confined only to issuing permits and certificates. The urban planning function is performed mainly by the Bangalore Development Authority (BDA). Therefore, the committee recommends the following:

- Urban Planning function of both BBMP and BDA should be merged and housed in the GBA. The Department should be in charge of entire planning process comprising the master plan, and its enforcement, granting approval for developmental plans, sanctioning building plans for high rise buildings, amalgamation of sites and bifurcation of sites as a consequence of partition or acquisition.
- The building plans up to 15 metres will get sanctioned at the corporation level. The enforcement of building by-laws, enforcement of master plan/zoning regulations shall also be the responsibility of the respective corporations. Both these functions will be performed at the corporation level by the Engineering Works Department

#### b) Structure: Urban Planning

The Planning Department will function from the GBA and will be headed by a Special Commissioner (Planning)/Director Planning. Under the Director, there will be Additional Directors, Joint Directors, Deputy Directors, Assistant Directors, Town Planners and Assistant Town Planners.

At the Corporation level, the engineering department at appropriate level can be vested with the powers to sanction building plans and issue occupancy certificates. There will be no separate planning department at the corporation level and at the zonal level.

### c) Recommendations for C&R Revisions: Urban Planning

Proposed changes in cadre and recruitment rules are summarized in the table 6:

**Table 6: Recommendations for C&R Revision, Department of Urban Planning**

Designation	Numbers	Mode of Recruitment	Qualifications	Miscellaneous
Assistant Town Planners		Direct recruitment based on a written examination; no interviews.  Written examination process to be outsourced. No interviews	Diploma in civil; diploma in architecture, diploma in draftsmanship	
Town Planners equivalent to the rank of assistant engineers		80 per cent by direct recruitment and 20 per cent from amongst assistant town planners who have put in five years of experience. The written examination process to be outsourced. No interview.	BE Civil/B. A, Architecture and Urban Planning	Preference should be given to post-graduate degree holders;
Assistant Director		50 per cent direct recruitment; 50 per cent promotion/deputation  For promotion five years of experience. Recruitment to be outsourced. No interviews.	BE Civil, BE Architecture, B-Planning  And post graduate degree in town planning	B. Planning Degree: It has been ascertained that there are institutions in the country offering the course and AICTE has recognized this degree as equivalent to BE Civil and

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Designation	Numbers	Mode of Recruitment	Qualifications	Miscellaneous
				Bachelor Architecture.  For the post of assistant director, post-graduation in urban and regional planning is to be mandatory.
Deputy Directors		50 per cent promotion from amongst assistant directors; 50 per cent lateral entry	For promotion: three years as assistant directors  Lateral entry: substantial experience urban planning sector	
Joint Directors		By promotion or lateral entry	For promotion: Three years as deputy directors  Lateral Entry: Substantial experience in urban planning	
Additional directors	2	Deputation or through promotion or through lateral entry	For promotion: Three years as Joint Directors  Lateral entry: Substantial experience in urban planning	
Director planning to be at the GBA level/ Special Commissioner Planning		The post shall be filled through deputation from the department of town planning subject to his/her fulfilling prescribed qualification.		The post shall be equivalent to the director town planning, state government

### 3.4. Healthcare Services

The department of health is one of the major departments of the BBMP. In addition to the maintenance of public health, the BBMP also runs a large number of hospitals catering to both primary and tertiary healthcare. As such the Department is responsible for both clinical and public health related activities. As part of its public health responsibility, the health department is also in charge of issuing trade licenses under Section 356 of the Karnataka Municipal Corporations Act – 1976. Till very recently, the Health Department was also responsible for solid waste management.

#### Reorganization: Healthcare Services

The committee after elaborate discussions with officials of the BBMP health department has come to the conclusion that for better administration and management the existing health department be split into two separate departments one to look after public health protection and the other to manage the hospitals of the BBMP. In their new form these departments may be named as the department of public health and the department of medical services and family welfare. The responsibilities structure and organization of the two departments are discussed separately below:

##### i. Department of Public Health

The new Department of Public Health will continue to perform all the public health related functions of the erstwhile Department except issuing of trade licenses wherein the Committee recommends the following changes:

While the Department of Public Health will continue to exercise power of issuing trade licenses for the trades listed under X of the Karnataka Municipal Corporation Act 1976 in exercise of power vested with the corporation under Section 356, the Department will no longer collect the requisite fee for the license but continue to raise demand for each trade as prescribed under the rules. The fee will be collected by the newly created Department of Resources which is expected to take over the entire gamut of functions relating to the collection of various levies including those collected so far by the Health Department. The applicants for trade licenses will pay the fees to the Resources Department and submit the relevant receipts to the public health authorities along with their application for trade license issue or renewal.

The reorganized Public Health Department will continue to perform all the public health related functions being performed at present by the Health Department of the BBMP. They include the following:

- a) Registration of births and deaths, issue of birth and death certificates;
- b) Trade licensing;
- c) Immunization programs (seven preventable diseases) for children, Pulse polio, *Indradhanush*;
- d) Health outreach camps in slums;
- e) Mosquito control, and prevention of dengue and H1N1;
- f) Implementation of all other National Health Programs including National Health Mission rechristened as National Urban Health Mission (i.e. maternal and child health, immunization, TB control, control of communicable diseases including HIV-Aids, non-communicable diseases including leprosy control.

As part of its functions, the Department of Public Health also manages the Urban Primary Health Centres. However, these centres are presently located only in 135 wards comprising the core areas of the city. In the newly added areas where another 65 wards are located, the public health department performs its functions through the State Government-run primary health centres. This has led to duplication of the responsibilities and blurred lines of accountability.

The Government of India releases funds under the National Urban Health Mission to strengthen primary health care system through the Bangalore City Health and Family Welfare Society (BCHFWS) established under the directions of the Government of India. The Commissioner of the BBMP is the chairperson of this society while the funds are to be used by primary health centres run by both the state government and the BBMP.

In order to address the above problems, the committee recommends that the state-run primary health care centres in the outer areas of the city should be handed over to the Public Health Department of the BBMP for better management and to bring all primary health care services delivered in the city under a single roof.

### **a) Structure: Public Health**

- **Ward level**

Every ward will have an Urban Primary Health Centre (UPHC) (hitherto called as Health Care Centre) headed by a Medical Officer/ Assistant Surgeon. It is assumed that a ward will have a population of 30,000 approximately. Under the Medical Officer/ Assistant Surgeon, there will be a Lady Health Visitor/ Junior Health Assistant. Henceforth, one Staff Nurse (under NUHM) and 3 Auxiliary Nursing Midwives at the rate of one ANM for every 10,000 population. The Link Workers and Asha Workers assisting them are normally employed on contract basis. As such, they cannot be a part of any Cadre.

A senior health inspector will be attached to UPHC and she/he will be responsible for the following functions on the public health side.

- (i) Prevention and control of mosquito borne diseases.
- (ii) Prevention and control of communicable diseases under all national health programmes (RNTCP, NHIV, Aids control programmes, leprosy control, mental health, iodine deficiency, blindness control, control of non-communicable diseases, IDSP, and adolescent health education etc.)

Above the Ward level, there will be a Medical Officer of Health (earlier known as Range Medical Officer) at the division level.

The committee is of the view that the MoH does not require the assistance of any technical staff and whatever administrative staff that is sanctioned for the office of the MoH would suffice.

- **Zonal Level: Public Health**

There will be a deputy health officer at the zonal level to oversee all the public health-related activities in the wards coming under the jurisdiction of the zone.



- **Corporation Level: Public Health**

A Health Officer will function from the Corporation to coordinate all the public health related activities. The Health officer will be assisted by a senior supervisor

- **GBA level: Healthcare Services**

At the GBA level there will be a Special Commissioner (Health) who will assist the Chief Commissioner of GBA on matters relating to both Public Health and Medical Services & Family Welfare.

**b) Recommendations for C&R Revision: Public Health**

The entry level posts in both the Department of Public Health and the Department of Medical Services and Family Welfare will be of Assistant Surgeons/Medical Officers. Depending upon the post-graduation qualification that the assistant surgeons/medical officers acquire while in service in the first five years, they may continue in public health department or move on to Medical Services department.

A qualification in General Medicine/Community Medicine/ DPH will permanently place him in Department of Public Health and qualifications like Surgery, pediatrics, OBG, orthopedic, anesthesia, radiology etc. in the Department of Health Care. This will ensure that neither of the departments suffer from inadequate number of qualified people. No Cadre change between these two departments is allowed. This recommendation is made in the backdrop of some doctors with qualifications in Public Health getting deputed for higher studies in clinical subjects in the past.

The Committee strongly recommends that Nagarapalika quota in subjects like General Medicine/ Community Medicine/ DPH should be enhanced from current 5% to 10% in Government Medical Colleges. Specific recommendations of the committee for the revision of the Cadre and Recruitment Rules of the BBMP are summarized in the table 7:

**Table 7: Recommendations for C&R Revision, Department of Public Health**

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
<b>Medical Officer/Assistant Surgeon</b>  (entry level position)		Direct Recruitment through a written examination to be conducted on outsourced basis preferably by the Karnataka Examination Authority (CET) or the Rajiv Gandhi Health University.  No interviews	MBBS graduate	.

# RE-ORGANIZATION OF DEPARTMENTS AND REVISION OF CADRE & RECRUITMENT RULES

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
<b>Medical Officer of Health</b>  (Earlier called Range Medical Officer)	One for every Assembly segment	50 per cent promotion  50 per cent lateral entry	For promotion: Five years of experience as Medical Officers with five years of experience and higher qualifications (MD or PGD in public health or related subject)  Lateral Entry: Substantial experience in private sector with the higher qualifications prescribed above	
<b>Deputy Health Officer</b>	One Deputy Health Officer for every zone	50 per cent Promotion ;  50 per cent lateral entry	For promotion: Five years of experience as Medical Officers Health  Lateral entry: Substantial experience in the private sector with the requisite qualifications	
<b>Health Officer</b>	One Health Officer at Corporation level	Promotion from amongst Deputy Health Officers with five years of experience and on the basis of seniority-cum-merit		
<b>Chief Health Officer (Health Care)</b>	One Chief Health Officer at the GBA level for both Public Health and Health Care  Will assist Chief	Deputation or promotion or lateral entry	Either through deputation at the level of Director of Health and Family Welfare or through promotion from amongst Health Officers of Corporations through a process of thorough	

# RE-ORGANIZATION OF DEPARTMENTS AND REVISION OF CADRE & RECRUITMENT RULES

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
	Commissioner or GBA on Public Health as well as Health Care		screening or a person with vast experience in the sector could be picked up from the open market.	
<b>Field Staff</b>				
Junior Health Assistant including a lady health visitor, Staff Nurse and ANMs	One Staff Nurse (under NUHM) and three Auxiliary Nursing Midwives at the rate of one ANM for every 10,000 population	Direct Recruitment through a written examination to be outsourced to an appropriate agency. No interviews  No deputation	As per Indian Public Health Standards.	
Senior Health Inspector	The cadre strength is commensurate with the number of wards.	Direct Recruitment through a written examination to be outsourced to an appropriate agency.  No interviews	PUC plus training in public health; BSc is preferable (Bachelor's degree in Biology)	Cadre change should not be permitted under any circumstance.
Health Supervisor	At the sub-division level  For every three to four wards	Promotion  Five years' experience as health inspectors.		Working under MoH.  Health supervisors shall be handling trade licensing in addition to supervising the working of the health inspectors at the UPHC level.

**ii. The Department of Medical Services and Family Welfare:**

The Department of Medical Services and Family Welfare will be in charge of managing all the hospitals run by the BBMP. Currently, these hospitals are located only in the core areas of the BBMP. The new Department of Health Care will continue to perform all the clinical health work that the erstwhile department of health handled, namely (a) overseeing the functioning of the urban primary healthcare centers as far as clinical aspects are concerned (b) managing maternity homes (c) management of referral hospitals. Through the network of these two levels of hospitals the Health Care Department will continue to provide the following services.

**Outpatient Services**

- Maternal and Child Health Care: Antenatal care, postnatal care and Family Welfare programme;
- Fertility control services: Medical Termination of Pregnancy service, FW services- OP, CC, Copper- T;
- Treatment of RTI/ Sexually Transmitted Disease Cases;
- Lab facilities;
- HIV/ AIDS screening and ICTC Programme;
- Cancer detection/ screening;
- RNTCP (Tuberculosis screening and Dots);
- Scan facilities;
- Colposcopy in Referral Hospitals;
- Treatment of dog bite cases with ARS/ ARV (tissue culture vaccine);
- Treatment of ARI and GE cases;
- Drawing Blood Malarial Smear and treatment;
- H1N1, Dengue, Chikungunya disease awareness and treatment;
- Issue of one free copy of Birth Certificate to all Babies Born in Referral Hospitals;
- Training of Nursing students;
- Training Centre for LSAS (Life Saving anesthetic skills).

**Inpatient Services**

- Normal deliveries;
- Sterilization (Tubectomy) - Laparoscopic sterilization, no scalpel vasectomy;
- Prevention of mother to child transmission of HIV during labor;
- Management of high risk pregnancies;
- Caesarean sections;
- Gynaecological surgery;
- Advance endoscopic surgery/ infertility work up ;
- Issue of one free copy of Birth Certificate to all Babies born in Maternity Homes;
- Immunization.

#### a) Structure: Medical Services & Family Welfare

The maternity homes are general hospitals for all practical purposes catering mainly to women and child health, and therefore they should be renamed as Municipal Hospitals for Women and Children.

These hospitals will have an assistant surgeon cum medical officer and specialists in Obstetrics and Gynaecology, Pediatrics, Radiology and Anesthesia. The senior-most specialist will be designated as the administrative head of these hospitals.

At present the assistant surgeons/medical officers (entry level posts) are appointed commonly for both Public Health and Clinical Health wings of the Health Department. With the separation of these wings as Department of Public Health and the Department of Medical Services, assistant surgeons/medical officers should be recruited separately for public health and medical service purposes. These recruits can eventually specialize either in public health or clinical subjects, and based on their specialization can move on to occupy higher positions in either of the departments.

The Referral Hospitals which treat patients referred to it by the Urban Primary Health Centres and Maternity Homes have specialists in General Medicine, Obstetrics and Gynaecology, Pediatrics, Radiology and Anesthesia. The senior-most of these specialists will be designated as the Medical Superintendent of the Referral Hospital.

Currently there are 27 Municipal Hospitals for Women and Children (Maternity Homes) and six Referral Hospitals spread across the 135 wards comprising the core areas of the city. The committee recommends that similar hospitals be set up in the remaining 65 wards comprising the newly added areas of the BBMP.

#### b) Recommendations for the revision of C and R Rules: Medical Services & Family Welfare

The recommendations of the committee for revision of Cadre and Recruitment Rules for the Department of Medical Services and Family Welfare are summarized in the table 8:

**Table 8: Recommendations for the revision of C&R, Department of Medical Services and Family Welfare.**

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
<b>Medical Officer/Assistant Surgeon</b>  (entry level position)		Direct Recruitment  through a  Written examination.  No interviews		
<b>Specialists</b>		50 per cent promotion ;	For promotion: Five years of experience as Medical Officers	Cadre strength of MOH to be determined by



# RE-ORGANIZATION OF DEPARTMENTS AND REVISION OF CADRE & RECRUITMENT RULES

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
		50 per cent lateral entry	and higher qualifications (MD or PGD in the relevant area of specialization)  Lateral entry: Relevant experience in the private sector with prescribed qualifications	the number of Assembly segments plus as required for other duties
<b>Senior Specialists</b>		Promotion or lateral entry	For promotion: five years of years of service as specialists;  Lateral entry: substantial experience in the private sector	
<b>Hospital Superintendent</b>	To head each Municipal Hospital for Women and Children	To be designated from among the senior-most senior specialists		
<b>Medical Superintendent</b>	To head each Referral Hospital	To be designated from among the senior-most senior specialists		
<b>Health Officer</b>	One Health Officer at Corporation level	Promotion from amongst medical superintendents with 5 years of experience and on the basis of seniority-cum-merit		
<b>Chief Health Officer</b>	One Chief Health Officer	Either through deputation at the		

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
	at the GBA level for both Public Health and Health Care	level of Director of Health and Family Welfare or through promotion from amongst Health Officers of Corporations through a process of thorough screening or a person with vast experience in the sector could be picked up from the open market.		
<b>Special Commissioner Health Services</b>	At GBA	Senior IAS officer		

### 3.5. Ecology and Environmental Services

Currently, there three main departments in the BBMP working for the protection and promotion of the urban ecology and environment. These are the Department of Solid Waste Management in charge of disposal of solid waste generated in the city, the Department of Horticulture in charge of developing and maintaining parks, and the Department of Forests which is responsible for planting and maintaining trees and for the implementation of the Tree Protection Act within the jurisdiction of the BBMP.

Although, a separate Department of Solid Waste Management has been created following a Supreme Court ruling, at the time of undertaking this study, the department did not have independent staff and it was using the services of the existing engineering department and the health departments. The committee recommends that the Department of Solid Waste Management should have its own independent staff for it to operate professionally and efficiently.

Similarly, since committee is of the view that the Department of Horticulture and the Department of Forests should be brought under a single head of the department for effective planning and coordination of all works related to providing and protecting the greenery in the city. The committee therefore recommends that the existing Department of Horticulture and the Department of Forests be brought under a single Department called the Department of Parks and Trees. The re-organization plan, proposed structure and the C&R Rules for both Department of Solid Waste Management and the Department of Parks and Trees are discussed in this section.

## i. Solid Waste Management Department

Bengaluru generates about 3700 tons of Municipal Solid Waste daily<sup>1</sup>. The BBMP is carrying out collection, street sweeping, transportation, processing and disposal of Municipal Solid Waste. According to the Supreme Court directive Waste management should not be part of other department rather be separate department. At present a separate department for waste management has been set up but many of its staff are from the department of engineering and other departments.

### a) Reorganization: Solid Waste Management

- An Independent Solid Waste Management Department with its own staff from ward level up to the GBA level is to be created.
- Mechanized sweeping should be promoted in upmarket areas and arterial roads.
- Bulk collections from markets should be separated from household waste collection and separate staffing arrangements should be provided for the two.

### b) Structure: Solid Waste Management

#### • Ward Level:

A **Junior Health Inspector** is the main official responsible for all SWM related operations in a ward. The Junior Health Inspector is assisted by *pourakarmikas* and the sanitary dafedars in the day-to-day operations such as door-to-door collection, segregation and transportation of garbage. The JHI is also responsible for managing all SWM vehicles, accessories, PKs/IES activities/dry waste collection. JHI can be renamed as Inspector (Solid Waste Management). The number of *pourakarmikas* in each ward is to be decided according to the Supreme Court guidelines on solid waste management but having factored into generation and volume of garbage. A minimum 70 per cent of *pourakarmikas* should be employees of the corporation while 30 per cent may be contractual/outsourced.

**Pourakarmikas** are responsible for door-to-door collection and segregation of waste besides sweeping streets and public places.

**Sanitary Dafedars** are responsible for taking attendance of *pourakarmikas* and for ensuring that *pourakarmikas* are present and working on the site. There will be one Sanitary *Dafedar* for every mustering centre where all *pourakarmikas* report to work. *Dafedars* are responsible for door to door collection, mustering, sweeping and segregation

#### • Zonal Level:

At the Zonal level there will be a Zonal Environmental Officer of the rank of executive engineer to oversee the operations of all the senior environmental officers in the zone.

Zonal Health officer will also be responsible for overseeing plant activities such as processing, landfills, inert management etc.

There will be an assistant environmental officer to supervise every two to three junior health officers (sub-divisional level). The assistant environmental officer will be of the rank of

<sup>1</sup> Central Pollution Control Board (2011)

assistant engineers and responsible for overseeing SWM operations in all the wards coming under the sub-division.

There will be a Senior Environmental Officer to oversee every four to six assistant environmental officers (division which also coincides with assembly constituency). Senior Environmental Officer will be of the rank of Assistant Executive Engineer.

- **Corporation level:**

A superintending engineer (environment) or Chief Environmental Officer will head the Solid Waste Management Department at the Corporation level. The Chief Environmental Officer will report to the Corporation Commissioner.

There will be a **Deputy Health Officer (DHO)** in the corporation to coordinate between SWM and Public Health Department. The DHO will be on deputation from the Department of Public Health.

- **GBA Level:**

At the GBA level, a **Chief Engineer (Environmental Services)** will plan, coordinate and oversee the Solid Waste Management across all the five corporations. The Chief Engineer (Environmental Services) will report directly to the Chief Commissioner, GBA.

**c) Recommendation for the revision of C&R Rules: Solid Waste Management**

The committee's recommendations for the revision of C&R Rules are summarized in the table 9.

**Table 9: Recommendations for the revision of C&R, Solid Waste Management Department**

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
<b>Pourakarmikas</b>	Based on the workload in a ward	100 per cent direct recruitment.  The recruitment process to be outsourced to the police (CAR or KSRP) department.	Seventh Pass. Physical fitness is the sole criterion	There will be no promotion for <i>Pourakarmikas</i> except to the posts of sanitary <i>dafedars</i> . Hence there should be three levels of pay-scales
<b>Sanitary Dafedars</b>	One per 20 to 25 pourakarmikas	By promotion	SSLC pass  Five years' experience as pourakarmikas	After promotion training for three months should be mandatory. As part of the training they can be sent to exposure tour to

				outside state corporations for about 10 days.
<b>Junior Health Inspectors</b>  <b>The post may be renamed as Inspector (SWM)</b>	One per ward	Direct Recruitment (70 per cent)  Promotion from the ranks of Sanitary Dafedars (30 per cent)  Recruitment process is to be outsourced to KEA  No interviews	12 <sup>th</sup> standard pass plus health inspectors training course from All India Institute of Local Self Governance  Five years of experience as Sanitary Dafedars plus 12 <sup>th</sup> Standard pass.  (Before recruitment SDs to be sent for health Inspectors training at All India Institute of Local Self Governance on seniority basis, and the cost to be borne by the corporation)  Departmental examination (municipal and local boards act; general law)  In case no eligible candidate is available for promotion such posts can be filled by DR every three years.	No inter-departmental transfers or cadre change regardless of higher qualification for health inspectors.  This is to prevent the current practice of candidates with higher qualification getting recruited as Junior Health Inspectors and then seeking transfer to other departments in higher cadres
<b>Assistant Environmental Officer</b>	One per every sub-division	By direct recruitment; No interview.  The recruitment process to be outsourced.	Bachelor's degree in engineering and M Tech in Environmental Engineering.	



<b>Environmental Officer the rank of AEE</b>	One per division	By promotion	Five years of experience as assistant environmental officer	
<b>Zonal Environmental Officer</b>	One per zone	By promotion	Five years of experience as environmental officer	
<b>Superintending Engineer Or Chief Environmental officer</b>	One per corporation	50 per cent promotion and 50 per cent lateral entry	For promotion: Five years of experience as Zonal Environmental Officer  Lateral entry: Relevant experience in the private sector	
<b>Chief Engineer</b>	One at the GBA level	Promotion or lateral recruitment	Five years of experience as zonal environmental officer  A reputed SWM expert meeting certain criteria may be considered for lateral entry	
<b>Mechanical Engineers for O&amp;M and SWM Plant Management</b>	As per requirement	As in the parent department	As in the parent department	Inter-departmental transfer from engineering department.
<b>Deputy Health Officer</b>	One each at the Corporation level	As in the parent department	As in the parent department	Inter-departmental transfer from the public health department.

## ii. Department of Parks and Trees

The maintenance of parks and trees is one of the main functions of the BBMP. Currently, there are two separate departments whose staff is largely on deputation to take care of and perform these functions. The Department of Horticulture is in charge of development and maintenance of parks whereas the Department of Forests is looking after the tree planting and maintenance.

The Department of Horticulture is headed by the Deputy Director of Horticulture and he is assisted by seven Horticulture superintendents. At the Zonal level, a Horticulture Superintendent functions under the Zonal Joint commissioner. Under the Horticulture Superintendent, there are Assistant Horticulture superintendents who are the field-level functionaries and they operate with the assistance of horticulture inspectors, gardeners and mestris. Besides, the development and maintenance of parks, the Department also produces compost using the biomass generated in the parks and does water harvesting works. At present, there are 1360 parks, of which 1011 have been developed and the rest are under various stages of development.

The Forest Department headed by a Deputy Conservator of Forests performs the following functions.

1. Planting of Sapling with building tree guards around them to enhance the green cover and aesthetics of the city.
2. Canopy Management: Removing or pruning trees which are found to be dangerous, old, dried and obstructing traffic, in accordance with the provisions of the Karnataka Tree Preservation Act, 1976. The Department has 13 canopy management teams to do this across the city.
3. Raising of Seedlings in Nurseries: The department also raises saplings of tree species which are most suitable to be planted in various parts of the city. After meeting the BBMP's own requirements, these saplings are also distributed free of cost to other departments and NGOs engaged in beautification and greening of the city.
4. The Forest Department also performs a regulatory function in which it grants permission to the public to fell or trim the trees under the provisions of the Karnataka Tree Preservation Act, 1976.
5. The Department also maintains a wild life rescue team headed by one Environment Adviser to man a 24 hour help line to attend to the problems caused to the general public by snakes, monkeys and other wild animals.

During the consultation with BBMP officials it was brought to the notice of the Committee that the BBMP has only one sanctioned post of the DCF and two sanctioned posts of ACF. It does not have any sanctioned posts of RFOs, foresters/deputy RFOs and forest guards. However, eight officers at the level of RFOs/foresters are working in the department without sanction. Sometimes two DCFs work against one sanctioned post. The officers have admitted to the fact that the functioning of the department is totally flawed and unsystematic and unscientific as there is no well-defined structure for the department in place to oversee this important aspect of BBMP functioning.

### **a) Reorganization: Parks & Trees**

After studying the role, responsibility and the current issues facing these two departments, the Committee has come to the conclusion that these two departments should be brought under a single administrative head at the corporation level. This is necessary because both these departments serve a largely similar purpose which is to contribute to the environmental quality and beautification of the city. Both these departments have deputed officials at the higher levels and it is therefore important to have a single coordinating authority at the centre.

The committee therefore recommends that the department of forests and the department of horticulture be brought under a single department called the Department of Trees and Parks headed by a joint commissioner at the corporation level under whom the trees wing will function with deputed staff from the state forest department and the parks wing will function with deputed staff from the state horticulture department.

### b) Structure: Trees wing

- **Ward Level**

For every division or assembly segment there will be one a forester/DRFO assisted by two forest guards. They will be responsible for all the wards coming under the assembly segment. Most of the works are carried out by the forest guards. There is no need for ward-wise presence for the trees wing as most of the work including planting of saplings is generally contracted out.

- **Zonal Level**

A Range Forest Officer with required administrative staff will function from the Zone office to look after the functioning of the wing in all the divisions coming under the zone.

- **Corporation Level**

An assistant conservator of forest will head the wing at the corporation level. The ACF will be assisted by required technical staff.

### c) Structure: Parks wing

- **Ward Level**

There will be a Horticulture Inspector for every division to take care of the parks-related works in all the wards coming under the jurisdiction of the division. The Horticulture Inspector will be assisted by gardeners and *mestris*.

- **Zonal Level**

At the zonal level, there will be an assistant director of horticulture who will be responsible for the development and maintenance of all the parks in the divisions coming under the zone.

- **Corporation Level**

At the corporation level, there will be a senior assistant director who will be in charge of the park wing's operations in the corporation. **Departmental Head at the Corporation level:** A Deputy Conservator of Forests will head the Department of Trees and Parks

- **GBA Level**

An Additional Director of Horticulture/ Conservator of Forests will coordinate the functions of the Department of Trees and Parks across the five corporations.

### d) Recommendation for the revision of C&R Rules: Parks & Trees

For the Trees wing all the posts will be filled by way of deputation from the State Forest Department.

For the Parks wing, the posts except those of gardeners, mestris and horticulture inspectors will be filled by way of deputation from the state department of horticulture.

The recommended revisions in the C&R Rules for the posts of gardeners, 'mestris' and horticulture inspectors are given in the table 10.

**Table 10: Recommendations for the revision of C&R Rules: Parks & Trees**

Designation	Nos	Mode of recruitment	Qualifications	Miscellaneous
Gardeners	Dependent on requirement	Direct recruitment; no interviews  written examination and physical test	SSLC plus training in gardening/horticulture	There will be no cadre change for gardeners, mestris and horticulture inspectors.  Deputation from this cadre to any other cadre is strictly prohibited.
Mestris	Dependent on requirement	By promotion from amongst gardeners, with five years of experience.		
Horticulture inspector	For every Assembly Segment	Through promotion from among mestris, with five years of experience		

### 3.6. Welfare

#### i. The Department of Urban Poverty Alleviation

The existing department of welfare is in charge of taking up various welfare programs for weaker sections. The department is using for this purpose mainly the funds available to various departments for SC/STs. Of late the department has also been taking up projects for other weaker sections such as backward classes, minorities, women and physically handicapped.

The committee recommends that the activities taken up in the name of welfare needs to be reorganized and administered more effectively. Since the department has now been taking up a wide-range of programmes to alleviate the poverty of various groups of citizens, it should be renamed as the Department of Urban Poverty Alleviation.

#### a) Reorganization: Welfare

Currently the department is headed by a Joint Commissioner/Additional Commissioner assisted by a Deputy Commissioner. The Committee recommends that in view of the proposed five corporations in the place of BBMP, the welfare department should be headed by a Deputy Commissioner at the Corporation level, assisted by an Assistant Commissioner with supporting staff. There will be a Joint Commissioner/Additional Commissioner at the GBA to plan and coordinate the poverty alleviation functions across the city.

**b) Recommendations for the revision of C&R Rules: Welfare**

The Joint Commissioner (Urban Poverty Alleviation) will be an IAS officer or a socio-economic development expert with substantial experience in national or international level developmental roles. The Deputy Commissioner (Urban Poverty Alleviation) will be senior KAS officer. The Assistant Commissioner (Urban Poverty Alleviation) will be KAS officer.

**3.7. Human Resources and Institutional Management**

For the internal administration of the GBA and the corporations, the committee recommends three independent departments. They are: the Department of Human Resources, the Department of Finance, Accounts and Audit and the Department of Law. The Department of Human Resources will also include the Public Relations and Estates. As the GBA is going to be vested with the management of all the Group A, B and C cadres of personnel in the re-organized governance arrangement, the Department of Human Resources will function from the GBA. Only the cadre of Group D personnel will be managed at the corporation level with a wing of Human Resources Department present in each of the corporation. The Law and Finance Departments will also be housed in the GBA with substantial presence at the level of each corporation also.

**i. Department of Human Resources**

**The Department of Administration is responsible for recruitment, training, cadre management of the municipal personnel of all the five corporations.**

**a) Reorganization: HR**

The committee recommends that GBA should be the recruiting authority for all the Group A, B and C officials and personnel. Only Group D personnel will be recruited by the individual corporations.

The GBA will also be the cadre management authority for all the Group A, B and C officials and personnel. Only Group D personnel will be managed by the individual corporations.

As part of the reorganization, the committee recommends that the Department of General Administration will also be in charge of all the assets of the corporation and public relations.

**b) Structure: HR**

The Department will be headed by a special commissioner (Personnel) at the GBA level. He will be assisted by three deputy commissioners, each looking after recruitment and training, cadre management and land acquisition.

At the Corporation level, the department of personnel administration will be headed by a deputy commissioner (personnel) who will be assisted by two managers and other supporting staff.

At the corporation level, there will also be an assistant commissioner (estates), with supporting staff who will be in charge of the corporation assets. A public relations officer with supporting staff will also be attached to the Department of General Administration.

The Committee is of the view that there is no need for assistant commissioners in the Department of Personnel Administration at the corporation level as the corporations are recommended to be in charge of the cadre management of only Group D personnel.

The committee's recommendations with regard to the revision of the C&R Rules with respect of the officials of the Department of Personnel and the FDAs and SDAs for all the departments is summarized in the table 11.

### c) Recommendation for the revision of C&R Rules: HR

**Table 11: Recommendations for the revision of C&R: HR**

Designation	Nos	Mode of recruitment	Qualifications	Miscellaneous
SDAs	As per requirement	Direct recruitment through a written examination; No interviews	A bachelor's degree with at least 50 per cent marks in the qualifying examination with relaxations as per reservation policy	Although the eligibility to write the recruitment examination is the same for both FDAs and SDAs, the recruitment examination for the FDAs will be of much higher level.  The examination should be outsourced to an external agency
FDAs	As per requirement	50 per cent direct recruitment through a written examination; no interviews  50 per cent promotion	For direct recruitment: A bachelor's degree with at least 50 per cent marks  For promotion: At least five years' experience as SDAs	
Deputy Commissioners	Two at the GBA and one for each corporation	<b>Senior KAS officer on deputation</b>		
Special Commissioner	One at the GBA	<b>Senior IAS officer</b>		

### ii. Department of Finance, Accounts and Audit

At present Accounts section headed by Chief Accounts Officer (CAO). The CAO Section is actually working as Treasury of BBMP along with

- Compiling all kinds of Receipts and Payments;
- Assistance to Commissioner for preparation of annual Budget of BBMP including supplemental Budget and advise Commissioner in financial matters;



- Supervision & Re-conciliation of receipt & Payment of Various Bank Accounts;
- The Compilation and Finalization of Annual Accounts of BBMP;
- Submission of Financial position to higher authorities & to the Government;
- To release LOC to the Executive Engineers and Assistant Controller(Finance) of 8 zonal offices of BBMP with the approval of the Commissioner;
- To Liaison with Government regarding financial issues pertaining to BBMP;
- Pursue files pertaining to grants;
- Accounts maintained under Fund Based Accounting System (FBAS) since 2002-03.

### a) Reorganization: Finance, Accounts & Audit

The Committee held wide ranging discussions with the head of the Special Commissioner, Finance, Additional Commissioner (Administration) and the Chief Accounts Officer. Although, there was a suggestion that the Finance Section be brought under the overall supervision of the proposed Resources Department, the Committee in its subsequent discussions felt that since Finance and Accounts is essentially an administrative department, it is not advisable to bring it under the control of a functional department like Resources Department. As such, the Committee has come to the conclusion that the Finance and Accounts Department should be kept as a separate department under the supervision of the Additional Commissioner (Administration). Further, the Committee makes the following recommendations.

The Committee also recommends that the Department be headed by a chief accounts officer who may be in the rank of Additional Controller of Accounts or an officer from the Indian Audit and Accounts Service, at the GBA level. But we recommend overall, control will lie with the head of the general administration department. However, the personnel working in the department of finance and accounts will constitute an independent cadre for the purposes of seniority, promotion, career planning etc.

FDAs and SDAs of the Finance and Accounts Department have specialized and specific qualification and expertise. So they should not be clubbed with the FDAs and SDAs in general. They shall be available only for specialized service and hence the decision to house them in GBA. They should constitute a cadre by themselves with a different career plan. The Committee suggests that these posts be given different sets of names such as First Division Accounts and Second Division Accountants while they continue in the cadre of FDAs and SDAs.

### b) Structure: Finance, Accounts & Audit

The Committee recommends the following structure for the Finance and Accounts Department at the Ward, Zonal, Corporation and GBA level.

- **Ward level**

An Account Superintendent will head the accounts wing at the ward level. There will be required number of FDAs and SDAs. They will keep track of all records.

- Zonal level**

Deputy Controller Accounts, assisted by audit officers, accounts superintendents and required number of FDAs and SDAs will function at the Zonal Level, under the overall supervision of the Zonal Commissioner.

Below the zonal office, there will be an assistant controller, supported by an audit officer, an accounts superintendent and supporting staff at the divisional level (legislative assembly segment)

- Corporation Level**

At the corporation level, there will be a chief accounts officer of the rank of the joint controller of finance, assisted by two DCFs, one for accounts and another for finance. The finance DCF can be called chief finance officer working under joint controller finance. The supporting staff will comprise assistant controllers, audit officers, superintendents etc. Functions will include

**c) Recommendation for the revision of C&R Rules: Finance, Accounts & Audit**

The Committee makes following recommendations regarding the recruitment for various posts in the department of Finance and Accounts. The recommendations are summarized in Table 12. The relevant C&R Rules may be revised incorporating these recommendations.

**Table 12: Recommendations for the revision of C&R: Department of Finance, Accounts and Audit**

Designation	Nos	Mode of recruitment	Qualifications	Miscellaneous
Second Division Assistant		Direct Recruitment through a written examination; no interview.	B.Com	
First Division Assistant		50 per cent direct recruitment through written examination  50 per cent through promotion; no interviews	For direct recruitment B.Com  For promotion: five years of experience as Second Division Assistant.	
Accounts Superintendent		Promotion	Five years of experience as first division assistant	
The Audit officer		Promotion	Five Years of Experience as Accounts Superintendent	

# RE-ORGANIZATION OF DEPARTMENTS AND REVISION OF CADRE & RECRUITMENT RULES

Designation	Nos	Mode of recruitment	Qualifications	Miscellaneous
Assistant Controller of Finance (Zone).		75 per cent Direct Recruitment through written test; no interview  25 per cent  Deputation for a limited period may be allowed.	For direct recruitment: M Com, CA, and MBA in Finance.   For promotion: Five years of experience as audit officer	
Deputy Controller		50 per cent Promotion or Deputation for a limited period but not more than three years  50 per cent lateral entry	For promotion: five years of experience as audit officer  Lateral entry: Substantial experience in the private sector	No officer can come on deputation in any capacity for a second time or term.  No relaxation should be allowed under any circumstances with regard experience and qualifications for deputation  Deputation on the basis of experience.  No provision for cadre change.

### iii. Law Department

The legal cell of the BBMP provides legal opinion sought by various departments and legal services with respect to all court cases involving the BBMP. Section 484 of Karnataka Municipal Corporations Act 1976 is the enabling provision in establishing the legal cell. The legal cell is headed by a judicial officer of the rank of the district judge and has three Legal Assistants, one Deputy Law Officer, two Assistant Law Officers and 10 Junior Law Officers. The Corporation has a few advocates on record to handle cases filed against BBMP before the Supreme Court.

The Committee held detailed discussions with the head of the legal cell and other officials from the legal cell. During the discussions it was pointed out that the existing strength of the legal cell is not commensurate with the workload.

Workload in the Legal cell has increased manifold during the recent years consequent to steep increase in the population of the city, enforcement of the provision of the RTI Act 2005, and the establishment of Karnataka State Human Rights Commission, State and District Consumer Forums, National Green Tribunal and the Karnataka Lokayukta.

#### a) Reorganization: Law

Based on these discussions and keeping in view the current and future workload, and the overall changes proposed to the structure of administration in Bangalore, the committee makes the following recommendations:

The Legal Cell should be upgraded as a full-fledged law department and should be housed in the GBA.

The Department will be headed by the Principal Director (Legal Services) and will be assisted by a Joint Director and two assistant directors.

In each corporation, there will be a director (legal services) to be assisted by one joint director, one deputy director, two assistant directors and five legal officers.

A manager and ministerial staff will assist the team both at the GBA level and in each of the corporations.

Separate accounts branch should be set up in the legal cell- for the purpose of payment of advocates' bills and court fees. Such accounts branch, could be at the GBA level, having control over the five municipal Corporations in accounts matters. A post of Assistant Controller of Finance, may be created at the GBA level.

#### b) Recommendation for the revision of C&R Rules: Law

The committee's recommendations for revisions in the cadre and recruitment rules in respect of the law department are summarized in the table 13:

**Table 13: Recommendations for the revision of C&R: Department of Law**

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
Principal Director	1	<b>Direct Recruitment</b>	Retired District & Session Judge (super time scale or served for three years as Director/Head of legal cell, Law Department in any of the Municipal Corporation, Bengaluru.)	Age limit maximum up to 70 years of age. Tenure 3 years whichever is later.
Director/Head of the legal cell	5	Direct Recruitment	Retired District & Session Judge.	Age limit up to 65 years for applying for the post. Tenure five years.
Joint Director	6	50 per cent promotion and 50 per cent lateral entry	Promotion: From the cadre of Deputy Director, who has put in service of not less than two years in the cadre of Deputy Director/ Deputy Law Officer on seniority cum merit basis  Lateral entry: Substantial experience in legal practice with expertise in municipal laws	Newly created post, equal to the rank of Deputy Director of Forensics
Deputy Director/ Deputy Law officer	5	50 per cent Promotion; 50 per cent lateral entry	Promotion: From the cadre of Assistant Director, who has put in not less than two years of service as Assistant Director/ Assistant Law officer on seniority cum merit basis  Lateral entry: Substantial experience in legal practice with expertise in municipal laws	Post is equal to the present post of Deputy Law Officer/ Public Prosecutor in the department of prosecution
Assistant Director/ Assistant Law	12	50 per cent by promotion; 50 per cent by	Promotion: from the cadre of law officer/ Junior Law Officer who has put in	Post is equal to the present post of Assistant Law Officer/

Designation	Numbers	Mode of recruitment	Qualifications	Miscellaneous
Officer		lateral entry	service of not less than two years in the cadre of law Officer/ Junior Law Officer on seniority cum merit basis  Lateral entry: Substantial experience in legal practice with expertise in municipal laws	Senior Assistant Public Prosecutor in the Department of Prosecution
Law Officer	30	Direct Recruitment through a written test	A bachelor's degree in law with two to three to five years of experience in the bar or in a reputed law firm.	Post is equal to the present post of Junior Law Officer/ Assistant Public Prosecutor

### 3.8. Appointment of Commissioners and Zonal Commissioners and other recommendations

The Commissioner of the GBA and the Corporation will be senior members of the Indian Administrative Service. However, instead of routinely posting IAS officers for these posts, those with considerable experience and training in urban governance should be given preference.

The Section 14(1) of the KMC may be suitably amended to provide security tenure for the commissioner for at least two years. This would enable the commissioners to plan for long term improvements in governance and to reform the system without being constrained by political expediency.

The posts of Zonal Commissioners are currently being filled by promoting BBMP officials or through deputation from various state government departments. The Committee has observed that officials with no relevant experience are often appointed to these key positions. The committee recommends that these posts should be filled only by senior Karnataka Administrative Service Officials with previous experience of having worked in urban local bodies. Their appointment should also be subjected to a process of selection in which relevant previous experience, training, interest and aptitude need to be ascertained.

The rationale of appointing only the IAS and KAS officials for the posts of commissioners and zonal commissioners respectively is that these are the posts which require the officers to coordinate with elected representatives and various departments both within the BBMP and in the State Government. These responsibilities can be better handled by the All India Services and State Civil Services officials as they are exposed to such roles from the beginning of their career.



**Outsourcing Selection Process:** The candidate selection process may be outsourced to centres of excellence such as Indian Institutes of Management in the cases of lateral entry to leadership roles and direct recruitment to key posts. The current model of recruitment enlisting the services of institutions outside the government followed by the BWSSB and KPTCL may be studied and followed. The recruitment of AROs and ROs may be assigned to the Indian Institute of Management as ROs and AROs are key functionaries in managing resource mobilization at the field-level and hence required to possess proper aptitude and competence required to carry out this function. Selection of candidates for various engineering posts may be outsourced to technical institutions of repute keeping in view the kind of specialization required for the posts being filled.

**Lateral Entry:** The Committee strongly recommends the lateral entry at senior levels across the departments to infuse new ideas and dynamism into civic administration. As indicated in the department-wise suggestions for the C&R revisions at least 50 per cent of the posts at the senior level should be filled through lateral entry. Even in those cases where only one such post is available, there should be an option for filling such posts through lateral entry if at that level there is a need for experience, expertise and efficiency available in the open market.

**Induction and Training:** All the new recruits should go through mandatory foundation training as well as mid-career training as a pre-condition for promotion. Training can be organized in partnership with private institutions and the Karnataka State Institute of Urban Development which was established by the government with the mandate to train municipal staff.

**Manpower Assessments using Scientific Methods:** The manpower requirements at various levels and various categories of posts needs to be estimated using a scientific method such as the Destination Organization Chart (DOC) developed by *Janaagraha and Aon* which allows required staff strength to be estimated against specific volume of works to be executed in a given time frame. Any such estimate should also take into account the use of technology for upgrading various processes of administration. We suggest that a separate committee of experts should be constituted to estimate the sanctioned strength of staff on a scientific basis.

**Performance Assessment:** A stringent annual performance review process should be in place and it should be done in a fair and transparent manner. The HR Cell should coordinate this process with the department heads and the head of administration department of the municipal corporation concerned.

**Human Resource Management System (HRMS):** IT-based management tools such as Human Resources Management System can be deployed to automate the tracking of staff data pertaining to skills, capabilities, performance appraisal, learning management, attendance and payroll. This can help reduce the manual workload of these administrative activities at the head office.

### 3.9. Transition to New C&R Rules

The committee recommends the following transition plan for the implementation of the C&R rules revised according to the recommendations made in this report.

The revised C&R will be applicable to all the new recruitments to be carried out after the notification of the revised rules. The existing positions can be renamed and re-adjusted according to the revised C&R Rules. A plan needs to be put in place for re-training and re-skilling of the existing staff.

Some additional transition measures need to be planned in case the Government goes ahead with implementing the recommendation of this committee for the splitting of the existing BBMP into multiple smaller corporations with a Greater Bangalore Authority at the apex level.

In such a case a large number of city-scale functions (functions to be carried out across the multiple corporations) are going to be vested with the Greater Bangalore Authority. However, the Act passed in this regard by the Karnataka legislature, which now awaits the Presidential assent, provides only for the creation of multiple corporations sans the GBA. Therefore, when the new Act comes into being the smaller corporations will replace the BBMP without the GBA, the creation of which under a new law to be passed would take some more time. Then a question arises as to which authority would carry out the functions recommended to be vested with the GBA. The committee therefore recommends that the Government create an empowered committee consisting of representatives from all the new corporations to carry out the functions that are of city-scale until such time as the GBA is duly created.

Alternatively, the Government may promulgate an ordinance to create the GBA once the Act providing for the creation of multiple corporation comes into force, so that all the city-scale functions can be shifted to the GBA immediately. Once the GBA comes into being all the BBMP employees, except those in Group D, will be GBA employees and the GBA will have powers to transfer them to the corporations. The GBA may initially transfer the staff to the newly created corporations through a process of counselling. Adopting a similar method the GBA may allocate the Group D workers to individual corporations and they will henceforth be employees of the respective corporation.

Finally, while recommending revisions in the existing C & R Rules, this committee has not worked out the number of posts required at the various levels as the committee felt that it would be premature to do so without estimating the work load in the re-organized set-up. Therefore, the committee recommends that the government constitute a group of officials to estimate the number of posts once the decision regarding the re-organization is finalized. Alternatively, this task may also be assigned to the existing BBMP Restructuring Committee.



# PLANNING RECOMMENDATIONS

Expert Committee : BBMP Restructuring  
2016 - 2017



**BBMP**  
RESTRUCTURING

Chairman: B. S. Patil, IAS (Retd)  
Members: Siddalah, IAS (Retd)  
V. Ravichandar



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# Introducing Scales of Plans and Strategic Spatial Planning for Bengaluru

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## Executive Summary

The Karnataka Town and Country Planning Act, 1961 (KTCP Act, 1961) was enacted with the intention of having a uniform law for the regulation of planned growth of land use and development. It was also to make and execute town planning schemes to ensure settlements do not grow to unmanageable sizes without proper planning, as that would result in unhealthy surroundings. Bengaluru, is experiencing unprecedented urban growth and contributes to over 36% of the State's urban population. This growth however, has been accompanied by acute challenges to the current systems of planning, governance and service delivery. There has been unplanned peripheral expansion, deficiencies in the provision of critical infrastructure, poor coordination between various government agencies operating in the city, worsening conditions of traffic and transportation and severe impacts to environmental systems affecting the overall quality of life in the city. The KTCP Act, 1961 which mandates the preparation of the city's master plan has been a weak instrument in planning and managing the growth of the capital city.

There has been an overriding influence of the State government in the city's functioning, with negligible citizen participation in planning processes. The Bengaluru Development Authority (BDA) for instance, which is tasked with preparing the city's master plan requires the coordination and cooperation of various State and city level agencies tasked with land development and services provision to make a realistic 'Master Plan'. These sectoral agencies however, such as the Bengaluru Water Supply and Sewerage Board (BWSSB), Bengaluru Electricity Supply Company (BESCOM), Bruhat Bengaluru Mahanagara Palike (BBMP), Bengaluru Metropolitan Transport Corporation (BMTCL), Karnataka Housing Board (KHB), Karnataka Industrial Area Development Board (KIADB) etc. work in silos, and prepare their own sectoral plans and projects without much inter agency negotiations or discussions. The KTCP Act 1961 has undergone need based amendments over time but has not been comprehensively revised in over fifty years. The Act is yet to be revised to incorporate the mandates of the 73rd and 74th Constitutional Amendments.

Following are some of the key issues in the current system of master planning:

- Sectoral agencies have their own acts, plans, projects and implementation schedules. Inter-agency negotiations remain out of the scope of the master planning process;
- The Master Plan merely stipulates static land uses, statistical extrapolations for the future and regulatory controls;
- Regulatory controls are more violated than followed;
- Chapters written in the master plan is largely academic. Inter-agency negotiations remain out of scope of the master planning process;
- Various urban development programs such as Smart Cities, JnNURM, RAY, AMRUT, PMAY, SEZs etc. are well funded, but are conceived and operate outside master planning frameworks;
- Master Plans have not been successful in incorporating market forces, which have a large role in determining the scale and location of economic activities;
- Planning is restricted to development authority jurisdictions often not considering the regional context in which city is located;

- Local specificities are typically missed out in the generalised city level plan;
- It is mostly a top-down exercise with little public participation, lack of public consensus building and rent seeking efforts by powerful interest groups;
- Needs of economically weaker sections of the society are poorly addressed;
- Proposals for public purposes are often implemented through compulsory land acquisition making it mostly unviable considering the high amounts of compensation;
- Excessive time is consumed in plan preparation and approval process.

A mega city like Bengaluru which competes with other global cities requires effective and customised planning processes to manage its current day needs and complexities. The ongoing revision of the Bengaluru Master Plan by the BDA is another opportunity to improve the city's planning processes. The recommendations made are as follows:

- 1. Enhancing Bengaluru's liveability by prioritising key guiding principles in city plans:** Instituting a process by which city stakeholders identify key factors affecting liveability in Bengaluru to derive key principles on which all planning process are to be guided.
- 2. Improving the Ongoing Bengaluru Master Plan Process**
  - a) The Revised Master Plan (RMP) 2031 revision should incorporate systematic stage wise dissemination of information to the public and ensure people's informed participation in the process;
  - b) RMP 2031 should serve as a proactive broad framework with sustainability at its core while managing dynamic market trends and economic opportunities;
  - c) Enhance the role of the Bengaluru Coordination Committee (BCC) to enable interdepartmental coordination, cooperation and negotiations for the ongoing master plan revision;
  - d) Ward level plans should be provisioned for through the RMP 2031, with wards being co-terminus with the planning district boundaries and reflecting local level priorities;
  - e) Co-dependent projects should be prioritised using the spatial platform of the RMP 2031 by the State Government and the Bengaluru Coordination Committee (BCC) to automatically ensure coordination between agencies, thereby making the Master Plan implementable and linked to clear budgets and timelines;
  - f) Incorporate frameworks for the continuous review of the Master Plan so that it is a systematic process of rolling plans, that is constantly monitored and evaluated rather than a once in ten-year static product.
- 3. Prioritising Bengaluru through a unique planning legislation:** Enacting a unique planning legislation for Bengaluru City-Region within the proposed GBA Act or as a separate section within the KTCP Act 1961, to accord priority to the city's dynamic needs to not only plan comprehensively across scales, but also to complement it with strategic and result oriented planning.



- 4. Introducing Local Level Planning:** Ward Development Plans should be undertaken by the municipal corporations which are detailed plans incorporating specific requirements of the local areas within the policy frameworks of the City Level GBA Plan and Zonal Level Plans.
- 5. Introducing Urban Quality in Local Level Planning:** The quality of public spaces, streets and built form should be enhanced through an Urban Design Approach.
- 6. Introducing Zonal Level Planning:** The proposed multiple municipal corporations should undertake Zonal Development Plans at Zone/Municipal Corporation level as intermediary plans between the macro scaled city plan and the micro level ward plan.
- 7. Bettering City Level Planning:** Greater Bengaluru Authority (GBA) should undertake the preparation of the city perspective plan for the city region, with a vision for the city, incorporating proposed land use frameworks and regional strategies.
- 8. Ensuring development-led proactive planning at the City Level:** Statutory planning at scales needs to be complemented with an implementation orientation through Strategic Planning and Strategic Projects
- 9. Enhancing Regional Level Planning:** The Metropolitan Planning Committee (MPC) should prepare the Bengaluru Metropolitan Regional Level (Structure) Plan with broad land utilisation frameworks as a guidance framework to city perspective plans and regional level infrastructure and commons.
- 10. Assigning clear roles and responsibilities to agencies by scale of operation:** Assigning roles and responsibilities to agencies through a detailed activity mapping across scales will greatly improve efficiency, role clarity and reduce overlaps
- 11. Effecting changes in the Acts of various agencies operating in Bengaluru to mandate coordination and cooperation.**
- 12. The Metropolitan Planning Committee should be re-constituted at the scale of the Bengaluru Metropolitan Region:** The MPC should be set up at the scale of Bengaluru's city-region (BMRDA jurisdiction) and not the current limited jurisdiction of the city's development authority (BDA).
- 13. Setting up of a single geo spatial database across city agencies:** The Bengaluru Spatial Information Centre (BASIC) is proposed to be the single source and custodian of all geo spatial data for the city-region and is a precursor to enable truly integrated planning with inputs from various sectoral departments

### Challenges in achieving Planning at Scales and Strategic Planning

- Spatial planning is influenced by various activities of multiple departments. The proposed change in planning processes would require the active involvement of State, Central and other Para state agencies involved;
- The current planning process has been delayed due to various reasons which are within and outside the purview of city agencies. Shifting to a continuous planning process would require a very different mode of working;
- The envisaged scale of planning activity would be far more intensive and resource consuming than the current situation. Internal capacity of the local government needs to be improved drastically to effectively prepare plans at every Ward Level, and Zone level within a given time frame, to feed in to other scales of plans;
- Public participation in the current planning system is minimal. Capacity building and sensitization are essential to rapidly shift towards citizen participation oriented planning.

### Opportunities to introduce Planning at Scales and Strategic Planning:

- Comprehensive revision of KTCP Act 1961, is underway by the State Government, hence it is an opportunity to reform planning, even if establishment of the overall GBA Act gets delayed;
- Establish spatial planning as a base to bring convergence of plans on a spatial digital platform for planning, implementation and management. This could be achieved through common GIS database across all departments and agencies, through a Bengaluru Spatial Information Center (BASIC) as recommended by the BBMP Restructuring Committee;
- Revised Master Plan 2031 could incorporate key principles of scales of planning, such as local Ward planning by identifying priority areas and specify guidelines to prepare them;
- Public participation to enhance citizen's role in decision making and enhanced role of civic society organizations in plan making process also brings in higher levels of acceptance for the plan.

## List of Abbreviations

AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BASIC	Bengaluru Spatial Information Center
BBMP	Bruhat Bengaluru Mahanagara Palike
BCC	Bengaluru Coordination Committee
BDA	Bengaluru Development Authority
BESCOM	Bengaluru Electricity Supply Company
BIAAPA	Bengaluru International Airport Area Planning Authority
BMA	Bengaluru Metropolitan Area
BMR	Bengaluru Metropolitan Region
BMRL	Bengaluru Metro Rail Corporation Limited
BMRDA	Bengaluru Metropolitan Region Development Authority
BMTCL	Bengaluru Metropolitan Transport Corporation
BWSSB	Bangalore Water Supply and Sewerage Board
CMC	City Municipal Council
GBA	Greater Bengaluru Authority
GP	Gram Panchayat
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KHB	Karnataka Housing Board
KIADB	Karnataka Industrial Area Development Board
KTCP	Karnataka Town and Country Planning
MPC	Metropolitan Planning Committee
PMAY	Pradhan Mantri Awas Yojana
RAY	Rajiv Awas Yojana
RMP	Revised Master Plan
RSP	Revised Structure Plan
RWA	Residents Welfare Association
SEZ	Special Economic Zone
TMC	Town Municipal Council
WRI	World Resources Institute

## Definition of terms

**Bengaluru Metropolitan Region (BMR):** BMR extend over 8005 sqkms and is constituted by three districts namely Bangalore Urban, Bangalore Rural and Ramanagaram (Ramanagaram is a newly created district carved out from Bangalore Rural district that includes Ramanagaram, Channapatna, Magadi and Kanakapura taluks). Local Planning Area of BDA falls within BMR.

**Bengaluru Metropolitan Area (BMA):** BMA is spread over an area of about 1294 sq.km which comprises of local planning area of BDA and part of local planning area of Bengaluru Mysore Infrastructure Corridor Area Planning Authority (BMICAPA). BMA includes BBMP and 251 villages and approximately had a population of 90 lakh in 2011.

**Bruhat Bengaluru Mahanagara Palike (BBMP) Jurisdiction:** BBMP jurisdiction expand over an area of 709.49 sqkms and falls within the local planning area of Bengaluru Development Authority(BDA). The erstwhile Bengaluru Mahanagara Palike (BMP) that expanded over 225 sqkms were amalgamated with 7 City Municipal Councils, 1 Town Municipal Council and 110 villages to form BBMP in 2007.



Figure 1: Jurisdiction of BBMP and Ward boundaries

Source: WRI India, Data source: BBMP

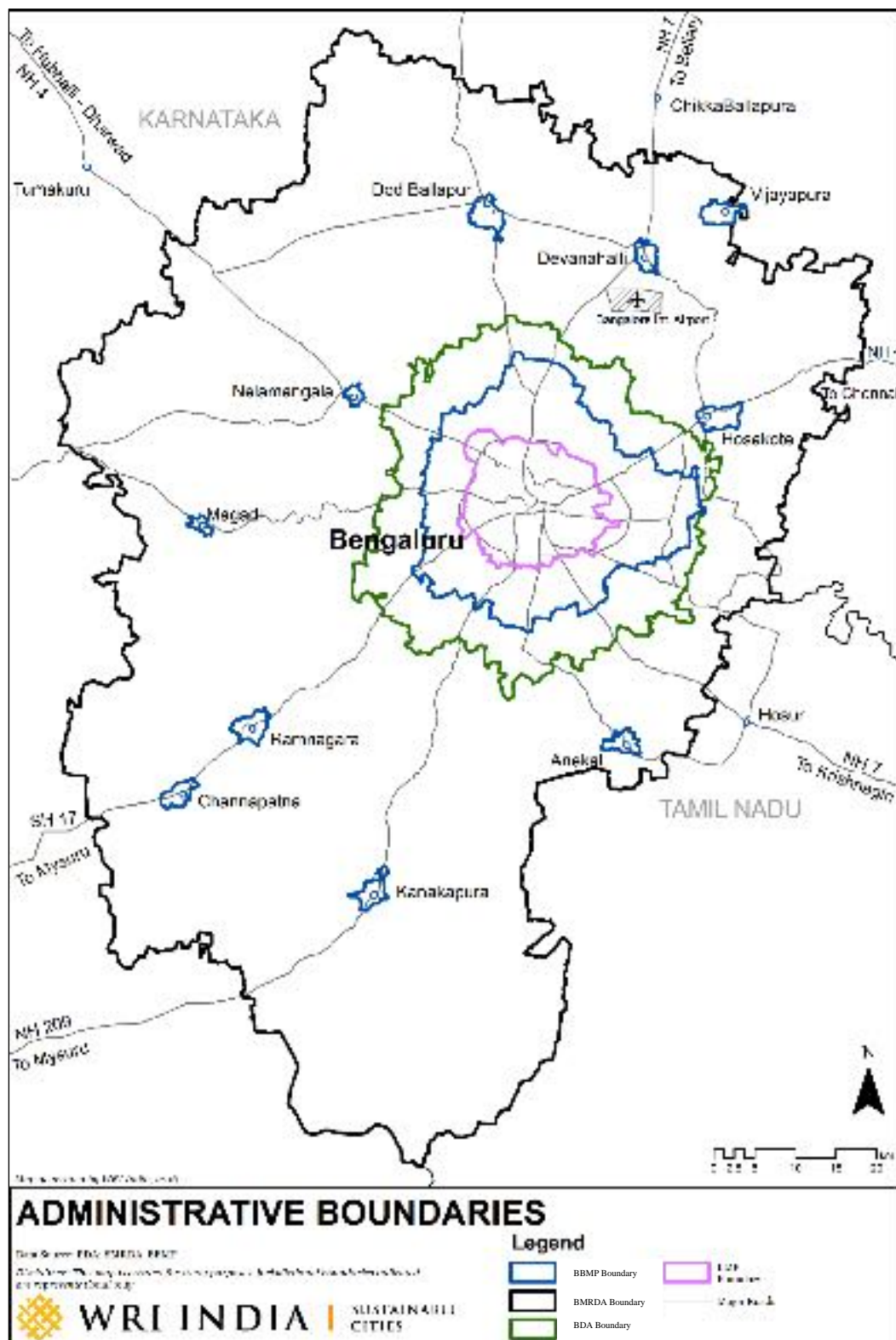


Figure 2: Jurisdiction of BMP, BBMP, BDA and BMRDA  
Source: WRI India, Data source: BDA, BBMP and BMRDA

## 1. Recommendations towards ‘Introducing Scales of Plans and Strategic Spatial Planning’

The Master Plan for Bengaluru (RMP 2031) is currently under revision by the Bengaluru Development Authority (BDA) as stipulated by the KTCP Act 1961. Several perceived fears exist around the plan such as it being a top down exercise where citizen involvement is a token effort; sectors such as transport, infrastructure services and environmental concerns are typically academic chapters as there is no real coordination or negotiation conducted between agencies; and existing land use maps and other intermediate master plan reports have not been shared with the public, all potentially resulting in low acceptance for the plan and proliferating unplanned and un-serviced urbanisation in Bengaluru. The master plan in its current form can directly only influence land uses, development control regulations and newer road networks, which is insufficient to achieve an integrated and intersectoral vision and plan for the city. The BBMP-R Committee thereby make recommendations to be taken up immediately for the ongoing RMP 2031 process.

Further to this, critical long range urban reforms have been pending in Karnataka and hence Bengaluru, such as the revision of town planning legislation (KTCP Act 1961) to incorporate provisions of the 73rd and 74th Constitutional Amendment Acts. A mega city like Bengaluru which competes with other global cities requires effective and customised planning processes to manage its current day needs and complexities. The BBMP-R Committee hence also make recommendations to be taken up as medium and long range planning reforms for the city. The following are the recommendations made:

### 1. Enhancing Bengaluru’s liveability by prioritising key guiding principles in city plans: Instituting a process by which city stakeholders identify key factors affecting liveability in Bengaluru to derive key principles on which all planning process are to be guided:

Liveability in Bengaluru is affected by a variety of issues today such as traffic congestion, poor air quality, pollution of water bodies, inadequate solid waste management, reducing green cover, increasing heat island effect, lack of basic urban services, bad quality of public health and education facilities, etc. Such challenges are interrelated and so should be their solutions. If for instance an issue such as air quality is prioritised and must be mitigated and brought within limits as set by World Health Organisation (WHO) standards, a range of intersectoral solutions will need to be implemented such as: moving people rather than vehicles by encouraging a shift to public transport from the use of private vehicles; promoting walking and bicycling and travel demand management measures, regulating construction activity and industry emissions based on season and pollution accumulation, building consensus across government – civic groups - citizens to implement mitigation measures etc. All the above requires the institution of a clear process that precedes the formulation of the city’s master plan or other infrastructure plans.

Identifying challenges and prioritising guiding principles for Bengaluru can be achieved through the following broad steps:

- a) **Stakeholders engagement:** Extensive outreach across stakeholders including government agencies, resident’s welfare groups, elected representatives, Non Government Organisations (NGOs) and citizens must be conducted to identify issues affecting a diverse set of people



and groups. Building consensus early in the process will ensure higher involvement in implementation. Findings from focus group discussions, interviews and round table discussions need to be systematically recorded to assist in decision making.

- b) Data collection, visualization and dissemination:** Surveys to understand issues, concerns and needs are important to assess the on-ground situation based on credible data, to eliminate biases and ensure all issues are represented. The large amounts of data generated and collected by various government agencies too could be better visualised and communicated to all stakeholders for informed debates, to highlight issues, and improve participation and decision making.
- c) Arriving at measurable indicators and benchmarking:**

Post the identification of key issues through stakeholder engagement, data analysis and visualisation, the impact of such issues needs to be estimated through indicators. Indicators measure quantitative and qualitative aspects such as levels of pollution, the extent of environmental degradation, how many people would get affected, time lost, impact on vulnerable sections etc. The current levels could then be compared with benchmarks set by various organisations both national and international such as World Health Organisation, United Nation's Sustainable Development Goals, Mercer Quality of Living Survey etc. Benchmarking will also reveal how well or badly the city is doing as compared to other similar cities.
- d) Identification of strategies, setting desired targets and building stakeholder consensus:**

Based on how the city of Bengaluru is performing with respect to the various indicators identified, a series of inter-sectoral strategies will need to be detailed to take forward to implementation. The strategies need to be holistic to achieving larger outcomes such as economic growth (by generating an adequate number of high quality jobs), environmental sustainability (in terms of sustainable management of natural resources), and enhanced quality of life (from services provision to improving social, cultural and built heritage). These strategies need to be disseminated back to all stakeholders such as citizen groups, professional associations, trade unions, non-governmental organizations and government agencies. Going back to the people will help set targets that Bangalore would like to achieve in terms of its quality of life indicators and what it will take to get there from the current situation through the best possible use of available resources.
- e) Prioritisation of strategies and integration with statutory plans and projects:** As with any other city, Bengaluru's city agencies too have limited resources and capacity. Hence it is important to prioritise which strategies take precedence over the others, will have maximum impact, is equitable and benefits all sections of the society and hence should move forward to implementation. These key priorities hence form the guiding principles that form the basis of statutory plans such as the city's master plan and various plans and projects of the sectoral departments operating in the city thereby bringing convergence across agencies.

## 2. Improving the Ongoing Bengaluru Master Plan Process

### a) **The RMP 2031 revision should incorporate systematic stage wise dissemination of information to the public and ensure people's informed participation in the process:**

Informed participation of people in the plan making process will be possible only if there is a systematic stage-wise dissemination of the various documents being prepared for the plan. This includes the Inception Report which details all the studies and surveys being conducted and timelines for various deliverables, Existing Land Use Maps, Existing Situation Analysis Report, Vision - Scenario Building - Strategies Report, and the Draft Proposed Land Use and Regulations Report. This is to be done at convenient venues with due publicity in local newspapers, in local languages as well as on the BDA website. Participation formats should be well structured and conducted with the public, focussed groups, Residents Welfare Associations (RWAs) and NGOs along with periodic technical reviews with domain experts and reputed institutions at all stages.

### b) **RMP 2031 should serve as a proactive broad framework with sustainability at its core while managing dynamic market trends and economic opportunities:**

While the RMP 2031 could continue to do the minimum as prescribed in the KTCP Act 1961, it could also be proactive to ensure the compounding issues of the city are addressed. Such a proactive Master Plans needs to move beyond its bare minimum mandate, and address requirements reflecting the issues, concerns, needs and aspiration of people. For example, setting a sustainable development agenda in the Master Plan is critical with measurable indicators and achievable targets including aspects like climate change, resilience, adaptation and mitigation, environmental preservation and strategic management of resources. This sustainability agenda needs to be balanced with managing dynamic market forces which influence major economic projects and investments to reduce impediments to growth. Industrial corridors, AMRUT etc. are examples of central government schemes that influence the city's growth dynamic and need to be addressed. Hundreds of urban villages too enter the conurbation area from time to time, and the master plan needs to prepare special contextual regulations for them which is typically not done. Similarly, critical needs such as economic development opportunities, poverty alleviation, affordable housing needs etc. must be catered to.

### c) **Enhance the role of the Bengaluru Coordination Committee (BCC) to enable interdepartmental coordination, cooperation and negotiations for the ongoing master plan revision:**

For the master plan to be realistic and effective and to go beyond its current mandate, it must be integrated with the plans and projects of various sectoral agencies operating in the city. The organizational silos of sectoral agencies of transport, water supply, sewerage, solid waste management, electricity, etc. currently result in conflicting priorities, duplication of efforts, inefficient use of resources and underutilisation of investments. The BCC was set up in the past to address the lack of inter-agency coordination due to organizational silos and is working well especially in flagship projects like the Namma Metro and BWSSB projects etc. With political as well as administrative representation from all major agencies already

present, this committee could further be empowered through appropriate legislation or a Government Order to undertake this task to streamline a common vision and plan for the city.

**d) Ward level plans should be provisioned for through the RMP 2031, with wards being co-terminus with the planning district boundaries and reflecting local level priorities:**

Wards form the ideal jurisdiction at which micro level, down-top plans can be formulated to inform the macro scaled city master plan. Planning districts used in the RMP 2015 did not adhere to ward boundaries. This is a critical disjunction considering that wards are the jurisdiction in which an elected representative is present, budgets are allocated, ward offices are present and can serve as the basic unit for monitoring, evaluation and accountability for public works. Frameworks for detailed ward level plans need to be provisioned for by the RMP 2031 along with the participation of citizens, RWAs, NGOs and ward councillors to gauge the issues, priorities and needs at the local level before a generalised master plan is made. Detailed ward level plans need to be subsequently prioritised and taken-up by the Municipal Corporation through Ward Committees.

**e) Co-dependent projects should be prioritised using the spatial platform of the RMP 2031 by the State Government and the Bengaluru Coordination Committee (BCC) to automatically ensure coordination between agencies, thereby making the Master Plan implementable and linked to clear budgets and timelines:**

The Karnataka State Government through its budgetary allocations could ensure that only co-dependent projects are approved for implementation in Bengaluru in consultation with the BCC. This would automatically facilitate coordination between all parastatal and city agencies involved in providing services, as all the sectoral services would need to be integrated within the same strategically designed project. For example, if road work in a certain area is approved then simultaneously related works of other agencies such as fresh water mains, sewage lines, electric conduits, bus bays, foot paths, signal lights, etc. should also be approved as a single larger project. The BCC could ensure this is integrated in the spatial master plan of the BDA to form a truly integrated plan reducing inefficiencies and increasing accountability.

**f) Incorporate frameworks for the continuous review of the Master Plan so that it is a systematic process of rolling plans, that is constantly monitored and evaluated rather than a once in ten-year static product:**

The constantly changing dynamics of the city cannot be effectively planned and managed for by a master plan that is revised only once in ten years. The KTCP Act 1961 too does not prevent the plan from being revised at intermediate stages. RMP 2031 should therefore be reviewed in 5 year phases accompanied by detailed annual plans and budgets that are monitored and evaluated using digital technologies thereby incorporating feedback routinely. The Master Plan being a statutory document that is shown to citizens only once in ten years comes under excess public scrutiny. A system of review every 5 years would streamline public participation to be a more recurrent activity with transparent citizen

engagement, ensuring course corrections where required, thereby retaining people's confidence in the process.

3. **Prioritising Bengaluru through a unique planning legislation: Enacting a unique planning legislation for Bengaluru City-Region within the proposed GBA Act or as a separate section within the KTCP Act 1961, to accord priority to the city's dynamic needs to not only plan comprehensively across scales, but also to complement it with strategic and result oriented planning**

Several international cities in the United Kingdom and China, for example, accord special status to their prime cities to retain their global competitive edge. Beijing, Shanghai, Tianjin, and Chongqing have been accorded provincial status and hence can directly interact with the national government and employ different taxation norms. London has a unique planning legislation accorded to it and while it prepares a spatial plan for the city; it also prepares an economic development strategy and a transport development strategy in conjunction with it.

A separate legislation for Bengaluru is recommended in the BBMP Restructuring Committee's Way Forward Report as following the out-dated KTCP Act 1961, is insufficient to address the city's needs and complexities. Other cities in Karnataka which also follow the same generic KTCP Act are barely 1/10th the size of Bengaluru and face a very different scale of dynamics and challenges. The State Government is currently proceeding with the revision of the KTCP Act 1961, through the Directorate of Town and Country Planning (DTCP) and this is an opportunity for a Bangalore specific legislation to be incorporated as envisaged in the GBA Act.

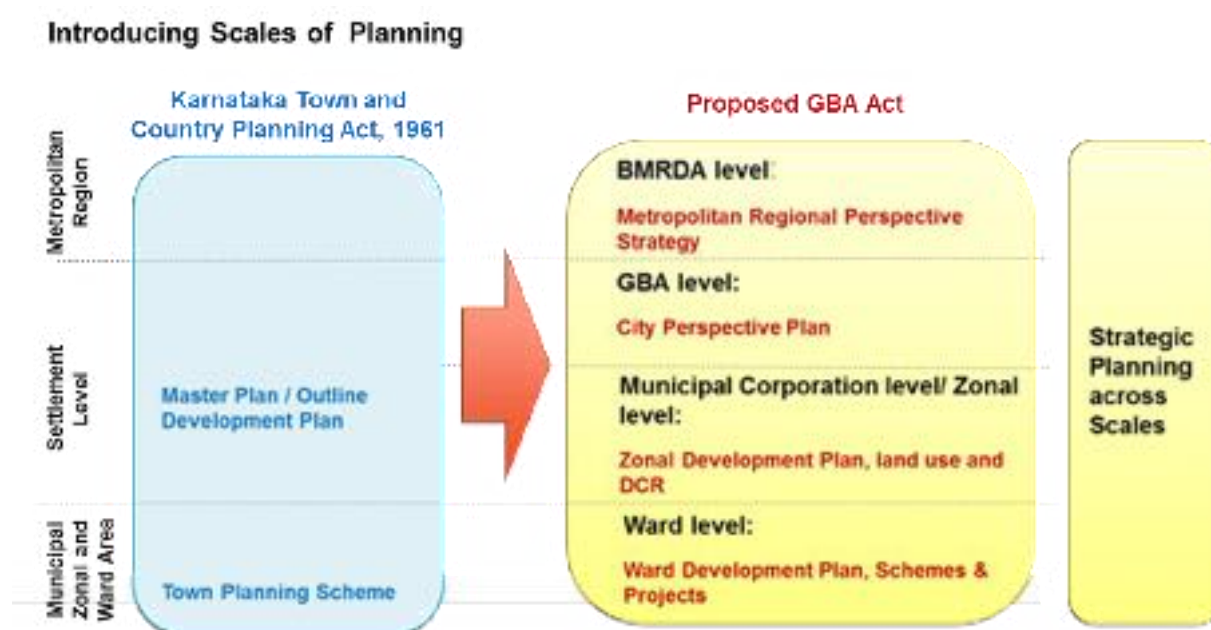


Figure 3: Existing planning legislation in KTCP Act and Proposed Scales of Plans framework  
Source: WRI India, based on KTCP Act and (Expert Committee: BBMP Restructuring 2015)

### 4. Introducing Local Level Planning: Ward Development Plans should be undertaken by the municipal corporations which are detailed plans incorporating specific requirements of the local areas within the policy frameworks of the City Level GBA Plan and Zonal Level Plans.

- a) **Boundary of ward development plan:** It is envisaged that the ward level plans can take many forms ranging from Local Area Plan, Town Planning Scheme, Land Pooling Scheme or Development Scheme etc. as decided by the planning agency. In the Master Plan 2015 for Bengaluru, planning district boundaries were different from administrative wards, which is again different from electoral wards represented by councillors. This disjunction causes difficulties in coordination, unclear responsibilities and financial flow. Such boundaries need to be streamlined to a common system of ward boundaries devoid of any overlap. This would establish Wards as the basic modules of the city. Hence each Ward would be a common unit to link functions such as development planning and implementation, elected representation, financial outlay, administrative setup and monitoring and evaluation for the area.
- b) **Planning and Implementing Agency:** Municipal Corporations are envisaged to be the planning agency in charge of preparing Ward Development Plans, their execution, monitoring and evaluation. The plan preparation is to be operationalised through Ward Committees chaired by the elected Councillor of the respective Ward. The respective Municipal Corporation shall appoint a Town Planning Officer to undertake the planning process on behalf of the Ward Committee which also constitutes citizen representatives, urban development experts and representation from civic groups in the area.
- c) **Planning process:** Ward Development Plans shall incorporate nuances of development requirements based on local concerns, while supporting the effective implementation of Zonal Development Plans and the City Level Development Plan by GBA. They are detailed, implementation oriented, and comprehensively incorporate local requirements evolved from participatory discussions with people and relevant stakeholders. Ward committees shall facilitate and ensure a wide based public participation in the planning process by engaging with all relevant stakeholders in the area. Ward level plans will be aggregated at the Zonal Level and further informs the GBA level macro scaled city master plan. Once the plan is prepared and published, the various departments of the Municipal Corporation will take-up development activities and regulate activities in the area as per the annual plans and projects delineated. The Ward Committee shall also monitor implementation and send periodic evaluations to the Municipal Corporation. The detailed Ward Development Plan would have a 5-year Vision Period in conjunction with Annual Development Plans which detail budgets and implementable projects.



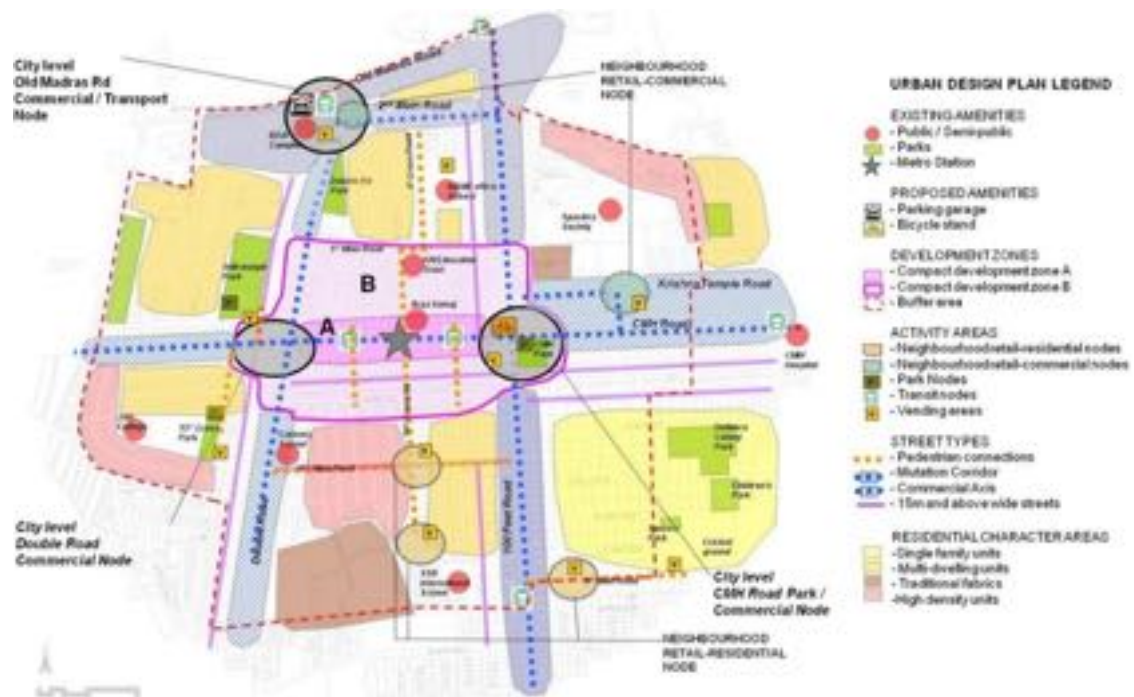


Figure 4: Conceptual Ward Development Plan around Indiranagar Metro Station  
Source: WRI India

## Integrated Spatial Planning Framework: Introducing Scales of Plans

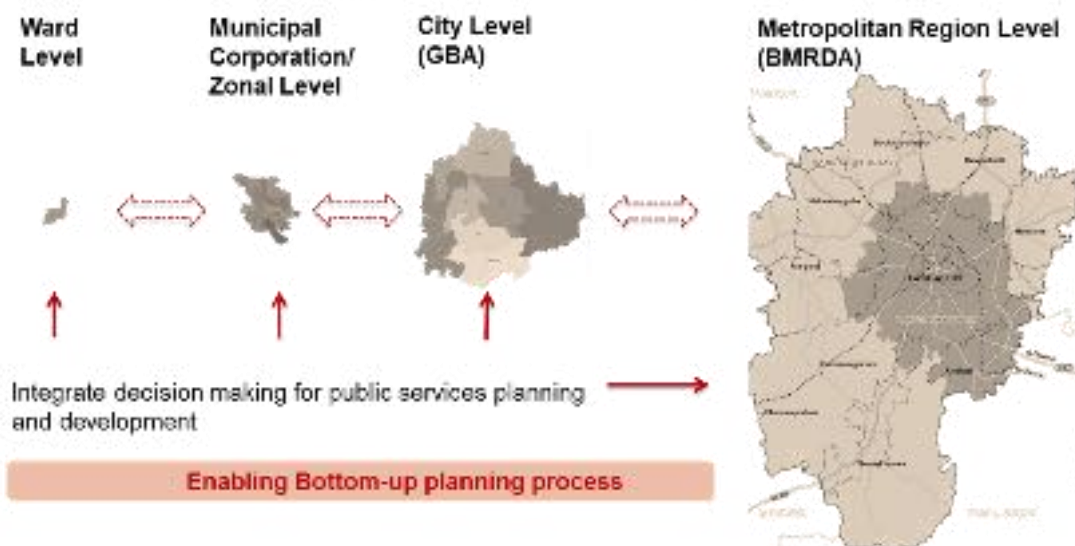


Figure 5: Proposed Scales of Plans for Bangalore  
Source: WRI India, based on Expert Committee: BBMP Restructuring 2015



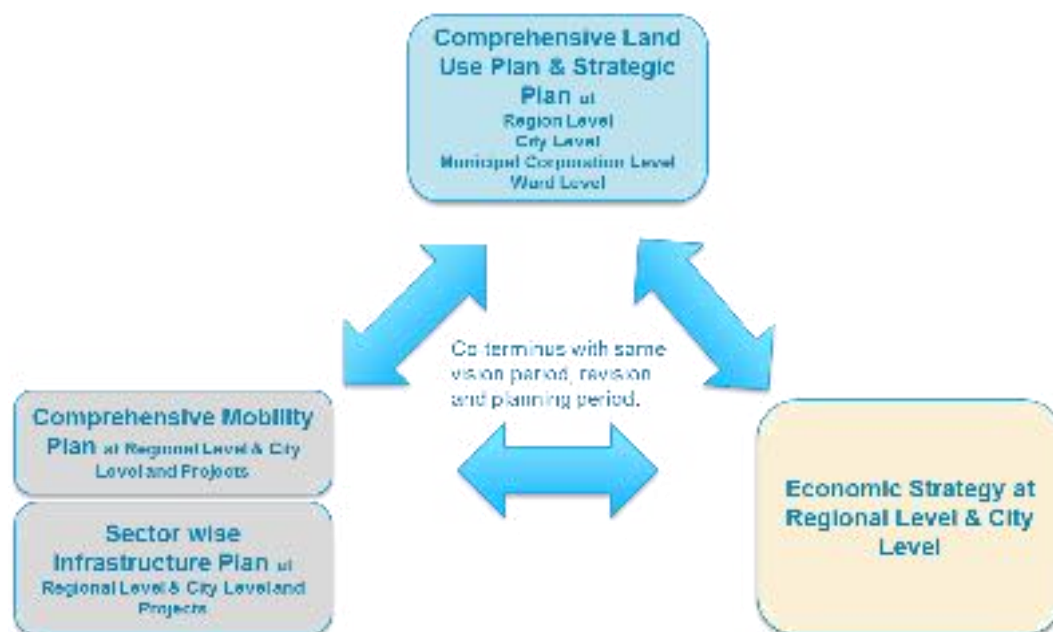


Figure 6: Integrated Plan preparation across key sectors

Source: WRI India, based on Expert Committee: BBMP Restructuring 2015

## 5. Introducing Urban Quality in Local Level Planning: The quality of public spaces, streets and built form should be enhanced through an Urban Design Approach.

People must be at the centre of designing the city. Many challenges abound in Bengaluru today because people do not receive priority in city plans and projects such as poor or absent footpaths that reduce the opportunity to walk to perform daily activities, focus instead on moving vehicles faster through the construction of flyovers thereby increasing traffic and pollution levels, lack of public spaces that are accessible to all, lack of opportunities to experience nature, degradation of water bodies, increasing impact of climate change and exposure to hazards etc. Such realities tend to attract criticism against urban planning for being too abstract and largely addressing only a macro city scale, and being detached from local conditions and the human dimension whereas architecture and building design on the other hand has been too focused in addressing specificities confined to an individual plot. The interface, or the space between buildings, buildings and the street and other public spaces has remained poorly addressed and are largely dealt with as left over spaces with no discernible identity. An urban design approach to shape coherent urban form unique to local conditions should include:

### a) Urban Design through Local Area Planning to support formation of communities

- Plan layouts of streets such that they prioritise pedestrian movement and non-motorised movement;
- Design of street and infrastructure networks to allow formation of local communities at neighbourhood scale;
- Ensure equitable access to urban basic services and social infrastructure for all sections of society;

- Design local institutions to enhance opportunities to bring people together;
- Preserve local natural features and enhance opportunities to experience them within walking distances and to develop favourable micro climate;
- Enhance local anchors, historic or otherwise to become memorable hubs for local communities.

### **b) Development Control Regulations**

- Enable imageable built form in local areas by enhancing unique local characteristics or features;
- Preservation and enhancement of natural features through supportive provisions in buildings;
- Shape edge conditions of buildings such that they contribute to street life;
- Incorporate sustainable development objectives of the city through regulations for buildings;
- Coherent built form through regulation of façade, built massing, height, openings, colour, texture etc.

### **c) Shaping Public Spaces**

- Design of all public spaces between buildings;
- Prioritise infrastructure for pedestrian and cyclists along streets;
- Design of public areas such that they are gender sensitive and accessible to the differentially abled;
- Design of public transport infrastructure such that they promote equitable access to all sections of society
- Strategies to ensure safety and security in public spaces especially

## **6. Introducing Zonal Level Planning: The proposed multiple municipal corporations should undertake Zonal Development Plans at Zone/Municipal Corporation level as intermediary plans between the macro scaled city plan and the micro level ward plan**

**a) Zonal or Municipal Corporation level plans:** These plans are proposed to work as intermediary plans between the ward plans and the city level Greater Bengaluru Authority Plan. The main purpose of these plans is to compile all the ward level plans within its jurisdiction and ensure a smooth translation of GBA level policies to the ward plans and vice versa. This plan shall also address any conflict across different ward level plans and allow for inter ward prioritisation within a zone. This plan also provides ground level information from the ward plans to city level decision making.

**b) Delineation of the Zonal Development Plan Jurisdiction:** The proposed multiple municipal corporations in consultation with the Greater Bengaluru Authority shall delineate the boundary of zones for planning. These zone boundaries will together constitute a Municipal Corporation and shall follow the existing Ward boundaries to avoid overlaps or division of Wards and are to be delineated in the GBA's City Perspective Plan.

- c) Planning and Implementing Agency:** The Municipal Corporation shall be responsible for preparation of Zonal Development Plans and the execution of projects undertaken under the plans. The plan preparation shall be executed through Zonal Committees and Ward Committees. The Town Planning Officer, who is a member of the Zonal committee shall act as the planning officer for plan preparation.
  - d) Planning process:** The zonal plan would prepare a vision for the jurisdiction under its respective Municipal Corporation, with strategies to achieve the vision and allocate space and resources to address current and future requirements of the area. The plan also incorporates all projects planned at the GBA and Regional level for the city. The plan shall also incorporate specific requirements identified at Ward level and act as arbitrator if there any conflicts between Ward Plans. The Zonal Committee facilitates public participation and ensures incorporation of their concerns in the planning process. Once the plan is prepared, it is submitted to the GBA for appropriate incorporation into the City Perspective Plan. The Zonal Committee shall prioritize the projects for implementation as per the plan and monitor and evaluate its implementation by various departments and the Municipal Corporation and submit periodic reports to GBA. The Zonal Development Plan would have a 5-year Vision Period in conjunction with Annual Development Plans which detail budgets and implementable projects.
- 7. Bettering City Level Planning: Greater Bengaluru Authority (GBA) should undertake the preparation of the city perspective plan for the city region, with a vision for the city, incorporating proposed land use frameworks and regional strategies**
- a) Planning at GBA scale:** This is the scale at which the master plan is prepared for Bengaluru and revised every 10 years under current frameworks. The city level plan while reflecting socio political expectations are currently not vertically and horizontally integrated with decisions at multiple scales. The proposed planning system envisages dovetailing of the city level plan with the regional level plan while also integrating concerns and needs from bottom-up processes at the ward and zonal levels.
  - b) Delineation of the City Perspective Plan Jurisdiction:** The area under the GBA shall constitute the area of the City Perspective Plan which is envisaged as the current Bengaluru Development Authority (BDA) jurisdiction.
  - c) Planning and Implementing Agency:** The GBA shall be responsible to oversee planning activities of the City Perspective Plan. The current set-up of the Bengaluru Development Authority would act as the technical secretariat of the GBA and shall undertake preparation of the City Perspective Plan. The GBA would be responsible to oversee all or any of the provisions proposed in the Plan including implementation of projects, land pooling schemes, detailed town planning schemes and regulate spatial planning and developmental activities. The GBA may create or assign specific agencies to take on various functions from time to time.

**d) City Perspective Plan:** The City Perspective Plan would set a common vision for the city, set out key strategies, propose land uses frameworks, and incorporate regional priorities as set out by the MPC for the region. The plan would ensure integrated development priorities across agencies, as well as ensure a top-down cum down-top process that reflects the concerns and needs from the ward level. The plan also acts as arbitrator and resolves conflicts if any between Municipal Corporations. The City Perspective Plan would have a planning period of 20 years, and will be reviewed in 5 year phases accompanied by detailed annual plans and budgets that are monitored and evaluated using digital technologies thereby incorporating feedback routinely. The city level plan also needs to proactively plan urban villages that have been engulfed by urbanisation with place specific regulations. Strategies for urban expansion and municipalisation are discussed in the module on 'Municipalisation Strategy addressing Urban Expansion and Urban Villages' by BBMP Restructuring Committee.

### 8. Ensuring development-led proactive planning at the City Level: Statutory planning at scales needs to be complemented with an implementation orientation through Strategic Planning and Strategic Projects.

The city of Bengaluru (the GDP powerhouse of Karnataka State) much like other giant metropolitan city-regions in India critically needs a proactive intervention and transformation of its planning processes. The pressure of being a legal instrument often renders the traditional land use based city 'Master Plan' deterministic and inflexible. The shift from 'regulation' oriented planning to active 'vision led' and 'collaborative' sustainable development is crucial.

'Strategic Spatial Planning endorses a development-led approach that aims to intervene more directly, more coherently and more selectively in social reality and development. This internationally employed tool moves away from regulatory 'control' based policy instruments of static land uses, purely market based solutions and statistical extrapolations. Growing awareness indicates that producing plans may not be considered as the main purpose of planning and that planning without implementation is futile (Oosterlynck and et.al 2010). Each situation and context requires a specific process (Broeck 2008).

- **Components of a Strategic Spatial Plan:** Developing a long-term vision and designing alternative futures, detailing short and long term projects, involving relevant actors and instruments needed to implement the strategic vision and participation and co-production of both policy and space;
- **Strategic projects are a key output of Strategic Spatial Planning:** 'Strategic' planning entails choosing and prioritising certain goals and areas above others and are meant to be integrative and not only sectoral. Projects and actions envisioned have inter-sectoral implications and address the key challenge that needs to be resolved in a particular area;
- **Structural Impact:** Strategic projects target urban spatial fragments rather than necessarily the city as a whole and aims for a structural impact and catalysing effect on the larger urban region;

- **Inter-stakeholder negotiations are to be part of plan making process:** This type of planning is a co-produced socio spatial vision and process that requires horizontal as well as vertical cooperation within government agencies. Strategies and projects must stem from integration with the City Mobility Plan, City Economic Plan and various City Infrastructure Plans. Inter-agency negotiations are to be part of the plan making process. Co-production also indicates involvement of various local groups, local actors, and disadvantaged groups bringing in social innovation that addresses local needs;

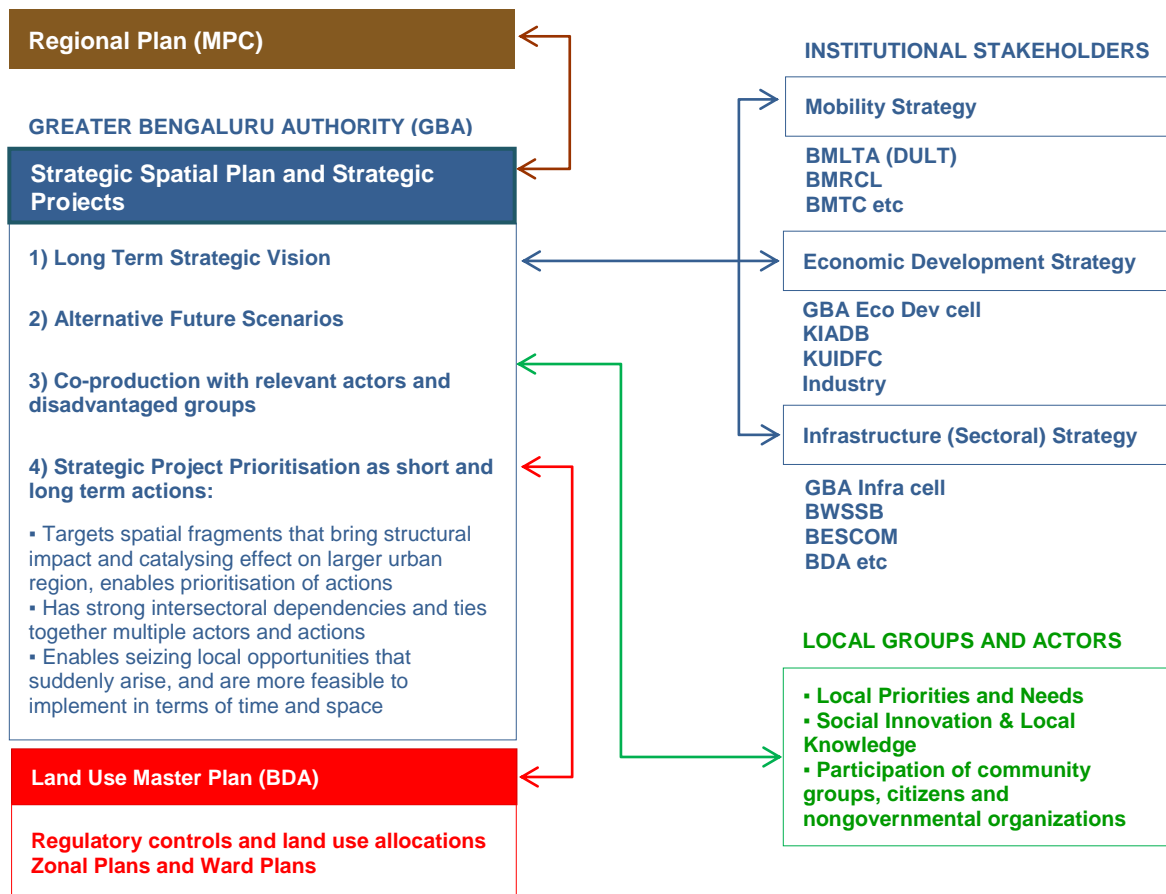


Figure 7: Recommended framework for Strategic Spatial Planning in Bengaluru City-Region

Source: Chart generated by WRI India

- **Strategic Spatial Plans are anchored by strong leaders or agencies:** Strategic projects are to be embedded in long term visions shaped by values of diversity, social justice and equality. Strategic Spatial Planning is often anchored by empowered local agencies or political representatives often being a mayor in international contexts. The use of strategic projects should be introduced as a pro-active instrument in spatial planning and to create specific bodies dealing with integrated projects and area focussed planning within the governmental institutions at all policy levels.

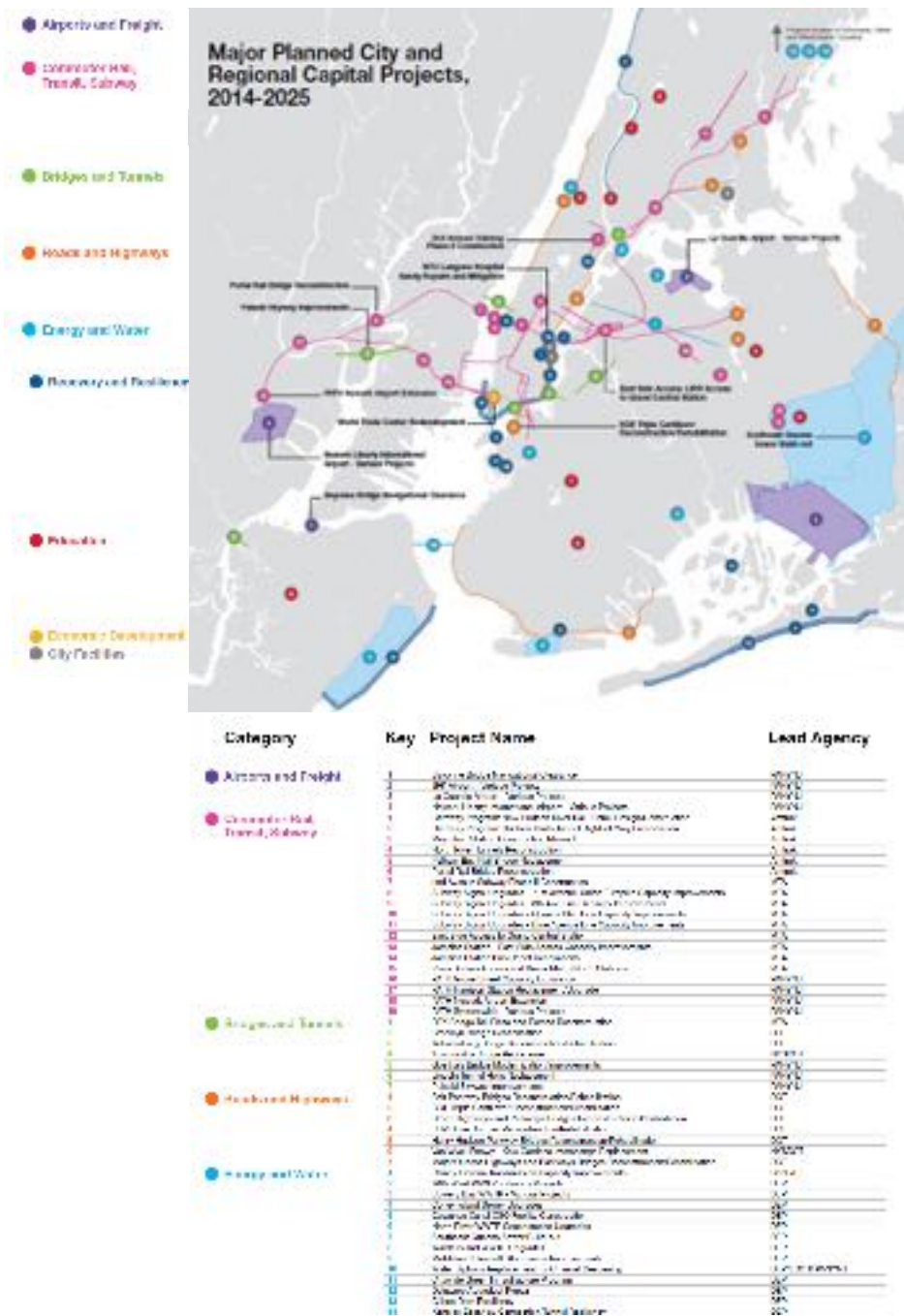


Figure 8: Strategic Spatial Plan and Strategic Projects example of New York City;  
Source: (Blasio n.d.)



Strategic spatial planning as a planning tool enables coordination and negotiation between agencies of land use, transportation, infrastructure service provision, and economic development and since it is not a legal/ statutory tool, it allows negotiation across stakeholders without the fear of repercussion. Strategic planning focuses, both in the short and the long term, on framing decisions, actions, projects and their implementation (with a clear understanding of impacts through scenario building) and incorporates a clear link to budget, monitoring, evaluation, feedback, adjustment and revision.

Taking a comprehensive view of the city's future, strategic projects can range in scale from deciding which mass transit system the city must choose; health facility improvements, where a new central business district can be opened, area improvement plans, slum redevelopment etc. The regulating land use plan could continue to be used for building permissions and sanctions and providing a legal certainty for actionable projects rolling out of this visioning tool. At the Ward Scale, Local Area Plans must take precedence and Strategic Projects must be implemented through this scale of plan. *(Section 5.6 discussed in detail how a strategic project could work).*

**9. Enhancing Regional Level Planning: The Metropolitan Planning Committee (MPC) should prepare the Bengaluru Metropolitan Regional Level (Structure) Plan with broad land utilisation frameworks as a guidance framework to city perspective plans and regional level infrastructure and commons.**

- a) Planning at Bangalore Metropolitan Region Scale:** The Regional Perspective Plan (known as the Regional Structure Plan currently) would ensure the coordinated planning of the region integrating Bengaluru City with surrounding urban and rural centres. With surrounding urban centres such as Anekal, Devanahalli, Doddaballapur etc. growing rapidly, their integration with the capital city is crucial to manage interdependencies, a common vision and to plan for common infrastructure and connectivity. The plan will also play the role of resolving and negotiating any conflicts between the various urban centers and various agencies operating in the Region.
- b) Declaration of Metropolitan Planning Region:** The current jurisdiction of the Bengaluru Metropolitan Region Development Authority which comprises of the districts of Bengaluru Urban, Bengaluru Rural and Ramnagaram serves as the current Metropolitan Region.
- c) Planning agency:** Through a government notification a Metropolitan Planning Committee (MPC) should be established for the Metropolitan Region. The BMRDA would serve as the technical secretariat of the MPC.
- d) Regional Perspective Plan:** The Bengaluru Metropolitan Region Plan with broad land utilisation frameworks will serve as a guidance framework to city perspective plans and regional level common infrastructure. The Plan would indicate current and proposed growth areas, proposed regional level projects, settlement areas for planning and environmental priorities. Land use conversions and changes and major development permissions provided by local bodies in BMR need to be as per the Regional plan. Strategies for urban expansion

and municipalisation of areas in BMR are discussed in the module - Municipalisation Strategy addressing Urban Expansion and Urban Villages by BBMP Restructuring Committee.

## 10. Assigning clear roles and responsibilities to agencies by scale of operation: Assigning roles and responsibilities to agencies through a detailed activity mapping across scales will greatly improve efficiency, role clarity and reduce overlaps.

The opportunity of a new governance structure for Bengaluru through the GBA Act will allow a reorganization that focuses on enhancing horizontal integration between the current vertical setup of institutions involved in planning, development, provision of services and monitoring and evaluation. The BBMP Restructuring Committee as part of its Phase 1 Report, had undertaken the task of mapping nearly 700 activities across 18 government agencies. This exercise of activity mapping is imperative in designing, planning and implementation systems involving multiple levels of government to ensure role clarity (Raghunandan 2007) and must be taken forward with accountability parameters for performance. The following table shows a hypothetical example of suggested reorganization of responsibilities at various scales of public bus transport.

### Example: Planning and Public Bus Transport activities

Governance activity	Regional level	GBA level	Municipal Corporation/ Zonal level	Ward level
<b>Public Bus Transport Services, currently provided by BMTC</b>	<p>Policy and vision co-formulation, legislative requirements, and hiring procedures;</p> <p>Planning and establishment of regional level public transport facilities and routing across urban centres;</p> <p>Undertaking research &amp; studies in urban transport;</p>	<p>Planning of bus route networks;</p> <p>Planning of depots;</p> <p>Redesigning &amp; scheduling of routes;</p> <p>Planning of bus terminals;</p> <p>Undertaking fare structuring &amp; revision;</p> <p>Undertaking research &amp; studies in urban transport;</p> <p>Monitoring safety, health &amp; environmental standards.</p> <p>Purchase of buses;</p> <p>Implementation of Intelligent Transport Systems;</p> <p>Maintenance of database of fleet;</p> <p>Modernising the fleet.</p>	<p>Operation of depots;</p> <p>Establishment &amp; operation of bus terminals;</p> <p>Maintenance of buses</p> <p>Installation of bus shelters;</p> <p>Management of breakdowns;</p> <p>Providing public utilities for commuters at bus terminals;</p> <p>Providing safety &amp; security at the bus stands;</p> <p>Regulating &amp; managing fleet traffic;</p> <p>Providing safety &amp; security at the bus stands;</p> <p>Regulating advertisements at BMTC main bus stops &amp; buses;</p> <p>Conducting surprise checks for ticketless travels;</p> <p>Operating buses on contract;</p> <p>Issuing tickets &amp; passes and extending concessions;</p> <p>Compliance to safety, health &amp; environment standards.</p>	<p>Planning of bus stops in local areas within the Zonal plans;</p> <p>Planning, implementing and monitoring walking and cycling access to public bus stops, managing areas around them, parking control etc;</p> <p>Monitoring safety and security in bus stops.</p>

### **11. Effecting changes in the Acts of various agencies operating in Bengaluru to mandate coordination and cooperation.**

In the long-term planning and service provision agencies that are proposed to be integrated within the umbrella institution of the GBA will require legislative and functional reorganisation. This will need to be done at the local government level as well as at the parastatal agencies level. As various agencies operating with Bengaluru's city region are governed by their respective Acts at the State level, these Acts will need to be amended to mandate coordination and cooperation with the proposed GBA and other local level agencies. This would also enable monitoring and evaluation at multiple scales under the supervision of elected representatives, which would enhance accountability.

### **12. The Metropolitan Planning Committee should be re-constituted at the scale of the Bangalore Metropolitan Region: The MPC should be set up at the scale of Bengaluru's city-region (BMRDA jurisdiction) and not the current limited jurisdiction of the city's development authority (BDA).**

Bengaluru urban agglomeration has grown well beyond its municipal limits towards areas like Electronics City and up to Anekal in the South, and towards Hebbal, Yelahanka and up to the new international airport in the North. The peripheries of Bengaluru are its most dynamic areas with over a 100% growth rate of population seen beyond both the municipal and development authority boundary. Satellite imagery analysis shows that the urban spatial footprint of Bengaluru expanded at the rate of 60 sq.km per year in the Bengaluru Metropolitan Region. To manage this growth will require not only addressing inter municipality issues but also to make larger decisions in its surrounding areas. Hence, to manage such concerns and functions article 243ZE in the 74th Constitutional Amendment provides for the setting up of a Metropolitan Planning Committee (MPC).

The provision for setting up MPC's in metropolitan areas was enabled through an amendment (Act 35, 1994) in the Karnataka Municipal Corporation Act, 1976. The Bengaluru Metropolitan Area thus delineated for the MPC is approximately 1300 sq.km which is the current extent of the Bengaluru Development Authority (BDA) and encompasses BBMP and excludes parts of the NICE Corridor. The BDA jurisdiction has always had a single Master Plan being prepared for it which will continue to happen with or without an MPC in place for the very same jurisdiction. The objective of an MPC is to ensure that it consolidates plans prepared by the various municipalities (or development authorities if so decided) in the metropolitan region and those of any rural local bodies and thereby prepare the larger Metropolitan Development Plan. Setting up an MPC at the BDA scale defeats such a purpose.

Globally, city-regions are considered inseparable and a regional perspective is essential to managing the city's economic growth and environmental sustainability. A mega city like Bengaluru is closely networked to its hinterland through natural systems, economic linkages, social interdependency, human resources and access to physical and social infrastructure.

For instance, a considerable proportion of food resources consumed in the city are produced in the region, and various trade and manufacturing activities too rely on produce from the region.

Urban, peri-urban and rural areas are better connected due to improved transport connectivity and new economic activities prefer to be located immediately outside the city due to relatively inexpensive land and yet be served by the facilities and the labour pool of the city. The interdependency between Bengaluru and its region hinges on key factors of infrastructure connectivity such as roads, rail, airports, water supply, waste management, logistics facilities etc. and access to social infrastructure such as health and education for its efficient every day functioning. For example, a closer look at the Bengaluru International Airport Area Planning Authority (BIAAPA) jurisdiction indicates several hectares of land being taken up for an IT-ITES SEZ, an IT Park, a hardware park, an aerospace park etc. Rather than deny this reality, it is better to accept that such proposals will have a significant impact on Bengaluru and must be managed in a way that regional coordination and cooperation is ensured.

Bengaluru Metropolitan Region Development Authority (BMRDA) enabled by the BMRDA Act, currently prepares a Structure Plan for the region covering an area of 8,005 sq. km. The BMRDA already coordinates the plans of the various area planning authorities that are almost contiguous to Bengaluru such as Anekal, BIAAPA, Nelamangala, Magadi, Hoskote etc. and then prepares the Regional Structure Plan. As it is also the approver of the master plans in the region, it can thereby negotiate across the various master plans to make changes that ensure a coordinated region. With this current institutional armature already in place performing most of the functions of an MPC, improving its efficiency, functions and enabling mechanisms is a more viable and preferred option. The reasons are compelling and various reports such as the Kasturirangan Report, the BMRDA Structure Plan, the BBMP Restructuring Expert Committee Report and several eminent experts have in one voice recommended that the MPC should be at the scale of the BMRDA, with the BMRDA serving as its technical secretariat.

**13. Setting up of a single geo spatial database across city agencies: The Bengaluru Spatial Information Centre (BASIC) is proposed to be the single source and custodian of all geo spatial data for the city-region and is a precursor to enable truly integrated planning with inputs from various sectoral departments.**

As part of the BBMP Restructuring Committee's efforts, a separate implementation module has been prepared titled 'Bengaluru Spatial Information Centre' which should be referred to. The module details out the requirement to pass a Geo-Spatial Act for Bengaluru on the lines of efforts already undertaken in Delhi with appropriate infrastructure capabilities to provide geo spatial data creation, storage and sharing that is up to date and of high quality. This will ensure that various departments operating in the city do not duplicate efforts of creating multiple databases for the same city which are not compatible with each other and results in resource and time losses. Such a database which is constantly updated will ensure a view of various projects that are completed, ongoing and proposed for the city by various departments and will go a long way in speeding up planning processes for the rapidly growing city.

## 2. Background

As per Census 2011, Karnataka is 38.7% urban, which is much higher than the national average of 31.2%. Bengaluru has always been the undisputed leader in the State's urban hierarchy. It is interesting to note that Bengaluru, which emerges as the largest city in the State, has taken the lead by almost 9 times from its nearest contenders in terms of population as Hubli-Dharwad and Mysore both have a population of less than 1 million each. Bengaluru has been one of the fastest growing urban regions in India. In the last 2 decades, it has grown from 4.1 million in 1991 to 9.6 Million in 2011 in the Urban Agglomeration area.

The per capita income of Bengaluru Urban district is almost 3 times the per capita income of Karnataka on an average. Per capita income of Bengaluru Urban district is also among the highest in South Indian states and in the country. The access to economic opportunity coupled with physical and social infrastructure availability has continued to attract people to this city. 80% of global IT companies have based their India operations and R & D centers in Bengaluru (Karnatak Udyog Mitra n.d.); it is the 4th largest technology cluster in the world; Bengaluru Urban District has contributed 33.6% to GSDP at Current Prices (Directorate of Economics & Statistics 2016); Bengaluru accounts for 80% (Urban Development Department 2009) of the sales tax and 75% of the corporate tax collection in the state; Bengaluru therefore remains an attractive destination for economic opportunities in the region and the country.

The unprecedented growth of the city is also accompanied with acute challenges. Planning for the city's rapid growth is dependent on the planning processes set out in the Karnataka Town and Country Planning (KTCP) Act, 1961. The Act has undergone multiple need based amendments over time, but has not been comprehensively revised in over 50 years. While there is an urgent need for comprehensive revision of the Act, it is also essential to recognize the drastic difference of growth dynamics and complexities of Bengaluru from the rest of the State. Governance wise, Bengaluru has grown too large and unwieldy to be managed by a single Municipal Corporation. The 2007 amalgamation of the erstwhile Bengaluru Mahanagara Palike (BMP) with 7 City Municipal Councils (CMC), 1 Town Municipal Council (TMC) and 110 villages did not yield expected gains. Even after a decade, the newly added areas continue to be underserved with basic infrastructure.

The city's infrastructure is under extreme stress due to the huge demand of a rapidly increasing urban population. While the local agencies struggle to provide infrastructure to match the city's pace of growth and global image, it also has been unable to protect its environmental systems, leading to a steady deterioration of quality of life. Further challenges include ineffective governance and administration due to an overriding influence of the parastatal agencies; negligible citizen participation; planning not conducted at micro levels; lack of empowered decentralized governance setups; major public trust deficit due to lack of transparency with the governance; financial mismanagement and low levels of implementation of the City Master Plan.

A mega city like Bengaluru which competes with other global cities requires effective and customised planning processes to manage its current day needs and complexities. The need for reforms in the planning and project implementation process for Bengaluru is critical.

### 3. Scope, Limitations, Approach and Methodology

#### Aim and Objectives:

It is essential to correlate the realities and challenges of current rapid urbanization in Bengaluru to the methods of planning, developing and monitoring the growth of Bengaluru. Efficient planning frameworks tuned specifically to Bengaluru could deliver effective outcomes for all stakeholders while maintaining the integrity of sustainable development and resource management objectives. Reforms in statutory provisions are the building blocks to make planning more robust, rational, integrated, and outcome oriented. The objectives of this report include:

- Introducing scales of plans in planning through a legislative framework specific to Bengaluru city;
- Incorporation of provisions of the 73rd and 74th Constitutional Amendment Act;
- Long pending comprehensive revision of planning legislation (KTCP Act 1961) and introduce a Bengaluru specific approach;
- Correlating current urbanization challenges to improve existing planning processes;
- Correlation between Land use planning - Transport and Infrastructure Planning - Economic Development strategy;
- Enhance cooperation and coordination between various agencies involved in planning and development;
- Enabling easier planning by simplification of the processes by use of technology;
- Empowering participatory and inclusive planning;
- Enhancing accountability of Planning Institutions for development.

#### Scope and limitations of the report:

This document provides a broad direction and scope for a planning framework for Bengaluru with the following scope and limitations:

- The report deals with town planning related aspects to be covered by the proposed Greater Bengaluru Authority Act. However, considering that KTCP Act 1961, is the overall umbrella Act applicable for urban areas of the State and the State government is proceeding with comprehensive revision of the Act, a dedicated chapter specific to Bengaluru introducing scales of plans could also be included in the revised KTCP Act;
- The report heavily relies on BBMP Restructuring Committee report as guiding document for governance related issues in the Bengaluru Metropolitan Region;
- The report is not a legal document, but rather it provides an overall direction for introducing the scales of planning in Bengaluru, to be considered while preparing legislations in this regard;
- It Incorporates learnings from international best practices that have had success in newer innovative forms of planning to leap frog urban development challenges;



- Limitation: International practices may not be directly transferable to the local context of Bengaluru and need be tuned appropriately. For example, empowered mayors that exist in many international cities does not exist in Bengaluru.

### Approach for proposed framework:

The approaches to arrive at an alternate planning system for Bengaluru, aims to overcome the infirmities in the current system, while also supporting governance reforms:

- Enhance integration between divergent disciplines through ensuring plans and processes are co-terminus;
- Enhance coordination in planning through building empowered institutions which are in charge of planning, financing, implementing, monitoring and evaluating developments;
- Enhance accountability of planning and development processes and instituting measurable outcomes coupled with enhanced transparency and accountability;
- Simplification of legislation to reduce hurdles in speed of implementation;
- Enhancing public participation to enable robust solutions and build public consensus.

### Methodology:

A detailed assessment of various secondary information such as national and state acts, the constitution, and reports on planning in Bengaluru were referred to. Discussions with key stakeholder agencies were conducted to understand interdepartmental challenges and viewpoints. The following tasks were conducted as part of this report:

- Detailed study of BBMP Restructuring Committee Way Forward Report;
- Inter-sectoral approach to identify existing challenges that can be addressed by planning legislation;
- Learning from best practices of planning legislation in the country;
- Comparison with recently revised Acts of other States (eg: Kerala Ordinance);
- Model laws integrating 73rd and 74th Amendment;
- Reports from various eminent panels on Governance of Bengaluru;
- Discussions with experts in the field;
- Consultative discussions with stakeholders involved in planning, development and service provision.

**Note:** Details provided in chapter 5 for the contents of the plans are based on the Model Regional and Town Planning and Development Law, 1985 and Kerala Town and Country Planning Ordinance 2014

## 4. Analysis of Existing Situation

### 4.1 Planning Frameworks for Bengaluru City-Region (KTCP Act 1961)

Spatial Planning process for urban areas in the State are enabled through the Karnataka Town and Country Planning Act, 1961. The Karnataka Town and Country Planning Act, 1961 was enacted with a view to provide full civic and social amenities for the people of the State through the creation of favourable conditions for planning and re-planning of urban and rural areas of the State (KTCP Act 1961). It was to prevent uncontrolled land development due to land speculation and profiteering in land; ensure balanced use of land through preservation and improvement of existing recreation facilities and direct future growth of populated areas in the State ensuring desirable standards of environmental health and hygiene. The creation of facilities for orderly growth of industry and commerce was expected to promote general standards of living in the State.

- Lack of comprehensive revision of town planning legislations (KTCP Act 1961):** Although several piecemeal modifications have been made over time to the Karnataka Town and Country Planning Legislation, a comprehensive revision has not been undertaken in over half a century. This bears significance at a time when Bengaluru is facing unprecedented rapid growth and is in dire need of relevant policies, plans and projects that are not rendered obsolete. As a consequence to the formulation of other Acts such as City of Bangalore Municipal Corporation (Amendment) Act 1967, the Bangalore Metropolitan Region Development Authority Act, 1985 etc, sections regarding dissolution or supersession of local authorities and Plans for Bangalore Metropolitan Region etc were incorporated into the KTCP Act. Such piecemeal amendments have rendered the Act to be disorganised;
- Non-alignment with 73rd and 74th Constitutional Amendments:** The Constitution of India underwent two pertinent amendments, its 73<sup>rd</sup> amendment for rural areas and its 74<sup>th</sup> for urban areas. As per the 74<sup>th</sup> amendment, a new third tier of government at the municipal level emerged within the previously two tiered federal system of the Centre and the States. Based on the 73<sup>rd</sup> and 74<sup>th</sup> CAA, the Model Urban and Regional Planning and Development Law was formulated by the Ministry of Urban Development as guideline for States to follow, whereas the KTCP Act has not yet been revised to incorporate such Constitutional Amendments;
- Lack of Planning at various scales:** Spatial planning, as per the current KTCP Act is restricted only to the Master Plan scale and the provision of Town Planning Scheme at local area level (which remains unused). The Act does not mandate a Regional Scale or a plan at the smaller scale such as a Local Area/Ward Plan. Since all planning is done only at the city level, the plan remains a broad-brush plan and lacks details pertaining to local areas. As a centralised city level activity, it is also difficult for citizens to participate in planning and provide inputs to solve issues in their local areas. Unplanned growth along the peripheries of the city is common, due to lack of statutory regional planning frameworks to channelize growth in the surrounding villages and smaller urban areas. Coordination between urban local bodies in the region is also increasingly challenging to implement major regional level infrastructure and projects.

Bengaluru has witnessed a rapid increase in its urban built up area in recent years (figure 9). Analysis by WRI India<sup>1</sup> indicates an increase in urban area of 13 sqkms / year in BBMP area, 29 sq kms/year in the BDA area and about 60 sq kms / year in the BMRDA region. As per the KTCP Act, the Master Plan for the city (BDA Area) needs to be revised only once in 10 years which is inadequate to respond to such rapid growth.

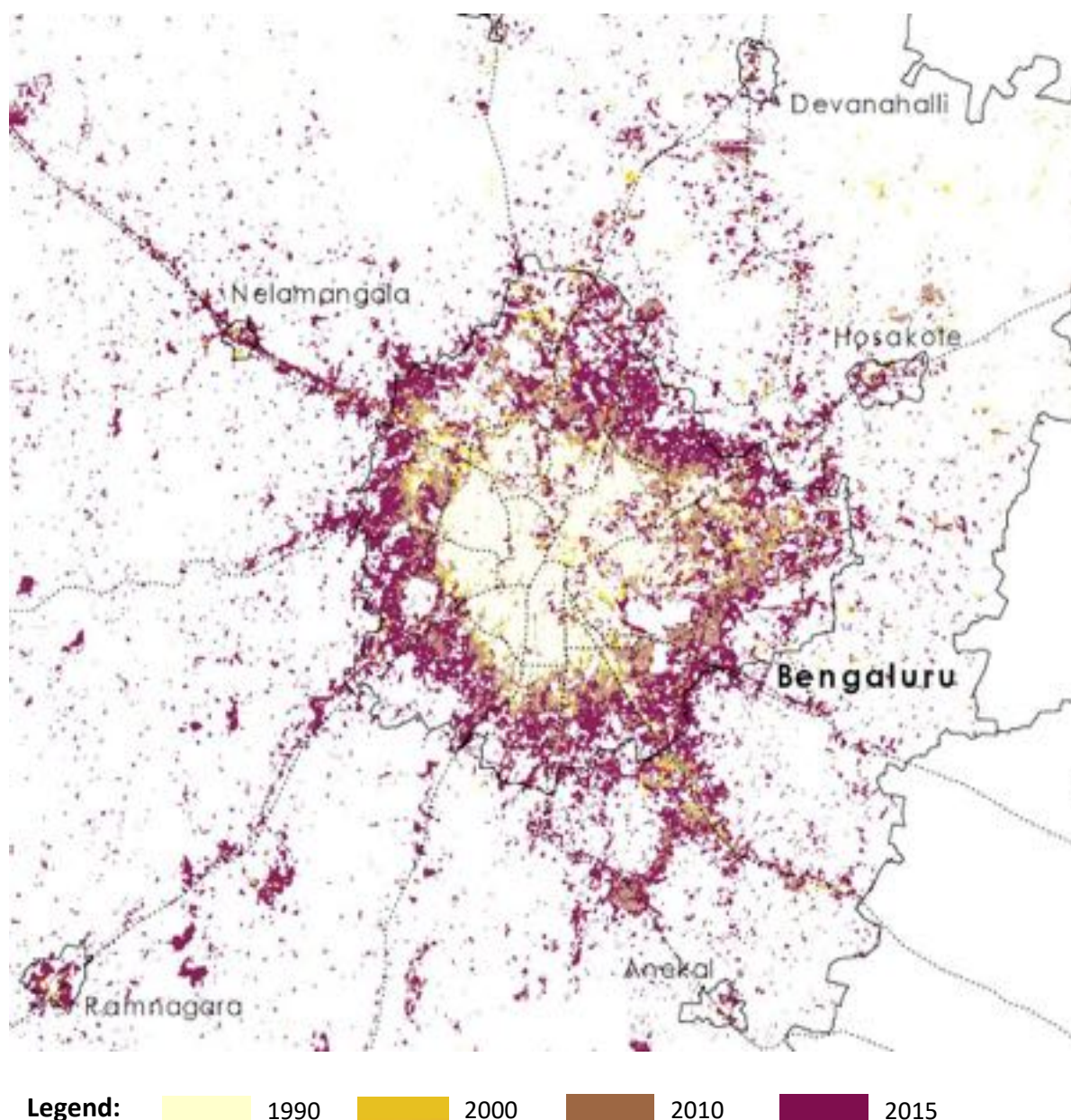


Figure 9: Rapid Unplanned Urban Built Up Area Expansion in Bengaluru City Region

Source: Image generated by WRI India

Data Source: Source: Global Land Survey and LandSat (USGS), Open Streets Map, NHAI

<sup>1</sup> Data Source: Land use and land cover (50K) 2005-06 to 2011-12, NRSC-ISRO

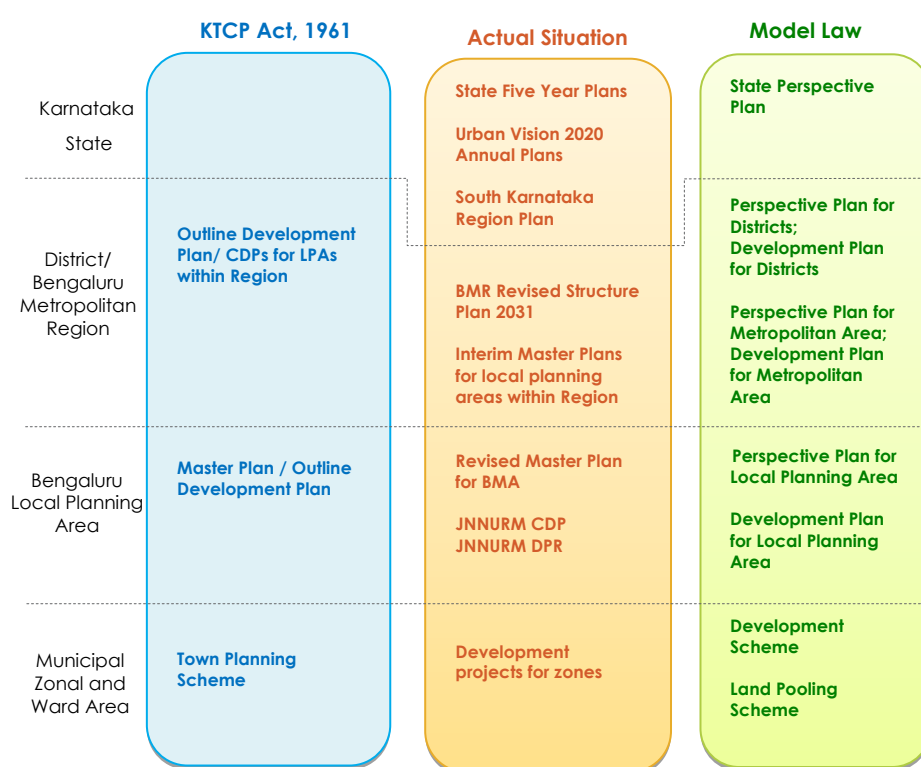


Figure 10 : Broad comparison of KTCP Act 1961, Actual Situation and the recommended Model Law  
Source: WRI India analysis

The chart shows a comparison of mandates to prepare plans at various scales as per KTCP Act, the actual situation on ground and the Model Law. Though there are several need based plans prepared for the city including central government schemes, they have not been integrated with the Master Plan.

## 4.2 Fractured institutional setup and a reduced role of spatial planning in development

While the Urban Development Department (UDD) is the nodal department at the State level, responsible for urban development and administration, the Bengaluru Development Authority (BDA), is responsible for the preparation and enforcement of the Master Plan for Bengaluru which is submitted to the State Government for approval. However, similar to UDD there are a number of other departments at the State level that also deal with matters related to land and urban development in Bengaluru. The core functions and services provided by these departments focus towards their own core sectoral objectives. The jurisdictions and functions of these sectoral departments often overlap and there is little or no coordination with the city's master plan. As most of the departments are headed by State Level Ministers and bureaucrats their reporting structures do not mandate their coordination at the city level for planning. There is a lack of a powerful overarching institution which could bring together all these sectoral departments for planning. This is a common problem affecting the effectiveness of spatial planning across the country. In order to have planning for the city to be robust and coordinated, it is essential to evolve strong planning institutions, headed by effective and accountable leaders who can bring together diverse stakeholders to plan, implement and monitor development in the city.



### Challenges in Coordination Across Disciplines

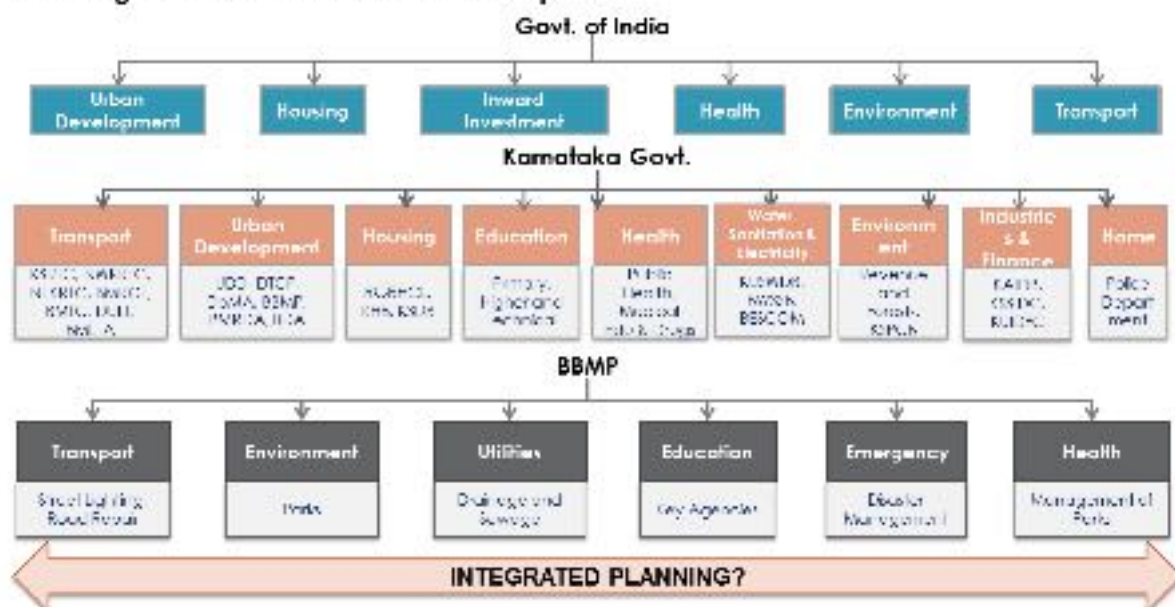


Figure 11: Current Condition of Fractured Institutions and Challenge for Integrated Planning;

Source: WRI India, adopted from (Vidyadhar 2009)

### 4.3 Issues with current system of Master Planning

There have been four Master Plans prepared for Bengaluru in the past decades. The current master planning system has remained an inadequate instrument for ensuring orderly spatial development. The instrument of zoning and sub-division regulations and building bye-laws collectively called 'Development Control' have promoted an attitude of 'control' rather than development (Urban Development Department 2009). Due to the large number of violations, the State has brought in The Karnataka Regularisation of Unauthorised Construction in Urban Areas Act, 1991 to regularise illegal constructions in the urban areas. The enforcement of such legislation points out the gaps in the KTCP Act and the planning process for managing the rapid urban growth of the State (Urban Development Department 2009). Following are some of the key issues in the current system of master planning:

- Sectoral agencies have their own acts, plans, projects and implementation schedules. Inter-agency negotiations remain out of the scope of the master planning process;
- Master Plan stipulates static land uses, statistical extrapolations for the future and regulatory controls;
- Regulatory controls are more violated than followed: Routine setback violations, disproportionate FAR consumption, Non-permissible uses, building on reservations, unimplemented amenities & facilities, unimplemented road alignments, encroachment etc.;
- Chapters written in master plans are often merely academic. Inter-agency negotiations remains out of scope of the master planning process;
- Various urban development programs such as JnNURM, RAY, AMRUT, PMAY, SEZs etc. are well funded, conceived and operated completely outside the master planning framework.

Their impacts are often not considered in planning, often merely indicated and not sufficiently integrated to plan for their impacts in the city;

- Master Plans have not been successful in incorporating market forces, which have a large role in determining the scale and location of economic activities;
- Planning is restricted to development authority jurisdictions often not considering the regional context in which city is located;
- Local specificities typically missed out in the generalised city level plan;
- Mostly a top-down exercise with little public participation, lack of public consensus building and rent seeking efforts by powerful interest groups.
- Needs of economically weaker sections of the society are poorly addressed;
- Proposals for public purposes are often implemented through compulsory land acquisition, this renders it mostly unviable considering the high amounts of compensation that need to be paid.
- Excessive time consumed in plan preparation and approval process.

The Master Plan for Bengaluru 2015 had several drawbacks in its preparation (SPA 2009). They include: its revision only once in 10 years making it a static document that does not respond to dynamic changes; the time taken for plan preparation, approval, and implementation was twice as long as what is prescribed in the KTCP Act, public consultation to hear objections and suggestions were held only at the draft plan stage; had an excessive focus on IT related sector and ignored several other areas including the vast number of urban villages; lack of a detailed investment strategy for its implementation, no indication of phasing of the 10 year plan etc (SPA 2009).



## 4.4 Lack of planning at local scales resulting in unsustainable growth

As discussed earlier, The KTCP Act does not mandate scales of plans and local area planning at the ward scale remains a missing piece of legislation. Due to the generalised nature of the land use based city master plan, the needs of wards growing rapidly are not treated differently from wards which are completely built or facing low developmental pressures causing uneven and unplanned development on the ground.

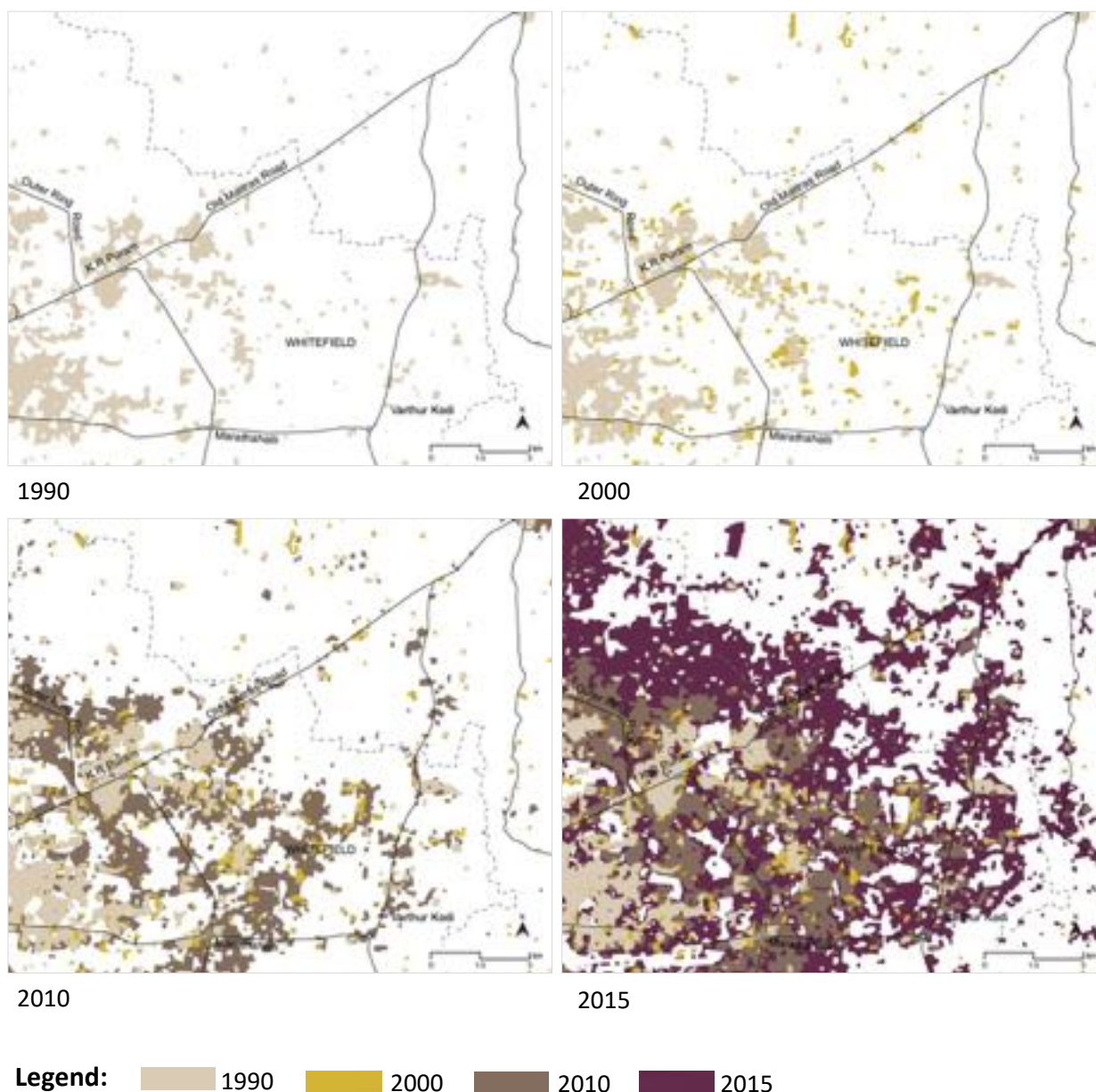


Figure 12: Increase in Urban Built Up Area from 1990 to 2015 in Whitefield, Bengaluru;

Source: Image generated by WRI India, Data Source: Global Land Survey and LandSat (USGS), Open Streets Map, NHAI

As indicated in the figure 12, Whitefield area in Bengaluru has witnessed rapid growth in terms of urbanisation and urban built up area. From being sparsely built in the 1990's to covering over 230mn sqft of built area on the ground in 2015, and witnessing a floating population of over 3.5lakh people as it is a major employment hub, the area today faces several challenges. As Figure 13 indicates, large parcels of land have been taken up by various technology parks and gated communities leaving very little land for public purpose needs such as a structured road network, parks and open spaces, amenities and facilities etc.

The area today faces prolonged traffic jams due to the lack of road networks and alternate routes, lack of footpaths, poor solid waste management, and inadequate services provision as clear hierarchies of roads to run them are absent, resulting in a lot of self-provisioning such as bore wells for water. Such unplanned and unsustainable growth is difficult and costly to unwind and could have been prevented with effective local area planning.



**Legend:**

<span style="color: yellow;">■</span> Residential Plots	<span style="color: red;">■</span> Public/SemiPublic Plots
<span style="color: blue;">■</span> Commercial Plots	<span style="color: pink;">■</span> Vacant Plots
<span style="color: grey;">■</span> Industrial	<span style="color: green;">■</span> Open Spaces and Parks

Figure 13: Disconnected and unplanned development in Whitefield, Bengaluru.

Source: Image generated by: WRI India

Data Source: Global Land Survey and LandSat (USGS), Open Streets Map, NHAI

### 4.5 Challenges and Opportunities

#### Challenges in achieving Planning at Scales and Strategic Planning

- Spatial planning is influenced by various activities of multiple departments of Central and State governments and parastatal agencies apart from the local government. Hence the proposed change in planning processes would require active involvement in all the State, Central and other Para state agencies involved;
- The current planning process has been delayed due to various reasons which are within and outside the purview of city agencies. Shifting to a continuous planning process would require a very different mode of working from the current for agencies;
- The envisaged scale of planning activity would be far more intensive and resource consuming than the current situation. Internal capacity of the local government need to be improved drastically to effectively prepare plans at every Ward Level and Zone level within a given time frame, to feed in to other scales of plans;
- Public participation in the current planning system is minimal. Capacity building and sensitization are essential to rapidly shift towards citizen participation oriented planning.

#### Opportunities of introducing Planning at Scales and Strategic Planning:

Introducing scales of plans through Greater Bengaluru Authority Act would be crucial opportunity to reform planning, however other current circumstances also provides opportunities for smaller and incremental reforms.

- Comprehensive revision of KTCP Act 1961, is being considered by State Government, it is an opportunity to include a dedicated chapter for Bengaluru with scales of planning provisions included. This could be an immediate route to reform planning, even if establishing the overall GBA Act gets delayed;
- Establish spatial planning as a base to bring convergence of plans on a spatial digital platform for planning, implementation and management. This could be achieved through common GIS database across all departments and agencies, through a Bengaluru Spatial Information Center (BASIC) as recommended by the BBMP Restructuring Committee;
- Revised Master Plan 2031 could incorporate key principles of scales of planning, such as local Ward planning by identifying priority areas and specify guidelines to prepare them. Pro-active steps could be taken to broaden the scope of spatial planning to address 'development' as a larger definition beyond the current ambits through coordination with wide stakeholder engagement. It could include frameworks for constant updating of existing land use to feed into monitoring and evaluation of the master plans and speedier plan making process;
- Public participation to enhance citizen's role in decision making and enhanced role of civic society organizations in plan making process also brings in higher levels of acceptance for the plan.

## 5. Details of suggested framework of Scales of Plans

### 5.1 Key Principles and Aspects to follow | Scales of Plans and Strategic Spatial Planning

In order to shift from the current setup, spatial planning needs to focus on socio-economic development, creation of employment opportunities and improving the quality of life of people. To address these aspects, the existing planning process should integrate inputs from multiple disciplines and also at multiple scales such as Regional, City, and Local levels (figure 14). It is essential to move towards a framework approach to development rather than rely on the current prescriptive mode of planning. This could help channelize the local market forces rather than trying to control them, which most of the time ends up being unimplemented.

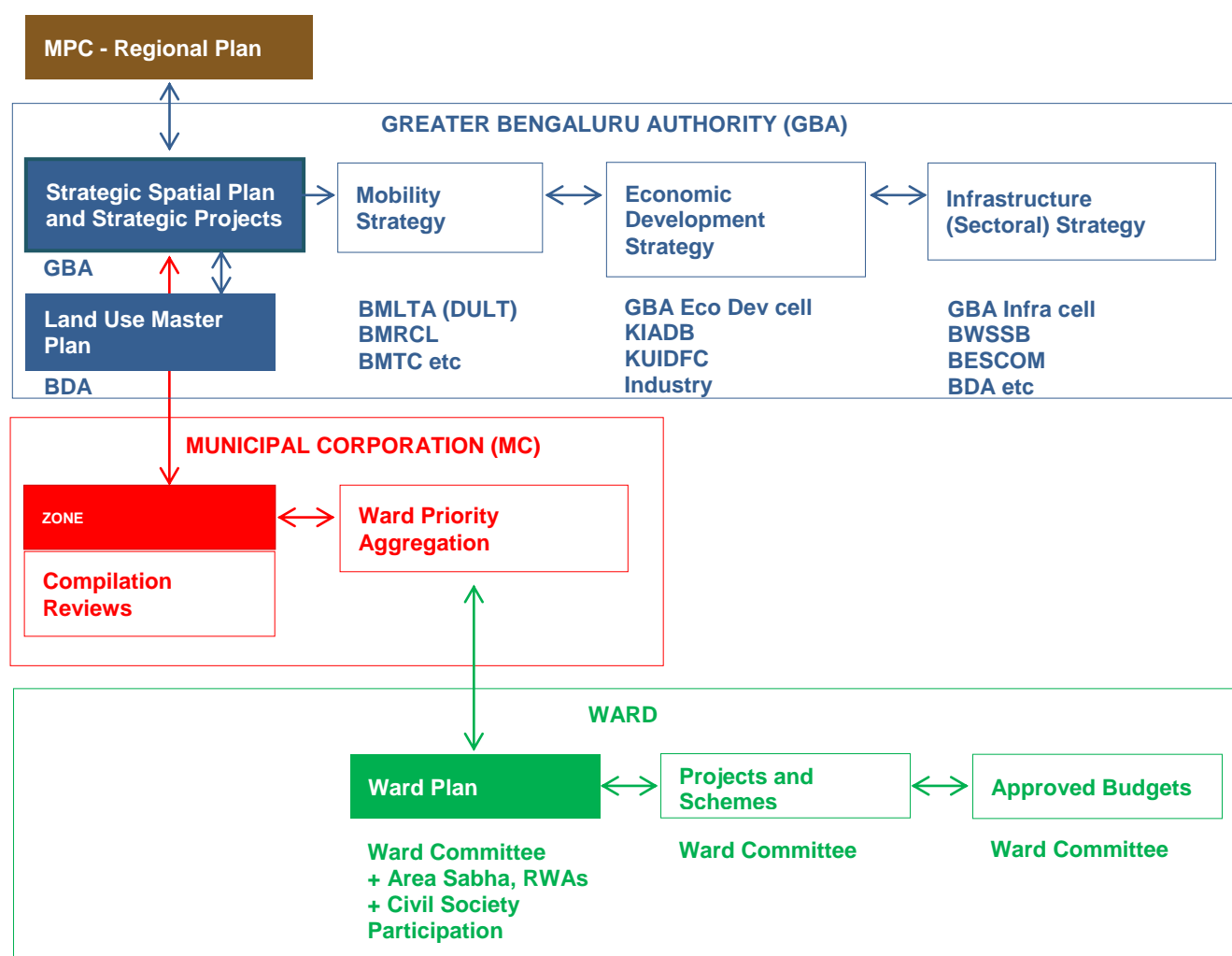


Figure 14: Proposed Planning Process for the 3 tiered structure of GBA  
Source: (Expert Committee: BBMP Restructuring 2015)



**Scales of Plans and Continuous Planning Process**

Agency	Plans	Plan Period	Planning Period
Ward Committees	Ward Development Plan & Annual Plans & Projects	5 Years Vision period & every year Review of Annual Plans	18 Months
Municipal Corporations & Zonal Committees	MC/Zonal Development Plan & Annual Plans & Projects	5 Years Vision period & every year Review of Annual Plans	18 Months
Greater Bangalore Authority	City Perspective Plan & Development Programs for every 5 years	20 years Vision period, Plan Reviewed every 5 years & Vision Period Revised every 10 years	12 Months
Metropolitan Planning Committee	Regional Perspective Plan & Development Programs for every 5 years	20 years Vision period, Plan Reviewed every 5 years & Vision Period Revised every 10 years	12 Months

Figure 15: Proposed Scales of Plans and Continuous Planning Process for Bangalore.

Source: WRI India, based on (Expert Committee: BBMP Restructuring 2015)

**Key Principles and Aspects to consider in the Spatial Planning and Strategic Planning Frameworks:**

- **Definition of 'Development' in a broader sense than current narrower approach:** 73rd and 74th Constitutional amendment defines development as a broad framework to improve lives of people. Along with spatial development aspects, the Article 243W of the 12th Schedule includes economic and social development, protection of environment and promotion of ecological aspects, urban poverty alleviation, safe guarding weaker sections of society including handicapped and mentally challenged and promotion of cultural, educational and aesthetic aspects. Hence the term 'development' should be broad enough to include economic and social development which is inclusive of all sections of the society along with the protection of environment and promotion of ecological aspects.
- **Spatial planning to bring convergence of plans by various agencies for other sectors beyond the ambit of Urban Development Department:** To achieve comprehensive planning, current planning practices need to look beyond the sector specific goals of Urban Development Department. It is observed that the current implementation of master plans has not been able to bring together various Central, State and local government agencies and their development priorities on to a common spatial planning platform. Though the city master plans at its draft stage are circulated to other departments, no concerted efforts are made to ensure that other parallel plans and programs are part of the master plan or at least coordinated with it. This often leads to uncoordinated development, duplication of work, ineffective usage of resources and delay in planning and implementation. As a result, various State level agencies like industrial area boards and housing boards acquire and develop land independently, which usually conflicts with local planning practices.

- **Spatial mapping as a base activity of planning, implementation and management:** Mapping activity needs to extensively cover all the development activities with reference to geographies of the entire State. Karnataka has been one of the foremost States in India to adopt Geographic Information System (GIS) for planning for the city of Bengaluru. The technology enabled system could ease mapping activity that enable an incremental and continuous updating of on ground information rather than only being done during the plan preparation process. Continuous mapping of all the development related activities in a spatial plan helps form a common platform of reference for various types of plans, conduct inter-sector analysis to identify potential conflicts, ease development plan preparation processes for the future, including monitoring and evaluation of implementation of plans and management of services.
- **Emphasis on the process of continuous plan preparation:** There is a need for urban planning to move from being a 'robust product' to a 'robust process' (Toutain and Gopiprasad 2006). It is necessary to understand that planning is not merely an end of a process but a process by itself, which continues even after the plan is published. It is proposed that all the plans prepared at different levels will adopt a system of rolling plans.
  - Long-term Perspective Plans to be prepared for a target period of 20 years
  - Renewal of the Perspective Plans and Development Programs for every 5 years
  - Annual Budgets to implement the Programs
  - The 20-year plan will be used as a base plan for preparation of 5-year programs, while the annual budgets will be prepared on the base of 5-year plans. This system will help in horizontal integration of plans. The 20-years plans and 5-years plans are required to be in co-terminus with the State Five Year Plans.

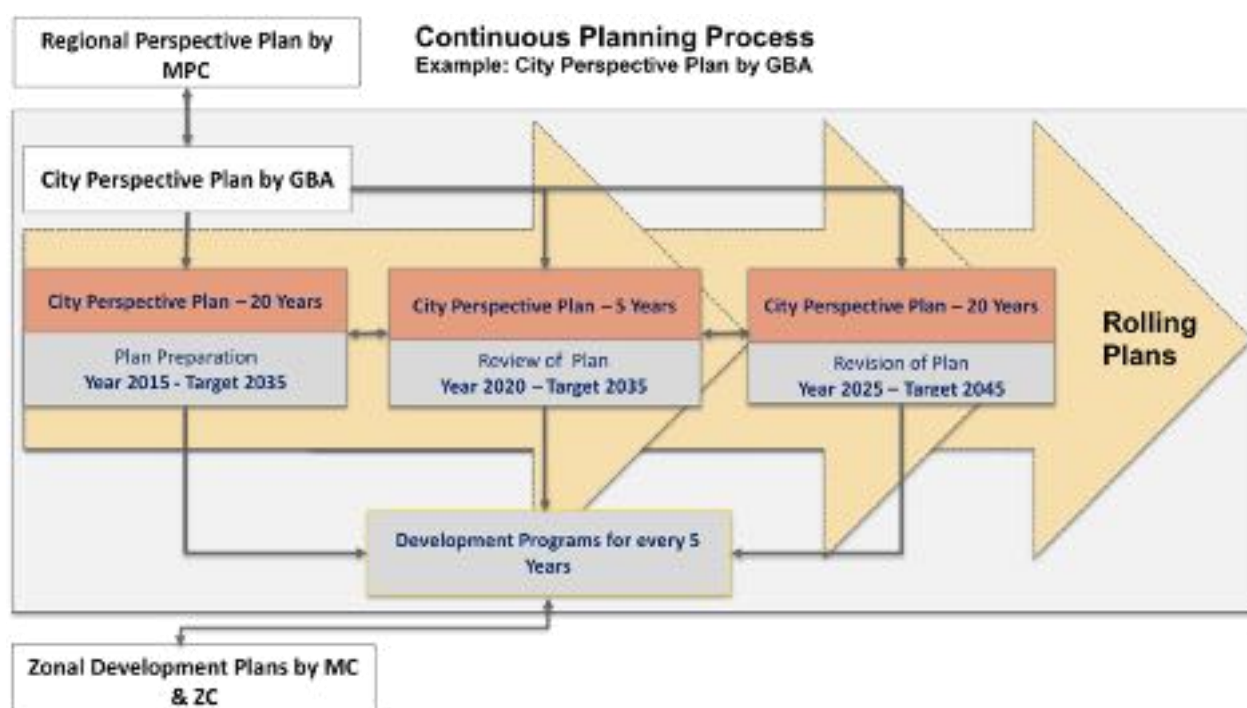


Figure 16: Proposed System of Rolling Plans, Example City Scale;

Source: Image generated by WRI India, based on (Expert Committee: BBMP Restructuring 2015)



- **Coordination and management are basic requirements:** Planning needs to be seen as a platform for various stakeholders to reimagine their domains and areas. Planners need to play the role of a coordinator and bring concerns of various quarters to a common platform. Therefore planners need to acquire the role of a manager, coordinating between different stakeholders and experts and bring forth their expertise for an effective planning process (Vidyadhar 2010). They also need to provide room to sectoral experts, civic groups and informed citizens with deep knowledge of subjects in deciding the strategies to solve the issues of settlements.
- **Integration of Land use – Economic strategy - Transport & infrastructure planning:** A close coordination between the strategies of various sectoral departments enhance opportunities of achieving goals of each department . Hence they need to be prepared and notified in absolute co-terminus with same timeline for vision period, review and planning period.
  - Economic strategy prepared by the proposed GBA will set the framework for the sustainable economic development of Bengaluru to maximise on its potential for economic growth. Linking this economic strategy with transport investments for example Metro Rail has direct impact on urban and economic development of the city.
  - Mobility strategy ideally should be prepared by UMTA (Unified Metropolitan Transport Authority) that act as umbrella body to develop public transport accessibility. This authority will essentially be a backbone for the economic development strategy of the GBA.
  - Infrastructure will drive sustained economic growth when it is properly aligned with the city's priorities. For example availability of uninterrupted, high quality power supply directly helps economic growth. Typically sectoral agencies operate under their own acts and jurisdictions, resulting in setting their own priorities and disengaged projections of demand.
- **Linking spatial plans and investment plans:** In the current setup the investment plans and the spatial plans are prepared in different agencies with negligible interaction with each other. As a result the spatial plans are ill informed about the possible development funds available in its jurisdiction and the investment plans find it difficult to identify key areas for investments for maximum outputs. In the proposed setup the entire project funding from all sources ranging from Central Government to Local Agencies shall be routed through the spatial plans.
- **Simplification towards broad contents of the plans:** To ensure that the planning agencies have enough flexibility in their operation, the planning legislation should be formulated to have a simplified language with broad themes to be covered in the plan preparation. These directions ensure that the plans appropriately address all the current challenges of urbanization effectively. It also provides sufficient flexibility to the planning institutions to adapt planning frameworks suitable to the local requirements.
- **Speedier plan making process by constant updating of existing land use:** To enable speedier plan making process, it is proposed that the planning agencies shall constantly record Existing Land Use (ELU) at regular intervals, which could then be used to monitor and evaluate the implementation of current plans. Updating of ELU shall be done independent of planning cycles.

This will ensure the availability of the most updated ELU at the time of preparation of the master plan and hence help to save the time taken by the agencies in doing the existing situation analysis, which otherwise take years to finish.

- **Systems of rules and regulations could provide more flexibility:** The planning legislation needs to be accompanied with a detailed set of rules and regulations to deal with specific issues in depth. These rules and regulations make the legislation adaptable to local situations as well as can be changed based on ground conditions without going through the cumbersome route of making amendments in the Act.
- **Public participation to enhance citizen role in decision making:** Lack of mandatory public participation in planning process is often argued as one of the major deficiencies in the current planning legislation. The proposed participatory planning approach in the revised Act will allow local knowledge to form the basis of planning solutions. The direct involvement of community at multiple stages of planning, allows them to become collaborators, planners and decision-makers instead of being treated like an audience who is provided information after the decisions have been made.

Public notification and invite for suggestions: In order to build consensus in planning it is essential to enhance transparency of planning process. It is proposed to engage stakeholders throughout the planning process and public participation at the following stages to invite suggestions:

1. Existing situation analysis and identification of development Issues;
2. Vision and development strategies preparation;
3. Draft Perspective Plan.

However, public participation can also tend to prolong the time taken for planning; hence it is essential to structure the process such that participation is conducted as a parallel activity through efficient use of current digital technologies. This ensures that public participation does not delay the timeline but enhance the planning process.

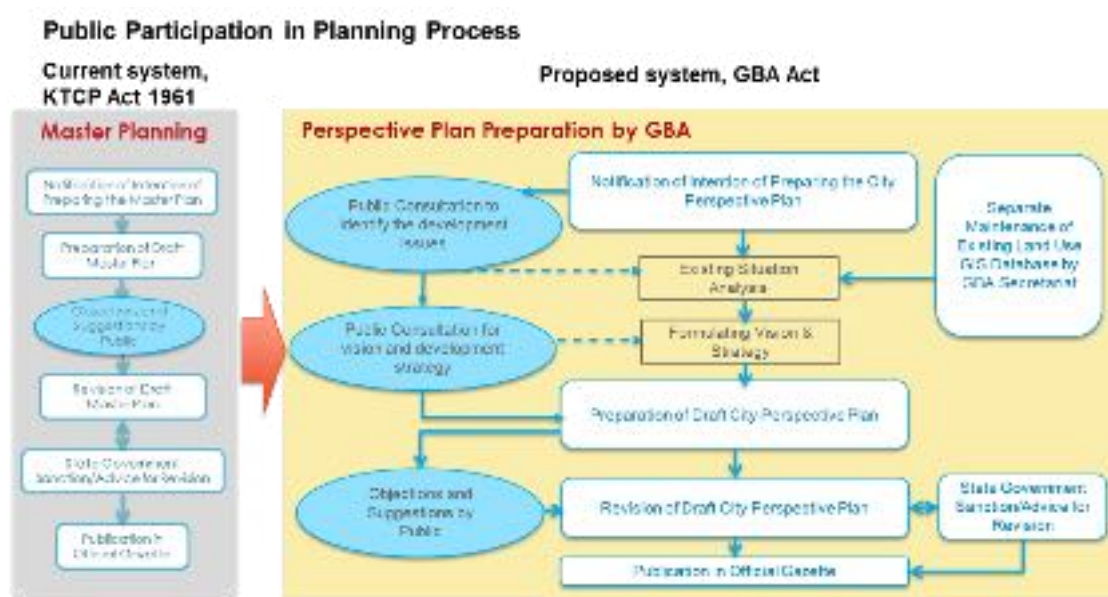


Figure 17: Proposed Public Participation in Planning Process  
Source: WRI India

- **Enhanced role of civic society organizations in plan making process:** Civic society organizations could play a very important role in implementation of Plans. Integrating their views in plan preparation could help in producing a holistic plan and further building consensus for its effective implementation.
- **Continuous monitoring and evaluation process:** A systematic monitoring and evaluation of plan implementation would enable timely evaluation of strategies according to changed circumstances, which could help higher levels of success in implementation of plans. The proposed framework for legislation outlines a broad process of continuous monitoring and evaluation of project implementation under the Plans.
- **Contents of Ward Development Plan, Zonal Development Plan and City Perspective Plan:** (MoUD 1985), (Kerala Town and Country Planning Ordinance 2014) and (Jana Urban Space Foundation 2011) were referred to detail out the proposed contents of the plans at ward, zonal and city level. The plans may contain detailed proposals including and not limited to:
  - a. Establishment of new development centres, redevelopment and improvement of existing local area; planning of commercial areas including specialised markets, retail and tourism areas;
  - b. Assess and project facilities for future such as for amenities for health, education and other social infrastructure and areas for utilities infrastructure;
  - c. Delineate areas for industries and allied activities; development and landscaping of open spaces, recreational areas, play grounds, parks, garden and urban forestry;

- d. Proposals for conservation and protection of ecologically sensitive areas; conservation of heritage and historical resources; protection from natural hazards, control of air and water pollution;
- e. Housing schemes for various income groups, weaker sections of the society and upgradation of slums; redevelopment or renewal of blighted areas;
- f. Provision for water supply system and sanitation system;
- g. Provisions for electricity supply and communication;
- h. Define and provide for the complete road and street pattern for the present and in the future and indicate the traffic circulation;
- i. Provision for public transportation including mass transit, bridges, pedestrian network, cycling ways, parking facilities, transport terminals such as bus depots, bus bays, bus stops, street furniture, lighting, landscaping of streets and plantation, improvement or road junctions and measures for road safety;
- j. Provisions to incorporate informal sectors;
- k. Demolition or closure of buildings or functions that are incompatible to living;
- l. Details of characteristic urban form such as foot print, height and building envelope and floor area ratio;
- m. Control over architectural features including façade features, openings, colour, texture, frontage, size of buildings, courtyard, size of projections, advertisement signs and hoardings, pickup and drop off points, entry points to the basement, parking and such other requirement to integrate the building envelope in the vicinity;
- n. Manner of disposal of assets, if any;
- o. Promote area development approach rather than strips of development along movement corridors through Local Area Planning. Such approach apart from helping organised development also will opportunities to build in methods to generate funding such as land value capture. Alternative methods for accessing land and generating finance for capital investments are discussed in dedicated implementation module -Land Procurement for Public Purposes by BBMP Restructuring Committee.
- p. Indicate phasing of the plan, cost of implementation, means of cost recovery, implementation, operation and maintenance mechanism and any other may be considered necessary to ensure planned development.

- **Contents of Regional Plans by MPC at BMRDA level:**

- a. Demographic profile and projections over a 20 year period. Population assignment and settlement pattern of rural service centres as well as small, medium and large urban centres;
- b. Generalised land utilization, analysis of physical and natural resource potentials and their utilisation;
- c. Economic survey and projection for formal and informal employment by means of industrial growth, commerce and trade;
- d. Integrated multi-modal transport system including mass transport at Metropolitan Region level that concentrate on moving people and goods, connected with regional level and settlement level economic activity centres;

- e. Housing projection for the future, with variety of housing type's opportunities including renewing and retrofitting of housing stock. Housing near employment for groups below poverty line and other disadvantaged groups;
  - f. Protection of environmentally and ecologically sensitive areas such as conservation of forests, water bodies, wetlands and other eco-sensitive areas and conservation of heritage resources;
  - g. Integrated infrastructure development covering water, energy, sanitation, education, health, recreation, communication and other utilities, facilities and services and disaster management and resilience building;
  - h. Development of special areas, if any, such as new towns, industrial townships etc.;
  - i. Provisions to manage natural and manmade hazard prone areas;
  - j. Enhancement of agricultural activities, and rural development;
  - k. Fiscal resource requirements and integrative financing for planned development through 5 year phasing of programmes preferably co-terminus with the state five year plan and annual budgets;
  - l. Any other particulars and details as may be considered necessary for planned development and as may be directed by the Government.
- **Changes to Spatial Development Plans:** Changes shall be made to a current Spatial Development Plan, if and only if it is passed by the elected representatives in the Committee and or if the change affects major Government sponsored projects. This link is essential for decision makers and the elected representatives to be accountable to public on all the decisions. With permission from the State Government, the authority shall publish each of the change and invite suggestions and objections from the public. Upon receiving the comments and suggestions the plan is modified and submitted to State Government for approval.
  - **Renewal of plans:** All spatial Development Plans shall be renewed every five years with vision period for next twenty years and renewed development plan shall come in to force immediately upon the completion of the current five year segment of the notified plan.

### 5.2 Planning at the Ward Level: Ward Development Plan

- **Delineation of the LAP jurisdiction**  
Delineation of Local Area Plan jurisdiction is the first major task to be undertaken for the preparation of Local Area Plans. The Planning agency or the Municipal Corporation shall be responsible to delineate the precise boundaries of the Ward Development Plan. This delineation shall be done in consideration with the administrative wards and electoral wards to ensure that they all coincide together to form equivalent of planning districts as followed in current setup.
- **Declaration of intention**  
Municipal Corporation appoints Ward Committee ,under which the Ward Development Plan jurisdiction comes, should be assigned as planning agency responsible to prepare the Local Area Plan. Once the jurisdiction is delineated, it shall be the responsibility of planning agency to communicate to the State Government about it. After the intimation, the State Government

shall publish the boundaries of area for which the Ward Development Plan is to be made in the Official Gazette and in the local newspapers. The State Government shall also crosscheck that the area proposed under the Ward development Plan does not come under any other scheme which has been sanctioned previously. In case of an overlap, the State Government shall direct the Municipal Corporation to incorporate the proposals of the scheme as part of the Ward Development Plan. Then the Planning Agency shall publish a declaration of intention for the preparation of the Ward Development Plan in the leading newspapers of the area as well as on Municipal Corporation's website. This declaration shall be treated as an official announcement by the Planning Agency to start the preparation of Ward Development Plan and shall be treated as the official starting date of the plan preparation process.

- **Procedure for Preparation, Publication and Sanctioning of Ward Development Plan**

The plan preparation period for the Ward Development Plan is proposed to be twelve months from the date of publication of intention for preparation of Ward Development Plan. The planning agency shall appoint a planning officer to oversee the preparation of plan. The planning officer shall be responsible to follow the procedure and timeline to prepare the plan as detailed out in the Act. Here is the detailed procedure, as it is proposed to be covered in the Act:

- a. After declaration of intention to prepare the Ward Development Plan, the planning agency shall prepare or get prepared Ward Development Plan in not later than twelve months of such declaration.
- b. From the date of notification for preparation of Ward Development Plan within two months, on studying existing situation, the planning agency shall identify development issues that are to be addressed by the Ward Development Plan. It shall publish it on Municipal Corporation's website and notify places where copy of the development issues document is available for one month for public inspection and for suggestions from public as well as other government agencies involved in development works in the Local Planning Area. On studying the suggestions, planning agency shall modify the development issues as considered necessary to be incorporated in the preparation of Draft Ward Development Plan.
- c. From the date of notification for preparing the Ward development Plan within nine months, planning agency shall prepare a Draft Ward Development Plan.
- d. Planning Agency with permission from the sanctioning authority in the manner prescribed in the Rules shall publish Draft Ward Development Plan and invite suggestions. The Draft Plan shall be available for public and other government agencies' inspection, inviting suggestions within period of thirty days from the date of notification. Planning agency shall also forward copy of the Draft Ward Development Plan to local governments and other government agencies involved in spatial development of area for suggestions.
- e. Planning agency from the date of completing the time specified for giving suggestions, shall within thirty days undertake modifications as considered necessary and the Ward Development Plan shall be submitted to the sanctioning authority.



- f. Within thirty days of receiving the Ward Development Plan, sanctioning authority may in consultation with the Government shall either sanction the Ward Development Plan, or suggest appropriate modifications that may be made and forward it to planning agency.
- g. In case there are modifications suggested by the sanctioning authority, these shall be made only on public interest stating the reasons for such modifications and planning agency shall invite for public suggestions.
- h. In case the Perspective Plan is returned back by sanctioning authority to planning agency, it shall make necessary modifications incorporating the suggestions and resubmit it within sixty days to the sanctioning authority for sanction.
- i. When the Modified Ward Development Plan is submitted, the sanctioning authority shall approve the Ward Development Plan within a period of thirty days.
- j. As soon as the Ward Development Plan is sanctioned, planning agency shall forward it to all relevant government departments, and publish in official Gazette, in newspaper and official website of local government, about the approval of the Ward Development Plan and the place or places where copies of the said plan may be made available for reference or sale.

- **Monitoring and Evaluation of Implementation of Ward Development Plan**

In the Ward Development Plan preparation process, the most important aspect is the monitoring and evaluation of the plan prepared. While the executives are responsible to prepare and implement the plan, it is proposed that the legislators shall be made responsible to evaluate and monitor the implementation of the plans. The legislators shall also ensure proper public participation for the preparation of plan. At the local area level, the councillors in the Municipal Corporation and the members of Ward Committee are identified as the possible members of monitoring committee. The Act shall have following provisions to ensure proper monitoring and evaluation of the projects under Ward Development Plan:

- a. The Greater Bengaluru Authority shall, for each Ward/ Local Planning Area constitute a committee to monitor and evaluate the implementation of Ward Development Plan.
- b. The Committee constituted under sub-section (a) shall consist of the following members:
  - i. A Chairperson to be elected from amongst the members;
  - ii. Members: all elected members of Ward Sabhas, constituted under Municipal Corporation Act, whose area lie within the local planning area.
- c. The Committee shall coordinate planning with various Government agencies and sort out conflicts between different government agencies arising during implementation of Ward Development Plan.
- d. The Committee shall periodically submit the monitoring and evaluation report to Greater Bengaluru Authority of projects undertaken to implement the Ward Development Plan.
- e. The Ward Development Plan shall be on a rolling basis; it shall be reviewed every five years and revised every ten years with a vision of twenty years.

### 5.3 Planning at the Zonal/Municipal Corporation Level: Zonal Development Plan

The Zonal or Municipal Corporation level plans are proposed to work as intermediary plans between the ward plans and broader Greater Bengaluru Authority level Development Plan. The main purpose of these plans is to ensure a smooth transformation of GBA level policies to the ward plans as well providing ground level information through the ward plans to city level policy makers. For this, the Municipal Corporation shall compile all ward level plans into one plan and prioritize the projects to be undertaken under these plans. This plan shall also address any conflict between different ward level plans.

The Municipal Corporation shall be responsible for preparation of Zonal Development Plans through Zonal Committee of the area and also oversee the execution of projects undertaken under the plans. The Municipal Corporation shall appoint Town Planning Officer for plan preparation and later the coordination officer for the implementation of the projects. The Zonal Committee of elected representatives shall lead the planning process in the zones and be responsible for facilitating and ensuring the public participation in the process. Once the plan is published, Municipal Corporation's various departments will undertake development activities. At this stage, the Zonal Committee shall prioritize the projects for implementation and also monitor and evaluate the implementation of projects. The Committee shall also be required to submit periodic reports to Greater Bengaluru Authority regarding the progress of plan implementation. Below is the process of Zonal/Municipal Corporation Level Plan Legislation:

- **Delineation of the Zonal Development Plan Jurisdiction**

The process of preparing these plans is proposed to start as soon as the Ward Development Plans are sanctioned. The Municipal Corporation in consultation with the Greater Bengaluru Authority shall delineate the boundary of zones for this purpose. It is important that these zones should be as marked in the City Perspective Plan, also the boundaries shall follow the existing Ward Development Plan boundaries in such manner that no Ward Development Plan is coming under two separate zones.

- **Declaration of Intention**

Once the jurisdiction is delineated, it shall be submitted to Greater Bengaluru Authority to further inform State Government about the intention of preparing zonal development plan. After the intimation, the State Government shall publish the boundaries of area for which the Zonal Development Plan is to be made in the Official Gazette and in the local newspapers. The planning agency would appoint a Town Planning Officer to act as secretary to the Zonal Committee to help prepare the development plan. After the delineation of Zone jurisdiction, the Planning Agency shall be required to publish a declaration of intention for the preparation of the Zonal Development Plan in the leading newspapers of the area as well as on Municipal Corporation's website. This declaration shall be treated as an official announcement by the Planning Agency to start the preparation of Zonal Development Plan and shall be treated as the official starting date of the plan preparation process.

- **Procedure for Preparation, Publication and Sanctioning of Zonal Development Plan**

The planning officer shall be responsible to follow the procedure and timeline to prepare the plan as detailed out in the Act. Detailed procedure proposed to be covered in the Act is as follows:

- a. As soon after declaration of intention to prepare the Zonal Development Plan, the planning agency shall prepare or get prepared Zonal Development Plan in not later than twelve months of such declaration.
- b. From the date of notification for preparation of Zonal Development Plan within two months, on studying the Ward Development Plans prepared under its limits, the planning agency shall identify development issues that are to be addressed by the Zonal Development Plan and publish it on Municipal Corporation's website. It shall notify places where copy of the development issues document is available for one month for public inspection and invite suggestions from public as well as other government agencies involved in development works in the Zone. On studying the suggestions, planning agency shall modify the development issues as considered necessary to be incorporated in the preparation of Draft Zonal Development Plan.
- c. From the date of notification of Zonal Development Plan within nine months, planning agency shall prepare a Draft Zonal Development Plan.
- d. Planning Agency with permission from the sanctioning authority in the manner prescribed in the Rules shall publish Draft Zonal Development Plan and invite suggestions. The Draft Zonal Plan shall be available for public and other government agencies' inspection, inviting suggestions within period of thirty days from the date of notification. Planning agency shall also forward copy of the Draft Zonal Development Plan to the government agencies involved in spatial development of zone for suggestions.
- e. Planning agency from the date of completing the time given for suggestions, shall within thirty days undertake modifications as considered necessary and the Zonal Development Plan shall be submitted to the sanctioning authority.
- f. Within thirty days of receiving the Zonal Development Plan, sanctioning authority may in consultation with the Government shall either sanction the Zonal Development Plan, or suggest appropriate modifications that may be made and forward it to planning agency.
- g. In case there are modifications suggested by the sanctioning authority, these shall be made only on public interest stating the reasons for such modifications and planning agency shall invite for public suggestions.
- h. In case the Draft Zonal Plan is returned back by sanctioning authority to planning agency, it shall make necessary modifications incorporating the suggestions and resubmit it within sixty days to the sanctioning authority for sanction.

- i. When the Modified Zonal Development Plan is submitted, the sanctioning authority shall approve the Zonal Development Plan within a period of thirty days.
- j. As soon as the Zonal Development Plan is sanctioned, planning agency shall forward it to all relevant government departments, and publish in official Gazette, in newspaper and official website of local government, of the approval of the Zonal Development Plan and the place or places where copies of the said plan may be made available for reference or sale.

- **Monitoring and Evaluation of Implementation of Zonal Development Plan**

The Zonal Committee shall be responsible to coordinate planning with various Government agencies and sort out conflicts between different government agencies arising in implementation of Zonal Development Plan. The Committee shall be required to periodically submit the monitoring and evaluation report to Greater Bengaluru Authority of projects undertaken under the Zonal Development Plan. The preparation of the Zonal Development Plans shall be on a rolling basis; these plans are proposed to be reviewed every five years and revised every ten years with a vision of twenty years.

#### **5.4 Planning at the Greater Bengaluru Authority Level : City Perspective Plan**

The Plan prepared at Greater Bengaluru Authority is proposed to be a settlement level development plan. This plan would be required to envisage current and proposed land uses for various areas under GBA's jurisdiction. The plan shall also be required to outline various development activities to be undertaken under the Authority's jurisdiction. The responsibility of preparation of this plans and its implementation shall be with the Greater Bengaluru Authority.

Greater Bengaluru Authority shall be responsible to undertake planning activities in the city. While the executive wing of the Authority shall include technical secretariat to coordinate preparation of the City Perspective Plan and also monitoring all the planning activities in Zonal and Ward level scales. The councillors of the Authority shall also ensure public participation in plan preparation from their respective wards. The Greater Bengaluru Authority shall keep the Bengaluru Metropolitan Planning Committee and the State Government informed in this process. Structure of planning provision to be considered under the legislation is as follows:

- **Delineation of the City Perspective Plan Jurisdiction**

For the purpose of preparation of City Perspective Plan, it is proposed that the area under the Greater Bengaluru Authority shall be considered as the City Perspective Plan Area. The State Government shall issue a notification in this regard in its Official Gazette as soon as after the formation of Greater Bengaluru Authority.

- **Powers of Greater Bengaluru Authority**

In addition to its other powers, for the Purpose of preparing City Perspective Plan, monitoring and evaluation of plan at Zones and Wards scales and to undertaking the projects as per the plans, the Greater Bengaluru Authority is proposed to be provided with following functions:

- a. Prepare or get prepared a City Perspective Plan for the City Region;

- b. Implement all or any of the provisions contained in the Plans under this Act by formulating and executing Projects, Land Pooling Schemes, Detailed Town Planning Schemes or otherwise;
  - c. Promote, regulate and control the spatial planning and developmental activities in the City Region as per the Plans under this Act;
  - d. Set up special function agencies, if necessary, and guide, direct and assist them on matters pertaining to their respective functions; and
  - e. Coordinate, monitor and evaluate plans prepared at Zonal and Ward levels.
  - f. Perform such other functions as are supplemental, incidental or consequential to any of its functions and/or as may be directed by the Government, or Metropolitan Planning Committee, from time to time.
  - g. The city level plan also need to proactively plan and prepare in advance for preparing villages to face urban growth and eventually added in to its boundary. Strategies for urban expansion and municipalisation of areas in BMR are discussed in dedicated module - Municipalisation Strategy addressing Urban Expansion and Urban Villages by BBMP Restructuring Committee.
- **Declaration of Intention**

After the Greater Bengaluru Authority is formed and its area is delineated by the State Government, the Greater Bengaluru Authority shall declare the intention of preparation of City Perspective Plan for the city-region. The declaration shall be published in leading local newspapers of all official languages of State Government and also on the Greater Bengaluru Authority's website. This declaration of intention shall be considered as an official announcement by the Planning Agency to undertake the City Perspective Plan and the time period for the preparation of plan shall start from this date onwards.
  - **Procedure for Preparation, Publication and Sanctioning of City Perspective Plan**
    - a. After the declaration of intention to prepare the City Perspective Plan, the Greater Bengaluru Authority shall prepare or get prepared City Perspective Plan in not later than eighteen months of such declaration.
    - b. From the date of notification for preparation of City Perspective Plan within three months, on studying the Ward Development Plans and Zonal Development Plans prepared under its jurisdiction, the planning agency shall identify development issues that are to be addressed by the City Perspective Plan and publish it on the Greater Bengaluru Authority's website and notify places where copy of the development issues document is available for one month for public inspection and invite suggestions from public as well as other government agencies involved in development works in the city. On studying the suggestions, the Greater Bengaluru Authority shall modify the

development issues as considered necessary to be incorporated in the preparation of Draft City Perspective Plan.

- c. From the date of notification of intention to prepare City Perspective Plan within twelve months, the Greater Bengaluru Authority shall prepare or get prepared a Draft City Perspective Plan.
- d. The Greater Bengaluru Authority with permission from the State Government in the manner prescribed in the Rules shall publish Draft City Perspective Plan and invite suggestions. The Draft City Perspective Plan shall be available for public and other government departments' inspection and suggestions are invited within a period of sixty days from the date of notification.
- e. The Greater Bengaluru Authority, from the date of completing the time prescribed for suggestions, shall within sixty days undertake modifications as considered necessary and the City Perspective Plan shall be submitted to the sanctioning authority.
- f. Within thirty days of receiving the City Perspective Plan, the State Government may in consultation with the Bengaluru Metropolitan Planning Committee shall either sanction the City Perspective Plan, or suggest appropriate modifications that may be made and forward it to the Greater Bengaluru Authority.
- g. In case there are modifications suggested by the State Government, these shall be made only on public interest stating the reasons for such modifications and the Greater Bengaluru Authority shall invite for public suggestions.
- h. In case the Draft City Perspective Plan is returned back by State Government to the Greater Bengaluru Authority, it shall make necessary modifications incorporating the suggestions and resubmit it within sixty days to the State Government for sanction.
- i. When the Modified City Perspective Plan is submitted, the State Government shall approve the Zonal Development Plan within a period of thirty days.
- j. As soon as the City Perspective Plan is sanctioned, the Greater Bengaluru Authority shall forward it to all relevant government departments, and publish in official Gazette, in newspaper and official website of the Greater Bengaluru Authority, of the approval of the City Perspective Plan and the place or places where copies of the said plan may be made available for reference or sale.

- **Monitoring and Evaluation of Implementation of City Perspective Plan**

Similar to the process in the Ward Development Plan and Zonal Development Plans, the City Perspective Plan is also proposed to be monitored by a committee of elected representatives. In this case it would be the elected Greater Bengaluru Authority members under the chairmanship of the Mayor. The Greater Bengaluru Authority shall also be responsible to coordinate planning with various Government agencies and sort out conflicts between different government agencies arising during the implementation of City Perspective Plan. The Committee shall be required to periodically submit the monitoring and



evaluation report to the State Government and to the Bengaluru Metropolitan Planning Committee for all the development works undertaken in its jurisdiction. The preparation of the City Perspective Plans is also proposed to be same as Zonal Development Plans on a rolling basis. The City Perspective Plan is proposed to be reviewed every five years and revised every ten years with a vision of twenty years.

### 5.5 Planning at the Bengaluru Metropolitan Regional Level: Regional Perspective Plan

The Regional Plan would focus on development that integrate the concerns of interdependency of the city with its surrounding region. The scale is also crucial to arrive at an overall vision determining the roles of individual centres. Metropolitan Planning Committee will prepare the Regional Perspective Plan in coordination with all the local Governments and agencies involved in development and providing public services in the region. Suggested structure for planning at Metropolitan Region scale:

- **Declaration of Metropolitan Planning Region**

As soon as may be after commencement of this Act, the Government may declare by notification, the region having contiguous areas, surrounding areas of the city with strong influence and interdependency with city of Bengaluru, as may be considered necessary, to be a Metropolitan Region. The notification shall mention the limits of the planning area to which it relates in discussion with the State Government. It can be formed by either by merging or dividing or extending planning areas and predominantly following administrative boundaries of district or that of taluk. When the Metropolitan Planning Committee is formed constituting multiple whole districts, then the regional spatial planning for the constituent districts will be prepared by the Metropolitan Planning Committee.

- **Constitution of Metropolitan Planning Committee**

- a) As soon as may be, after the declaration of the Metropolitan Region, the government shall, by notification with effect from such date as the government may appoint in this behalf, establish for each Metropolitan Region, a Metropolitan Planning Committee.
- b) Every such Metropolitan Planning Committee shall be a body corporate and shall power to acquire, hold or dispose off property movable or immovable and enter into contracts and do all things necessary, proper or expedient for the purposes of its constitution. If any MPC already constituted by Government under Karnataka Municipal Corporations Act, 1976 or any other Acts, as soon as commencement of this Act shall follow the directives of this Act, exercise functions assigned under this Act and shall have due regard to the Perspective Plan for the Metropolitan Region under this Act.

c) The Metropolitan Planning Committee so established under sub-section (a) shall consist of following thirty members:

- (1) Chairperson: Chief Minister or Minister in charge of Urban Development of the State or as appointed by the State Government. Deputy Chairperson: Minister in charge of Urban Development of the State or as appointed by the State Government
- (2) Members: 28 Members to be elected by secret ballot by the elected members of Municipal Corporations and Municipal Councils and Nagar Panchayats and Chairpersons of the Panchayats in the Metropolitan Region in proportion to the population ratio between the Municipal Corporations, Municipal Councils, Nagar Panchayats and the Gram Panchayats in the area.
- (3) Permanent Invitees: Members of House of People and Legislative Assembly whose constituencies lie within the Metropolitan Region and Members of Council of State and Legislative Councils, who are registered in the electoral lists within the Metropolitan Region.

d) The State Government shall appoint a Technical Committee for assistance in carrying out the functions for Metropolitan Planning Committee. The Technical Committee shall undertake focus studies as directed by the Chairman of Metropolitan Planning Committee to carry out its functions. The technical Committee shall constitute heads or in charge representatives from each of the State, Central Government departments and Para-State agencies involved in development and providing services in the region. Metropolitan Regional Development Authority and Urban Development Authorities operating in the Metropolitan Region as the Technical Secretariat of a Metropolitan Planning Committee shall prepare the Perspective Plan for the Metropolitan Planning Committee in the manner as prescribed under this Act.

### • Powers and Functions of Metropolitan Planning Committee

- a) Metropolitan Planning Committee shall formulate goals, objectives, policies and priorities for spatial planning, development and use of urban and rural land use in Metropolitan Planning Region with reference to policies, objectives and priorities set by Government of India and Government of Karnataka. Metropolitan Planning Committee with assistance of Technical Secretariat shall prepare a Draft Perspective Plan in not later than eighteen months of declaration to prepare the plan for setting development directives for the Metropolitan Region. The Draft Perspective Plan shall be prepared considering matters of common interest among plans prepared by local bodies and other institutions or departments involved in planning and development in the Metropolitan Region, concerning integrated spatial planning, development of transport and infrastructure with land use planning, conservation of environment, spatio-economic development and social development.
- b) Metropolitan Planning Committee shall advice State Government time to time on development decisions in the Metropolitan Region on identification of probable location of major investment inputs.

- c) Metropolitan Planning Committee shall prepare Perspective Plan in consultation and coordination with local Governments who are located within Metropolitan Planning Region and other Government Departments and agencies operating in the area.
  - d) Target period of Perspective Plan prepared for the Metropolitan Planning Region shall be co-terminus with State Five Year Plans. It shall also have same target period that of Mobility Plans and investment plans prepared for development of the Metropolitan Planning Region.
  - e) Metropolitan Planning Committee shall sort out conflicts arising between local bodies in sharing of natural and physical resources, due to overlapping of functions and other Government agencies involved in providing services in the area.
  - f) Metropolitan Planning Committee shall coordinate planning with various Government agencies, departments and quasi Government agencies involved in providing public services and development activities in the Metropolitan Planning Region, in their spatial development requirements and plans and integrate them in the land use planning of Metropolitan Planning Region.
  - g) The Perspective Plan for the Metropolitan Planning Region shall be on a rolling basis. The Perspective Plan shall be prepared every twenty years and Development Programs shall be prepared for every five years and Annual budgets for every year.
  - h) Metropolitan Planning Committee shall conduct a wide based consultation with non-governmental institutions, citizen groups and professional organizations related to Spatial Planning and Development in the Region for preparation of the Perspective Plan as mentioned in this Act.
  - i) Metropolitan Planning Committee shall formulate various guidelines, manuals, norms and standards for promotion of planning and development;
  - j) Metropolitan Planning Committee shall map and record existing land uses for the entire MPR and updated every year on Geographic Information System (GIS) or similar platform to continuously monitor and report feedbacks on physical achievements of investments made every year by various local bodies, para-state agencies within the MPR.
  - k) Land use conversions and changes and major development permissions provided by local bodies in BMR need to be as per the Regional plan. Strategies for urban expansion and municipalisation of areas in BMR are discussed in dedicated module - Municipalisation Strategy addressing Urban Expansion and Urban Villages by BBMP Restructuring Committee.
- **Procedure for Preparation, Publication and Sanctioning of Perspective Plan**
    - a) After the constitution of Metropolitan Planning Committee and declaration of planning shall be declared by the State Government and Metropolitan Planning Committee shall prepare or get prepared Draft Perspective Plan in not later than eighteen months of such declaration to prepare the plan.

- b) From the date of notification for preparation of Perspective Plan within nine months, on studying existing situation, Metropolitan Planning Committee shall identify development issues that are to be addressed by the Perspective Plan and publish it on its official website and notify places where copy of the development issues document is available for one month for public inspection and invite suggestions from public. On studying the suggestions, Metropolitan Planning Committee shall modify the development issues as considered necessary to be incorporated in the preparation of Perspective Plan.
  - c) Once the Draft Perspective Plan is prepared, Metropolitan Planning Committee with permission from the State Government in the manner prescribed in the Rules shall publish Draft Perspective Plan and invite suggestions. The Draft Perspective Plan shall be available for public inspection and for inviting suggestions within period of sixty days from the date of notification.
  - d) Metropolitan Planning Committee from the date of completing the time prescribed for suggestions, shall within sixty days undertake modifications as considered necessary and the Draft Perspective Plan shall be submitted to the State Government. Within sixty days of receiving the Draft Perspective Plan, Government may in consultation with the Directorate of Town and Country Planning (DTCP) shall either sanction the Perspective Plan, or suggest appropriate modifications. MPC shall then make modifications, notify again for comments and suggestions from public. MPC shall make necessary modifications incorporating the suggestions and shall be resubmit within sixty days to the State Government for sanction.
- **Review and revision of the Metropolitan Region Perspective Plan:**
    - a) The Perspective Plan shall be revised every five years and revision process shall be started two years in advance before completion of five years such that the renewed Perspective Plan shall come into force every five years immediately on the completion of the current five year segment of the sanctioned Perspective Plan.
    - b) Each renewed Perspective Plan shall be accompanied by renewed Development Program incorporating annual budgets.

## 5.6 Strategic Spatial Planning and Projects

Strategic Spatial Planning separates the visioning tool from the regulatory tool (traditional land use planning). Staff of the development authorities as daily routines involved in sanctioning and approving building permissions and assessing for illegalities, may not suddenly be able to envision the future of the city. The GBA needs to anchor such a process and platform for various stakeholders to freely express opinions, conduct negotiations, and arrive at agreements without the fear of repercussions. This negotiated planning method brings together various departments (planning, physical infrastructure, social infrastructure, and funding agencies) along with local businesses, religious groups, resident welfare associations, NGOs and citizens themselves. While the process could be messy to start with, it will however result in a ‘co-produced’ vision for the city.

In the case of London City as indicated below, it is the Mayor who holds strategic responsibility for the formulation and implementation of the London Plan. He/ she works in coordination with the boroughs, Transport for London, the London Assembly, the Government and a range of other stakeholders to realise and implement such as plan.

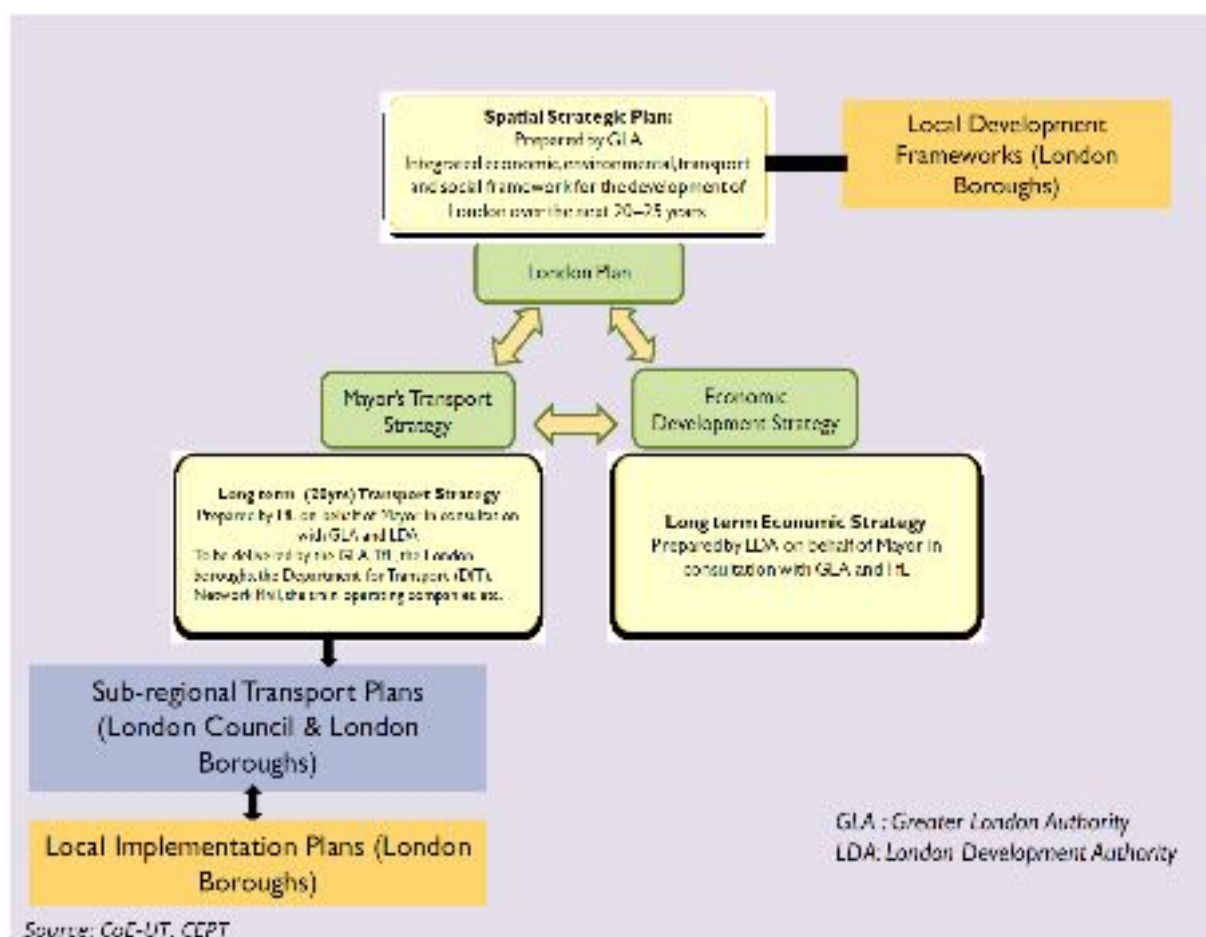
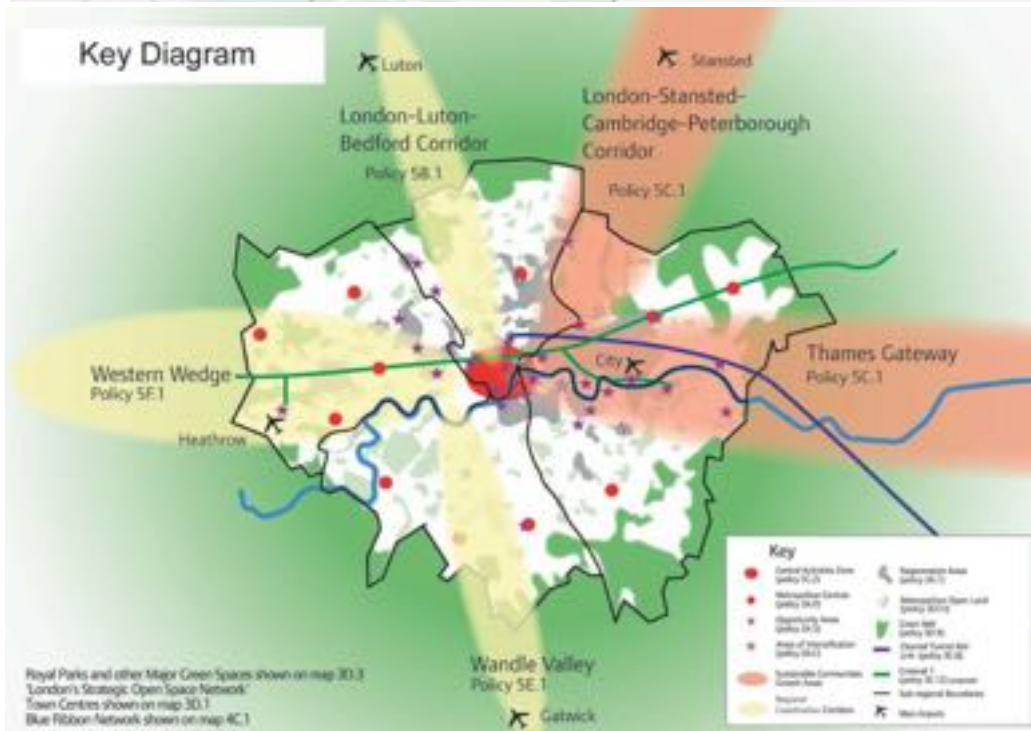


Figure 18: Strategic Planning in London by the Greater London Authority

Source: CoE-UT, CEPT, Greater London Authority





Source: (The Greater London Authority 2004)



**How Strategic Spatial Planning and Strategic Projects work:** Taking a hypothetical example, if we assume that one of the strategic projects chosen with the help of the Economic Development Strategy is: 'To develop a Garments Park to access global economies and provide jobs for Bengaluru's qualified workforce', then the following will need to be addressed:

### **Challenges that would be faced in the conventional system:**

Due to the fragmented nature of governance in the city region, the agency tasked with setting up the 'Garments Park' would typically be an industrial agency, that will also manage land requirements through compulsory acquisition and use their own standards for laying out of roads and plot division. Prior agreement or information would typically not be given to other agencies operating in the area such as municipal corporations, development authorities, public transport agencies, water supply boards etc. These other agencies too would have set their own priorities and targets and would not proactively plan for such a project.

Once such a Park is given out to investors and tenants, the various challenges related to its operation will start unravelling and various agencies will have to reactively be roped in, often with political and State pressure to assist in mitigation of various challenges. For example, public transport which will be critical for most blue collared employees to reach the Park will be inadequate and space to accommodate such services will be limited. Waste management would not have been planned for and industries will start discharging effluents into nearby streams and lakes, and when these industries grow, it will choke the natural ecosystem of the area and affect the lives of people dependant on such resources. Further land will difficult to acquire to accommodate utilities, as resentment would have built up amongst those who have already lost large portions of their land. Similarly issues of accommodating logistics, depleting water tables which are critical to support the industry will start cropping up.

Due to lack of a larger co-dependent project linked to funding and the buy in of various government agencies, various service provision and developmental activities will run on their own schedule and result in duplication of efforts, inefficiency of resource use and prolonged delays. In the longer term, the inability to sustainably manage the Garment Park, the escalating value of land making expansion difficult, poorly developed road networks to access the Park, increasing pollution of surrounding areas, inability to manage water etc., will raise questions on its future survival.

### **The Strategic Project approach:**

The Greater Bengaluru Authority (GBA) would anchor this process and provide the platform for inter departmental negotiations. Various agencies that come to the negotiating table would put forward their reservations and suggestions freely as this is not a legal process but one of building consensus. The BMTC for example may agree to provide buses on this route for better access even at the cost of a loss for the first few years; BESCOM too may agree that a separate line could be provided to this development as it is possible in their current budgetary outlay. The BWSSB however, may state an inability to service this area due to lack of funds, manpower and other ongoing projects. BWSSB however agrees that this project is crucial for the city and agrees to provide water supply in its next phase of outlays which would be 5 years hence.

The Strategic Spatial Plan hence lists this project in its priority pipeline, and decides that water supply must be managed through alternate means such as surface water bodies and bore wells for the first 5 years. Along with planning of water supply, BWSSB also foresees the need for dedicated effluent treatment plant and ensures the developers incorporate it in their plans and steps in at appropriate times to ensure that the plant is developed. The developer of the park sells excess of treated waste water to other industrial activities and generates funds for its maintenance. The project also incorporates social responsibility to supporting and improving livelihoods in the surrounding villages and constantly monitors the waste management inside and outside its facility.

GBA creates a land bank in advance in the area using innovative models of accessing land. Therefore, GBA is able to offer multiple options of land for services agencies to develop their support infrastructure. Requirements of services provided by either government or private requires co-creating solutions. The private logistic company is also involved in finding solution for truck parking, along with government agencies helps to arrive at more efficient system in advance.

This Strategic Project which is linked to clear budgets and timelines is then moved through the Statutory Land Use Plan into the Municipal and Ward Scales. Contextualization then occurs with ward committees, RWAs and citizens (if present), assessment of on ground challenges, discussions with land owners, compensation criteria, and project alterations based on ground up feedback etc. The suggested changes to the project and revised budgets are then reflected up from the ward through the municipality to the GBA. Agreements and approvals are obtained at all scales and the project starts implementation on ground having taken all stakeholders on board. Sectoral infrastructure agencies and spatial planning and development agencies hence move in a more strategic, coordinated and timely manner.

### Who anchors the Strategic Spatial Plan and Strategic Projects?

In the case of Bengaluru, the question arises as to who should anchor such a strategic plan on behalf of the GBA as a strong agency or leader is critical to its success. Further discussions could arrive at the suitable candidate which could be one of the following:

- **City Manager:** Instead of or in addition to electing a mayor who may not have the experience to administer municipal tasks, many city councils often appoint a professional, usually from the private sector, to run the municipality.
- **Directly Elected Mayor:** Directly elected mayors are considered more accountable to the voters who elect him/her. Often it is the Mayor who anchors the Strategic Plan in big cities internationally.
- **The Appointed Minister for Bengaluru:** A unique appointment which has happened for the City of Bengaluru, and is already tasked with many functions of an empowered mayor.
- **The Chief Minister of Karnataka:** Elected to represent the State (Urban and Rural) and may not be able to start focussing on individual cities, though most powerful to represent Strategic Plan. Also with several state level agencies operating in the city-region a State Level leader would be able to ensure coordination and cooperation.

### **Additional aspects** (Oosterlynck and et.al 2010):

- Choosing of certain priorities and projects over others in Strategic Spatial Planning is imperative as budgetary means and human and institutional capacity are limited in most cities; this limited yet integrated focus ensures vertical as well as horizontal cooperation between various stakeholders;
- Strategic projects have the capacity to translate transformative visions and bridge the gap between planning and design on the one hand and decision making, co-production and the implementation of plans and policies on the other;
- Large scale urban development projects are often used as vehicles for generating future urban growth and improving the competitive position of cities in international urban networks;
- Strategic projects recover the intermediate scales of operation of urban design that remains unrecognised between the general rules of urban planning and the architecture of individual buildings;
- Given the multiple and often conflicting claims on space; conflict and community protest are frequent features in development projects. Spatial planners while designing strategic projects need a better understanding of conflicts, how and why they emerge, why they escalate and how they come to an end;

## Bibliography

Blasio, Mayor Bill de. *One New York: The Plan for a Strong and Just City*. New York City: NYC.

Broeck, Jef Van den. "Strategic Spatial Planning and Strategic Projects: A transformative practice." *Planning: a transformative activity*. ISOCARP Congress, 2008.

Directorate of Economics & Statistics . *Economic Survey of Karnataka 2015-16*. Bengaluru: Directorate of Planning, Programme Monitoring and Statistics (DPPMS), 2016.

Expert Committee: BBMP Restructuring. "Bengaluru: Way Forward ." June 2015.

Jana Urban Space Foundation. "Proposed Model Regional and Urban Development Planning Act ." 2011.

Karnatak Udyog Mitra . "Advantage Karnataka: The Gateway of Innovative India." Government of Karnataka.

Kerala Town and Country Planning Ordinance. 2014.

KTCP Act. *Karnataka Town and Country Planning Act*. Government of Karnataka, 1961.

MoUD. "Model Regional and Town Planning and Development Law." 1985.

Oosterlynck, Stijn, and et.al. *Strategic Spatial Projects, Catalysts for Change*. London, New York: Routledge, 2010.

SPA. *Alternate Approaches to Master Plan*. New Delhi: SPA, 2009.

The Greater London Authority . *The Greater Lond Plan*. London: GLA, 2004.

Toutain, Olivier, and S Gopiprasad. *Planning for Infrastructure*. India Infrastructure Report, IDFC, 2006, 59-81.

Urban Development Department. *Draft Urban Development Policy for Karnataka*. Government of Karnataka, 2009.

Vidyadhar, Phatak K. *Changing Economy and Spatial Planning Response in Mumbai*. Mumbai Asiatic Society , 2010, 96-107.

Vidyadhar, Phatak K. "The (Im)possibility of Planning the Mumbai Mega-Region." In *Reclaiming (the Urbanism of) Mumbai*. SUN Academia, 2009.



# MUNICIPALISATION RECOMMENDATIONS

Expert Committee : BBMP Restructuring

2016 - 2017



**BBMP**  
RESTRUCTURING

Chairman: B. S. Patil, IAS (Retd)  
Members: Siddalah, IAS (Retd)  
V. Ravichandar



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ಪುನಾರುಜ್ಜೀವ



# Municipalisation Strategy addressing Urban Expansion and Urban Villages

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## List of Abbreviations

BBMP	Bruhat Bengaluru Mahanagara Palike
BCC	Beneficiary Capital Contribution
BDA	Bengaluru Development Authority
BESCOM	Bengaluru Electricity Supply Company
BIAAPA	Bengaluru International Airport Area Planning Authority
BMA	Bengaluru Metropolitan Area
BMR	Bengaluru Metropolitan Region
BMRL	Bengaluru Metro Rail Corporation Limited
BMRDA	Bengaluru Metropolitan Region Development Authority
BMTCL	Bengaluru Metropolitan Transport Corporation
BWSSB	Bangalore Water Supply and Sewerage Board
CLU	Change of Land Use
CMC	City Municipal Council
CPHEEO	Central Public Health and Environmental Engineering Organisation
CWSS	Cauvery Water Supply Scheme
DC	Deputy Commissioner
EPIP	Export Promotion Industrial Park
GBA	Greater Bengaluru Authority
GP	Gram Panchayat
IDD	Infrastructure Development Department
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KHB	Karnataka Housing Board
KIADB	Karnataka Industrial Area Development Board
KLR Act	Karnataka Land Revenue Act
KM Act	Karnataka Municipalities Act
KMC Act	Karnataka Municipal Corporation Act
KSIIDC	Karnataka State Industrial and Infrastructure Development Corporation
KSSIDC	Karnataka State Small Industries Development Corporation
KTCPA	Karnataka Town and Country Planning Act
LPA	Local Planning Authority
LPCD	Liter Per Capita Per Day
MPC	Metropolitan Planning Committee
RSP	Revised Structure Plan
SC/ST	Schedule Caste/Schedule Tribe
TMC	Town Municipal Council
TPS	Town Planning Scheme
UGD	Underground Drainage
ULB	Urban Local Body
WRI	World Resources Institute

## Definition of terms

**Bengaluru Metropolitan Region (BMR):** BMR extends over 8005 sq.km and is constituted by three districts namely Bangalore Urban, Bangalore Rural and Ramanagaram (Ramanagaram is a newly created district carved out from Bangalore Rural district that includes Ramanagaram, Channapatna, Magadi and Kanakapura taluks). Local Planning Area of BDA falls within the BMR.

**Bengaluru Metropolitan Area (BMA):** BMA is spread over an area of about 1294 sq.km which comprises of local planning area of BDA and part of local planning area of Bengaluru Mysore Infrastructure Corridor Area Planning Authority (BMICAPA). BMA includes BBMP and 251 villages and approximately had a population of 90 lakh in 2011.

**Bruhat Bengaluru Mahanagara Palike (BBMP):** BBMP jurisdiction extends over an area of 709.49 sqkms and falls within the local planning area of Bengaluru Development Authority (BDA). The erstwhile Bengaluru Mahanagara Palike (BMP) that expanded over 225 sqkms was amalgamated with 7 City Municipal Councils, 1 Town Municipal Council and 110 villages to form BBMP in 2007.

**Municipalisation:** The process of bringing newer areas under municipal ownership is referred to as municipalisation in the Collins dictionary. Expansion of municipal limits, creation of statutory towns, intra city or intra-local body's transfer of assets and liabilities, absorption of government officials and servants are some of the activities associated with the process of municipalisation.

**Revenue Layouts:** Layouts that are not formally converted to non-agricultural land use through the procedure prescribed in the Karnataka Land Revenue Act are considered to have illegal status. These illegal layouts are typically developed without ensuring basic standards with regards to road width, accessibility to main roads and sewer lines, open spaces etc. Such layouts developed on sites with illegal status are called as revenue layouts and is a common phenomenon in the urban areas of Bengaluru city-region.

**Town Planning Scheme (TPS):** TPS brings together a group of land owners who voluntarily pool their land/plots for the purpose of implementation of master plan proposals. The plots, after deduction of land required for roads and other public amenities, are reconstituted and distributed back to the owners. In Karnataka, the T P Scheme is enabled through the Karnataka Town and Country Planning Act, 1961.

**Urban village:** Urban villages are the rural village settlement sites that got engulfed within the urban area limits, as part of the municipal jurisdiction expansion process. The rural village settlement areas also called as gramathana sites, which were earlier under the administration of rural bodies once engulfed into city limits, come under the administration of urban local bodies. These urban villages are generally cordoned off from the planned development initiatives of city master plans.

**Beneficiary Capital Contribution:** This is one time payment towards capital contribution from beneficiaries towards the cost of the Cauvery Water Supply Scheme Project; wherein nearly 3,000 km of water supply pipe network has been laid apart from the construction of reservoirs.

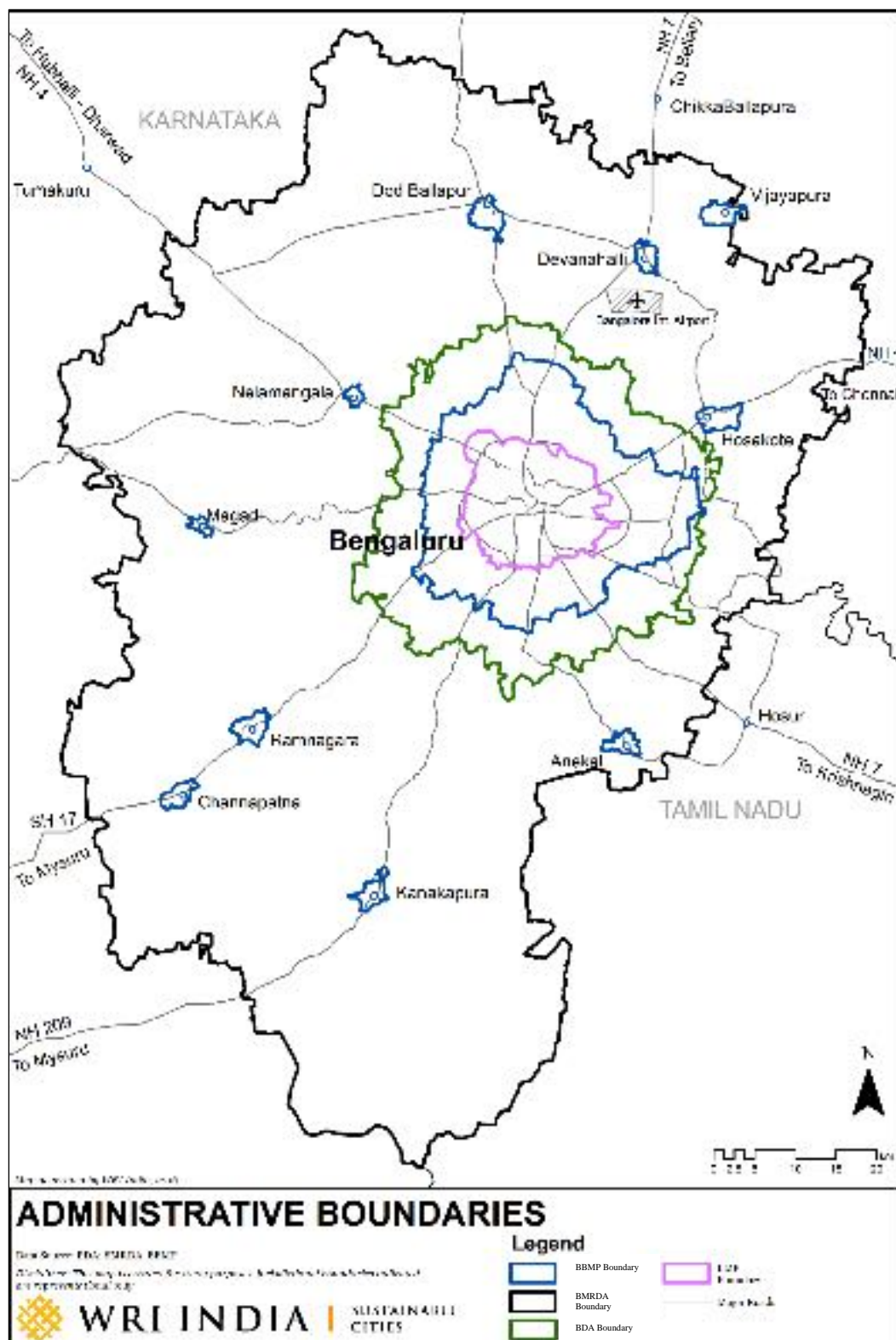


Figure 1: Jurisdiction of BMP, BBMP, BDA and BMRDA  
 Source: WRI India, Data source: BDA, BBMP and BMRDA

## Executive Summary

The erstwhile Bengaluru Mahanagara Palike (BMP) jurisdiction of 225 sq.km expanded to become the Bruhat Bengaluru Mahanagara Palike (BBMP) (709.49 sq.km) in 2007 to accommodate the city's rapidly expanding peripheries. Seven City Municipal Councils (CMCs), one Town Municipal Council (TMC) and 110 villages were added to the erstwhile BMP to form the current BBMP administrative jurisdiction. The newly added peripheral wards that were once under the jurisdiction of smaller urban local bodies and rural bodies were expected to get an upgraded quality of urban civic services such as treated piped water supply, access to underground sewerage systems and better road and transportation networks. However, the newly added municipal area did not see the expected change on the ground in terms of improved services.

- Treated piped water supply (Cauvery water) reached less than 50% of the newly added areas, and hence rely heavily on bore wells, hand pumps and private tankers;
- Piped sewerage covers only 44% of the newly added areas of the BBMP;
- 110 villages lack planned underground sewage lines and use soak pits and septic tank systems for sewage disposal;
- Road density and networks are low in the newly added areas and the width of road networks in revenue layouts developed in the peripheral wards are insufficient to provide services such as public transport, water supply or sewer lines.

Fragmented and dispersed developments abound in the areas outside the erstwhile BMP, intensifying the challenge of provision of municipal services to such areas. These peripheral areas (particularly the 110 villages) were dotted with fragmented parcels of development with disconnected road networks and inadequate infrastructure provisions such as water supply, sewerage and storm water drains. Such developments occurred because prior to the amalgamation with the municipal corporation of Bengaluru, granting of building permissions in the areas outside the jurisdiction of BMP, were carried out by local bodies such as City/Town Municipal Councils and Village Panchayats. These local bodies did not assess the impact of such building activity on the surrounding environment, infrastructure, traffic and future growth. In addition, they lacked the financial capacity to provide quality infrastructure provisions to service these developments within their jurisdictions. When these areas became part of the larger municipal corporation (i.e BBMP), it created an additional financial, technical and administrative burden on the capacity of the municipal corporation which was not foreseen, thereby failing to meet the objectives of the expansion.

Further to this, multiple agencies such as Bengaluru Water Supply and Sewerage Board (BWSSB), Bengaluru Electricity Supply Company (BESCOM), Bengaluru Metropolitan Transport Corporation (BMTCL), Karnataka Housing Board (KHB), Karnataka Industrial Area Development Board (KIADB) and Bengaluru Development Authority (BDA) operate within and beyond the BBMP jurisdiction. The jurisdictions of such agencies vary from that of the BBMP and they report to different state level departments. Planning, development works and service provision is carried out by these agencies without much coordination and interaction amongst them. With little interaction at the ward level, by these parastatal bodies priorities as per actual needs are often not met.

Considering the rapid pace of growth outside of the BBMP and of the surrounding villages, it's jurisdiction will inevitably need to expand to cover the entire Bengaluru Metropolitan Area. Areas outside the jurisdiction of the BBMP have been experiencing speculative growth patterns, with rapid increase in construction activities as well as a rise in applications for land use conversions and land use changes. As a result, coordinating urban built up increase with planned infrastructure provision has become a significant challenge in the metropolitan region. In future, when such areas become part of the municipal corporation, they would have already been developed unsustainably and in a fragmented manner causing a lock in of infrastructure that will be difficult and expensive to unwind.

In the current system, the municipalisation of new areas is determined by their demographic characteristics, the percentage of population engaged in non-agricultural activities and annual revenue generation. However, these criteria alone proved to be insufficient for the orderly transition of rural peripheries into an urban set up. The current approach of municipalisation which largely deals only with bringing an area under municipal ownership, need to be revisited to prevent a disorderly integration with the city that is inherited from the unplanned peripheries.

Challenges in the current approach of municipalisation include:

- Lack of a clear road map for municipalisation has resulted in:
  - Disparity in infrastructure provision between the core BMP and the newly added areas of BBMP;
  - There has been jurisdictional expansion without functional and administrative autonomy of zonal offices;
  - There is a critical lack in coordination between parastatal agencies and the municipal corporation;
  - Urban villages and informal settlements in the municipal expansion process have been poorly integrated;
- Isolated pockets of development outside BBMP and within the BDA area are straining a planned development approach in the periphery;
- Rampant land use conversions and land use changes in peripheries puts a strain on infrastructure provisions and lack dovetailing with regional planning frameworks;
- Parastatal agencies having functional autonomy play a significant role in shaping the land development trends in the areas outside the BBMP limit with little coordination.

This report strives to understand the challenges faced in the previous expansion of BMP to BBMP, current growth trends and on ground realities, stakeholder challenges and makes recommendations on how things could be improved in the future in the city and its region.

The recommendations made have the following 3 focus areas:

- Recommended processes and criteria to guide the future inevitable expansion of the BBMP when it extends to cover the Bengaluru Metropolitan Area (BMA) jurisdiction;
- Recommendations for the BBMP to tackle its current challenges, and
- Recommendations for challenges faced in the Bengaluru Metropolitan Region (BMR).

BBMP's expansion to BMA/ BDA jurisdiction:

1. Proactive priming of urban and rural local bodies in the city's periphery to be taken up in coordination with the Bengaluru Development Authority (BDA) to ensure preparedness for future amalgamation with the BBMP;
2. Identification of under-provisioned and rapidly developing peri-urban areas through dynamic spatial mapping using satellite imagery of the on-ground situation of areas in transition between BBMP and BDA jurisdictions, as a precursor to inform proactive planning;
3. The BBMP (or the future Greater Bengaluru Authority (GBA)) should lead any further municipal boundary expansion exercises following clear guidelines and processes which should be mandated in the KMC Act 1976 or through the proposed GBA Act;
4. A Municipalisation Committee should be set up to oversee the orderly transition of predominantly rural communities to an urban landscape in a timely manner that serves as a model for other peri-urban regions in the State;

Addressing BBMP's current challenges:

5. Empowerment of ward committees to address the current issue of accountability, disparity in municipal services and ensure improved infrastructure facilities in the newly added urban areas of BBMP;
6. Enhance the role of the existing and well-functioning Coordination Committee in the short term and setting up of an empowered Greater Bengaluru Authority (GBA) in the long term to ensure coordination of all government agencies operating in BMA;
7. Undertake detailed activity mapping to assign clear roles and responsibilities across various scales and hierarchies of government agencies;
8. Urban village settlements that get engulfed into urban limits should be retrofitted with context specific infrastructure standards, planning regulations and budgetary allocations to facilitate affordable housing for lower income groups and prevent slum formation;

Addressing BMR's challenges:

9. Rampant land use change and conversions in Bengaluru's regional peripheries should be streamlined through more stringent criteria and restricting the powers of rural local bodies to grant development permissions through amendments in KTCP Act, 1961 and Karnataka Land Revenue (KLR) Act, 1964;
10. The Revised Structure Plan of the BMRDA should serve as the guiding document to grant or refuse development permissions in areas outside of master plan conurbations in LPA's;
11. Disincentivize speculative land use change and conversions in far flung peripheries through the imposition of land value taxes and penalties on undeveloped properties.



## 1. Recommendations towards ‘Municipalisation of Urban Expansion Areas and Urban Villages’

With several challenges having been documented and continuing to persist post the expansion of the Bengaluru Mahanagara Palike (BMP) (225 sqkm) to become the Bruhat Bengaluru Mahanagara Palike (BBMP) (709.49 sqkm) in 2007, the recommendations made have the following 3 focus areas:

- Recommended processes and criteria to guide the future inevitable expansion of the BBMP when it extends to cover the Bengaluru Metropolitan Area (BMA) jurisdiction;
- Recommendations for the BBMP to tackle its current challenges, and
- Recommendations for challenges faced in the Bengaluru Metropolitan Region (BMR).

### BBMP’S EXPANSION TO BMA/ BDA JURISDICTION:

#### 1. Proactive priming of urban and rural local bodies in the city’s periphery to be taken up in coordination with the Bengaluru Development Authority (BDA) to ensure preparedness for future amalgamation with the BBMP:

Out of the 251 villages within the Bengaluru Metropolitan Area/BDA area, a significant number of villages exhibit urban characteristics. For instance, a considerable number of home constructions and plotted developments cropped up in the southeast part of city's periphery (outside BBMP limit) due to the presence of information technology and biotechnology industries. The village panchayats governing these areas lack the technical and financial capacity to handle such pockets of development and hence these settlements inhabit a no-man’s-land of governance, being neither integrated into the Panchayati Raj system, nor established as new 'municipal' areas (Expert Committee: BBMP Restructuring 2015). Some of these larger settlement areas at a later stage could even be designated as Nagar Panchayats. In the absence of clear guidelines as to how to manage growth in such transition areas, they developed into unplanned urban pockets with poor road networks and inadequate open spaces, resulting in a later day pressure on the BBMP/ Municipal Corporations when they are to be brought under their jurisdiction. It is therefore recommended that a proactive priming of the urban and rural local bodies in the city's periphery in coordination with the BDA (agency that prepares the city’s master plan) should be taken up for effective integration with the BBMP in future. The following steps could be undertaken as part of the proactive priming process:

- BDA could explore the provisions of the KTCPA, 1961 that enables the use of Town Planning Scheme (TPS) for ‘an area in the course of development’. Use of TPS in the city's periphery ensures that road networks and plots/sites required for social infrastructure amenities such as health, education and open spaces are reserved without being lost to rapid development;
- Infrastructure gap assessments followed by prioritisation and infrastructure provisioning for the areas that are already built up should be undertaken by the local bodies with additional budgetary and technical support from the State Government;

- Informally developed settlement areas, old village settlements (gramthana sites) and private layouts should be given high priority while planning for peripheral areas;
- Administrative and governance systems such as tax accounting, infrastructure services standards and citizen interfaces also need to be consistent. The infrastructure provisioning standards followed by the smaller urban local bodies and rural bodies adjoining the BBMP jurisdiction should be made similar to the standards followed within BBMP. This will help to better integrate infrastructure development when such areas become part of the larger corporation at a later stage. This could include the use of similar road width standards for different hierarchies of roads, similar diameters for trunk water or sewerage pipelines etc. for easier and faster integration of such infrastructure provision with BBMP.

Similarly, such proactive planning exercises could be carried out by all the urban and rural local bodies in coordination with the respective local planning authorities in the BMR, so as to have planned development within their jurisdictions.

**2. Identification of under-provisioned and rapidly developing peri-urban areas through dynamic spatial mapping using satellite imagery of the on-ground situation of areas in transition between BBMP and BDA jurisdictions, as a precursor to inform proactive planning:**

Spatial mapping using satellite imagery of the on-ground situation will help to plan and prioritise areas in transition that require intervention. The use of technology will help to remotely track development on ground to identify and map all areas with urban characteristics within BDAs jurisdiction. In addition, non-spatial data must also be captured spatially such as land use conversion applications (agriculture to non-agriculture use), development permissions for layouts and gated communities, building licences and plan approvals etc. The spatial and non-spatial data should then be mandatorily shared with the urban and rural local bodies to assist them to undertake proactive efforts of planning, infrastructure provisioning and service upgradations in these transition areas.

**3. The BBMP (or the future GBA) should lead any further municipal boundary expansion exercises following clear guidelines and processes which should be mandated in the KMC Act 1976 or through the proposed GBA Act:**

In the current system, it is largely the State government that is involved in the decision-making process to expand the municipal jurisdiction of Bengaluru city with lesser interactions with the affected local government bodies. Section 4, Chapter II of the Karnataka Municipal Corporation (KMC) Act 1976 defines the conditions (which include demographic characteristics, non-agricultural employment and revenue generation) by which an area can become a part of a corporation. The previous amalgamation was largely justified on population size, and no further guidelines for the transition of semi-urban and rural areas were provided. With the municipal corporation to attain greater functional autonomy, as per the BBMP Restructuring Expert Committees' proposed three tier

governance structure (GBA at the top tier, multiple municipal corporations at the mid-level and wards at the third tier), the process of municipal boundary expansion needs to be better streamlined through a well-defined process. In addition to the criteria present in the KMC Act, 1976 for amalgamation of an area into a larger urban area, factors such as proximity to the city, contiguity with city agglomeration boundary, dependence on city for employment etc. should be included. The process for municipal jurisdiction expansion should include the following steps and be mandated through the KMC Act 1976 or the proposed GBA Act:

- BBMP or the proposed GBA should submit a resolution for municipal expansion taking into account criteria specified (including newly proposed criteria) in the KMC Act, 1976 to the proposed Metropolitan Planning Committee (MPC) which should be set up at the BMRDA Scale. The MPC having representatives from higher and lower tiers of governments as well as State departments should be the decision-making authority for municipal boundary expansion;
- BBMP or proposed GBA (consisting of multiple municipalities) should demonstrate its capability to provide services (water supply, sewerage, storm water drains) and social amenities through an outlay plan for the area in coordination with relevant parastatal agencies;
- Assessment of the financial implications of municipal expansion is important. The current nature of expenditure such as the operation and maintenance cost for the infrastructure services in the extension areas, its coverage in terms of quality and quantity should be assessed in advance to understand the budgetary implications of expansion. The debts and liabilities and assets of the local bodies operating in the extension areas will help the corporations to estimate the financial implications on the municipal corporations;
- Coordination and participation of the affected urban and rural local bodies in the process of municipal expansion: As mandated in the KMC Act, BBMP or the proposed GBA should conduct adequate number of discussions with the local bodies for the effective integration of ongoing central and state level schemes. This will ensure that such areas are not disadvantaged by losing out on several schemes that existed prior to expansion;
- Phasing plan for the municipal expansion should have clear targets with timelines, including what municipal services will be assured to the newly added areas;
- Monitoring and review of on ground situation to assess the level of implementation of infrastructure services and its connectivity to trunk facilities. Any additional fund requirement and areas that require additional focus can be assessed during the monitoring and review process of municipalisation.

**4. A Municipalisation Committee should be set up to oversee the orderly transition of predominantly rural communities to an urban landscape in a timely manner that serves as a model for other peri-urban regions in the State:**

This report endorses the recommendation of the BBMP Restructuring Committee to set up a Municipalisation Committee (within the BDA) for the Greater Bengaluru Authority (GBA) to coordinate the process of proactive priming of the urban and rural local bodies that are in

transition in the BMA jurisdiction as well as guide the future municipal expansion process of the BBMP or the proposed multiple municipal corporations.

### ADDRESSING BBMP'S CURRENT CHALLENGES:

#### **5. Empowerment of ward committees to address the current issue of accountability, disparity in municipal services and ensure improved infrastructure facilities in the newly added urban areas of BBMP:**

This report endorses the recommendation of the BBMP Restructuring Committee to empower the ward committees as an effective institution of governance at the third tier of government. The committee recommends that at the third tier, the ward committees need to be empowered to form an effective institution of governance with specific planning, financial and budgetary powers and administrative, supervisory and auditing powers.

Ward committees should be given functional autonomy and administrative capacity to regulate and monitor all major municipal works in the ward including solid waste collection and management, public health and sanitation; maintenance of public parks, playgrounds, lakes and water bodies; maintenance of roads, sidewalks, cycle lanes, skywalks and other infrastructure; and regulation of rain water harvesting and ground water recharging, among other tasks. Ward committees should prepare a budgeted annual ward development plan providing a prioritised list of projects as well as schemes at the ward level that will be implemented. The prioritised listing of projects should take into account existing physical and social infrastructure deficiencies & issues such as inadequate parks and open spaces, waste collection and disposal issues, foot path and local road improvement works, slum upgradation schemes and other such works that could be addressed at the ward levels.

#### **6. Enhance the role of the existing and well-functioning Coordination Committee in the short term and setting up of an empowered Greater Bengaluru Authority (GBA) in the long term to ensure coordination of all government agencies operating in BMA:**

A number of key municipal services and development works in Bengaluru City are currently provided by various parastatal agencies, which are not accountable to the municipal government and report directly to the relevant department of the State Government. The operational jurisdiction of these parastatal agencies is larger than that of the municipal corporations, and hence their project prioritisation often does not reflect the actual needs and priorities of the citizens on ground (Expert Committee: BBMP Restructuring 2015). It is important that these parastatal agencies interact and work in integration with the municipal corporations, where they provide their services. There is a need to align the functioning of these bodies in line with the requirements of the city in a 'Principal-Client' manner (Expert Committee: BBMP Restructuring 2015). Hence it is recommended that the Coordination Committee which is existing and currently involved in coordinating and supervising the plans and activities of parastatal agencies should be enhanced through a government order, act or resolution and later transition into the GBA as recommended by the BBMP Restructuring

Expert Committee. Under the proposed GBA set up, BDA and BWSSB can report to the GBA, while other parastatal entities should work in tandem with the overall goals of the GBA and Municipal Corporations.

The BBMP Restructuring Committee recommends that a Municipal Authority under the GBA Act shall be entitled to request the Bengaluru Development Authority, Bengaluru Water Supply and Sewerage Board, Bengaluru Metropolitan Transport Corporation, Bengaluru Metro Rail Corporation Limited, Bengaluru Electricity Supply Company and such other bodies operating within its jurisdiction to designate an official of such body as its representative for the Municipal Authority. The needs and priorities listed out in the ward development plans prepared by the ward committees, should be incorporated into the plans of the parastatal agencies. To facilitate coordination and cooperation between key government agencies and the multi municipal corporation set up, Acts governing the parastatal agencies should be amended.

### **7. Undertake detailed activity mapping to assign clear roles and responsibilities across various scales and hierarchies of government agencies:**

The BBMP Restructuring Committee as part of its Phase 1 Report (Bengaluru: Way Forward, Expert Committee: BBMP Restructuring June 2015), had undertaken the task of mapping nearly 700 activities across 18 government agencies. This exercise of activity mapping is imperative in designing, planning and implementation systems involving multiple levels of government to ensure role clarity (Raghuveer 2007) and must be taken forward with accountability parameters for performance. Based on the roles and responsibilities set at each level of municipal government established through activity mapping, powers and finances should be devolved to various levels of local government. For example, a municipal ward office should be able to take a decision to fill a pot hole in a local road rather than wait for the BBMP Central Office or the proposed GBA to take such a decision with appropriate accountability frameworks set up. Therefore, activity mapping can spur appropriate placement of functionaries for better service delivery.

### **8. Urban village settlements that get engulfed into urban limits should be retrofitted with context specific infrastructure standards and specific budgetary allocations to facilitate affordable housing for lower income groups and prevent slum formation:**

Over 110 villages (containing approximately 222 village settlements) were engulfed into the last municipal expansion of BBMP. These significantly dense settlements serve as hubs of affordable housing for lower income migrants and are often not prioritised in the municipalisation process. Often, the organically developed streets and housing present are not directly amenable to typical municipal standards for infrastructure services and require customised provision to prevent them from becoming slums. Specific budgetary allocation and rules and regulations must be formulated for such areas.

**9. Detailed studies must be conducted to implement decentralised utilities such as energy, water supply, sewerage and solid waste management to help manage increasing demand and reduce the burden on the government agencies providing these facilities:**

Draft urban development policy for Karnataka recommends decentralisation of utilities, so as to lessen the State's burden in providing public utilities such as energy, water supply, sewerage and solid waste management. In the case of energy, solar water heating systems can help manage the demand side management of electricity during peak hours. There is a large potential available for generating solar power using unutilized space on rooftops. Small quantities of power generated by individual households, industrial buildings, and commercial buildings could partially fulfil the requirement of building occupants and surplus if any could be sent to the grid. With the exhaustion of the current phase of Cauvery water supply schemes and in the absence of viable schemes with BWSSB to augment water supply to Bengaluru, there is a need to look for alternative options to augment water for the city. Decentralised technologies such as rainwater harvesting and grey water reuse systems share a series of peculiarities —multi-level governance models, enhanced public participation, enhanced full cost recovery and reduced environmental and social impacts— which are all appealing for achieving sustainable use of water resources (Domenech 2011). Rain water harvesting techniques and managing sewerage through self-managed STPs could be made mandatory based on the size of the buildings and number of people occupying it. The BWSSB for example could undertake a study to assess the viability of reviving the traditional water supply systems through the tank systems that were present several decades ago to meet the additional water supply demands of the city.

**ADDRESSING BMR'S CHALLENGES:**

**10. Rampant land use change and conversions in Bengaluru's regional peripheries should be streamlined through more stringent criteria and restricting the powers of rural local bodies to grant development permissions through amendments in KTCP Act, 1961 and Karnataka Land Revenue (KLR) Act, 1964:**

A key reason for distortions in land market and unplanned growth in the urban and peri-urban areas in the BMR has been due to unregulated land use conversion and land use changes in areas beyond the municipal jurisdictions of BBMP and other municipalities in the BMR region. Section 95 of the Karnataka Land Revenue Act and Section 14A of the KTCP Act, 1961 enables the process of land use conversion and land use changes respectively. Agricultural lands in the BMR are converted into non-agricultural purposes, based on the condition that the conversion does not contravene the provisions of any law related to town and country planning. Permissions for land use changes are granted under the condition that there is a topographical error or omissions in the master plan, a failure to indicate details in the master plan and when changes arise due to implementation of master plan proposals. Hence, land use conversions and land use changes happen in a haphazard manner without considering the availability of infrastructure facilities, impact of the conversion on traffic and



transportation, pressure on the existing natural resources such as networks of valleys, drains and lakes, and the need to preserve prime agricultural land and double cropping lands. Further to this, a significant amount of development takes place in peri-urban areas as a result of development permissions granted by the elected rural local bodies outside the jurisdiction of BDA and within various other local planning authorities in the region. Hence it is imperative to streamline the land use change and land use conversion processes to check the compatibility of such changes with the surrounding context and impose restrictions on the rural local bodies that grant development permissions.

Amendments to the section 95 of the KLR Act, 1964 and to section 14 A of the KTCP Act, 1961 should be made, so that the revenue authorities granting land use conversion permissions and the planning authority granting land use change permissions work in a coordinated manner, and check the compatibility of all requests with the proposed urbanisable zones as per the Revised Structure Plan of the BMRDA. Further to this, revenue authorities should function in coordination with the Metropolitan Commissioner/Member Secretary of the proposed MPC while granting permissions for conversions, so that the process of land use conversions match the phasing of the master plans of the various LPAs in the Bengaluru Metropolitan Region.

Powers of the rural local bodies to grant development permissions must be restricted to the gramathana areas based on the survey conducted by the BMRDA (Report of the Expert Committee 2008). Relevant sections of KTCP Act, Karnataka Land Revenue Act and Karnataka Panchayat Raj Act should be amended to restrict or eliminate the scope of development permissions granted by rural local bodies and to mandate the coordinated functioning of the revenue authorities within the BMR (Report of the Expert Committee 2008).

### **11. The Revised Structure Plan of the BMRDA should serve as the guiding document to grant or refuse development permissions in areas outside of master plan conurbations in LPA's:**

Local planning authorities granting layout permissions and local bodies granting development permissions for the areas outside master plan conurbations should consider the proposed growth strategies and policy guidelines provided in the Revised Structure Plan (RSP) of the BMRDA. The RSP recommends a balanced growth perspective of the region without compromising on its ecological parameters while ensuring economic integration and enhanced liveability within the array of settlements in the region (BMRDA n.d.). Compatibility of such developments with the urbanisable zones indicated through the land capability analysis in the RSP, should be checked by the local planning authorities and local bodies prior to granting permissions for development activities.

**12. Disincentivize speculative land use change and conversions in far flung peripheries through the imposition of land value taxes and penalties on undeveloped properties:**

One of the tools to control speculative land transactions is through imposing a land value tax on all undeveloped land (DC converted lands), barring the parcels under agricultural use in the region. Land value tax can be imposed at a rate, based on the market value of land. Further to this, if the purpose for which the land was converted is not carried out in a certain period of time (say 5 years), then an additional penalty should be imposed on the property owners. In order to make investments in land and land development unattractive in far flung peripheries (while encourage densification within city areas and immediate peripheries) and also to reduce the amount of vacant building stock, such buildings which are lying vacant for over a period of time (say 1 year), should be subjected to a significant holding tax, non-occupancy charges or penalty. With such initiatives, it is expected that developments will be incentivised in areas next to existing towns and settlements and within sparsely developed master plan conurbations, rather than to encourage sprawl and rampant speculation in far flung peripheries where large parcels of land are held onto indefinitely by rent seeking intermediaries.

## 2. Introduction

Bengaluru city with a population of about 8.5 million, witnessed 43% growth of population during the 2001-11 census period. In this period, out of every 10 people that got added to an urban area in Karnataka, 5.7 got added to Bengaluru City alone. Census 2011 showed a significantly high growth rate for the city, largely because the erstwhile municipal boundary (BMP) was expanded to form the Bruhat Bengaluru Mahanagara Palike (BBMP) in 2007 (figure1). Eight urban local bodies (7 City Municipal Councils and 1 Town Municipal Council) and 110 villages that surrounded the city were merged with the city corporation limits. With the amalgamation, municipal area of Bengaluru increased from 225 sqkm to 709.49 sqkm in 2007. The primary objective of this amalgamation was to improve and coordinate infrastructure development and strengthen the administrative capacity to ensure better enforcement of rules (Report of the Expert Committee 2008).

The amalgamation had a significant bearing on the BBMP in terms of basic services provision, the administrative system (property tax and accounting), planning procedures and norms, and additional financial requirements. Since 2013-14, the State government has allocated Rs 250 crore for the 110 villages and 750 crores for the eight urban local bodies to carry out development works such as water supply, sanitation and road works. Other than water supply to the 110 villages, provision of basic services such as water supply and sewerage in the newly added areas, which were earlier provided for by the urban local bodies were transferred to the BWSSB and services such as solid waste management, storm water drainage and maintenance of streetlights and public health became the responsibility of the BBMP. Despite this municipalisation process occurring as far back as the year 2007, the erstwhile BMP area and the newly added areas of BBMP continue to show a stark disparity in terms of the levels of municipal service provision such as water supply, drainage and sewerage facilities as well as the system of property tax assessment.

In the 6 years leading up to the year 2012, increase in urban built up area ranged from 13 sqkms/ year in the BBMP area, 29 sq kms/ year in the BDA area to about 60 sq kms/ year in the BMRDA region (WRI India analysis). The infrastructure developments in this area, however have not been able to keep pace with this rate of growth of built up areas within the various jurisdictions in the BMR region. Unplanned and haphazard development patterns are predominant in the outskirts of the BBMP area and there has been a reactive approach to planning such transition areas. The Bengaluru Metropolitan Area is full of urban fragments which have planned BDA layouts interspersed with gramthana sites and revenue sites that are developed illegally, which will need to be municipalised sooner or later. Land speculation and haphazard urban growth patterns at peripheries scatter investments in expensive bulk infrastructure and dilutes the future potential of the city. Municipalisation strategies are critical to deal with the challenges of previous municipal expansion and to curb the unplanned urban growth patterns in the peripheries of Bengaluru region. While renewal and retrofitting of deteriorating core city areas is pertinent, so is planning for urban expansion and a relevant municipalisation strategy (Expert Committee: BBMP Restructuring 2015).

### 3. Scope, Limitations, Approach and Methodology

#### Aim and Objective

- To understand what constitutes municipalisation in the context of Karnataka State and hence Bengaluru, and its related legislative background;
- To understand the challenges faced in the previous expansion of Bengaluru's Municipal Corporation from BMP to BBMP and gauge the disparity in the levels of municipal services;
- Address current growth trends and on ground realities in the city, including the state of urban villages that get engulfed in the municipalisation process;
- Make recommendations as to how areas within BBMP could be improved, what criteria need to be considered in future expansion efforts and learnings that could be applied to the larger Bengaluru Metropolitan Region.

#### Scope and Limitations

Data collection and research is limited to that available primarily in the public domain. This includes accessing government websites, journals, research papers, open source maps and satellite imagery. Primary surveys which included 100 household surveys were limited to one urban village to understand the impact of municipal expansion. A limited number of interactions were held with various government agencies to understand the deficiencies in the current system of municipalisation and arrive at the best way forward.

#### Approach and Methodology

A mixed methods approach enabled the use of data from targeted primary surveys for issues that are not well documented as well as the use of secondary data and research to understand the legislative constraints and institutional overlaps in municipalisation. Discussions with key stakeholder agencies and satellite imagery interpretation helped understand interdepartmental as well as on ground challenges and realities. The following tasks were conducted as part of this report:

- Assessment of acts and legislation including Constitutional mandates and mandates of State Acts such as the Karnataka Municipal Corporation (KMC) Act, 1976 and Karnataka Municipalities (KM) Act 1964 to understand the functional devolution to urban local bodies and criteria for municipal expansion;
- Understanding the impact of municipal expansion on urban villages through a field survey that involved household surveys (100 nos) and focussed group discussions, conducted with the help of WRI India and students of Azim Premji University;
- Detailed study of BBMP Restructuring Committee Recommendations Way Forward Report and the Report of the Expert Committee on Governance in BMR and BBMP;
- Interactions with government agencies such as KSSIDC, BMRCL, BMRDA, BWSSB, BBMP and BDA to understand opportunities and challenges related to municipalisation.

**Note:** Information and analysis provided in this report draws from the ongoing work of WRI India in Urban Expansion and research on Urban Villages

## 4. Background

### 4.1 Constitutional mandates and understanding municipal functions

The constitution of India was amended in 1992, with the intention of empowering the third tier of government (urban and rural local bodies) and accordingly the 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendment Acts were formulated. The eleventh and twelfth schedules of the Constitution provide a recommended list of functions (table 1) for rural and urban local bodies respectively. Through the 74th constitutional amendment, three types of urban local bodies namely **Nagar Panchayats, Municipal Councils for smaller urban areas and Municipal Corporations for larger urban areas** were to be established in the States.

Twelfth Schedule (Article 243 W) - Urban functions	Eleventh Schedule (Article G) Rural functions
<ol style="list-style-type: none"> <li>1. Urban Planning including town planning;</li> <li>2. Regulation of land-use and construction of buildings;</li> <li>3. Planning for economic and social development;</li> <li>4. Roads and bridges;</li> <li>5. Water supply for domestic, industrial and commercial purposes;</li> <li>6. Public health, sanitation conservancy and solid waste management;</li> <li>7. Fire services;</li> <li>8. Urban forestry, protection of the environment and promotion of ecological aspects;</li> <li>9. Safeguarding the interests of weaker sections of society, including the handicapped and mentally retarded;</li> <li>10. Slum improvement and upgradation;</li> <li>11. Urban poverty alleviation;</li> <li>12. Provision of urban amenities and facilities such as parks, gardens and playgrounds;</li> <li>13. Promotion of cultural, educational and aesthetic aspects;</li> <li>14. Burials and burial grounds, cremations, cremation grounds and electric crematoriums;</li> <li>15. Cattle pounds; prevention of cruelty to animals;</li> <li>16. Vital statistics including registration of births and deaths;</li> <li>17. Public amenities including street lighting, parking lots, bus stops and public conveniences; and</li> <li>18. Regulation of slaughter houses and tanneries.</li> </ol>	<ol style="list-style-type: none"> <li>1. Agriculture, including agricultural extension;</li> <li>2. Land improvement, implementation of land reforms, land consolidation and soil conservation;</li> <li>3. Minor irrigation, water management and watershed development;</li> <li>4. Animal husbandry, dairying and poultry;</li> <li>5. Fisheries;</li> <li>6. Social forestry and farm forestry;</li> <li>7. Minor forest produce;</li> <li>8. Small scale industries, including food processing industries;</li> <li>9. Khadi, village and cottage industries;</li> <li>10. Rural housing;</li> <li>11. Drinking water;</li> <li>12. Fuel and fodder;</li> <li>13. Roads, culverts, bridges, ferries, waterways and other means of communication;</li> <li>14. Rural electrification, including distribution of electricity;</li> <li>15. Non-conventional energy sources;</li> <li>16. Poverty alleviation programme;</li> <li>17. Education, including primary and secondary schools;</li> <li>18. Technical training and vocational education;</li> <li>19. Adult and non-formal education;</li> <li>20. Libraries;</li> <li>21. Cultural activities;</li> <li>22. Markets and fairs;</li> <li>23. Health and sanitation, including hospitals, primary health centres and dispensaries;</li> <li>24. Family welfare;</li> <li>25. Women and child development;</li> <li>26. Social welfare, including welfare of the handicapped and mentally retarded;</li> <li>27. Welfare of the weaker sections, and particularly the Scheduled Castes and the Scheduled Tribes;</li> <li>28. Public distribution system; and</li> <li>29. Maintenance of community assets.</li> </ol>

Box 1: Twelfth and Eleventh Schedule of the Constitution of India

Data Source: Constitution of India

State governments have discretionary powers to accord an area with any category of municipal status (Bhagat 2005). Nagar Panchayats which are to be constituted for transition<sup>1</sup> areas, have been entrusted with the same functions as larger urban areas. Census of India, which gives the definition of urban and rural areas however has not defined what constitutes a transition area (Bhagat 2005). As per the 12<sup>th</sup> Schedule of the 74<sup>th</sup> CAA, 18 functions are to be performed by the urban local bodies, and 29 functions by rural local bodies as listed in the 11<sup>th</sup> Schedule (table 1, gives the list of functions in the 11<sup>th</sup> and 12<sup>th</sup> Schedule). **The Constitution of India only provides an enabling framework for the allocation of functions to local governments, whereas the actual instruments of allocation of functions to rural and urban local bodies are the Panchayat Raj and Municipal Laws enacted by State legislatures** (Centre for Policy Research 2014). **The 12<sup>th</sup> schedule is not mandated and it is up to the State government to decide as to which of the 12<sup>th</sup> Schedule functions may be devolved to the ULBs** (Human Development Resource Centre n.d.).

## 4.2 Criteria for municipal boundary expansion as per legal mandates in Karnataka

As per Karnataka Municipal Corporation (KMC) Act, 1976 and Karnataka Municipalities (KM) Act 1964, any area can be included into a larger or smaller urban local body area considering the population, density, employment and economic importance of the area. In addition to these factors, a discussion with BBMP officials revealed that proximity to the main city, dependency on the city for employment, land use conversion and demand by people also influence the inclusion of an area within a larger municipal corporation. The following table gives the minimum requirement for an area to be included within the corporation/municipal area limits.

Criteria	Requirement: for inclusion in Corporation limits	Requirement: for inclusion in Municipal Area limits (such as CMC/ TMC etc)
Population	Not less 3 lakhs	20,000 to 3 lakhs (20,000 to 50,000- town municipal area) (50,000 to 3 lakhs – city municipal council)
Density of Population	Not less 3000 per sq.km	Not less than 1500 per sq.km
Revenue generation for the local administration in last preceding census	Not less than Rs 6 crores per annum or Rs 200 per capita per annum whichever is higher	Not less than Rs 9 lakhs per annum or Rs 45 per capita per annum
Percentage of employment in non-agriculture activities	Not less than 50 % of the total employment	Not less than 50% of the total employment

Table 1: Criteria and requirements for inclusion into Corporation/Municipal Area limits

Data Source: KMC Act 1976, KM Act 1964

With the amalgamation of smaller urban areas or Panchayat areas with a larger municipal corporation, the rights and liabilities of the local authorities that were governing such area get transferred to the municipal corporation. All taxes, notifications, rules, bye-laws, orders, directions and powers levied shall continue in force and be deemed to have been made under the KMC Act,

<sup>1</sup> As per article 243 Q (2), Transition area means such area as the Governor may, having regard to the population of the area, the density of the population therein, the revenue generated for local administration, the percentage of employment in non-agricultural activities, the economic importance or such other factors as he may deem fit, specify by public notification for the purposes of this Part.



until further revised or amended. The Act mandates that the draft notification with regards to inclusion of the local area must be published in the official gazette, so that all persons likely to be affected are informed and invited to raise objections and suggestions within a month of its publication. All the officers and services of the erstwhile local authorities shall be transferred to the Corporation. **Under KMC Act 1976, BBMP is the municipal corporation which looks into the administration of Bengaluru city that spans over 709.49 sqkm. In 2007, while the municipal boundary of Bengaluru was expanded, inadequate consultations were conducted with any of the affected municipalities and village councils (Idiculla n.d.). It is observed that the rural and smaller urban area administration systems such as tax accounting, providing infrastructure services and citizen interfaces differ from that of the larger corporation. However, the KMC Act does not specify any timelines or processes for the transition of the rural and smaller urban area administrative governance systems to the corporation's systems.** The State government provided Rs 250 crores for developing infrastructure provisions in 110 villages and Rs 750 crores for developing infrastructure in 7 CMCs and 1 TMC area included in the BBMP.

#### 4.3 Administration of Municipal Corporations in Karnataka

**The Corporation, its Commissioner and Standing Committees are the Municipal Authorities recognised to carry out the provisions of the Act and is vested with executive powers. Notably, the Mayor is not recognized as a 'municipal authority' vested with executive power** (Report of the Expert Committee 2008). The municipal corporation consists of a number of elected councillors, the number varying between 30 and 200. One among these councillors will be elected as the Mayor and one as the deputy Mayor, during the first meeting after the general election of the councillors. **The corporation functions through Standing Committees whose powers and functions are determined by the corporation.** All city corporations, other than the Bruhat Bengaluru Mahanagara Palike (BBMP) has four standing committees dealing with taxation, finance and appeals; public health, education and social justice; town planning and improvement; and accounts. **Functions of the corporations of the State are mandated through a list of obligatory and discretionary functions in the KMC Act. The Act specifies 31 obligatory functions (Box 2) and 23 discretionary functions that are to be carried out by Municipal Corporations.**

**List of 23 discretionary functions include:** Maintenance of maternity and infant-welfare homes or centres; maintenance of chemical or bacteriological laboratories; construction and maintenance of drinking fountains; survey of buildings or lands; provision of music for the people; maintenance of health museums; establishment and maintenance of museums and art galleries, building and maintenance of suitable dwelling for the poor and working class; slum improvements and upgradation; urban forestry, protection of the environment.

1. Boundary marking defining city limits;
2. Watering & cleansing of public streets;
3. Collection, removal, treatment & disposal of sewage;
4. Public convenience & drainage works
5. Public street lighting & municipal markets,
6. Maintenance of public monuments, open spaces & other properties of corporation;
7. Public Street naming and numbering;
8. Regulation and abatement of offensive & dangerous trade practices;
9. Burials and crematoriums;
10. Maintenance of public markets and slaughter houses;
11. Ambulance services;
12. Destruction of birds and animals causing nuisance;
13. Laying of new public streets;
14. Maintaining and aiding pre-primary education;
15. Construction, acquisition and maintenance of cattle ponds
16. Public vaccination;
17. Reclaiming unhealthy localities;
18. Planting and maintenance of road side trees;
19. Construction & maintenance of public streets, bridges, sub-ways, culverts etc;
20. Removal of obstruction on public streets & public places;
21. Management & construction of new works for water supply for public& private purposes
22. Preventing and checking the spread of dangerous diseases;
23. Securing or removal of dangerous buildings and places;
24. Construction and maintenance of residential quarters for the poura-karmikas;
25. Provision of public parks, gardens, playgrounds and recreation grounds;
26. Regulation of lodging houses, camping grounds and rest houses in the city;
27. Establishing and maintaining compost plants for disposal of sewage;
28. Construction, maintenance of sewerage lines; Birth death registration, Tannery regulation
29. Measures to meet any calamity affecting the public;
30. Discharge of any functions entrusted to corporation by government through notification;
31. Provision of relief to destitute persons in the city in times of famine and scarcity

### Box 2: Obligatory functions of municipalities

Source: KMC Act 1976, KM Act 1964

#### 4.4 Administration in BBMP

Under the current system, BBMP is the single corporation in Bengaluru and exercises its functions by itself and through the Municipal Commissioner and the Standing Committees. The Corporation consists of 198 elected councillors (for 198 wards), a maximum of 5 nominated members and Members of Parliament and Members of Legislative Assembly whose constituencies lie within the city (Expert Committee: BBMP Restructuring 2015). There are 12 Standing Committees assigned with different responsibilities (as listed in box 3), assisting the functioning of the Corporation.

Standing committees deal with all matters related to the following subjects:

- (a) finance and taxation
- (b) public health
- (c) town planning and improvement
- (d) all major works in the jurisdiction of BBMP such as flyovers, underpasses, subways, road widening, ring roads, elevated roads and all works incidental thereto including land acquisition;
- (e) ward level works dealing with public streets and its appurtenances, street lighting excluding major works;
- (f) audits and accounts, the standing committee shall also supervise utilization of budget grants and will have access to the accounts of the corporation.
- (g) pre-primary, primary, secondary and higher secondary education including physical education and sports;
- (h) securing social justice to persons belonging to scheduled castes and scheduled tribes and other weaker sections of the society and women;
- (i) appeals;
- (j) horticulture;
- (k) markets;
- (l) establishment and administrative reforms.

Box 3: Subjects dealt with by the Standing Committee of BBMP

Data Source: KMC Act, 1976

**The Standing Committees have become the workshop of the BBMP and are given extensive powers under the section 61A of the KMC Act 1976.** The Commissioner performs all the duties and executes the power with the approval or sanction of the Standing Committee or the Corporation. Most of the obligatory functions such as solid waste management, maintenance of roads, footpaths, play grounds, public health, markets, drinking water, education, burial grounds, lakes, storm water drains (secondary and territory drains) and welfare activities are carried out by BBMP. **Despite the constitutional stipulation of comprehensive devolution of functions to municipal bodies, numerous parastatal agencies have been set up by the State. Municipal functions under the provisions of the KMC Act 1976 such as water supply and sewerage networks are carried out by the parastatal agencies created by the State governments (as detailed out in the next sections) and they also operate under the directives of the State agencies.**

#### 4.5 Multiple agencies operating in isolation in Bengaluru Metropolitan Area:

Key agencies such as Bengaluru Development Authority (BDA), Bengaluru Water Supply and Sewerage Board (BWSSB), Bengaluru Electricity Supply (BESCOM), Bengaluru Metropolitan Transport Corporation (BMTc), Karnataka Housing Board (KHB) and Karnataka Industrial Area Development Board (KIADB) undertake a substantial part of the functions that were to be devolved to the urban local bodies as per the 12<sup>th</sup> Schedule of the 74<sup>th</sup> CAA. Each of the parastatal agencies providing municipal services has its own operational jurisdiction that does not match with the zonal boundaries or administrative boundary of the municipal corporation.

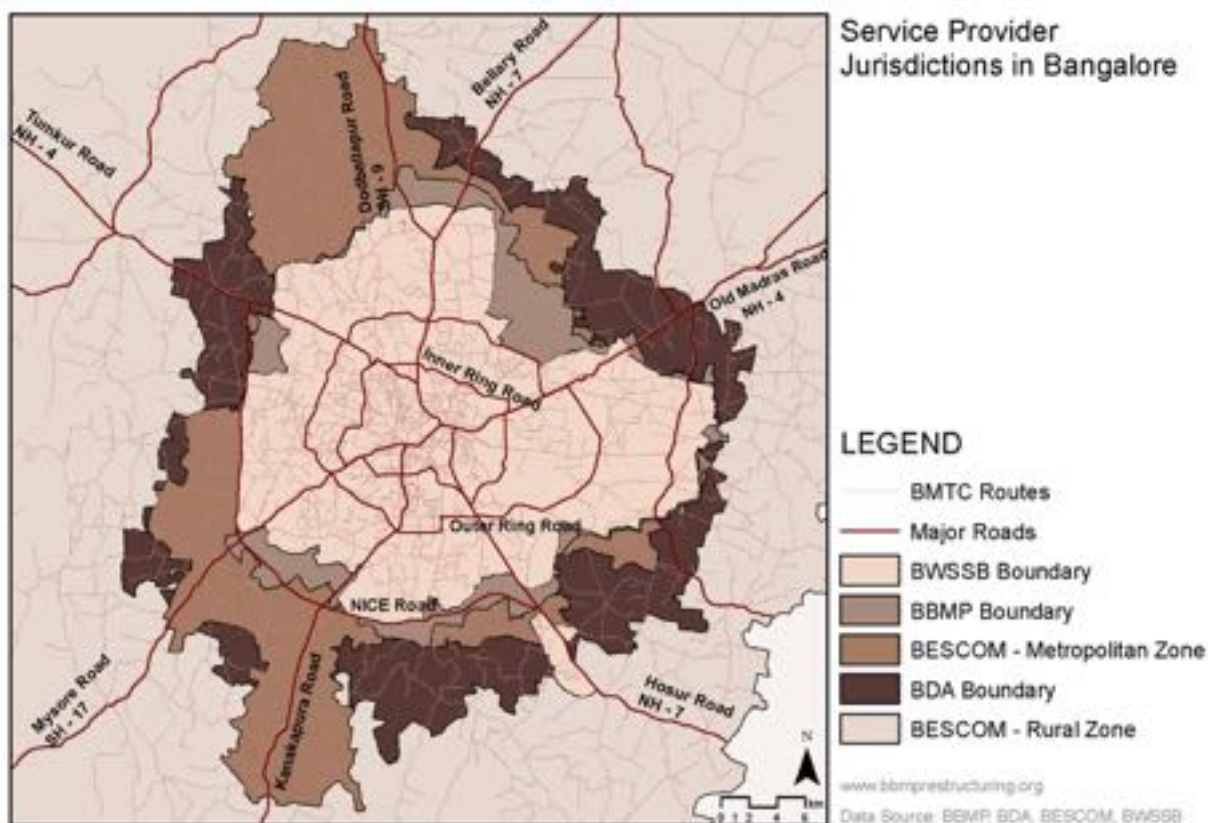


Figure 2 : Jurisdictions of various service providers in Bengaluru

Source: (Expert Committee: BBMP Restructuring 2015)

- **BWSSB services in Bengaluru Metropolitan Area**

Bengaluru Water Supply and Sewerage Board is in charge of supplying and improving existing supply of water, laying out new connections and making adequate provision for sewerage disposal functions under the provisions of the Bengaluru Water Supply and Sewerage Act (BWSSA), 1964. The Board is vested with the duty to take a scheme which makes provision for the supply of water in pipes to various parts of BMA. In case it is not practicable to provide supply in pipes, then provision must be made to ensure that water is made available at a reasonable distance of every house in that part of the BMA. This function of the BWSSB overlaps with the discretionary power of the corporation entrusted through the KMC Act to manage & construct new works for water supply for public & private purposes.

The BWSSB Board is vested with powers to maintain and repair all board sewers and sewage disposal works and shall construct new drains and sewage disposal works as and when necessary for effectual sewerage and sewage disposal of the Bengaluru Metropolitan Area.

**The Board functions as per the directives of the State government.** The State Government shall constitute consultative committees consisting of representatives of municipal corporation, the Bengaluru City Improvement Trust Board (which is now the BDA) and consumers of water. This consultative committee advises the board on major questions of policies, major schemes, review progress and work of Board, and considers any matter brought before the committee.

- **BMTC Services in BBMP and areas beyond**

Bengaluru Metropolitan Transport Corporation (BMTC) was established in 1997 with the sole aim of providing public transportation to Bengaluru city and sub-urban areas. The operational jurisdiction of BMTC extends upto 25 kms beyond the outer limits of BBMP. It has a fleet of over 6685 buses covering an area encompassed with radius of 40.4 kms from the city centre. BMTC operates 1252 city and 5049 sub-urban schedules, making about 78,510 trips per day (BMTC Role in BBMP presentation n.d.). **BMTC interacts with BBMP when there is a need to create bus bays or construct bus shelters, road widening or road repair works, need for chartered services such as buses for elections, payment of property taxes and payment of advertisement tax by agencies granted with advertisement rights on hoardings at bus stands and depot premises and in case of need for land for bus stands, depots etc.**



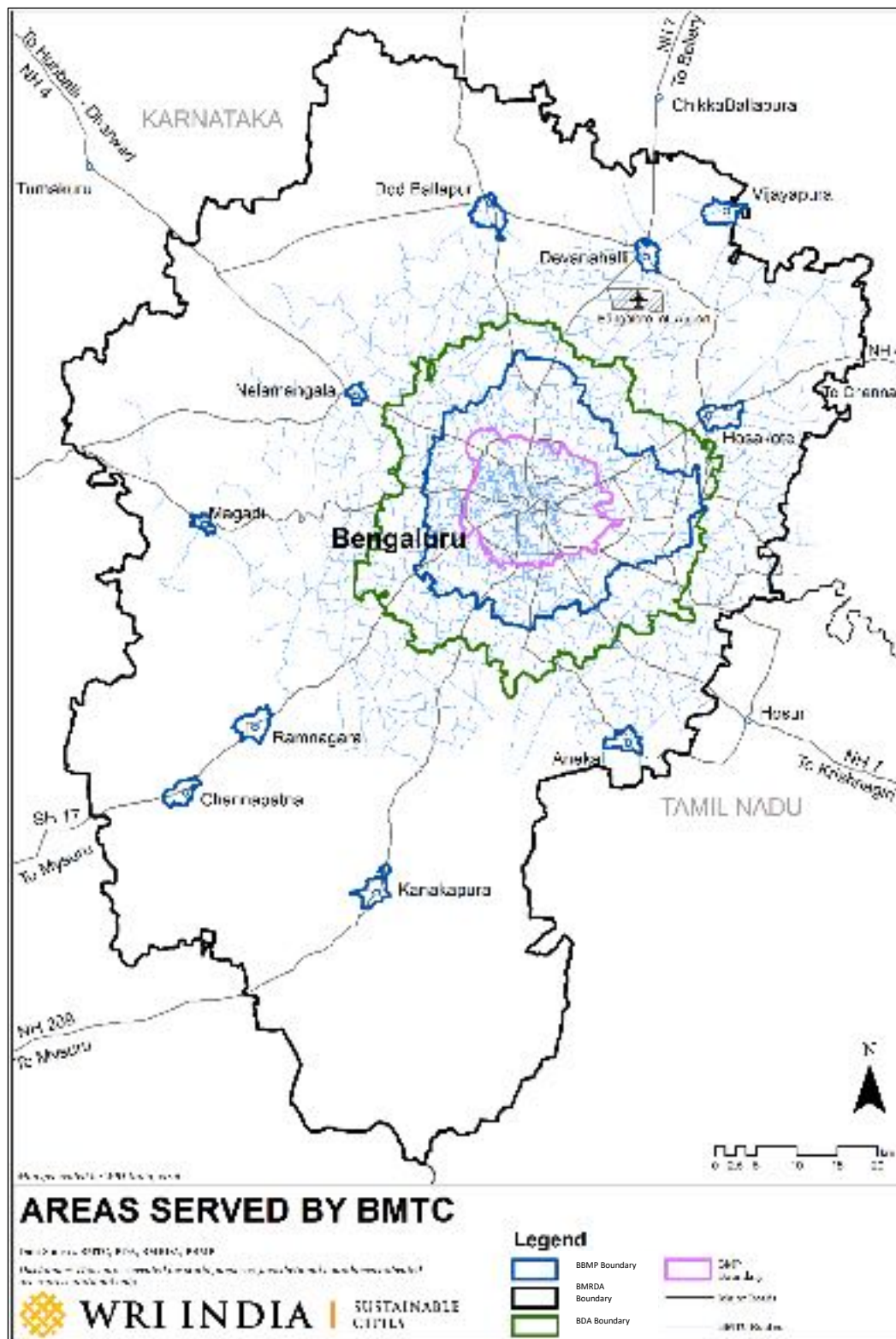


Figure 3 : Areas served by BMTC

Source: Map generated by WRI India, Data Source: BMTC, BDA, BMRDA and BBMP



- **BESCOM services in Bengaluru Metropolitan Area**

Bengaluru Electricity Supply Company limited undertakes distribution of electricity in various designated areas of Karnataka. Power is purchased from generating companies such as Karnataka Power Corporation Limited, Central Generating Companies and Independent Power Producers (IPPs) at agreed rates and sells it to different categories of consumers at rates determined by Karnataka Electricity Regulatory Commission. There is zonal office established for the Bengaluru Metropolitan Area to attend to the needs of consumers in terms of servicing of installations, collection of revenue, maintenance of 11KV lines, distribution transformers, attending to consumer complaints and augmentation of infrastructure etc. (BESCOM n.d.).

- **Bengaluru Development Authority in the Bengaluru Metropolitan Area**

Bengaluru Development Authority (BDA) is the legally empowered planning authority created under the Bengaluru Development Authority Act 1976 to have planned development in the Bengaluru Metropolitan Area. **BDA Act 1976 was enacted with the intention to have coordinated development in the city as multiple Authorities such as the Bengaluru Municipal Corporation, City Improvement Trust Board, the Karnataka Industrial Area Development Board and the Housing Boards with functional overlaps were operating in the city jurisdiction. The BDA was created as a coordinating authority to check the haphazard and irregular growth in the city and its adjacent areas.** BDA is legally empowered to undertake development schemes for the development of the Bengaluru Metropolitan Area, on its own or on the recommendation of the municipal corporation. **Such schemes undertaken by BDA shall be provided with street networks, drainage, water supply, electricity and a reservation of 25% of the total layout area for public parks and playgrounds and 10% for civic amenities.** If any works which the BDA feels is desirable for the development of any area within the BMA (Local Planning Area of BDA), it can take it up with the approval of the State government. **Housing Boards are not allowed to undertake any Housing schemes within BMA, without being in conformity with the layout plan of the BDA. Though the Act mandates a specific time period seeking inputs from the city corporation on the layout schemes prepared by BDA, inter-agency interactions during the plan preparation process are minimum.** Once the layouts are developed, public streets, street lighting and street cleansing functions are transferred to the BBMP for its maintenance through a Bengaluru Development Fund. This Fund which is held by the BDA includes the rents, sale proceeds and taxes collected by Bengaluru Development Authority and other funds contributed by the government. **The BDA transfers funds to the BBMP in an ad hoc way sometimes as and when required by the BBMP to operate and maintain land transferred to it by the BDA** (Sridhar 2009)

- **KHB's Housing Schemes in BMR and Karnataka State**

Karnataka Housing Board established under Karnataka Housing Board Act, 1962 is tasked with the objective to make such schemes and to carry out such works as are necessary for dealing with and satisfying the need of housing accommodation in Karnataka. It is recognised as the most important agency for housing throughout the State. Key projects of

KHB within BMR include housing projects in Kengeri, Channapatna, Iggalur Banahalli, Suryanagar Phase I, II and III, Netaji Subhash Chandra Bose Layout-Bidadi, Rayasandra-Kanakpura, KHB Platinum, Devanahalli and Yelahanka Highrise Building.

- **Karnataka Industries Area Development Board in BMR and Karnataka State**

Karnataka Industries Area Development Board (KIADB) acquires land for industrial areas, develops them, and either manages them on their own or transfers to the respective industrial association. They also acquire land for Government of Karnataka/ Government Agencies for different schemes and infrastructure projects. Examples include acquisition of land for BMRCL, BMTC, KSIIDC, and IDD.

- **Smaller urban and rural local bodies operating in BMA**

In the areas outside the jurisdiction of BBMP, there are urban local bodies such as Town Municipal Councils and City Municipal Councils for the administration of urban areas. These municipal bodies though with a lesser budget allocated to them, have powers to decide on the allocation of funds based on the needs, complaints and priorities of different localities within their jurisdictions. Gram panchayats look into administration of rural villages and census towns outside the BBMP jurisdiction. **However, the jurisdiction of parastatal agencies cut across multiple jurisdictions of smaller urban local bodies; and their project plans and priorities are superimposed in these areas without seeking the opinions of the smaller urban and rural local bodies.**

Many of the agencies listed above carry out their operations in a non-coordinated way. For instance, agencies such as BWSSB, BDA and BMTC were expected to develop and implement projects as per the guidelines of the City Development Plan prepared under JNNURM. However, these agencies have projects as per their own priorities, which they carry out either through their own funds or using the funds from various lending agencies (Pani and Iyer 2013).

Development works such as layout developments, construction of houses and development of industrial layouts are carried out by agencies such as BDA, KHB and KIADB without much coordination between them. In addition to this certain functions of the standing committees of BBMP (standing committee for all major works such as flyovers, elevated roads etc., town planning) overlap with that of the BDA. While deciding on the projects, there is minimum interaction between agencies. In addition to this is the issue of multiple administrative jurisdictions of parastatal agencies that do not overlap with the jurisdiction of the BBMP. These administrative boundaries are not just trivial lines on the map, but influence the budgeting, planning, expenditure and transfer of funds of the agencies (Ramanathan 2005).

## 5. Analysis of Existing Situation and Dynamics

### 5.1. Learnings from the transition of BMP to BBMP

In 2007, the Bengaluru Mahanagara Palike (BMP) with an area of 225 sq kms catering then to a population of 6.5 million was amalgamated with 7 City Municipal Corporations (CMC), 1 Town Municipal Corporation (TMC) and 110 villages to form Bruhat Bengaluru Mahanagara Palike (BBMP). The new areas included were 7 CMCs (Rajarajeshwari, Dasarahalli, Bommanahalli, Krishnarajapuram, Mahadevapura, Byatarayanapura and Yelahanka), 1 TMC (Kengeri) and 110 villages around Bengaluru. This expanded the scope of BBMP to cover 709.5 sq kms, governing around 7.8 million citizens in 2007 (Expert Committee: BBMP Restructuring 2015). The prime rationale for the amalgamation into BBMP was the poor governance and negligible infrastructure provisioning in the CMC / TMC and villages. However, despite crossing a decade, levels of infrastructure provisioning in the newly added areas are not at par with the erstwhile BMP area.

#### ➤ Status of Water Supply in the BBMP jurisdiction

Bengaluru Water Supply and Sewerage Board (BWSSB) is currently supplying treated Cauvery water to Bengaluru city under the Cauvery Water Supply Scheme (CWSS) Stage I, II, III and IV. **As per census 2011 household listing, the city core has an average coverage of more than 88 % coverage of Cauvery water supply, whereas coverage is only 46% in the wards outside the core city (BMP boundary) but within the BBMP area (figure 4, 5).**

The City Development Plan prepared under JNNURM for Bengaluru reports that water supply level in BBMP was about 143 lpcd against the norm of 180 lpcd. It further stated the disparity in the level of supply, where core BBMP area got a supply of 205 lpcd, the supply varied from 17 lpcd in peripheral wards of Dasarahalli to 76 lpcd in Kengeri. The average daily per capita supply in villages was about 25 litres. Part of the core city receives higher quantum of water and for a longer duration, when compared to certain other areas which receive lesser quantum for a shorter duration. The areas outside the core BMP area are primarily dependant on bore well water for water supply. **On an average about 28% of the water supply in the peripheral wards are met by bore wells or tube wells as per census 2011.**

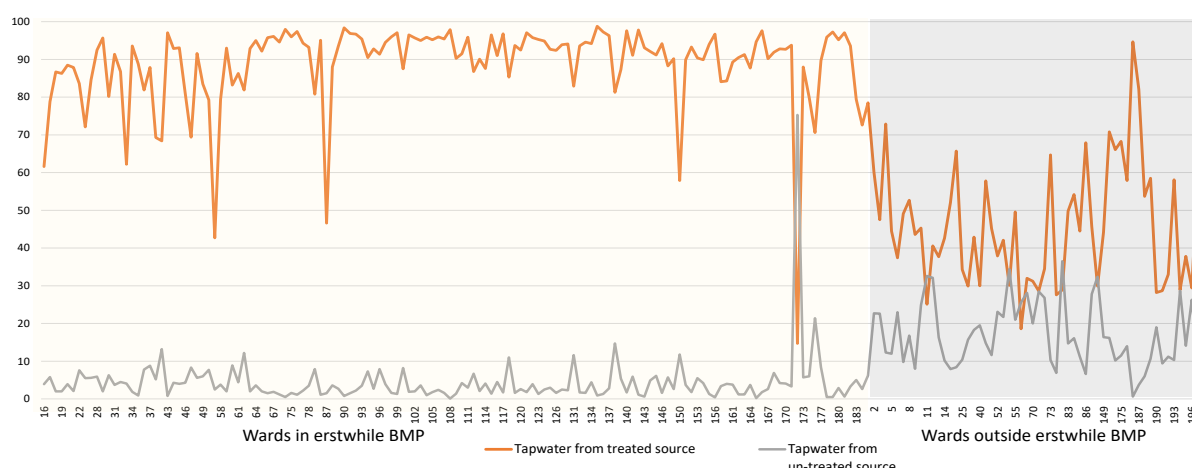


Figure 4: Disparity in the level of Cauvery water supply between the Core BMP and peripheral wards (newly added areas)

Source: Chart generated by WRI India , Data Source: Census of India,2011

While the urban villages<sup>2</sup>, urban poor (in slums) and revenue layouts were provided with piped bore water by the urban local body such as the erstwhile City Municipal Councils and Town Municipal Councils, wealthier groups depended on individual bore wells and private tankers. Areas such as Kengeri Satellite Township, Yelahanka, technology parks like Information Technology Park Ltd and a few large apartment complexes in the peripheral areas of Bengaluru city received piped Cauvery water supply. It is reported that only 10% of the peripheral wards and BDA approved areas received Cauvery water in the year 2009 (Ranganathan, Kamath and Baindur 2009). Due to the haphazard development of unplanned layouts, which do not have a gridded pattern of road networks, the laying of water pipelines in these areas have been difficult. 19 TMC of allocated water from Cauvery River for the water supply requirements of Bengaluru has been exhausted with the commissioning of CWSS Stage IV, Phase II of the project. **To provide water supply to the newly added 110 villages which are part of BBMP, BWSSB is finding it difficult to meet the water requirements even after implementation of CWSS Stage IV, Phase II scheme** (BWSSB 2016). During the interaction with BWSSB, it was informed that 700 MLD of water has been allocated to meet the water requirements of the 110 villages within BBMP. Currently BBMP supplies water to these 110 villages through bore wells and water tankers, which are subcontracted to private contractors.

<sup>2</sup> Urban villages are the erstwhile rural village settlement areas that have become part of the city Corporation

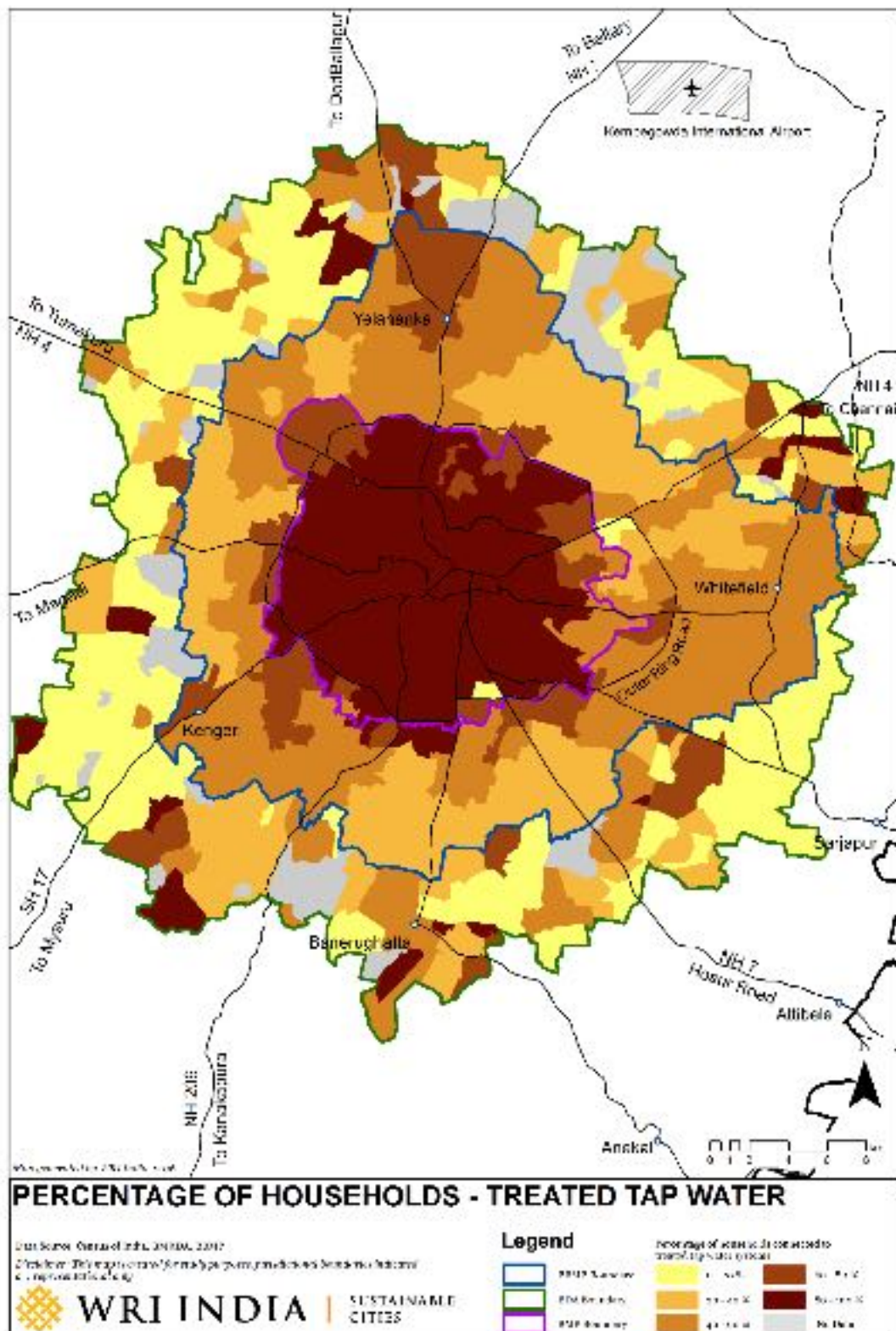


Figure 5: Percentage of Households with Treated Tap Water in BBMP

Data Source: Census of India, BMRDA and BBMP



Some of the key challenges faced by BWSSB in providing water supply are as follows (Kumar n.d.)

- There is a shortage of manpower to provide supply to the additional jurisdiction of the CMCs, TMCs and 110 villages that were added into the city jurisdiction;
- Water is a finite source and there is no alternative source nearby to supply the additional demand of the growing urban population of Bengaluru;
- Difficulty in public acceptance over the usage of reclaimed water,
- Unaccounted flow of water constitutes a large percentage of loss of water.

BWSSB has planned and designed for providing water supply to 110 villages and sewerage system for the newly added areas. However, the design horizon for water supply system for 110 villages is 2026 and design horizon for providing sewerage system is taken as 2036 (considering design period as 30 years as per CPHEEO manual and 2006 as base year) (Revised City Development Plan for Bengaluru under JNNURM Volume 1 n.d.).

### ➤ Status of Public Sewerage System

About 80% of the households in the BBMP Area have access to public sewer system. However, BWSSB which is in charge of constructing sewer lines for the entire Bengaluru Metropolitan Area has not been able to provide sewer lines in the erstwhile 110 villages that became part of the city limits in 2007. **In the core city nearly 94% of the households have access to public sewer systems**, while about 56% of the households in the peripheral wards (outside the core BMP) have access to public sewer system (figure 6). The 110 villages that lack planned underground sewage lines have soak pits and septic tank systems for sewage disposal. There is no scientific collection system and sewage treatment facilities provided in the 110 village areas (except few layouts). In the absence of proper sewerage system, the sullage and raw sewage generated in various wards are discharged through open drains / nalas to nearby lakes / water bodies. This is adversely affecting the environment (BWSSB 2016). The former Additional Chief Secretary of Karnataka and Chairman, Centre for Policies and Practices, who conducted an elaborate study of the water woes of the state capital reported that **only 30% of the sewage was treated by sewage treatment plants and the rest flows into the existing lakes**.

### ➤ Status of Storm Water Drainage system

BBMP is responsible for providing the storm water drainage systems in its jurisdiction. About 83% of households in BBMP area have their waste water outlets connected to closed drainage systems. **While the city core has about 96% of the households connected to closed drainage systems, only 64% of the households in the peripheral wards are connected to closed drainage systems** (figure 7). It was reported that the 850 km of storm water drains meant to carry surplus water from higher elevation lakes to lower levels in a cascading system of natural rainwater harvesting, now instead carry the city's sewage into these existing so-called lakes (Sudhir 2013).



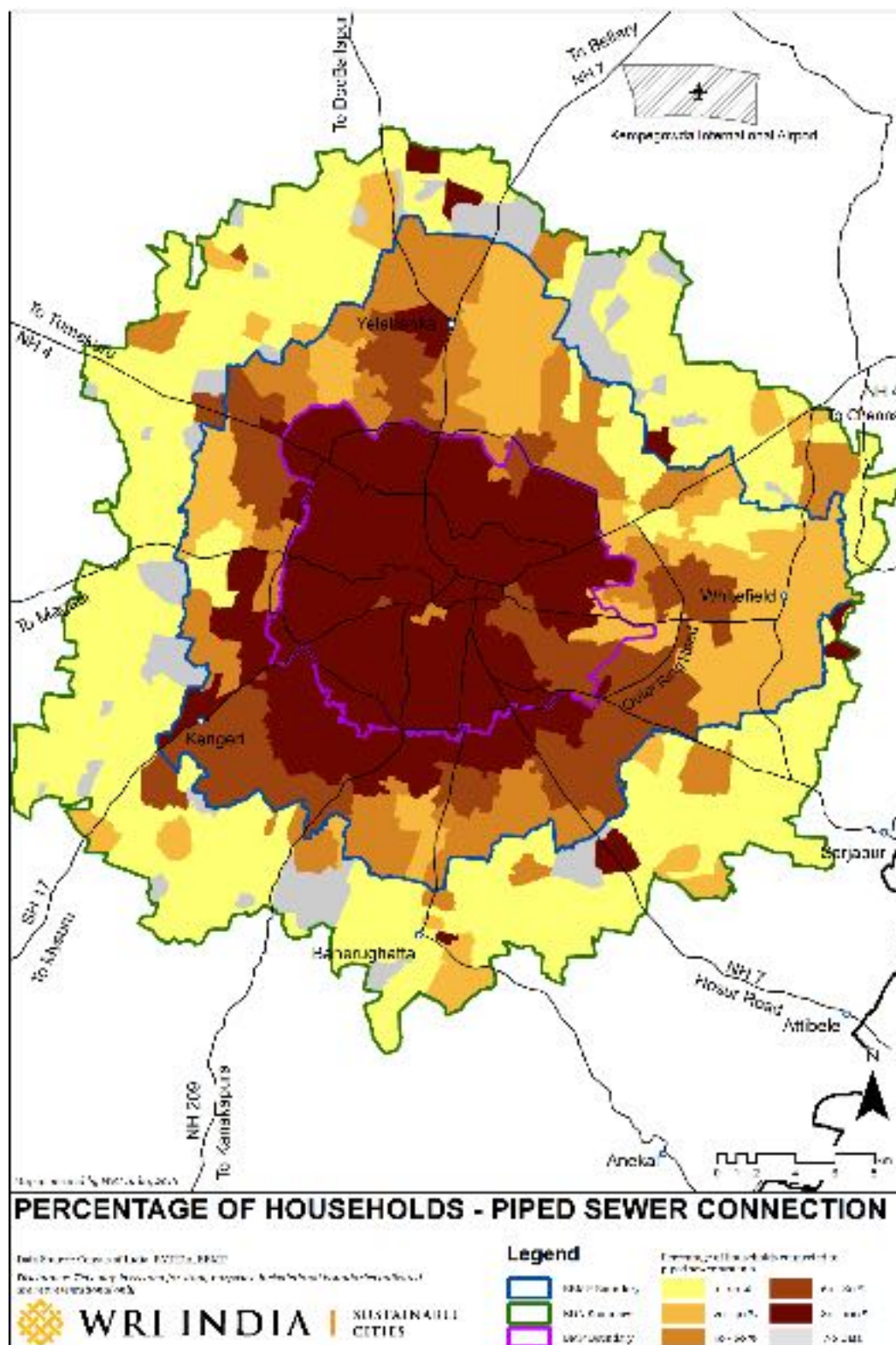


Figure 6: Percentage of households with piped sewer connection in BBMP

Data Source: Census of India, BMRDA and BBMP

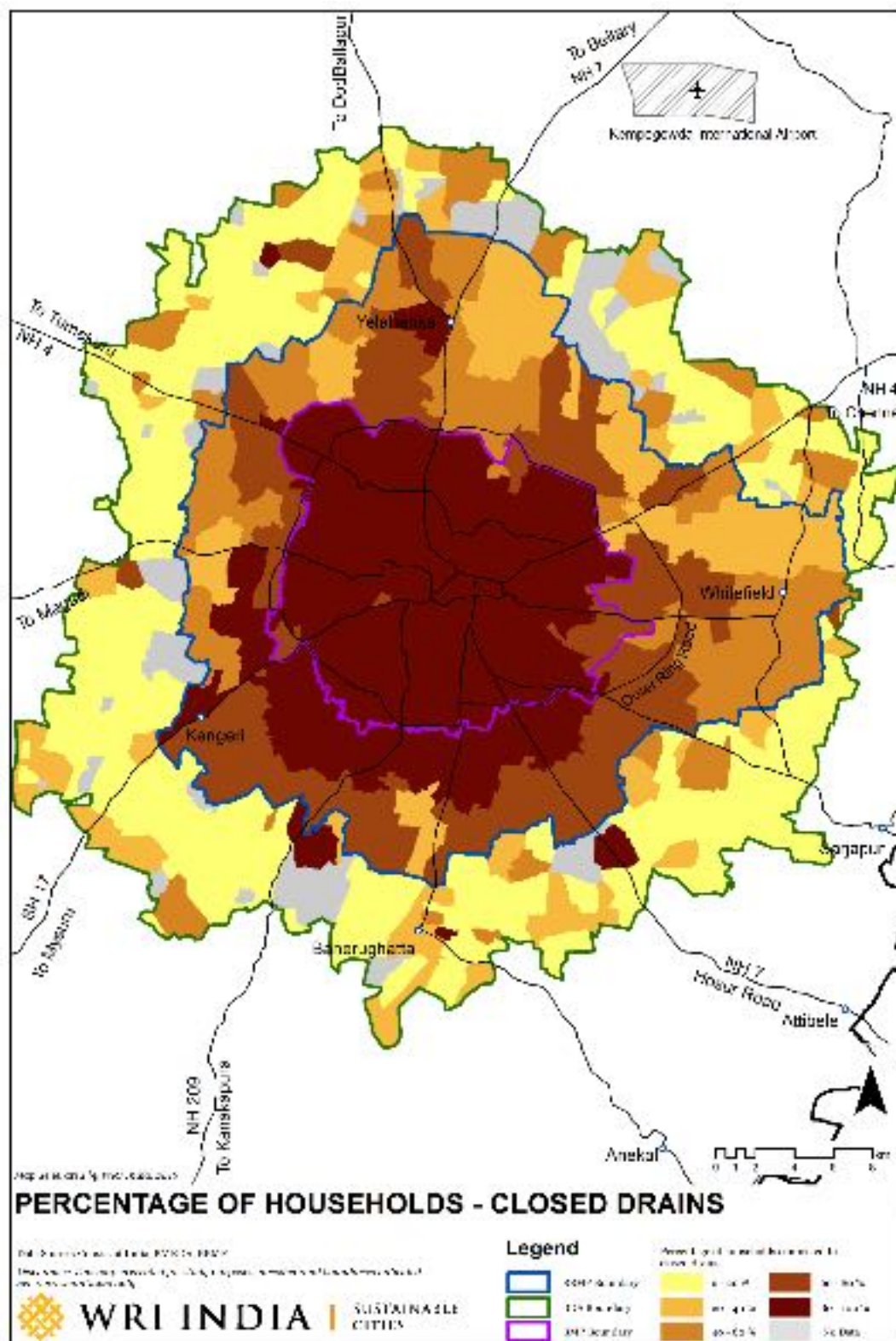


Figure 7: Percentage of Households with Closed Drains  
Data source: Census of India, BMRDA, BBMP

### ➤ Status of Solid Waste Management

Solid waste management is one of the municipal functions undertaken by the BBMP. There is a door to door collection of municipal solid waste in several wards of the BBMP. It is reported that 0.4 – 0.6 kg per capita per day is the waste generation in the city of Bengaluru. Waste generation per household is 1.24 kgs, whereas in slums it is 1.5 kgs. The total solid waste generated in the city as per BBMP estimate is 3500 tons per day (BBMP n.d.). About 80% of the house to house collection and transportation of daily waste is outsourced. About 20,000 pourakarmikas are being utilised (both BBMP and contractors) in door to door collection, street sweeping and transportation. For every 1000 households, an auto tipper and a pushcart for every 200 households is used for primary collection. At present 85% of the waste is collected from households. There is a separate system for collection of waste from bulk waste generators such as hotels, restaurants, marriage halls, markets, offices, etc. As per the High Court directions, the BBMP has notified Bulk Generators to segregate waste into different categories and manage their waste either in-situ or to utilize the services of BBMP Empanelled Service Providers (BBMP n.d.). The primary solid waste collection systems bring waste at a common point (secondary locations), from where the wastes are transported by tipper lorries and compactors to treatment sites and land fill sites that located outside the city. **Segregation at the source and at the secondary storage locations are not done effectively and hence unsegregated waste reaches the treatment sites. There are decentralised centres established in various zones for the management of dry waste collected.**

### ➤ Status of Public Transportation Service and Road networks in BBMP

Though the operational jurisdiction of BMTC extends beyond the municipal boundary, many of the residential pockets within the BBMP are underserved. It is observed that most of the urban village settlements which are away from the major road corridors such as the Outer Ring Road, Hosur Road etc. are under serviced by the BMTC. Frequency of services is low and many peripheral areas depend on share autos or private modes of transportation.

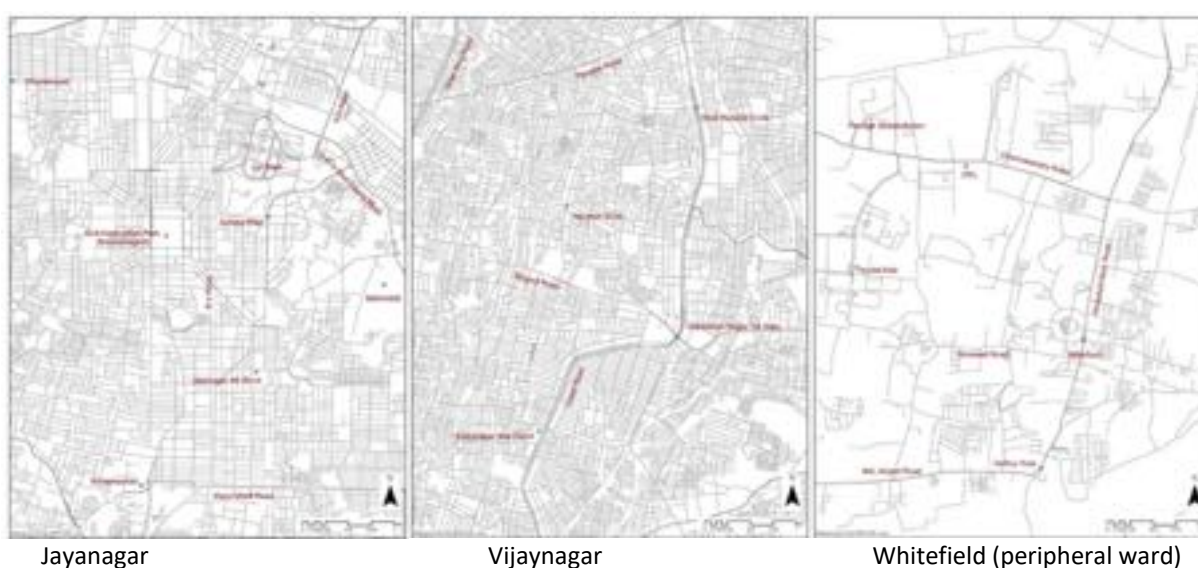


Figure 8: Disparity in road network density between the core and the peripheral area of BBMP

Data Source: Open Street Map and Google Maps, Google Earth



A closer look at areas within the erstwhile BMP (Jayanagar and Vijaynagar) and an area outside BMP (Whitefield) reveal that a very low density of roads exists in the peripheral wards when compared to any well-developed area within the city. It is observed that due to proliferation of revenue layouts and isolated pockets of large scale developments in the peripheral wards of BBMP, these areas are not adequately provided with road networks. **Width of the road networks in these layouts are often insufficient to provide services such as a public transport, and standard water supply or sewer lines.**

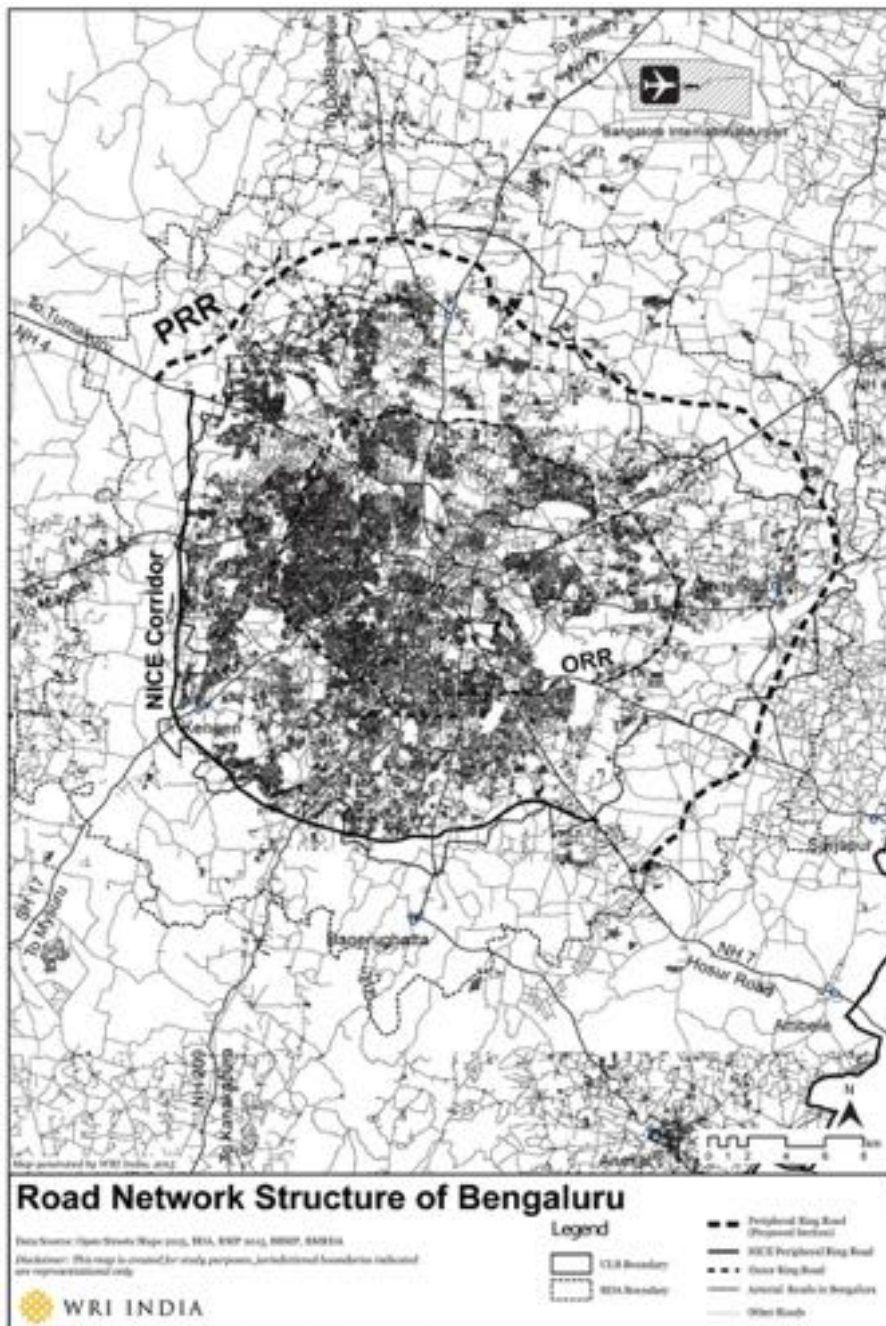


Figure 9: Road network structure of Bengaluru

Source: Image generated by WRI India, Data source: Open street Maps 2015, BDA, RMP 2015, BBMP and BMRDA

### ➤ **Absence of a clear roadmap for municipalisation**

In 2007, when BMP was expanded to become BBMP, implications of such an amalgamation on the administrative and governance set up of the BBMP were not foreseen. Many of the peripheral areas particularly the 110 villages that became part of BBMP did not have adequate infrastructure provisions such as well-established and connected road networks, water supply and sewerage networks, storm water drains and solid waste management systems. In a discussion with BBMP officials, it was stated that because of the missing linkages in the infrastructure networks in these peripheral areas, it has become difficult to connect to the existing city's main trunk infrastructure lines. Thus, the upgradation of the infrastructure amenities in the newly added areas of the BBMP have been slow. Additionally, the budgetary allocation for newly added areas get determined politically, thereby limiting the amount earmarked for certain areas. The inclusion of 110 villages where the city had not yet reached is an indication that all the criteria of municipalisation mandated in the KMC were not necessarily considered in the previous amalgamation process.

## 5.2. Development dynamics in the BMA and its implications on municipalisation

The pattern of development in the peripheral areas outside the BBMP limits are ad-hoc and are largely driven by large scale developments. Rural areas around these large-scale developments are in a state of transition and speculation (Sridhar 2009). Isolated real estate development and private layouts are interspersed with parcels of undeveloped land or agricultural land (figure 10).

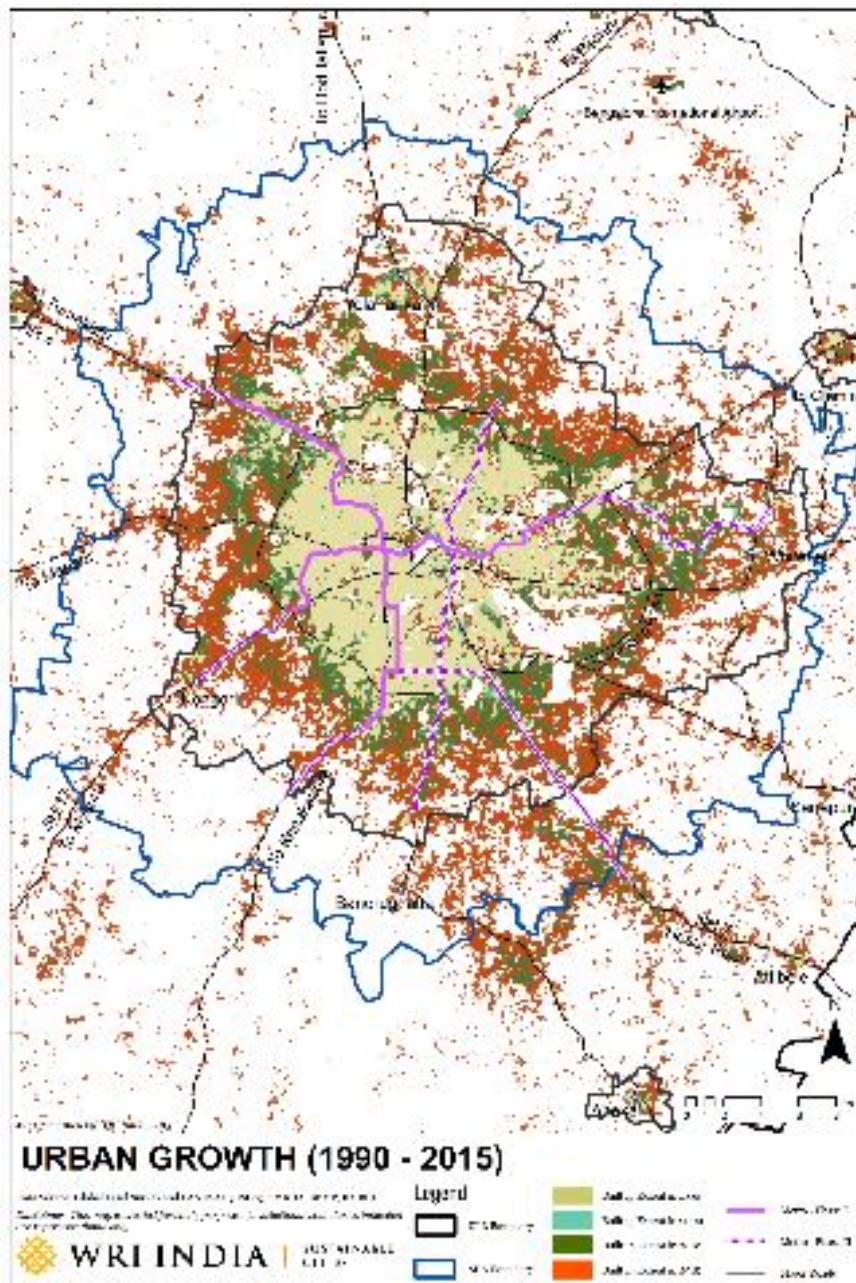


Figure 10: Urban Growth of Bengaluru (1990-2015)

Source: Image generated by WRI India, Data Source: Global Land survey and LANDSAT (USGS), BMRDA, BBMP and BMRCL



Amidst the pockets of private layouts and BDA layouts, there are also revenue layouts, which get authorised over time on the payment of property taxes. Revenue layouts were developed from 1990s onwards with the transfer of agriculture land to real estate developers who subsequently subdivided the land and sold it to buyers without getting legal approvals (Ranganathan, Kamath and Baindur 2009).

Deputy Commissioner of the Revenue Department of the district is the competent authority for issuing conversion orders and it is the concerned town planning authority that approves the layout plan (Department of Rural Development and panchayat Raj n.d.). A legal layout that is approved by the concerned planning authority should be developed with parks, roads, civic amenity sites, underground drainage, water and electricity within 18 months of providing approval for the layout formation. There is also a mandate to provide an approach to adjoining land or pieces of land within the layout but not a part of it.

Unless the layouts are formally converted to non-agriculture land (through payment of conversion fees) they are considered to have illegal status. These layouts are often developed without securing necessary planning permissions that ensure basic standards with regards to width of access roads, connections to main roads and sewer lines (Ranganathan, Kamath and Baindur 2009). The illegal layouts typically do not have adequate open spaces, access roads are too narrow and provision for water supply or sewage systems or for garbage collection are often absent. No taxes are levied or paid. Sites in such layouts called as ‘revenue sites’ are a common phenomenon in urban areas. Building plans in these revenue layouts are approved by the Gram Panchayats. **The rural bodies do not have the capacity to provide infrastructure facilities to support large scale real estate developments and hence unsustainable forms of development patterns and self-provisioning of services have prevailed in the urban expansion areas.**

**The ownership of land is legal in this case, but change of land use is not and layout formation and construction of houses are illegal. Absence of provision of water and sewage systems by the state (due to illegal nature of these sites and construction) forces people to rely on extraction of ground water and the use of soak pits for sanitation, thus affecting the environment.** The BDA area has many such urban fragments (peri-urban growth, and townships in rural settings), which will need to be municipalised sooner or later (Expert Committee: BBMP Restructuring 2015). BBMP itself is a result of absorption of such urban fragments which still face infrastructure deficits.

### 5.3. Change of Land use and its influence on development patterns in the BMR

In the Bengaluru Metropolitan Region, the responsibility of granting permission for the change of land use such as residential to commercial, industrial etc. is with the various local planning authorities. As per section 14 A of the KTCP Act, 1961 a planning authority with the previous approval of the State government under the following circumstances and conditions can grant Change of Land Use (CLU) beyond the approved master plan:

- If there is topographical or cartographical error or other omissions;
- Failure to fully indicate the details in the master plan;
- Change arising out of implementation of proposals in the master plan;
- Circumstances prevailing at a particular time by enforcement of the plan.

A common set of guidelines have been developed for the BMR region to streamline the process and apply uniform parameters to consider or reject an application made for CLU. For each of the above proviso of the Act, an indicative list of cases that may be considered for granting the permission is issued as guidelines for the Local Planning Authorities/ Development Authorities and Municipal Authorities. For instance, under the provision on circumstances prevailing at a particular time by enforcement of plan, the following list of cases may be considered:

- Establishment of SEZs/ Industrial Townships;
- Public Housing schemes by government agencies;
- Establishment of mass transit systems such as metro, ring roads, BRTS and airports;
- Any other policy of Central and State government;
- Any other case submitted by the authority with a suitable justification, may be considered by the government based on the merits such as lands in the vicinity of/ contiguous to gramathana or conurbation area, lands abutting roads or in the vicinity of roads. In such cases, it shall be ensured that the connectivity to the main road are provided through an access road of adequate width;
- Cases where land has been allotted through projects approved by Karnataka Udyog Mitra or by KIADB for industrial purposes;
- Cases where infrastructure projects are taken up by the government or government agencies or through PPP route or private developers approved by the Government subject to the condition that such developments must be integrated with the master plan;
- Land converted by revenue authorities, land in the vicinity of/ or contiguous with gramthana.

For properties falling outside the municipal limits, even if the applicant commits to provide infrastructure for the land, the opinion of the concerned local body shall be obtained, as such properties become the responsibility of the local body in the long run. Further the authority also records the opinion of the local body on feasibility of providing infrastructure.

Despite the above-mentioned guidelines for land use changes, large number of spotted developments are happening outside the conurbation of Local Planning Areas within the BMR. For instance, there has been a rampant increase in built up area outside the conurbation limit of the Bengaluru International Airport Area Planning Authority (BIAAPA), while most of the areas within its conurbation limits are still vacant. A newspaper article reports that over 750 acres of land under BIAAPA has been granted change of land use in a period of two years (from 2005 to April 2007) (Kushala 2010). Most of the conversions have been from agricultural zone to residential zone. With the construction of the international airport, real estate businesses have gathered momentum in the airport influence zone, that have resulted in rampant land use conversions. There has also been a significant number of CLU applications for the areas outside the conurbation limits of the BIAAPA master plan in the last two years. Such uncontrolled land use changes defeat the basic objective of the master plan.

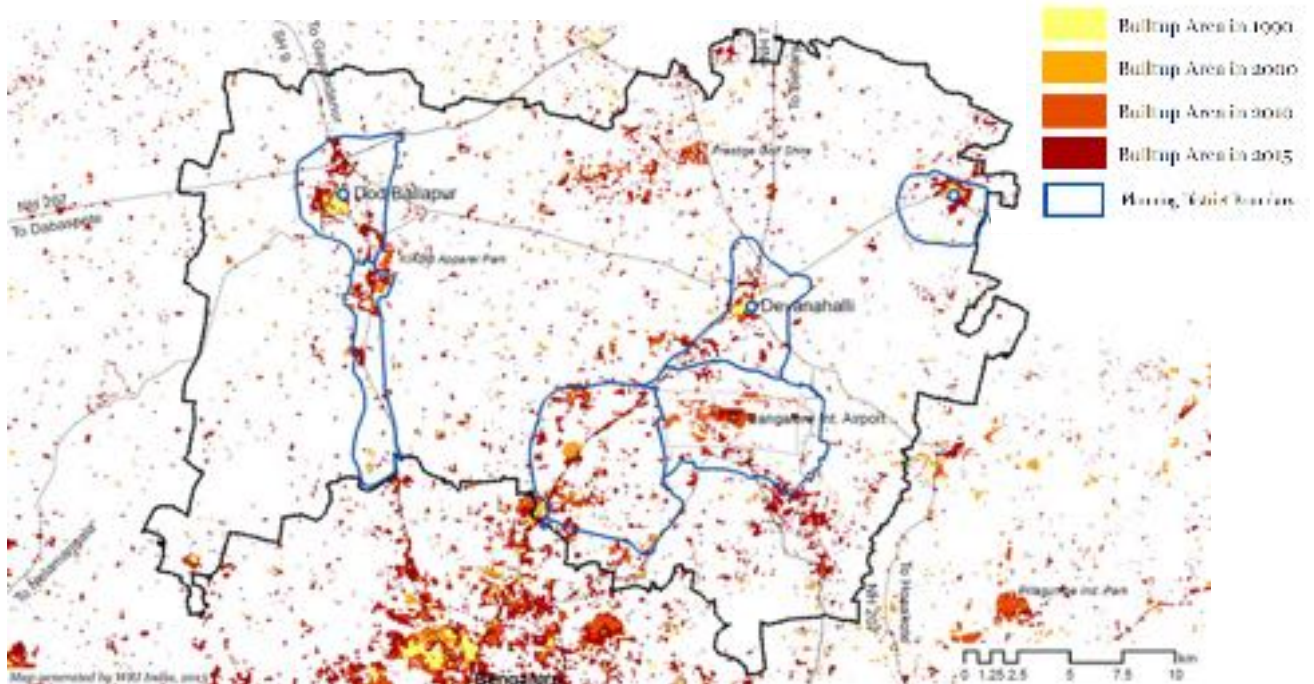


Figure 11 : Urban built up growth within and outside conurbation areas in BIAAPA, 1990-2015

Source: Image generated by WRI India, Data Source: Global Land survey and LANDSAT, BIAAPA

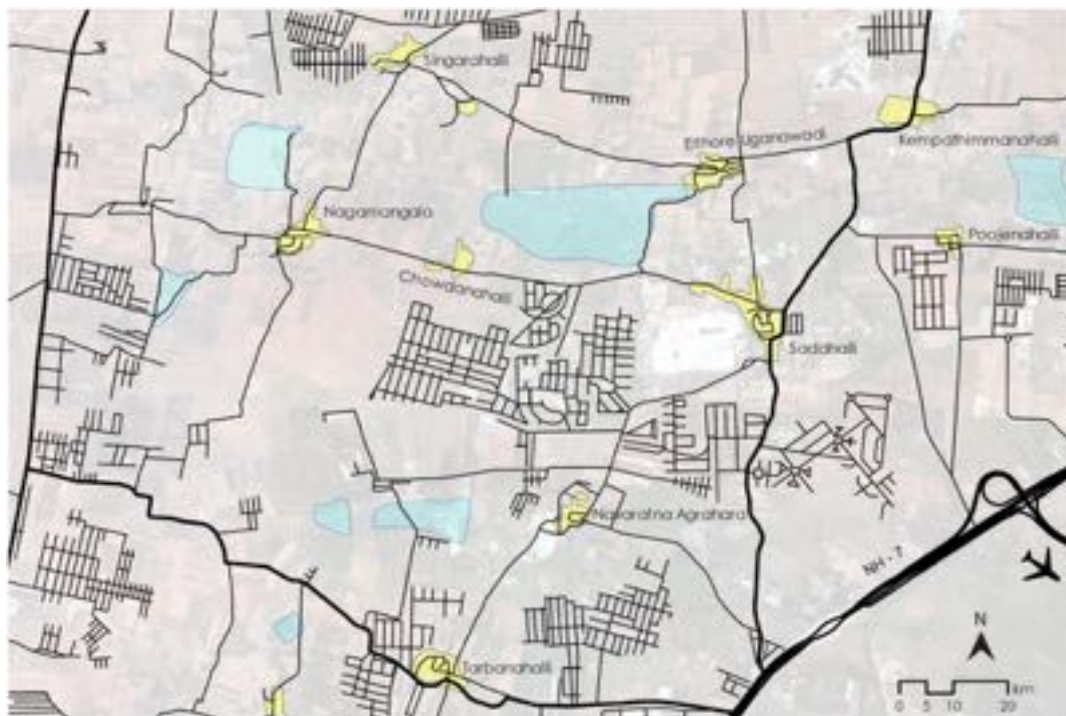


Figure 12 : Disconnected and dispersed developments and road connectivity in BIAAPA

Source: Image generated by WRI India, Data Source: Open Street Maps

#### 5.4. Urban Village Informal Expansion in the BMA

Most of the urban village settlements which became part of the BBMP jurisdiction, have transitioned from their traditional occupation pattern that involved farming, cattle rearing and agriculture allied activities into informal jobs in the earlier decades either with the onset of industrial developments or due to large scale infrastructure developments like the Outer Ring Road. Post the establishment of industrial estates by KIADB in locations like Hoodi, job opportunities increased and attracted migrants into the settlement areas that were in proximity to job locations. With the significant rise in land markets and land values, large landowning farmers earned significant revenue through sale of their farm lands, whereas the landless farmers took up informal jobs. Occupation patterns of the migrants ranged from owning small enterprises such as running autos and taxis, operating small repair shops to informal service jobs such as plumbing, painting and tailoring. With the rise in migrant population, there was a need for housing in the surrounding areas and hence rental houses started post 1990s within urban villages. Table 2 below shows the typical transition in the land development pattern that is prevalent in the peripheral areas of the Bengaluru Metropolitan Region.

Land owned (in Acres)	Caste	Source of Income
Large farmers (> 5)	Reddy and Thigala farmers	Reinvested in land, rental income, bore well business
Medium farmers (2 to 5)	SC/STs, Kurubas and other minority communities.	Rental income, financial business, reinvested in vehicles (two wheelers, tempos, auto rickshaws)
Small farmers (<2)	SC/STs	Reinvested in rental properties, small business, petty shops. Domestic help, factory employees, garment employees, security employees, as vendors and in petty businesses

Table 2: Typical landownership status of different caste groups and their source of income  
Data compiled from (CASUMM-CIVIC 2007)

##### ➤ Transition in the land development pattern

The landowning farmers who generally belonged to upper castes either rented out their houses in the older settlement areas or sold them and moved into private layouts that were provided with better amenities. While the newer private layouts developed by large scale developers came with high quality amenities and higher rental values, the houses in the older village settlement areas were available at affordable rental rates to the service class population. The village settlement areas experienced a spurt in construction of residential buildings ranging from three to four floors due to their locational advantages. These buildings, often developed on smaller plots are given out as rental accommodations.

##### ➤ Infrastructure provisions in village settlement areas

It is observed that most of the village settlement areas have organically developed road network patterns and are narrower than the standard sizes. Water supply through bore wells was provided by the Panchayats and this responsibility was taken over by BBMP post the amalgamation. Most



village settlement areas do not have underground sewer lines and the rural households have the soak pit system for sewage disposal. **Typically, infrastructure improvements such as cementing of internal road networks, public provisioning of water, open drainage networks etc. are done during the time of elections in these village settlement areas.**

While this was the situation in most of the village settlement areas as well as settlement areas within the smaller urban local bodies, decentralised governance through the Gram Panchayat (GP) system played a significant role in the development of Bellandur village. With the formation of GP, roads were widened and overhead tanks and stone roads were formed. Underground drainage systems came in 1996-97 along with tarred roads. GP had approximately 22 lakhs INR allocated for each of its 10 wards and had 22.5% of the ward level budget allocated to expenditure on SC/ST. GP effectively negotiated with the large-scale developers who began queuing up to enter the land markets in Bellandur, to provide infrastructure amenities such as Underground Drainage (UGD), which required large capital investments. About Rs 3-4 crores worth of culvert drains, sewerage, and metal roads have been done in Bellandur GP through partnerships between the GP and companies who have located there (CASUMM-CIVIC 2007).

### ➤ **Issues associated with urban villages**

**Increasing dependency on ground water for water supply:** With the rise in dependency on ground water, as it is inexpensive and unregulated, several local families have started selling water in tankers which has become a lucrative occupation. A study by CIVIC in 2007 report that in Bellandur village, four families mainly are involved in selling tanker water pumped from 5 to 6 borewells dug on their land. It is estimated that about 20 - 25 bore wells are dug in the area and 50% of these borewells become dry very quickly. The quality of ground water has also worsened, in large part due to the indiscriminate dumping of sewage in Bellandur Lake and surrounding drains.

**Environmental management issues pertaining to sanitation:** Many gram panchayat areas along the main road and fast growing locations gain access to infrastructure facilities such as underground sewerage networks through public private partnerships. However, it is observed that due to lack of environmental management, underground drains release sewage from these village areas into kaluves and lakes. For instance, Bellandur which used to provide drinking water to the villagers earlier, has become one of the most polluted lakes in the city. In addition to letting out sewage into the lake, mud and debris from construction sites are dumped in the open areas near the lake.

Another phenomenon which is observed across the urban villages in the city is that there is a tendency for the informal settlements such as slums and squatters to settle in the immediate peripheral areas of such urban villages. In Hoodi village in the Whitefield area of Bengaluru which is within urban limits, few families who were landless or who sold their land, lived on the common land or gomala land which belonged to the government and did farming on the land that was not registered in their names (CIVIC 2007). The common lands, if acquired by the government are converted into proposed developments by the government or tend to get notified as a slum at a later stage.





Figure 13: Urban villages in the area outside BMP, but within BBMP.

Source: Image generated by WRI India, Data Source: KRSAC, BBMP, BMRDA, BDA, Karnataka Land Records

### ➤ Abstract of the case study conducted at Kalkere Village

A field study that involved 100 household surveys was conducted at Kalkere village settlement area by WRI India with the assistance of students from the Azim Premji University. This study was conducted with the objective of (i) to understand the status of physical infrastructure provisions such as water supply, sewerage and drainage facilities in the village and influence of BBMP in service provisioning in the area; and (ii) to understand the physical transformation of the village and influence of BBMP governance in the transition.

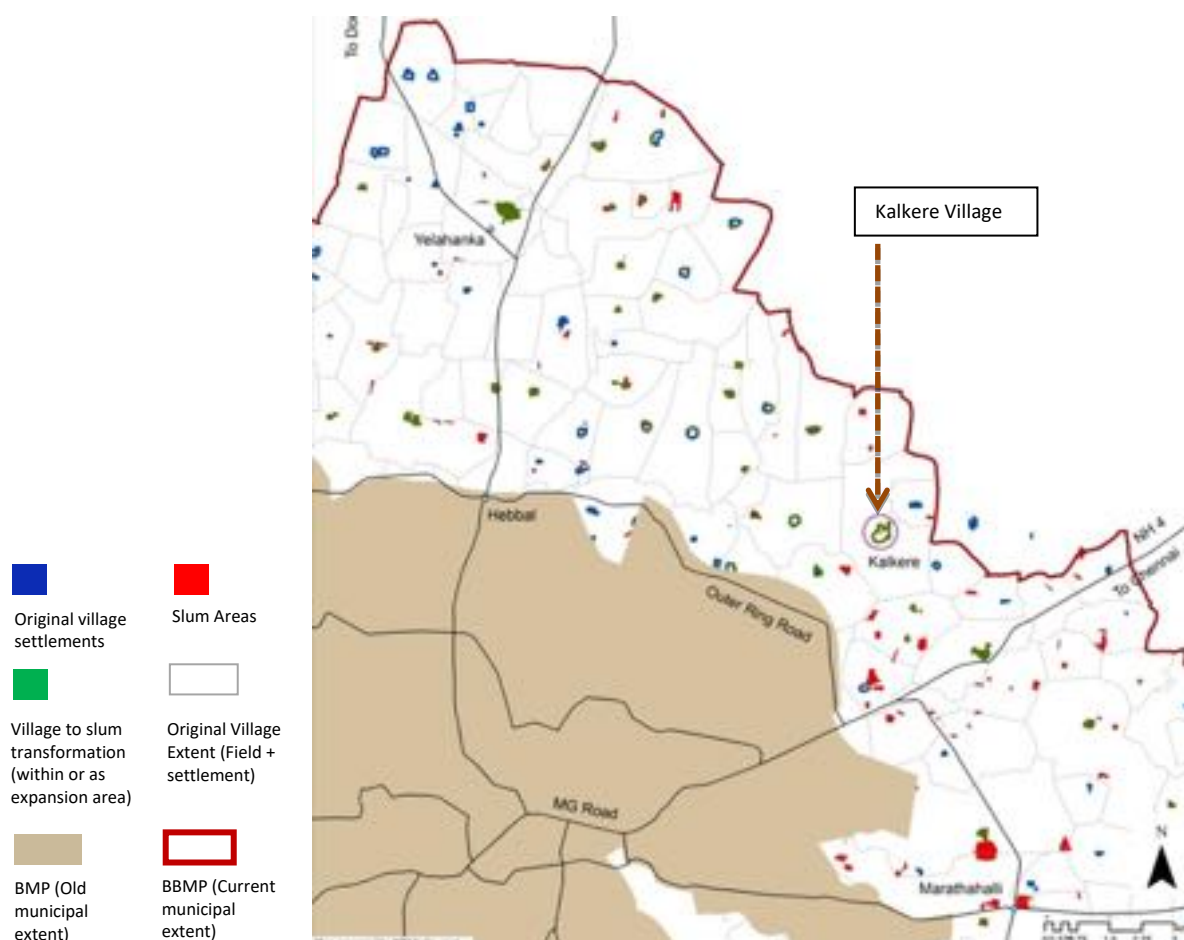


Figure 14: Location of Kalkere village in Bengaluru

Source: Image generated by WRI India, Data Source: KRSAC, BBMP, BMRDA, BDA, Karnataka Land Records

Kalkere village settlement area falling under Horemavu village and currently in the Ramamurthy Nagar ward of BBMP is located approximately 3 kms off the outer ring road, along the Hormavu – Kalkere main road. This village was predominantly an agrarian society in the earlier decades, where farming and cattle rearing was a predominant means of livelihood. With the increase in urbanisation trends in the surrounding areas, landowning farmers sold their agriculture land to real estate

developments and the landless labourers shifted to informal jobs such as daily wage labour and petty shops. Few of the original settlers of the village continue to practice farming and cattle rearing. The village which was originally dominated by the Brahmin community, in the later decades predominantly housed the Kuruba communities. Most landowners who sold their lands moved to layouts which have planned road networks and better quality water supply and other services.

#### ➤ Status of Infrastructure provision in the village

**Water supply:** The residents of Kalkere are supplied with bore well water by BWSSB. While majority (about 89%) of the houses surveyed have piped water supply, 11% of the population had to collect water from hand pumps, community tanks or borrow from other houses. Slum dwellers are provided with private water supply by the landowner, however they also borrow water from the bungalows in the locality to meet their additional needs. While the water supply is provided free of cost, few houses pay an amount to the lineman to release water to their houses.

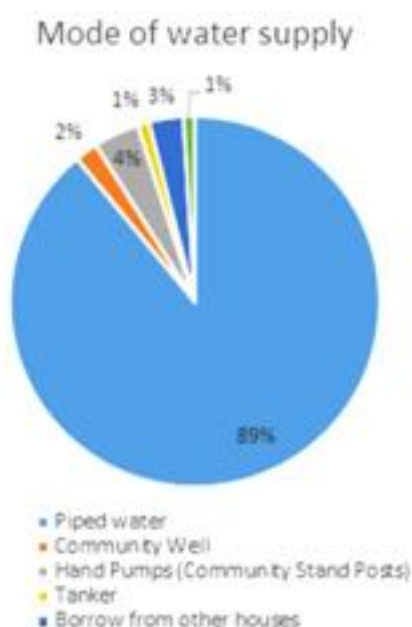


Figure 15: Mode of water supply in Kalkere



Figure 16 Collecting drinking water from a vending machine

For the drinking purpose filtered water is supplied through vending machines which work like coffee vending machines. The cost of 20 litres of water supplied through the vending machine is Rs 5, which is much cheaper than the private water cans. While majority of the respondents surveyed depend on this government supplied drinking water facility, some of families use privately supplied water cans for drinking purposes.

#### Sewerage & Solid waste management

There is no underground sewerage system provided for sewerage disposal in the settlement area. There are soak pit systems and septic tanks for night soil disposal. While majority have soak pit systems, about 10% of the respondents mentioned having septic tank systems for toilet waste disposal. There are public toilets provided in the village, which is used by 5% of the respondents

surveyed. Residents in the make shift tents located in the periphery of the village do not have any toilet facilities. It is observed that houses are connected to open storm water drains to dispose grey water. Garbage collection is done by BBMP, but not on a regular basis.

**Transportation facilities:** BMTC buses ply on the Hormavu Kalkere main road to destinations such as Hoskote and Hormavu junction on the Outer Ring Road. However, the public transportation system is not provided to satisfactory levels as the frequency of buses are less than the requirement and hence the residents depend on the share auto systems which are expensive when compared to bus services.

Other public amenities such as fire stations, police stations, community halls and hospitals are within a radius of 3 kms from the village settlement areas. There is a government school and anganwadi located within a km of the village. As there are instances of cattle rearing still practiced in the village, a veterinary clinic operates twice a week.

➤ **Impact of municipal governance on the village**

- **Improvement in infrastructure facilities:** With the inclusion into the BBMP, there has been a considerable level of improvement in the basic infrastructure services in the Kalkere urban village. Many of the roads within the village have been concreted, water supply (untreated piped supply) has improved and closed drains were provided within the settlement areas. However, Cauvery water supply is not yet provided in the settlement area and underground sewer lines are not yet established in Kalkere village.
- **Increase in unplanned and unregulated building constructions:** There has been an increase in the unplanned and unregulated construction of buildings within the area. Newer buildings encroach the natural drainage lines and sufficient building set backs are not provided. Low rise apartments for rental accommodation are built in the settlement areas, which turn out to be preferred rental accommodations for migrant workers. Migrants prefer to stay in these buildings as the rents are lower when compared to the adjoining private layouts and other apartments along the Kalkere main road outside the village settlement area. Villagers also opined that the green spaces reduced with the conversion of agricultural land and cattle grazing lands into built up areas.
- **Reduced accessibility to government officials:** While there has been a considerable improvement in the infrastructure services, majority of the respondents surveyed felt that **their accessibility to the government officials reduced once they were merged with BBMP as they now have to approach multiple departments for infrastructure service provisions, when compared to a single Panchayat head who was more accessible.** For instance, multiple government departments such as BBMP, BESCO and forest department of BBMP needed to be contacted to solve an issue of cutting tree branches over which electric wires ran and takes very long to resolve. The same issue under a Panchayat rule, could get solved with the help of any one of the 8 panchayat members. **Multiple departments with poor coordination amongst them has been reported to be a challenge by the residents of the village.** The villagers were also of the opinion that there has been increase in the property taxes and increase in bribes demanded.

## 6. Challenges and Opportunities

- **Isolated pockets of developments in the BDA area are straining a planned development approach in the periphery:**

Under the influence of large scale infrastructure projects such as Bengaluru International Airport and Bengaluru- Mysore Infrastructure Corridor Project, isolated pockets of developments have proliferated in the areas beyond the municipal boundary. **Layout plans for large scale developments are approved without considering the impact on infrastructure provisions.** Village Panchayats and City/Town Municipal Councils grant building permissions for setting up high end residential enclaves and industrial parks without consulting the concerned planning authorities. The connectivity of the storm water drains and sewer lines of these layouts to the external network is an issue, as in most cases, the trunk infrastructure lines are not established on ground by the government agencies. Undeveloped lands in the peripheries hence find it difficult to access infrastructure services at a later stage. Effluent from many large industrial areas are disposed into nearby waterbodies causing pollution and degradation of the water bodies.

- **Rampant Land use conversions and land use changes put a strain on infrastructure provisions and lack linkages to regional planning frameworks:**

Areas outside the jurisdiction of BBMP and other municipalities in the region primarily depend on groundwater for domestic as well as non-domestic water supply needs. When a large-scale development is permitted on a land in an area outside the jurisdiction of the municipal authority, then such a development for instance will depend on the ground water to meet its water supply needs. This will adversely affect the ground water level of the wells in nearby village settlements for example for have relied on such sources for generations. While large scale developments are expected to take care of their own infrastructure services without implicating the authority, the cumulative burden is not envisaged. Power supply lines for instance have to be pulled over large distances to service these island developments, and similarly solid waste management, traffic impacts etc. are not envisioned. **Depleting ground water tables pose an unanswered critical future question.** Long term implications on the authority for infrastructure provision are not accounted for, ground water based population limits are not understood, traffic and transportation impacts are not addressed, preserving prime agricultural land and double cropping and protecting valleys and drains are not addressed. Networks of valleys, drains and lakes need to be better understood and preserved to ensure lakes do not go dry. **Though there are conditions laid to check the capacity of municipal bodies to provide infrastructure in such areas in the future, the immediate impact of such large scale developments on existing village settlements are not considered. Further to this, the guidelines for land use change do not mandate cross checking whether it compatible with the land utilisation zones of the Revised Structure Plan (RSP), 2031 for the BMR.** Land capability analysis in the RSP indicates zones which are more suitable to urbanisation as well as region's ecologically sensitive areas, and natural features which are to be conserved for development activities.



- **Parastatal agencies having functional autonomy play a significant role in shaping the land development trends in the areas outside the BBMP limit:**

Planned localities such as the Export Promotion Industrial Park (EPIP) developed by KIADB and BDA layouts are provided with upfront provision of infrastructure to attract potential buyers. While most of the areas falling in the jurisdiction of CMC, TMC and GP rely on bore well water, the BDA layouts and few pockets where large apartments and companies exist, were provided with Cauvery water supply. Infrastructure provisions in the areas outside these planned areas are made from municipal funds or panchayat funds incrementally over time in response to the demands from the residents. This indicates the absence of a framework to plan for and integrate peripheral areas with the metropolitan area and region, thereby creating future challenges for municipal corporations.

- **Disparity in infrastructure services between the core BMP and newly added areas of the BBMP:**

There is a significant difference in the provisioning of municipal services in smaller urban local bodies (CMCs and TMCs) and the BBMP, which continues to exist till date post amalgamation. Prior to the Greater Bengaluru Water and Sanitation Project (GBWASP) project, all the urban local bodies outside the erstwhile BMP jurisdiction were supplied with bore well water by the CMCs and TMCs, while this function in the BMP is carried out by BWSSB which provided Cauvery water to the city. Despite the amalgamation of these areas with BMP to form BBMP, more than 50% of the households in the peripheral wards continue to depend on bore well water supply. Cauvery River however forms the main source of water supply to Bengaluru urban area; it is estimated that the quantity at the primary source will not be sufficient to meet the additional demand of the expanding city. **Due to haphazard urbanisation, there has been indiscriminate drilling of bore wells by individual households, business establishments and industries which has resulted in depletion of ground water levels and over exploitation of ground water resources.**

- **Lack of coordination between parastatal agencies and municipal corporation:**

Urban service provision such as water supply, sewerage and drainage lines are listed as functions of municipal bodies under the municipal laws in the twelfth schedule of the 74<sup>th</sup> CAA. However, these functions are carried out by the parastatal agencies in the city of Bengaluru under the directives of the State government. The parastatal agencies being State government's statutory agency are not answerable to urban local bodies such as BBMP and CMCs and TMCs outside BBMP. These Urban Local bodies have lesser control over the parastatal agencies that operate at a larger scale.

Smaller urban local bodies such as CMC and TMC are often not involved in the decision-making process of projects that are planned by the parastatal agencies for these Urban local bodies. For instance, the Greater Bengaluru Water and Sanitation Project initiated in 2003 by the Government of Karnataka, was proposed to cover the 8 ULBs that were added into BBMP with Cauvery water supply, at par with the core BMP area. BWSSB operated and controlled the project with minimum involvement of the urban local bodies in the decision-making process. The CMCs and TMC were entrusted with the task of collecting the

Beneficiary Capital Contribution (BCC) from the consumers and depositing it in an escrow account maintained by BWSSB.

- **Jurisdictional expansion without functional and administrative autonomy of zonal offices:**

The expansion of the municipal boundary, resulted in disempowerment of local governments in the peripheries for close to 4 years, as fresh elections in the newly created BBMP was delayed till 28<sup>th</sup> March 2010 (Idiculla n.d.) Till the elections took place in BBMP, there was uncertainty in the role of the elected councillors of the erstwhile CMCs and TMCs. With the inclusion of these urban local bodies in the BBMP, issues of the respective wards, for instance cleaning of a blocked drain, had to get approved by the BBMP first, as the erstwhile elected councils were not in power. CIVIC Report (2008) state that with the creation of BBMP, there has been a considerable political centralisation, as there has been a reduction in the number of elected representatives when compared to the erstwhile GP and Municipal Council system. For instance in 2008, when BBMP was created, the number of elected representatives in Mahadevpura Zone (as shown in the table attached), was reduced to 10 councillors from 174.

Name of area	Earlier under CMCs and Panchayats	Under BBMP
Mahadevpura Zone	Mahadevpura CMC: 32 Corporators K R Puram CMC: 32 Corporators 11 Panchayats: Approx.110 members <b>Total = 174 elected representatives</b>	10 Corporators for Mahadevpura Zone 1 Zonal DC for approx. 5 lakh people 5 Joint Commissioners in 5 range offices
Bommanahalli Zone	Bellandur GP :19 members	1 Corporator from Bellandur sub-zone (11 villages – approx. 30 GP members)
RR Nagar Zone	Kengeri TMC: 23 Corporators	1 Corporator for the sub zone
	Corporator's constituency: 4000-8000 people	Corporator's constituency: 50,000 people
	12 MLAs for Bengaluru Urban	28 MLAs for Bengaluru Urban

Table 3: Elected representatives in three zones of Bengaluru

Data source: (CASUMM-CIVIC 2007)

- **In the transition period (2007-08) of erstwhile CMCs and TMCs into BBMP, there was no clear schedule or timeline at the zonal and sub-zonal offices as to what functions will continue and what will be stopped.** Decision making processes became centralised with the creation of BBMP, as the zonal officials must get permission and approval of BBMP commissioner to perform their functions.
- **Poor representation of urban villages and informal settlements in the urban development process:**

Urban villages and informal settlement areas have been least represented in the urban development process dialogue. It is evident that urban villages and informal settlement areas in the 110 villages, got merged administratively with the municipality in the process of the municipal boundary expansion, with not much upgradation in the physical or social

environment. These urban villages have in most cases become the preferred housing location for various classes of migrant population. A review of study done by CIVIC for three villages (Hoodi, Bellandur and Kengeri) that were merged with the city in 2007 revealed that these village provided rental accommodation to a migrant service class population. High skilled employees who can afford to pay higher rental values stayed in planned layouts. **Infrastructure provisions in the urban villages are provided by the urban local bodies and are often channelized through local politicians during the time of elections, as these village settlement areas form a major vote bank.**

The BBMP Restructuring Committee was set up at an opportune time to address the various challenges as discussed that exist within the municipal boundary and the potential challenges that will arise when the municipal jurisdiction will once again need to be expanded to reach the BMA jurisdiction. Learnings from the expansion of BMP to BBMP will serve to inform the process along with clear criteria and a road map is to be ensured the next time around.

## Bibliography

BBMP.

<http://bbmp.gov.in/documents/10180/512162/City+Statistics+New+Microsoft+Office+Word+Document.pdf/148f685d-58cd-402c-9c5c-bccb344eda2d> (accessed August 18, 2016).

—. <http://bbmp.gov.in/documents/10180/512162/Overview.pdf/8b6ef323-429c-4959-aceb-b894f0ee0685>.

BESCOM. <http://bescom.org/en/offices/> (accessed December 27, 2016).

Bhagat, Ram B. "Rural–urban classification and municipal governance in India." (Department of Geography, National University of Singapore and Blackwell Publishers Ltd) 26, no. 1 (2005): 61-73.

BMRDA. *Bangalore Metropolitan Region Revised Structure Plan 2031*. Bengaluru: BMRDA.

"BMTC Role in BBMP presentation."

BWSSB . *BWSSB's Overview* . 2016.

CASUMM-CIVIC. "Urban Local Government, Infrastructure Planning and Urban Poor ." 2007.

Centre for Policy Research. *Rural Local Body Core Functions and Finances, A study for the Fourteenth Finance Commission*. Delhi: Finance Commission India, 2014.

CIVIC and CASUMM. "Urban Local Government, Infrastructure Planning and the Urban Poor." Bangalore, 2007.

CIVIC. *Urban Local Government, Infrastructure Planning and the Urban Poor*. CIVIC , 2007.

Commissionerate of Urban Land Ceiling and Urban Land Tax.

Department of Rural Development and panchayat Raj .

Domenech, Laia. *Rethinking water management: From centralised to decentralised water supply and sanitation models*. Documents d'Anàlisi Geogràfica, 2011.

Expert Committee: BBMP Restructuring. "Bengaluru: Way Forward ." June 2015.

Human Development Resource Centre. *Decentralisation in India Challenges and Opportunities*. no. Discussion paper series 1. New Delhi: UNDP.

Idiculla, Mathew. *Who Governs the City? The Powerlessness of City Governments and the Transformation of Governance in Bangalore*.

Kumar, V.C. *Presentation on Status of Water and Sanitation in Bangalore, BWSSB*.

Kushala, S. *Govt Suspects Scam, Stops conversion of agricultural land*. Bengaluru, 16 September 2010.

National Social Watch Coalition. *Citizen's Report on Governance and Development*. New Delhi: Sage Publications, 2007.

Pandey, K.K. "Administration of urban development and urban service delivery." *Theme Paper for the 56th Members' Annual Conference 2012*. New Delhi: Indian Institute of Public Administration, 2012.

Pani, Narendar, and G Chidambaran Iyer. *Evaluation of the Processes in the Implementation of Jawaharlal Nehru National Urban Renewal Mission in Karnataka prepared for Karnataka Evaluation Authority*. Bengaluru: NIAS, 2013.

Raghunandan, TR. *Rural Infrastructure, Panchayati Raj and Governance*,. IDFC, Delhi: Oxford University Press, 2007.

Ramanathan, Ramesh. *Urban services: Too many cooks*. Bengaluru: India Together, 17 January 2005.

Ranganathan, Malini, Lalitha Kamath, and Vinay Baindur. "Piped Water supply to Greater Bangalore: Putting the Cart before the Horse?" *Economics & Political Weekly*, August 2009: 53-62.

Report of the Expert Committee. "Report on Governance in the Bangalore Metropolitan Region and the Bruhat Bangalore Mahanagara Palike." Bengaluru: Government of Karnataka, March 2008.

Revised City Development Plan for Bengaluru under JNNURM Volume 1.

Sridhar, Kala Seetharam. *Land as a Municipal Financing Option: A Pilot Study from India*. Bengaluru: PAC, 2009.

Sudhir. *Will Bangalore have to be Evacuated by 2023*. Bangalore, 13 April 2013.

Urban Development Department. *Urban Development Policy for Karnataka (Draft)*. Policy Document, Bengaluru: Government of Karnataka, 2009.

World Bank & United Cities and Local Governments. *Decentralization and local democracy in the world*. Barcelona: United Cities and Local Governments, 2008.

World Bank. "Local Governance." 2009.

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/0,,contentMDK:22392474~pagePK:210058~piPK:210062~theSitePK:244363,00.html> (accessed August 5, 2016).



# LAND PROCUREMENT RECOMMENDATIONS

Expert Committee : BBMP Restructuring

2016 - 2017



**BBMP**  
RESTRUCTURING

Chairman: B. S. Patil, IAS (Retd)  
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# Land Procurement Mechanisms for Public Purposes

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## List of Abbreviations

AR	Accommodation Reservation
BBMP	Bruhat Bengaluru Mahanagara Palike
BDA	Bengaluru Development Authority
BESCOM	Bengaluru Electricity Supply Company
BMA	Bengaluru Metropolitan Area
BMLTA	Bengaluru Metropolitan Land Transport Authority
BMR	Bengaluru Metropolitan Region
BMRL	Bengaluru Metro Rail Corporation Limited
BMRDA	Bengaluru Metropolitan Region Development Authority
BMTCL	Bengaluru Metropolitan Transport Corporation
BWSSB	Bengaluru Water Supply and Sewerage Board
CRS	Cluster Redevelopment Scheme
DRC	Development Rights Certificate
DTCP	Directorate of Town and Country Planning
EWS	Economically Weaker Section
GBA	Greater Bengaluru Authority
GP	Gram Panchayat
JDM	Joint Development Model
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KHB	Karnataka Housing Board
KIADB	Karnataka Industrial Area Development Board
KLR Act	Karnataka Land Revenue Act
KSIIDC	Karnataka State Industrial and Infrastructure Development Corporation
KSSIDC	Karnataka State Small Industries Development Corporation
KTCPA	Karnataka Town and Country Planning Act
LAA	Land Acquisition Act
LIG	Low Income Group
LPA	Local Planning Authority
LPS	Land Pooling Scheme
MHADA	Maharashtra Housing and Area Development Authority
MPC	Metropolitan Planning Committee
NAIA	Navi Mumbai Airport Influence Notified Area Scheme
ORR	Outer Ring Road
PAP	Project Affected Person
PRR	Peripheral Ring Road
RFCTLARR	Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement
RSP	Revised Structure Plan
STRR	Satellite Town Ring Road
TDR	Transferable Development Rights
TMC	Town Municipal Council
TPS	Town Planning Scheme
ULB	Urban Local Body
WRI	World Resources Institute

## Executive Summary

The Bengaluru Metropolitan Region (BMR) contributes to 37% of Karnataka's income (2012-13) despite an occupation of only 4% of the State's area, and 19% of its population. Being a preferred destination for investments the city is witness to rapid urban expansion, population growth and the inevitable need for planned and serviced land. Land for public purposes in Bengaluru's City-Region is compulsorily acquired by various government agencies using the provisions of the Central Land Acquisition Act (the erstwhile 1894 Land Acquisition Act or the current Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement (RFCTLARR) Act, 2013) or through Agreement. Agreement includes negotiated purchase, transferable development rights and lease of land.

Several key infrastructure projects in the Bengaluru Metropolitan Region have been stalled primarily due to land acquisition hurdles, and cost and time over runs. With the higher compensation packages to be offered under the newly enacted land acquisition Act, many government agencies are financially unable to meet the expenses related to acquisition. For instance, the cost estimated for the development of the Satellite Town Ring Road in 2006 escalated by 25 times in 2015 and the implementing agency is rethinking its previous approach of acquiring land through compulsory acquisition. Post the enactment of RFCTLARR Act, 2013 that replaced 1894 Land Acquisition Act, the city of Bengaluru had to revise its compensation packages for its ambitious Peripheral Ring Road (PRR) project (BDA 2015). Unable to pay out the increased cost, the Bengaluru Development Authority (BDA) in recent times has been considering using alternative methods to implement the project such as awarding transferable development rights, developed plots to land losers and implement other value capture techniques. Bruhat Bengaluru Mahanagara Palike (BBMP) also faced challenges of delays and cost overruns in land acquisition particularly for its mobility related projects. Within the BBMP jurisdiction, implementation of Transferable Development Rights (TDR) lacked clarity and transparency and hence it became unattractive to the TDR purchasers. In addition to this, access to land for different public purposes is plagued by issues such as lack of coordination among multiple authorities, poor property records, lack of proper surveys and irregular transactions of public and private lands, lack of an area development approach and untapped potential of land value capture in major infrastructure projects. A detailed assessment of the PRR project revealed that the PRR was envisioned as a direct corridor passage that would result in land parcels not being transitioned in a planned manner from a rural to an urban purpose. There has been only a partial thrust towards an area development approach, with no clear plans to implement a hierarchy of road networks or other infrastructure facilities and amenities in its impact area. There was also a critical gap in the communication of the project with people directly affected by the PRR's implementation. Challenges related to land acquisition in the BMR can be thus summarised as follows:

- Implementation of alternatives to compulsory acquisition such as TDR have failed to gain traction in Bengaluru Metropolitan Region due to a lack of clarity in the process;
- Higher compensation under the RFCTLARR imposes financial burden on various government agencies, thereby affecting the timely implementation of significant development projects in the region;

- Service delivery is severely hampered because of the lack of coordination among multiple authorities and departments involved in various development projects in the region;
- Lack of an area development approach in land acquisition leads to land value benefits being captured by intermediaries and private developers resulting in a market dominated area development and speculative growth.

It is therefore imperative that alternative mechanisms to access land for public purposes must be introduced to ensure better acceptance from people, bring in an area development approach and enable land value capture. Several states and cities in India are exploring or have successfully implemented such alternatives to access land which include methods such as land readjustment, land pooling, leveraging resources of the private sector and non-monetary compensation such as the grant of development rights. Depending on the nature of the project, i.e., whether greenfield or brownfield, development objectives and the shortcomings in the current land delivery system the public authorities can choose from a range of options to access land.

**Recommendations towards this made are as follows**

1. Emphasis on area development approach rather than mere strip developments for large scale projects that have the potential to transform areas around them;
2. Promote equitable methods for accessing land using alternative mechanisms so that land can be accessed without much resentment from the landowners and accessibility to land is provided to all income groups without much financial burden on the government agencies.
3. Execution of strategic infrastructure development projects that need large tracts of land should be backed by a high degree of political will, administrative commitment and the appointment of a dynamic leader to drive the project;
4. Amendments recommended by the Directorate of Town and Country Planning (DTCP), Karnataka towards modification of the existing (and yet unused) legislation on Town Planning Schemes are to be expedited and passed in the Karnataka Legislative Assembly;
5. Transferable Development Rights (TDR) which is already enabled as per the KTCPA 1961, needs to be complimented with the principles of Accommodation Reservation (AR) and better marketed to ensure implementation of public purposes as designated in City Master Plans;
6. Parameters of efficiency as well as equity should to be built into land legislation that enables the use of alternatives mechanisms to avoid resentment and resistance from project affected people.
7. The Peripheral Ring Road Project (PRR) which runs through agricultural, residential and commercial land parcels should adopt a hybrid model of land assembly that uses land pooling and land readjustment in greenfield areas (like the TPS), the Cluster Redevelopment approach in built up areas and the Joint Development Model in difficult stretches where the private sector can assist in land assembly;
8. The Satellite Town Ring Road (STRR) project that predominantly runs through greenfield agricultural peripheries should access land for its implementation through land pooling and readjustment mechanisms without any increase in development rights along its alignment to prevent speculation. Only in stretches which abut satellite towns and other growth nodes should higher development rights be encouraged;



9. Land value capture must be leveraged as a fiscal tool to offset the capital investment costs of infrastructure projects through the use and implementation of alternative mechanisms to access land in both brownfield and greenfield contexts.
10. The Coordination Committee (currently) and the proposed Greater Bengaluru Authority (GBA) (in future) must play the critical role of coordinating the activities of land procurement and development agencies to prevent the proliferation of disconnected and dispersed development patterns in Bengaluru City's peripheries.

## 1. Recommendations | Land Procurement Mechanisms for Public Purposes

### 1. Emphasis on area development approach rather than mere strip developments for large scale projects that have the potential to transform areas around them.

Large strategic infrastructure projects that have a tremendous potential to transform areas around them such as ring roads for the city must be implemented as area development projects by a competent agency and not as mere strip of linear road. Projects such as ring roads for the city that range in length from 65km (PRR) to 208km (STRR) have tremendous transformative impacts on areas surrounding them including rampant land speculation and rapid urban development pressures. An area development approach will ensure that an impact zone of 1 to 2 km from such major infrastructure will have good access to it, ensure rural irregularly shaped parcels are transformed to regular shaped plots and the provision of basic services and amenities is undertaken. The BMRDA has rightly demarcated an area development authority around the STRR that will employ alternate mechanisms to plan and service the land such as land readjustment and reservation of public purpose lands.

### 2. Promote equitable methods for accessing land using alternative mechanisms so that land can be accessed without much resentment from the landowners and accessibility to land is provided to all income groups without much financial burden on the government agencies.

Recognising the multiple challenges that have arisen from the compulsory acquisition of land for public purpose needs, a range of alternative mechanisms to access land must be made available. This needs to be done through appropriate amendments in the Karnataka Town and Country Planning Act, 1961 (KTCPA 1961) and in Acts of agencies tasked with land acquisition powers. Ensuring that a wide array of alternative land access mechanisms is made available to concerned authorities would enable them to overcome the opposition to compulsory land acquisition (using the principle of eminent domain) and a more preferred method, agreeable to all stakeholders could be undertaken. These alternative mechanisms include methods such as land readjustment, land pooling, leveraging resources of the private sector and non-monetary compensation such as the grant of development rights. The land accessed through these mechanisms designate a percentage of land for economically weaker sections and also have provisions to raise revenue out of the land procured. The Land Acquisition Chapter of The KTCP Act 1961 should be amended to enable such mechanisms and their details such as timelines, roles and responsibilities of implementing agencies and operational procedures; and the supporting rules of the Act should contain further technical requisites such as application forms, tabulation details, formats for raising objections and suggestions etc. which are necessary for on-ground execution.

#### a) Amendments to the KTCPA 1961 to enable alternative mechanisms to access land, should contextually adapt legislation from successful practices used in various other Indian States:

The following six mechanisms already practiced in different States and cities in India could be adapted (*Further detailing of each mechanism is provided in the main body of the report*):

**(i) The Town Planning Scheme (TPS), Gujarat:**

This 'partners in development' model brings together a group of land owners who voluntarily pool their land/plots for development. The plots, after deduction of land required for roads and other public amenities, are reconstituted and distributed back to the owners. The government agency retains about 60% of land, and the land owner get back about 40% of the reconstituted land. Infrastructure provisions are provided by the government agency in the scheme area and the landowner benefits from improved services and post development land value gains. The cost of land development under this scheme is partially or wholly financed through betterment levies and through sale or mortgaging of plots obtained through the scheme by the agency. TPS is enabled through the Gujarat Town Planning and Urban Development Act, 1976 and the Gujarat Town Planning and Urban Development Rules, 1979.

**(ii) The Land Pooling Scheme (LPS), Amravati, Andhra Pradesh:**

In this mechanism, land parcels owned by individuals or a group of owners are legally consolidated by transfer of ownership rights to the Authority, which later transfers the ownership of a part of the land back to the original land owners. The government agency get about 73 to 81% of the land and the land owner gets about 19 to 27% (varies based on the type of land surrendered) reconstituted land. The landowners are compensated with a portion of developed land as well as monetary support, whereas the landless project affected people are offered skill development programmes and monetary benefits such as agriculture loan waivers and interest free loans. The cost of developing infrastructure facilities, amenities and trunk infrastructure is to be recovered by the government leveraging a share of the land that comes under its possession. LPS is enabled through the Andhra Pradesh Capital Region Development Authority Act 2014 and the Andhra Pradesh Capital City Land Pooling Scheme (Formulation and Implementation) Rules, 2015.

**(iii) The Navi Mumbai Airport Influence Notified Area Scheme (NAINA), Navi Mumbai, Maharashtra:**

Under this scheme, 40% to 50% of the land must be surrendered by owners 'free of cost by consent agreement'; and land designated for reservations would be acquired compulsorily from 'non-consenting' land owners (if any) and would be subject to acquisition through the national land acquisition legislation. Consenting owners can retain 50 to 60% of their land and are offered benefits of additional Floor Space (FSI), whereas the non-consenting landowners do not have any option to get additional FSI. Cost recovery components for the scheme include development charges as per the MRTP Act 1966, sale of developable land in growth centre areas, sale of affordable housing plots and offsite city development charges imposed on the non-participating landowners. NAINA scheme is enabled through the Maharashtra Regional and Town Planning Act 1966, the Modified Draft Interim Development Plan for Part of Navi Mumbai Airport Influence Notified Area (NAINA), 2015, the Modified Draft Development Control and Promotion Regulations for Interim Development Plan of NAINA, 2015 and the Development Strategy for NAINA

as discussed in board meeting dated 30.6.2014, resolution no.11115, item no.16. There is no single legislation specifically formulated for the NAINA scheme yet.

**(iv) The Joint Development Model (JDM), Haryana:**

In the Joint Development Model, private developers acquire and assemble land through market price negotiations from landowners and then apply for a licence to develop the land into residential, commercial or industrial colonies in conformity with the land use plan. In the process, the infrastructure amenities for the colonies are built by the private developers, who make profitable gains through sale of plots in the open market. The external trunk infrastructure amenities are to be provided by the government authorities. External infrastructure development charges paid by the developers are a significant source of funds for developing the external trunk infrastructure by the government. In addition to this, profits made above 15% by developers are to be deposited in the State government treasury to be used for major infrastructure projects by the authority. The Haryana Development and Regulation of Urban Areas Act, 1975, the Haryana Development and Regulation of Urban Area Rules, 1976, and the Punjab Scheduled Roads and Controlled Areas Restriction of Unregulated Development Act, 1963.

**(v) Accommodation Reservation and Transfer of Development Rights (AR & TDR), Mumbai, Maharashtra:**

The City Development Plan designates various reservations for public amenities which get implemented either as built up area or land sharing through AR and TDR. Through AR, a portion of an owner's land or built up area which has been designated for a public purpose reservation is transferred to the appropriate authority for a non-monetary compensation. This compensation is in the form of development potential of the entire plot which can be utilised on the remaining portion of land under possession by the owner while the FSI would continue to be calculated on the original gross plot area. The landowner is also eligible to avail TDR on the entire plot and incentive FSI equal to the land area contributed by him. TDR is used either as an adjunct to the AR or could be used separately depending on the choice of the landowner. AR and TDR are enabled through the Maharashtra Regional and Town Planning Act 1966, the Greater Mumbai-Report on Draft Development Plan-2034 and the Greater Mumbai- Draft Development Control Regulation-2034.

**(vi) Cluster Redevelopment Scheme (CRS), Mumbai, Maharashtra:**

Under this scheme, a cluster of buildings that are eligible as per the norms set by Maharashtra Housing and Area Development Authority (MHADA) having a minimum area of 4,000 sqm are redeveloped and handed over to eligible tenants either by a private developer or a government agency. The private developer or the agency undertaking this scheme, receives additional FSI incentives which could be sold for profit in the open market. The scheme facilitates construction of improved building stock and housing facilities as well as development of public amenities such as open spaces and wider roads. CRS leverages on the benefits of redevelopment to provide

affordable housing without the government having to pay for land or construction. Government agencies also collect development charges and surcharge or infrastructure charges from the promoter of the scheme. CRS is enabled through Maharashtra Regional and Town Planning Act 1966, Greater Mumbai-Report on Draft Development Plan-2034, Greater Mumbai- Draft Development Control Regulation-2034 and the Maharashtra Housing & Area Development Authority Act 1976.

**3. Execution of strategic infrastructure development projects that need large tracts of land should be backed by a high degree of political will, administrative commitment and the appointment of a dynamic leader to drive the project:**

Project implementing agencies backed by political will should work proactively on ground, conduct participatory workshops and build consensus on the chosen alternative mechanisms to access land and not rely purely on legislative backing for the same. The presence of a visible and dynamic official will play a pivotal role in the execution of the project determining the success and timely completion of such projects. This has been seen to work successfully in other large projects such as the Ahmedabad Ring Road project as well as the Amravati Capital City Development. A credible face explaining the projects benefits, convincing people, and thereby winning their confidence and trust is imperative for the timely implementation of the projects.

**4. Amendments recommended by the Directorate of Town and Country Planning (DTCP), Karnataka towards modification of the existing (and yet unused) legislation on Town Planning Schemes are to be expedited and passed in the Karnataka Legislative Assembly.**

Town Planning Scheme legislation already present in the KTCPA 1961, however is not being used for the implementation of master plan proposals. The Directorate of Town and Country planning (DTCP), Karnataka has in the recent past taken up efforts to amend the Town Planning Scheme provision present in the KTCPA 1961 to make it more applicable and relevant to current day needs. DTCP in recognition of the challenges faced in land acquisition, increase in disconnected and dispersed development and the non-implementation of master plans is invoking the T P Scheme as a solution. Amendments that ensure implementation of development works such as roads that can be executed at the draft stage of the scheme itself, prior to final sanction and well as the introduction of cost recovery through sale of plots were the key factors for the success of TP Schemes in Gujarat. The draft bill to amend the town planning scheme in the KTCP Act, 1961 has also considered such factors as essential for implementation. Suggested modifications to the TP scheme section of the Act should be expedited and passed in the Karnataka Legislative Assembly. The use of T P Schemes should also be enabled in the Acts of other agencies such as KIADB, KHB, BMTC, BSCOM, BWSSB and BBMP who are involved in land acquisition processes in the Bengaluru Metropolitan Region.



**5. Transferable Development Rights (TDR) which is already enabled as per the KTCPA 1961, needs to be complimented with the principles of Accommodation Reservation (AR) and better marketed to ensure implementation of public purposes as designated in City Master Plans:**

The resistance to TDR has been primarily because of the difference in land values in different areas of Bengaluru, thereby land losers are not able to receive comparable values for their lost land (Karnataka Evaluation Authority n.d.). The Directorate of Town and Country Planning (DTCP), Karnataka recently amended the TDR section that was already present in the KTCPA 1961, to incentivize the use of TDR by increasing the development rights as well as to improve its application on ground. The amendments also widened the purpose for which the TDR can be used to include EWS/LIG/Affordable housing and infrastructure projects (water supply, sewage, electricity etc). Further amendments to the TDR section is recommended to include the principles of accommodation reservation that allows handing over of built up amenities in lieu of additional development rights. Cost of constructing the built-up amenities is reimbursed as extra development rights to the landowners. AR could be used as an adjunct to the TDR.

TDR works best in locations where there are adequate infrastructure provisions to take on this additional built up area, where the land market is well developed, and in dynamically growing nodes, where there is high demand for built up space. It is not recommended to use TDR in far flung peripheral agricultural land, where the market demand for land is not yet developed and no basic services are available. Gaps in the TDR implementation has been because TDR market is not clear to the buyers and sellers and in many cases landowners are not aware of the details of the TDR. In order to make TDR as a viable method of accessing land, the TDR process should be made fair and transparent, availability of TDR and its price should be adequately publicized (Karnataka Evaluation Authority n.d.). Successful administration of the TDRs requires that government agencies (BDA and BBMP) act as a “market maker” by facilitating information between the demand and supply side, by collecting, updating, and maintaining transaction records and data, as well as monitoring program implementation (Kim, Panman and Rodriguez 2012).

**6. Parameters of efficiency as well as equity should to be built into land legislation that enables the use of alternatives mechanisms to avoid resentment and resistance from project affected people:**

Compulsory acquisition of land for public purposes over the years has faced resistance and resentment of project affected people and to prevent such sentiments arising in the use of alternative mechanisms, equity parameters must be addressed along with efficiency parameters. This would include aspects such as clarity in the recognition of public purpose, clarity of operational process, fair compensation, resettlement and rehabilitation of project affected persons, recognition of the rights of the landless and indigenous people, participation mandates throughout the process, revenue sharing between all stakeholders and grievance redressal etc.

- 7. The Peripheral Ring Road Project (PRR) which runs through agricultural, residential and commercial land parcels should adopt a hybrid model of land assembly that uses land pooling and land readjustment in greenfield areas (like the TPS), the Cluster Redevelopment approach in built up areas and the Joint Development Model in difficult stretches where the private sector can assist in land assembly:**

The PRR with its alignment falling under 78% agriculture land use, 21% under residential land use and remaining under commercial or mixed use, should use a hybrid model of appropriate mechanism for land assembling. The land pooling and readjustment model could be used to readjust the land required for the roads alignment in greenfield areas while ensuring aread development in its impact area. In difficult stretches of greenfield areas, where market price negotiations are needed, land could be assembled through involving the private sector using the Joint Development Model. In case of land parcels with already developed residential, commercial and mixed uses, the principles of the Cluster Redevelopment Scheme ensuring rehabilitation and reconstruction of homes and business could be explored. *(Detailed assessment and recommendations for strategic projects such as the city's Peripheral Ring Road (PRR) and the Satellite Town Ring Road (STRR) are provided in the main body of the report)*

- 8. The Satellite Town Ring Road (STRR) project that predominantly runs through greenfield agricultural peripheries should access land for its implementation through land pooling and readjustment mechanisms without any increase in development rights along its alignment to prevent speculation. Only in stretches which abut satellite towns and other growth nodes should higher development rights be encouraged:**

The STRR is a major regional level road of length 208km connecting various satellite towns around Bengaluru and runs through agricultural greenfield areas in many stretches which are not in proximity to any major urban settlement. Such alignments should be access controlled to prevent strip developments and no additional development rights should be permitted along these stretches. Areas adjoining existing satellite towns and strategic growth nodes however, which should be encouraged to grow in a planned and serviced manner could allow higher development rights and related development incentives.

- 9. Land value capture must be leveraged to offset the capital investment costs of infrastructure projects through the use and implementation of alternative mechanisms to access land in both brownfield and greenfield contexts:**

The alternative mechanisms as discussed in Recommendation b) above not only enables an area development approach but also has value capture methods embedded within them. In greenfield contexts, the TP Scheme for example recovers the cost of developing land and infrastructure facilities through betterment levies and auction-able/saleable plots; the Land Pooling Scheme keeps a percentage of the land aside for cost recovery and levies user charges; and the Joint Development Model recovers costs through license fees and external development charges. In brownfield contexts, in the Accommodation Reservation and TDR methods, the agency saves on the cost of land acquisition as it instead offers development rights as compensation to land owners, whereas in the Cluster Redevelopment Scheme infrastructure

charges are imposed on the developer and redevelopment costs too are borne by the promoter itself etc.

**10. The Coordination Committee (currently) and the proposed Greater Bengaluru Authority (GBA) (in future) must play the critical role of coordinating the activities of land procurement and development agencies to prevent the proliferation of disconnected and dispersed development patterns in Bengaluru City's peripheries:**

With multiple State and City level agencies operating in the Bengaluru Metropolitan Region (BMR) that are empowered to acquire and develop land, it leads to disconnected and dispersed development on ground. The Coordination Committee (or the GBA in future) must have a decisive role to ensure coordination and cooperation amongst all agencies operating within the BMR in terms of the scale, nature and future use of land being acquired, and the appropriateness of location, connectivity, impact on the environment etc.

Within the BBMP itself, land acquisition and management of public land records should be streamlined by bringing them under a single Land Management Department. The land acquisition wing is currently under the administration section of the BBMP; the management of all public land records is under the estate department and public spaces such as playgrounds are under the education department which needs to be streamlined (Expert Committee on BBMP Restructuring 2015).

## 2. Background

Karnataka aspires to be a 700 billion US \$ economy by the year 2035 from its current 120 billion US \$ economy (Chief Minister, GoK 2016). Bengaluru is the economic powerhouse of the State and the fifth most preferred destination worldwide for multi-national corporations to set up after Silicon Valley, London, Paris and Singapore. It is the largest urban agglomeration of the State contributing about 36% of its urban population. Having about 80% of global IT companies India operations based in Bengaluru, it is also home to several top manufacturing majors and garment industries.

The access to economic opportunity coupled with the physical and social infrastructure facilities have been attracting people to the city. The city being the preferred destination for economic investment has attracted the highest share of urban population in the State. The city's need for planned and serviced land is diverse and inevitable. However, acquiring land for public purposes and development works in the past faced several challenges such as litigations and protests due to low compensation packages, conflicts over landownership, issues related to displacement of the landowners and those of landless project affected families who tend to lose their livelihood.

To overcome several such challenges related to compulsory land acquisition, the erstwhile British era Land Acquisition Act, 1894 was repealed and replaced with the Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement (RFCTLARR), Act 2013 in January 2014. While the previous act faced opposition from the land owners on grounds of inequity and inadequate compensation, the new act is considered prohibitive in terms of cost of acquisition and long delivery time by developers and State urban agencies.

Post the enactment of the new Land Acquisition Act, urban agencies such as Bengaluru Development Authority and Bengaluru Metropolitan Region Development Authority are looking for alternatives to the compulsory acquisition method to implement their projects without much financial burden on the authorities. For instance, the Peripheral Ring Road (PRR) conceived by Bengaluru Development Authority (BDA) in 2005 has still not been implemented, and the agency has stated its financial inability to meet the high cost of land acquisition related compensation. Unable to pay out the increased cost, the BDA considered alternative methods to implement the project such as awarding transferable development rights, developed plots to land losers and other value capture techniques (Bharadwaj 2015)

With several such developmental projects facing time delays and cost overruns to access land, it is imperative to look at alternative options to acquire land that would not only ensure the supply of land but also provide opportunities of using land as a fiscal tool.

### 3. Scope, Limitations, Approach and Methodology

#### Aim and Objective

- To understand the current methods used to acquire land for public purposes in the Bengaluru Metropolitan Region (BMR) and various challenges associated with it;
- To recommend strategies and introduce innovative alternative options to access land for public purposes, enable an area development approach for large scale investment projects, and ease the financial burden of different government agencies through land value capture options.

#### Scope and Limitations

Data collection and research is limited to that available primarily in the public domain. This includes accessing government websites, journals, research papers, open source maps and satellite imagery and various newspaper accounts. A limited number of interactions were held with various government agencies operating in the BMR to understand various methods of land acquisition as well as opportunities and challenges associated with the same.

This report does not focus on aspects of land governance such as land tenure rights, regulatory reforms, land information systems, and taxation. Critical analysis of the RFCTLARR Act, 2013 is also beyond the purview of this report.

#### Approach and Methodology

An iterative approach helped to understand the various opportunities and challenges surrounding land acquisition that ranged from assessing available legislation, the overlapping functions of multiple departments, the nature of development on ground, learnings from focussed group discussions with various stakeholders and learnings from best practices from across the country.

The following tasks were conducted as part of this report:

- Data collection and collation on current methods of land acquisition employed by various agencies in the BMR region and its related enabling legislation;
- Interactions with government agencies such as KSSIDC, BMRCL, BMRDA, BWSSB, BBMP and BDA to understand opportunities and challenges related to land acquisition for public purposes;
- Assessment of the land acquisition status of projects such as the Peripheral Ring Road, Satellite Town Ring Road and Bidadi Township area;
- Secondary data collection, literature reviews of technical papers, newspapers, journals etc. were reviewed and analysed including on ground assessments using satellite imagery to understand the nature of development that results from compulsory acquisition processes;
- Leveraging learnings from best practices used across the country.

**Note:** The information provided in this report includes content from two upcoming publications of WRI India on 'Alternative Mechanisms to Access Land for Public Purposes in India' and 'Reimagining the Peripheral Ring Road of Bengaluru as an Area Development Project' to be published in the Journal of Sustainable Urbanization, Planning and Progress, Wholice Publishing Pte Ltd, Singapore.



## 4. Analysis of Existing Situation

### 4.1 Methods of accessing land for public purposes by various agencies

In the Bengaluru Metropolitan Region (BMR) land is accessed by many departments, boards and authorities, enabled through a variety of legislations for different purposes that include infrastructure projects, housing projects, townships, industrial projects, social welfare and other urban development projects. These legislations enable **various public agencies to access land either through the National Land Acquisition Act ('Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013'), as amended by the Government of Karnataka, or by agreement.** Agreement may include exchange of land using TDR, negotiated purchase of land, and lease of land. Negotiated purchase of land is also called a consent award, as the project affected persons negotiate with the project authorities for the loss incurred, and once the amount is agreed upon, the Project Affected Person (PAP) cannot move the court for enhancement of the compensation (KUIDFC 2003). A variation of the National Land Acquisition Act (LAA), used by the BDA, is that aside from paying out a monetary compensation, the BDA also provides part compensation in the form of developed land.

Within the BMR jurisdiction, both State level as well as city level agencies operate that are empowered to acquire and develop land. For example, the Bengaluru Development Authority (BDA), an agency specific to the Bengaluru Metropolitan Area (BMA), acquires land within BMA for developing residential layouts; whereas the Karnataka Housing Board (KHB) acquires land across the State, including within the BMR, for different housing purposes. Land acquisition methods of some of the key government agencies carrying out development projects and service provisioning in the BMR are described below:

- Bengaluru Metropolitan Region Development Authority (BMRDA), constituted under the BMRDA Act, 1985 operates across the BMR which includes the districts of Bengaluru Urban, Bengaluru Rural, and Ramanagaram. BMRDA can use the provisions of the RFCTLARR, 2013 (State amendment) or provisions of the TP scheme KTCPA, 1961 or by agreement.
- Bengaluru Development Authority (BDA), constituted under the BDA Act, 1976, is responsible for accessing and developing land within the BMA using provisions of the RFCTLARR, 2013 (State amendment) or by agreement. Within the city of Bengaluru, for implementation of road projects and master plan proposals, BDA has used the provision of Transfer of Development Rights (TDR) with varying degree of success. Till 2014, BDA had the right to grant TDR in its local planning area excluding the BBMP jurisdiction. With the amendments made to the TDR section of the KTCPA 1961 in 2015, only planning authorities can issue development rights for any area under its jurisdiction. This amendment permits only BDA to issue development rights for any area including the BBMP area within its jurisdiction. Any other public authority (such as BBMP) intending to obtain development rights in favour of owners, shall apply to the planning authority enclosing the list of landowners who have surrendering areas for a public purpose after necessary verification of the ownership title of such properties. A public authority also needs to pay a deposition amount as per the market value to the planning authority. The planning authority before

issuing development rights verifies and notifies the details of the area surrendered in the newspaper, calling objections and suggestions if any for development rights. If the owner does not agree to surrender his land required by the public authority and demands for monetary compensation, then compensation shall be provided as per the provisions of the RFCTLARR, 2013 or any other law prevailing (Parliamentary affairs secretariat 2015).

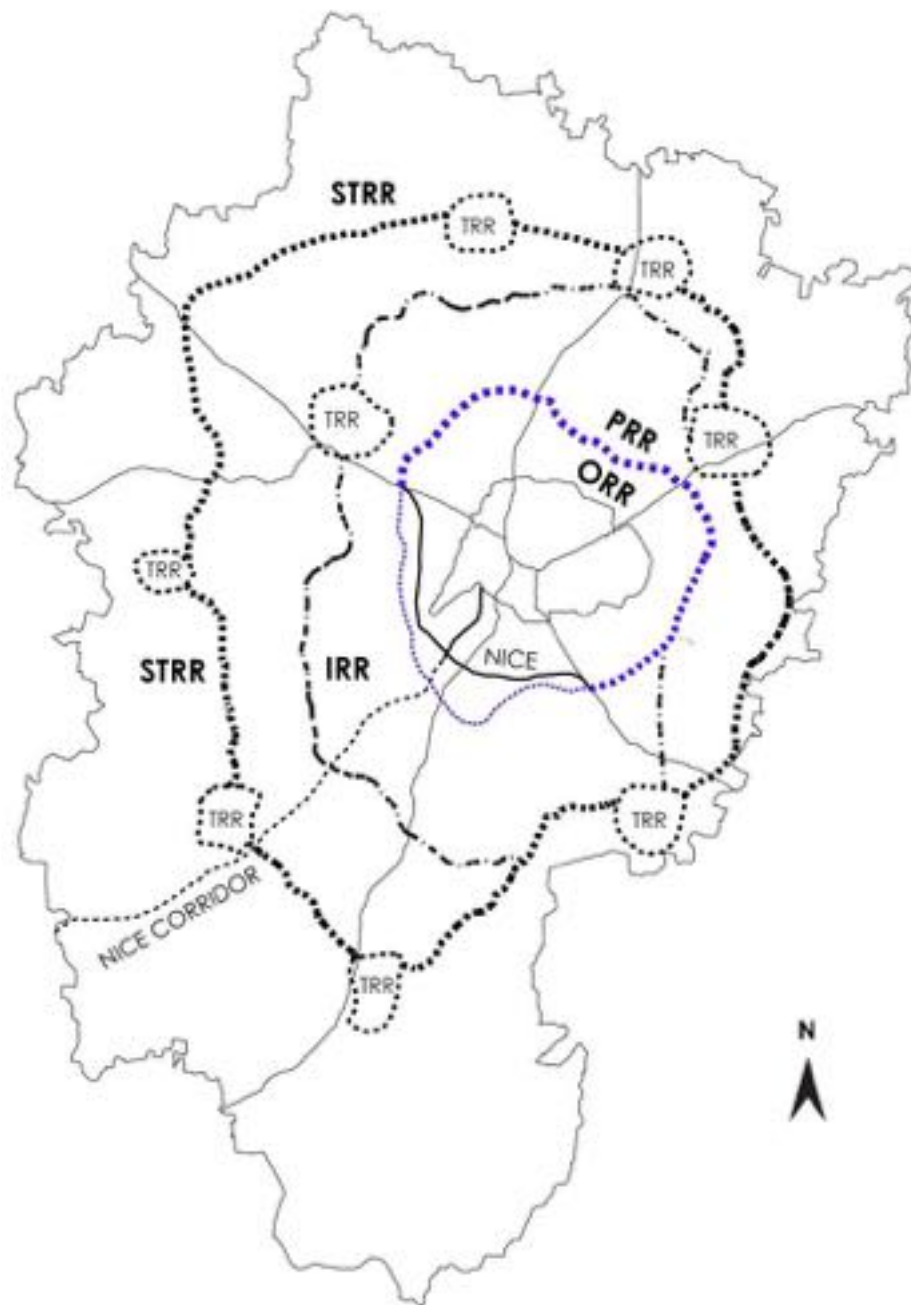
- Bruhat Bengaluru Mahanagar Palike (BBMP), constituted under the Karnataka Municipal Corporations Act, 1976, is responsible for accessing and developing land within the BBMP jurisdiction. The Land Acquisition wing of the BBMP has been using the method of TDR, primarily for road widening and new road formations. BBMP surveys, measures and marks the land required and notifies the landowners of its intention to implement the proposed projects using the method of TDR. If the absolute landowner of the land voluntarily hands over the land, then it will be taken over and a Development Rights Certificate (DRC) will be issued. Out of 216 notified roads, 55 roads have been executed using TDR scheme (Karnataka Evaluation Authority n.d.) As per the statistics till 2010, about 2.87 lakh sqm of land has been surrendered to BBMP through TDR. However, with the recent amendment to TDR in the KTCPA, as discussed above, the power to issue the development rights certificate is entrusted only to the planning authority and henceforth the BBMP must apply to BDA for issuing Development Rights for any area in its jurisdiction. Apart from TDR, BBMP also uses the method of negotiated purchase for acquiring land for public purposes. This is a speedy process compared to the RFCTLARR, 2013 as there is lesser chances of court cases related to compensation.
- Bengaluru Water Supply and Sewerage Board (BWSSB), constituted under the Bengaluru Water Supply and Sewerage Act, 1964, is responsible for water supply, waste water treatment and disposal etc. It accesses land either through the Land Revenue Department (LRD) or Karnataka Industrial Area Development Board (KIADB) which uses the provisions of RFCTLARR, 2013.
- Bengaluru Metro Rail Corporation Limited (BMRCL), which is responsible for developing Namma Metro acquires land primarily through RFCTLARR, 2013 and through negotiated purchase. BMRCL has appointed a 'Land Committee' to determine and recommend the market value of the land /property which is to be acquired (BMRCL 2013). As per the new land acquisition act, the agency pays as compensation double the amount of the guidance value. In addition to the fixed land value, BMRCL also gives 12 per cent interest on property value per year (Kidiyoor 2015). Land is also acquired by the KIADB and transferred to the BMRCL. The cost of acquisition is borne by BMRCL;
- The Bengaluru Electricity Supply Company (BESCOM), responsible for supplying electricity to Bengaluru accesses land using the provisions in the Karnataka Electricity Reform Act, 1999. This legislation enables the GoK to set up the Karnataka Electricity Regulatory Commission to oversee matters related to power generation, transmission and distribution, which includes power to acquire, hold and dispose property. The mechanism is the RFCTLARR,2013 and it is enabled through the Central Electricity Act, 2003. The Electricity Act, 2003 mandates the

setting up of State level electricity regulatory commissions which have the power to acquire land under the RFCTLARR,2013;

- Bengaluru Metropolitan Transport Corporation (BMTCL), which is responsible for construction of facilities for smooth bus operations accesses land through the KIADB using the provision of RFCTLARR 2013;
- Bengaluru Metropolitan Land Transport Authority (BMLTA) was created in 2007 under the Directorate of Urban Land Transport, which in turn was created as per the National Urban Transport Policy, 2006, under the Urban Development Department (UDD). The BMLTA was supposed to plan and meet the transportation needs within the BMR. Land required for this purpose was to be acquired as per the BMLTA Act, 2008, which closely followed the provisions of the National Land Acquisition Act, with suitable modifications. However, BMLTA as it exists now has no statutory authority and independent secretariat, and is not a regular executive body either. It resembles a coordination committee rather than an authority with powers to develop land transport infrastructure and take autonomous calls on the matter (Manjula 2012) and (Deccan Herald 2014).

#### 4.2 Land acquisition status of major infrastructure projects in BMR

Several large-scale investment projects such as townships, flyovers and an array of ring roads (figure 1) proposed in the Bengaluru Metropolitan Region have been stalled due to land acquisition hurdles, and cost and time over runs.



**Figure 1: Indicative proposed ring road alignments in Bengaluru Metropolitan Region (BMR)**

Image – WRI India

Data Source: BMRDA Revised Structure Plan 2031

### (i) Satellite Town Ring Road (STRR), Bengaluru

The Satellite Town Ring Road was proposed by BMRDA in the 2005 Structure Plan for Bengaluru Region. The STRR is envisaged as a 208 km long high speed corridor that will cut through the three districts of Bengaluru Urban, Bengaluru Rural and Ramanagara.

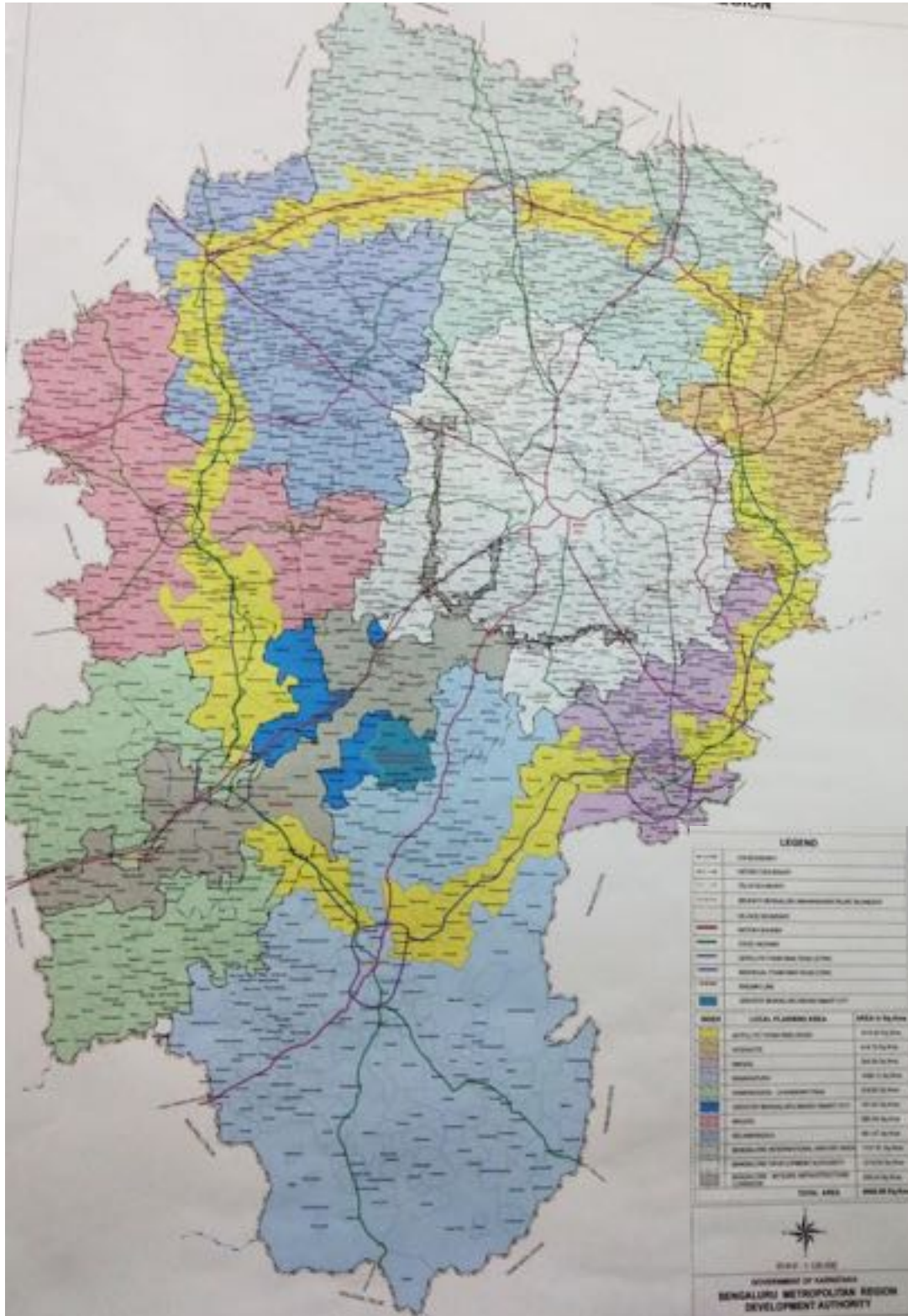


Figure 2 : Local Planning Areas of STRRPA (marked in yellow) in BMRDA

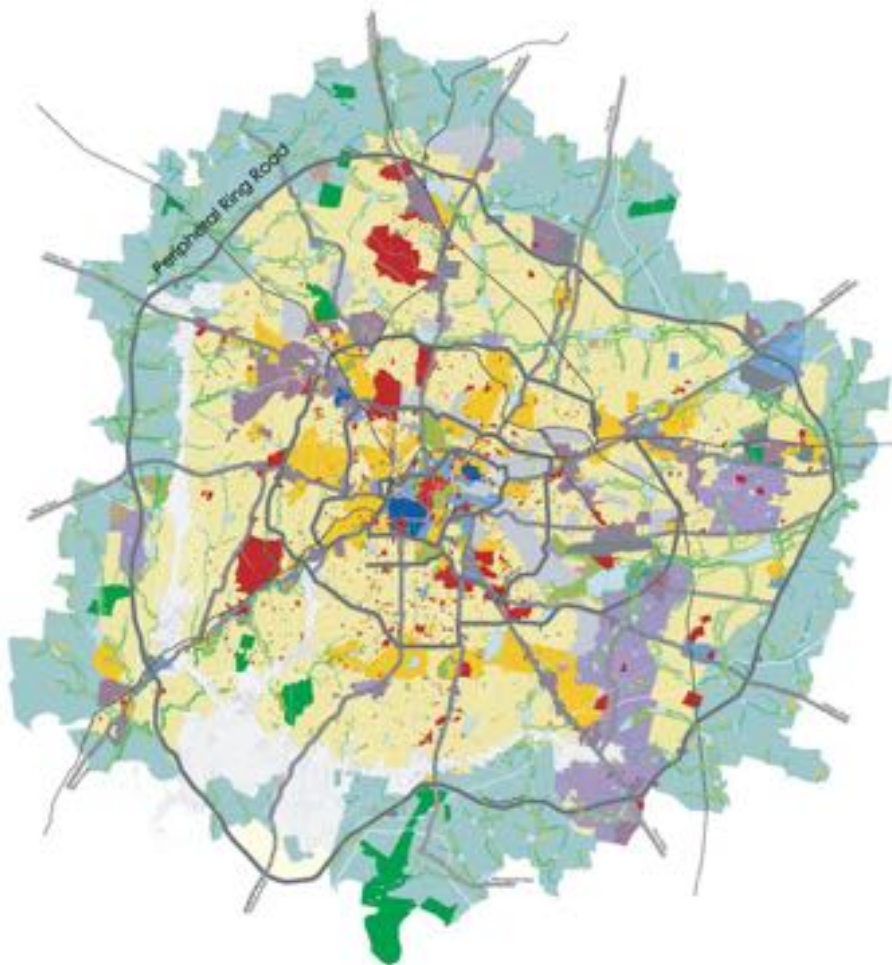
Source: BMRDA



The STRR links 9 satellite towns around Bengaluru. The STRR alignment was covered, in part by NH-207 between Dobaspet and Hosur via towns of Doddaballapur, Devanahalli and Hoskote. The remaining portion was covered by state highways and major district roads. It was proposed to be 4 lanes, with 2 service lanes on both side and 20 m median at the centre for the provision for metro/mono rail (BMRDA 2006). Estimated cost of the entire project, including the cost of land acquisition was Rs 5250 crore (The Hindu 2008). The land acquisition cost alone, which was estimated to be Rs 741 crore in 2007, had now shot up to Rs 2,872 crore in 2012 (Deccan Herald 2012). **An STRR Planning Authority (STRRPA) has now been created and BMRDA has also considered the option land pooling through TP Scheme to fast track the project.** STRRPA has its jurisdiction spread over 331 villages and will be the implementing agency for the STRR (figure 2). To avoid land acquisition hurdles and environmental clearance issues in the STRR project, the government has decided to invoke various provisions of Town Planning Scheme of KTCPA, 1961 (Prakash 2016). While there are talks on using the Town Planning Scheme for the STRR project, discussions with the BMRDA revealed that no further details on how to assemble the land has been made. Currently, as per the mandates of the KTCPA, 1961 the newly constituted planned authority is in the tendering stage for the master planning process. It is expected that the further detailing on the land acquiring methods for the STRR will be provided in the master plan.

## (ii) Peripheral Ring Road (PRR), Bengaluru

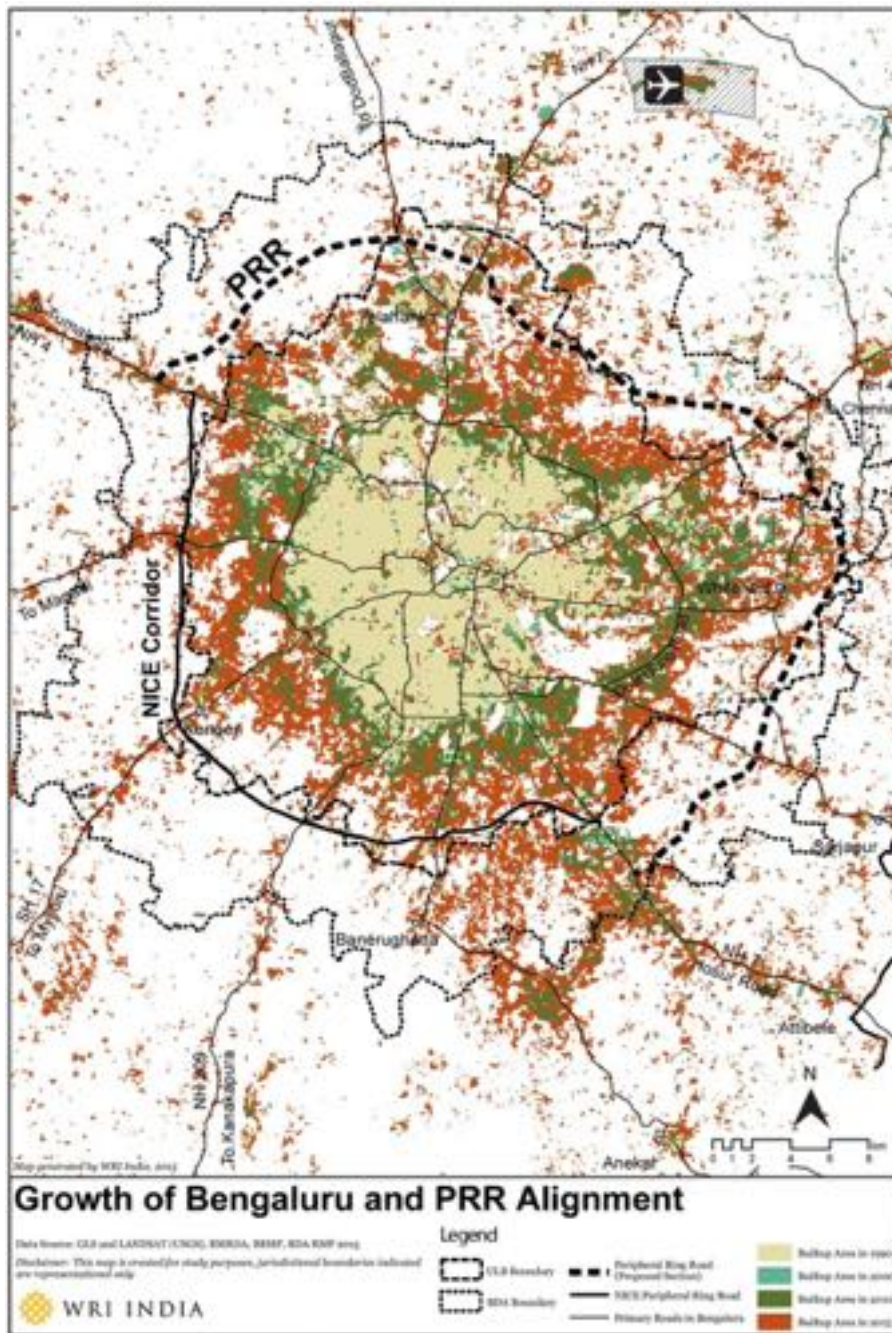
The Bengaluru Development Authority (BDA), which was tasked with implementing the PRR, proposed the road as a ring around the city with an approximate radius of 17 to 25 km with a total length of 116 km. This road was envisioned as a 'direct corridor passage' to bypass the through traffic going across the city and relieve the congestion of the Outer Ring Road. The PRR alignment was largely used in the BDA's master plan 2015 as its conurbation limit with various land uses being assigned inside of it and the outside being designated as agricultural lands and green belts (figure 3). Due to an already implemented half loop (51km length)<sup>1</sup> towards the south of the city by the Nandi Infrastructure Corridor Enterprise (NICE); it was decided to only construct the northern loop of the PRR which would then form a ring with the NICE project. The State government had granted permission to the BDA to take loan assistance from Japan International Cooperation Agency (JICA) to complete the northern loop.



**Figure 3: The PRR alignment served broadly as Bengaluru City's conurbation limit**

Image Source: Bengaluru Revised Master Plan (RMP 2015, Volume 2)

<sup>1</sup> 51 km road built by Nandi Infrastructure Corridor Enterprise (NICE) 'from Tumkur Road to Hosur Road via Mysore Road'



**Figure 4: Growth of Bengaluru and the PRR Alignment**  
Image source: WRI India

The total length of the PRR hence proposed for construction was 65.55 km with a proposed Right of Way (RoW) of 100 m which includes a 12m wide central median and 9m service road on either side (RAP ). The project was envisaged to be implemented through Build Own Operate Transfer (BOOT) model of PPP and the identified land would be supplied by BDA.

BDA has so far attempted the following options to acquire land for the PRR (RAP ).

**a) Compulsory Acquisition using provisions of Land Acquisition Act (LAA) of 1894**

The BDA initially attempted acquiring land using the **provisions of the erstwhile Land Acquisition Act (LAA) of 1894 which relates to the use of eminent domain powers<sup>2</sup> for the Peripheral Ring Road (PRR)**. Compensation offered under this method was much lower than the market value of land and the post development value of land was not considered in evaluating compensation, which resulted in litigations and protests. Another significant challenge that the BDA faced was associated with the identification of actual owners of certain parcels of land that were to be acquired. In addition to an incorrect listing of both affected and unaffected farmers, majority of the land owners were absentees not residing in the project area and their whereabouts were not available/ known in the villages. This challenges severely hampered the land acquisition process.

**b) Method of Non-Monetary Compensations using Transferable Development Rights (TDR)**

After the attempt of compulsory acquisition failed, the BDA proposed to compensate the property/landowners with Transferable Development Rights (TDR) for the land surrendered. The provision of TDR has been used by the BDA within the city of Bengaluru for road projects with varying degrees of success. BDA expected that by artificially lowering the Floor Area Ratio (FAR) of the core city from 1.75 to 1, it could create a lucrative market for TDR in the city (Bharadwaj 2015). As additional development rights, more than what is permitted had to be purchased, BDA anticipated that this would create a demand for the TDR issued to the property owners/land losing farmers of the PRR project. **BDA failed to convince the land losing farmers to opt for TDR as a mode of compensation** (Bharadwaj 2015).

**c) Compulsory acquisition as per the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (RFCTLARR) Act, 2013 offering revised compensation strategies**

With the enactment of RFCTLARR 2013, the BDA had to relook at their compensation strategy in this new light, following which in April 2015; a Resettlement Action Plan (RAP) for the PRR was proposed which offered an enhanced compensation package. This included market rate compensation, TDR, rehabilitation and resettlement benefits, developed land as compensation etc.

The total compensation for the land alone amounted to over Rs. 7500 crores in 2015, while as per the previous 1894 Act it was Rs. 3600 crores (ET 2015). Japan International Cooperation Agency (JICA) has offered to provide project implementation assistance (excluding land acquisition) via loan to BDA which amounts to an additional Rs. 4000 crores (Bangalore Mirror 2016). The State

<sup>2</sup> Eminent Domain is the power of the sovereign to take private property for public use, and the consequent rights of the owner to compensation. This power, while arguable has become firmly established in all civilized countries. In justification of the power, two maxims are often cited: (i) Regard for the public welfare is the highest law, and (ii) Public necessity is greater than private necessity.



Government and the Central Road Ministry too, have made commitments/ statements to partially fund the land acquisition cost for the project.

Recent development in 2016 have seen decisions taken to acquire the land for a total width of 100 m, out of which 25 m would be used for commercial use with increased development rights. This 25m width commercial zone would serve as two-thirds of the compensation package for land losers and the remaining one-third would be paid as cash compensation (Bharadwaj 2016). **Karnataka State Government proceedings and circulars of May 2016 indicate a partial move towards an area development approach with a 1 km impact area being declared on either side of the PRR where mixed uses and higher FAR will be allowed.** The mixed uses and additional FAR (up to 1.25) is expected to influence the landowning farmers/developers to pay up a betterment fee for development of land. Betterment levies, premium FAR and commercial sites auctioning are together expected to bring total revenue of about 10,000 crores.

There is **no mention however about any other area development measures that will be taken up such as the provision of feeder road networks, connectivity to the PRR, water supply, sewerage, education and health facilities, open spaces etc. that would encourage landowners to pay up these betterment levies.**

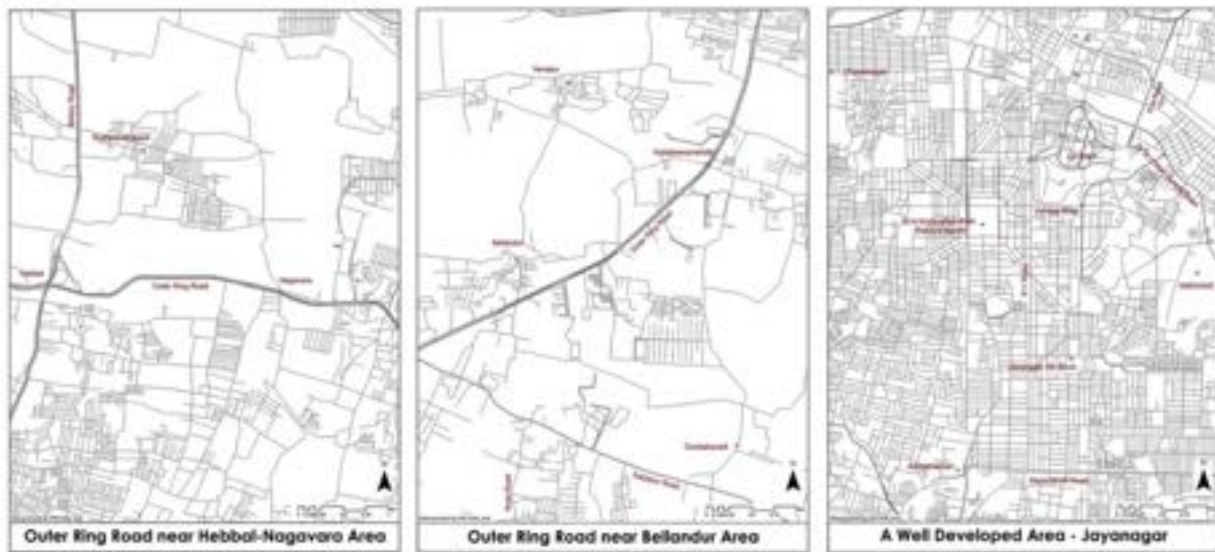
In discussions conducted with the BDA, it was stated that BDA is currently progressing towards creating a Special Purpose Vehicle (SPV) for the implementation of PRR, with KUIDFC as the partner agency. Three modes of compensation for the land acquired would be offered to project affected people which includes: i) Cash compensation under the RFCTLARR 2013, ii) A 60:40 compensation where for 60% of the site forfeited, a cash compensation will be paid out as per RFCTLARR, 2013 and for the remaining 40% of site forfeited a developed site will be provided and iii) 100% developed land (Land for land compensation). Loans for land acquisition would be raised by this SPV.

### **Assessment of the Current Approaches to Building the PRR**

#### **a) No lessons learnt from the ORR experience: Incomplete road network and hierarchy**

The rapid ribbon development along the ORR and beyond has led to increased traffic at all major intersections and midblock sections, and this was the main justification for the requirement of an additional ring, i.e. the PRR (RAP 2015). A closer look spatially at stretches along the ORR (**Figure 5**) reveals a very low density of road networks connecting to it as compared to any well-developed and planned area within the city which has a dense interconnected network of streets.





**Figure 5 . Road density and block size comparison of ORR and a well-developed area in Bengaluru**

Source – Generated by WRI India, Data Source: Open Streets Maps 2016

The ORR (especially the eastern arc) became the preferred destination for IT companies that took up large parcels of land along it. However, land parcels beyond this first layer of plots abutting the ORR have very low connectivity to this major road investment. While this is an underutilisation of a major road investment, it also results in poor traffic management as all vehicles must travel longer distances and come onto this main arterial due to very few options to take alternate routes or make any left and right turn choices. Pedestrian movement too becomes extremely challenging due to un-walkable block sizes and the impenetrable first layer of plots.

Bengaluru’s large portfolio of IT and ITES business houses, located along the ORR have formed an organisation called the Outer Ring Road Companies Association (ORRCA); however, one of their largest concerns today, quite predictably, is traffic congestion.

The Indian Road Congress (IRC) in its standards for Urban Roads for example gives a clear classification of roads which are ‘Arterial, Sub Arterial, Collector and Local Streets’. The PRR as per this classification would be considered as an arterial as its primary function would be ‘through traffic usually on a continuous route’. The other hierarchies are largely missing around the ORR thereby not allowing any ‘lower level of traffic mobility for collection and distribution purposes’, and ‘entrances to business and residences’. The PRR, if implemented through the same approach, is also expected to suffer the same consequences

#### **b) Land parcels around the PRR will remain unplanned and un-serviced**

Envisioned as a ‘direct corridor passage’ that does not complete missing road networks or set a road hierarchy in place, results in land parcels of the area not being transitioned in a planned manner from a rural to an urban purpose. Village revenue parcels are often oddly shaped for urban use and need to be brought into a more regular or rectangular shape to allow for internal road connectivity and to provide for infrastructure and amenity provision.

**c) Non-participation of land owners in projects decisions and future of the area**

A Resettlement Action Plan (RAP) was completed in 2015 that surveyed the affected area of the PRR. As land owners are typically only served legal notices for land acquisition, it is evident from the RAP surveys that 68% of the affected households were not even aware of the construction of the PRR a decade after it was announced. The RAP indicated that the key issues of the project affected people included fears that land beyond the scope of the road was being acquired, they demanded further information on Transferable Development Rights (TDR), and expressed dissatisfaction over the fact that they were unable to either transact or build on their own land for over 10 years delaying marriages of their children etc. 91% of the people were unsure of what would be their choice of relocation. Lack of communication with project affected people continues to be a critical gap with low acceptance levels and resistance to the project with many pursuing their legal options against the acquisition.

**d) Post development benefits do not accrue to all land owners increasing dissent**

Landowners who sell their land for such road projects receive a one-time compensation which is currently estimated based on the market value that is prevalent prior to development. Once a large infrastructure investment such as the PRR is implemented, the value of the land is expected to greatly escalate though the original owners will not receive any of the benefits. Speculators and fortunate landowners who still have parcels abutting the proposed ring road make a disproportionately better financial gain out of such projects.

**e) TDR as a misplaced incentive along the PRR**

29 wards within Bengaluru city are witnessing declining population growth rates between census years 2001 and 2011. These are areas in the city centre that have the highest levels of municipal services and public transport access including metro rail and buses. With an FAR of 1.75 typically being consumed on an average here, artificially lowering this to 1 FAR, in the hope of make TDR a tradable commodity is counterproductive. The city has no real geographical constraints to growth and the urban spatial footprint of the city is growing at the rate of 594 ft<sup>2</sup> per minute within the BDA jurisdiction. 78% of the PRR alignment today runs through agriculture land. Hence, the only real effect would be that the city centre will be dis-incentivised from redevelopment instead of being encouraged to increase the affordability and supply of building stock. Doubling of FAR (up to FAR 2 along the PRR) is counterproductive and will cause an unsustainable 'donut' effect where the city centre empties out and 'un-serviced' peripheries become the destinations for housing and jobs. TDRs should be awarded in areas where normal FARs could be exceeded such as dynamic growth nodes. Sending and receiving zones are also critical while awarding TDR.

**(iii) Status of Bidadi Integrated township**

The Bidadi integrated township, about 30 km from Bengaluru, was approved by the government in October 2006. One year later in October 2007, Delhi based real estate developer DLF and Dubai based Limitless LLC were given the development rights (Bharadwaj 2016). It was to be developed at a cost of 24,000 crore (The New Indian Express 2016). Spread across ten villages the total land requirement for the project was 37 sqkm. Of this, government land comprised 9 sqkm, private land constituted 26 sqkm and wetlands of 2 sqkm (Bharadwaj 2016). However, in 2009 the private developers withdrew from the project. Land acquisition delays by the government and a liquidity crunch were the main reasons behind the exit. Since then the project has been in limbo (Livemint 2010). In December 2015, BMRDA decided to revive the project employing an alternative land access mechanism of the Town Planning Scheme (Bharadwaj 2016). Local Planning Area for the Bidadi township has been notified by BMRDA and the master plan preparation process has begun. BMRDA is exploring a route similar to the land pooling method of Amravati Capital city project of Andhra Pradesh under the provisions of the KTCP Act, 1961 for Bidadi (BR 2016).

In addition to the above mega projects, several city level projects such as flyovers and rail over bridges, road widening projects etc. have been stuck due to land acquisition hurdles. Three flyovers in the city, Hennur flyover and two railway over bridges (ROB) at Goraguntepalya and Byappanahalli had been stuck for years because of land acquisition issues, thus causing huge traffic bottlenecks. On June 14, 2016, the Chief Minister directed officials to complete implementation by December 2016. BDA had approved acquisition of 41 properties needed for the completion of Hennur flyover in 2015. The land acquisition department of BDA has procured 13 properties till June 2016 (The Hindu 2016).

**4.3 Issues and challenges related to land acquisition in BMR****a) Lack of clarity on the use of TDR as an alternative to compulsory acquisition**

While few projects such as construction of underpasses and widening of roads have been successfully implemented on the property acquired using TDR, several other projects have languished in the BBMP limits. Karnataka Evaluation Authority which conducted a review of the TDR mechanism of BBMP, reports that TDR implementation has not been entirely transparent. List of road widening projects were not published and notice before its acquisition was not available. In many projects, landowners are not aware of the current value of TDR in the market and TDR purchasers are not aware of the TDR owners in the market.

**b) Financial burden on the government agencies due to RFCTLARR, 2013**

With the enactment of RFCTLARR, 2013, there has been a demand for high compensation packages for infrastructure projects taken up in the BMR. In case of Metro Rail projects, high compensation packages are being offered by BMRL and hence they have faced very little protest from the property owners whose lands are being acquired for the project. However, it was stated by BMRL that paying such a high compensation package is a financial burden on the State Government

(Kidiyoor 2015). BMRCL - which is extending the metro project on Mysore Road under its Phase II, has acquired just two square metres of land belonging to Gopalan Mall by paying a compensation of Rs 2.52 lakh (Kidiyoor 2015). This move pressurises other government agencies involved in development projects to also offer high compensation packages which is at par with the compensation provided for metro projects. For instance during an interaction with BBMP, it was informed that negotiated purchase of land has served as an appropriate method to acquire land by BBMP, as it was faster and often cheaper than the using the provisions of the RFCLTARR Act, 2013. With the higher compensation packages offered by government agencies such as BMRCL using the RFCLTARR provisions, there will be a pressure on BBMP as well to offer higher compensation packages in the negotiated purchase method.

### **c) Lack of coordination among multiple authorities and departments**

Coordination has been an issue among the various agencies of Bengaluru for several decades now. In 1985, the KTCP (Amendment) Act, 1961 identified coordination among the local bodies, like BDA, BWSSB, KSRTC, KEB, KSCB, KIADB, BBMP etc, in the Bengaluru Metropolitan Area as an issue. The same was reemphasized upon in the 2003 amendment of the KTCP Act, 1961. It was observed that different land related administration was practiced in silos by different departments; for example, in BBMP the Estates Department manages public land records, the land revenue department (LRD) of the State Government maintains private land records, the Acquisition Wing acquires land, and open spaces are managed by the Education Department (Expert Committee on BBMP Restructuring 2015). This often affects the coordination among the departments and results in information getting locked into silos, which leads to delayed access to land. In the Namma Metro Phase II extension, BMRCL had to acquire around 40 properties located on the right side of the KR Puram hanging bridge. However, the said properties that are required for the project had already been acquired by National Highways in 1999 (Bangalore Mirror 2015). Such a lack of coordination among many agencies is one of the principal problems in Bengaluru's land governance. There is a mismatch in territorial jurisdiction wherein planning and regulatory institutions are acquiring land, and the territory within which rapid commercial and residential development is presently taking place. This mismatch results in a perpetual time lag between land development and the arrival of regulatory and governance oversight.

### **d) Irregular transactions of public and private land**

Lack of proper surveys and record of lands has been highlighted in various reports by different organizations and State level Committees. Although the Government has launched the Bhoomi program of updating and mapping land records, as of 2014, this lag was somewhere close to 25%, ie, one fourth of Karnataka's land records were yet to be updated and mapped. Moreover, a weakness of the Bhoomi program is that the manual records were digitized without first determining whether these records reflected the actual details of the land parcel or not. As a result, the data in Bhoomi may not reflect the true situation on the ground (World Bank 2014). This lack of updated land records has aided land grabs and encroachments in and around Bengaluru (Task Force for Recovery of Public land and its Protection 2011).

#### e) Lack of an area development approach in mega projects conceived

Large scale infrastructure projects such as the Ring Roads are expected to escalate the value of the land in its influence area. **While the actual land requirement for the project itself may not always be significant, demand for land in the surrounding areas goes up sharply because of purchases by land speculators** (Datta, Mahajan and Singha 2009). **It is often the speculators and fortunate landowners who own land parcels in the project influence area who make a disproportionately higher financial gain out of such projects.** Large isolated gated communities are common features in the city's peripheries which cordon off large parcels of land through negotiated purchase from owners and become islands of excellence that do not contribute to the public realm.

In summary, the key challenges involved in land acquisition are as follows:

- Implementation of alternatives to compulsory acquisition such as TDR have failed to gain traction in Bengaluru Metropolitan Region due to a lack of clarity in the process;
- Higher compensation under the RFCLTARR imposes financial burden on various government agencies, thereby affecting the timely implementation of significant development projects in the region;
- Service delivery is severely hampered because of the lack of coordination among multiple authorities and departments involved in various development projects in the region;
- Lack of an area development approach in land acquisition leads to land value benefits being captured by intermediaries and private developers resulting in a market dominated area development and speculative growth.

#### 4.4 Opportunities to explore alternative means to acquire land

States and cities all over India are faced with limited financial capacities and sky rocketing land values. However, many of them are implementing large scale urban projects such as special investment regions, greenfield capital cities, city ring roads and public amenities using innovative alternative mechanisms to access land which do not necessarily use the compulsory land acquisition method. These alternative mechanisms employ methods of land readjustment, land pooling, leveraging resources of the private sector and non-monetary compensation such as the grant of development rights, built up area and other incentives. This is possible because land acquisition and requisition is identified in the Constitution of India as a 'Concurrent List' subject. Hence both the Centre and the States have the power to legislate on the subject, with a condition that the State cannot bring out a legislation which is inconsistent with the Central legislation.

Ahmedabad in Gujarat for example successfully completed its ring road (76km length) in record time using the Town Planning Scheme (a method of land readjustment) and Surat too has managed a similar feat. The Dholera Special Investment Region (DSIR) in Gujarat for instance is a greenfield industrial city planned and located approximately 100 km south of Ahmedabad. Out of the 920 km<sup>2</sup> of the DSIR, the total developable area is about 580 km<sup>2</sup> which is being developed through six Town



**Planning (TP) Schemes** The greenfield capital of Andhra Pradesh, Amravati, used a method of land pooling to access 133.55 km<sup>2</sup> of land, again in record time (Ministry of Housing and Urban Poverty Alleviation 2016). The private sector too partnered with the State Government of Haryana to implement large developments through a Joint Development model. While the above are mechanisms for greenfield situations, in Maharashtra, Mumbai city has been innovating since the 1990s in redevelopment and amenity provision using the mechanism of Cluster Redevelopment Schemes and Accommodation Reservation and Transferable Development Rights.

Karnataka State however has not experimented with alternative mechanisms of accessing land and largely relied on compulsory acquisition of land using eminent domain powers. With provisions of TDR and Town Planning Scheme sections built into the KTCPA, 1961, there is an opportunity to explore these as well as other mechanisms for future urban development projects.

## 5. Details of alternative methods to access land and other recommendations

### 5.1 Alternative methods to access land for public purposes

#### 1) The Town Planning Scheme Mechanism (Gujarat)

**Planning and Area Development in TP Schemes:** The Town Planning Scheme (TPS) was originally introduced through the Bombay Town Planning Act of 1915, and is the first known State led alternative to access land for public purposes in India. It is extensively used in Gujarat and to a lesser extent in Maharashtra, Andhra Pradesh and Kerala. It is a micro level plan that follows the land readjustment and pooling method and is typically guided by a Development Plan (DP) prepared as per the provisions of Gujarat Town Planning and Urban Development (GTPUD) Act 1976. This 'partners in development' model brings together a group of land owners who pool their land/plots for development. The GTPUD Act allows up to 35% of land to be taken for roads, social amenities and housing accommodation for socially and economically backward classes (GTPUD Act 1976). The Act further allows 15% of the land to be kept by the authority for sale for residential, commercial or industrial use, and the remaining land is returned as reconstituted final plots to the landowners. **TPS, being an area development scheme enables holistic development of the area earmarked in the Development Plan.** Road networks, which range from the main arterials to the collector and feeder road at neighbourhood level get implemented through the scheme. Plots for amenities such as schools, dispensaries, parks and recreational spaces as designated in the scheme get implemented in the process.

**Financing of TP Scheme:** Financing strategy for TPS is built on the principle that the benefits of urban infrastructure investments are capitalized through land value capture. **Cost of the scheme is partially or wholly financed through the contributions levied by the authority on the landowners for the infrastructure provisions and through the sale or mortgaging of plots obtained through the scheme by the authority.** During the draft scheme stage, along with the tabulation of ownership details and plot details, increments in the land value is calculated considering the locational advantage as well as disadvantages of the plot. This increment in land value is a result of government intervention through providing infrastructure facilities and hence the landowners are entitled to pay a percentage of the increment as betterment levy. Betterment levy is calculated as the difference between 50 percent of the increment in land value and the compensation to be paid by the authority for land appropriated.

**Advantages and Disadvantages of TP Scheme:** TP scheme is a win-win proposition for both the government and the landowner, as both the government and landowners share the post development benefits. The government authority executing the scheme, strives to ensure that owners receive reconstituted plots at the original location itself. While **TP scheme is known for its robust and comprehensive approach to development**, in some cases it has faced administrative and procedural delays that hamper the timely implementation of the scheme (Deuskar 2011). With powers vested in the State government to approve and sanction the stages of TPS, the process has become fairly centralised and time consuming. The non-inclusion of the landless PAPs, who may be

dependent on the land taken up for the scheme for their livelihood is also a significant drawback of the TP scheme.

## 2) The Land Pooling Scheme (Andhra Pradesh)

**Planning and Area Development in LP scheme:** The Land Pooling Scheme (LPS) was introduced for the development of the capital city of Amravati through the Andhra Pradesh Land Pooling Scheme Rules, 2015. Several States such as Punjab, Haryana and the Magarpatta township of Maharashtra and most recently Delhi have explored land pooling schemes for accessing land for developmental works. It is typically a master plan guided process, wherein areas for public purpose reservations are delineated. **In this mechanism, land parcels owned by individuals or a group of owners are legally consolidated by transfer of ownership rights to the Authority, which later transfers the ownership of a part of the land back to the original land owners. Landowners voluntarily surrendering land for the scheme, get reconstituted developed land based on the type of land and its ownership status.** For instance for every acre of land surrendered by landowners possessing a patta<sup>3</sup>, they in return get 25% of land in case of dry land and 27% in case of wet land. Whereas in case of assigned land, the landowner get 19% of land in case of dry land and 21% in case of wet land. Regular shaped plots with infrastructure services are ensured to the landowners through the LP Scheme. Sector level roads, internal road networks, infrastructure/services (including water supply lines, power supply, rain water harvesting, sewage treatment facilities, water treatment facilities, etc. falling in the share of the land guaranteed to the land owners are developed through LPS (Municipal Administration & Urban Development (M2) Department, Govt of Andhra Pradesh 2015).

**Financing of LP Scheme:** Like the TPS; the cost of developing infrastructure facilities, amenities and trunk infrastructure incurred in the L P scheme is to be recovered by using the land which will be retained by the authority. The Andhra Pradesh Capital Region Development Authority Act, 2014 under the provisions of which the LPS scheme is prepared permits developer entities to undertake LP Scheme, in which case the cost of the scheme would be borne by the developer entity. **LP Scheme of Amravati has factored in skill development programmes and monetary benefits for the landless families such as one time agriculture loan waver and interest free loans to poor families for self-employment.** A capital region social security fund is created to provide pensions of two thousand five hundred rupees per month per family for a period of ten years to all landless families (Municipal Administration & Urban Development (M2) Department, Govt of Andhra Pradesh 2015). For the maintenance of the common infrastructure and services such as roads, street lighting, solid waste management, sewerage treatment facility, water supply, parks and play grounds and other amenities, the reconstituted plot/landowners are charged with usage, consumption and maintenance charges.

**Advantages and Disadvantages of LP Scheme:** In addition to offering developed land, monetary benefits in the form of annuity payments are paid out to the land losing farmers. It fares better than the TP scheme in aspects such as rehabilitation strategies for the landless project affected families and it also **seeks the consent from interested parties or landowners to participate in the scheme.** While the LP scheme has a simpler process that is described systematically in the Act, the grievance redressal mechanisms are vaguely described. There is a no restriction imposed on the type of land to

<sup>3</sup> Patta is a revenue record to establish legal ownership

be taken for LP scheme, and fertile agriculture land has been assembled for the capital city development in Amravati.

### 3) Navi Mumbai Airport Influence Notified Area Scheme (Navi Mumbai, Maharashtra)

**Planning and Area Development in NAINA Scheme:** City and Industrial Development Corporation (CIDCO), having experimented on various development models for its own townships with varying degrees of success and also after studying various land development models across the country, evolved a new scheme for its proposed greenfield airport influence area in Navi Mumbai. In this model, prior to assembling land using Navi Mumbai Airport Influence Notified Area Scheme (NAINA) scheme, the authority prepares an interim development plan that designates land for reservations such as social facilities and public utilities, open spaces, growth centres and road networks. Such land designated for various uses in the detailed development plan published as interim development plans will be notified for compulsory acquisition or will be assembled through NAINA Scheme. **Landowner aggregating the land as prescribed by the Authority must surrender a percentage of land to the authority in lieu of FSI incentives for developing trunk infrastructure amenities and growth centres as per the interim development plan.** Land reserved for public purposes would be acquired using provisions of RFCTLARR from the non-participating landowners. To avoid disaggregated development in the development plan area, the non-participating landowners are disincentivized with lesser FSI.

**Criteria of NAINA scheme is as follows** (City and Industrial Development Corporation 2015):

- a) Permissible FSI outside urban village is 2 for a land aggregation of 7.5 Ha and less than 10 Ha, and 1.7 for land aggregation between 10 Ha or more than 10Ha and less than or equal to 25 Ha, 1.8 for more than 25 Ha and less than or equal to 40 Ha, and 1.9 for area more than 40 Ha;
- b) Permissible FSI in urban villages is 1.7 for scheme area equal to or more than 4 Ha and less than or equal to 25 Ha, while for areas more than this, it is comparable to areas outside urban villages;
- c) In case of non-participating land owners, maximum permissible FSI is 0.5 FSI and no additional FSI on payment of premium or any other means;
- d) To accommodate inclusive housing (i.e. Economically Weaker Section/Low Income Housing), all developments on land admeasuring 4000 sqm or more should provide 20% of the plots or land parcels for inclusive housing in case of plotted development (CIDCO 2014-2034). In case of group housing, 20% of the built-up area shall be utilized for constructing EWS/LIG tenements anywhere in interim development plan area. Such plots should be sold to the authority as per prevalent Annual Schedule of Rates. The developer shall be entitled for the FSI of such plot/land which can be transferable in case of non- utilisation or partial utilisation at one place. Whereas in case of NAINA-Schemes in Urban Villages, the requirement is 10% of the plots or land parcels for inclusive housing.
- e) In case of land acquisition for reservation is more than 40% from any landowners, they are given option of TDR or monetary compensation;
- f) Reservations within the NAINA cluster shall be flexible (excluding roads) and will be allowed to be adjusted in the cluster for those who participate in the 'NAINA Scheme'.

- g) Sale permission for plots and apartments within the layout, only after ensuring that all internal infrastructure is completed as per CIDCO's specification and only after issuance of occupancy certificate by the concerned officer.

**Financing of NAINA Scheme:** The cost recovery mechanism for implementing the reservations as per the interim development plan is envisaged through the following components:

- Development Charges under provisions of MRTP Act 1966, which is payable by the applicants coming forward for development permission: For the development of city level infrastructure facilities proposed in the interim master plan, it is proposed to enhance the prescribed development charges by five times (CIDCO 2015);
- Sale of developable land assigned for growth centre: Land in growth centre would be leased by CIDCO for mixed land use (CIDCO 2015) ;
- Sale of inclusive housing plots;
- Offsite city development charges imposed on non-participating land owners.

As the success of the NAINA scheme is market dependent and uncertain, the land reserved for roads, amenities and growth centres in the interim development plan shall be notified for compulsory acquisition. Landowners who are willing to surrender land free of cost for growth centre, will be compensated through TDR on the percentage of land in their possession. CIDCO envisages that 80% of the land in the interim development plan would be aggregated through the NAINA scheme.

**Advantages & Disadvantages of NAINA Scheme:** NAINA scheme has an integrated approach to development by including gaothans, and development in 200 meters around gaothans termed as urban villages through separate regulations and norms. Additionally, the authority has framed separate criteria and regulations for integrating the government approved special township projects and rental housing schemes of Mumbai Metropolitan Region Development Authority (MMRDA). Developments carried out need to adhere to the overall development plan and must include provision of physical and social infrastructure development mandated in the schemes. NAINA scheme does not specify a detailed process and hence lacks clarity on several components such as consultation with the stakeholders, accessibility to information, roles and responsibilities of the concerned authority etc. Participation of the affected persons in formulation and implementation of the plans is not clearly defined in the scheme and resettlement strategies for the landless PAPs are not reflected in the scheme. City and peripheral level infrastructure development depends heavily on the flow of the offsite city development charges and development charges.

#### 4) The Joint Development Model (JDM), (Haryana)

**Planning and Area Development in JDM:** The Haryana Development and Regulation of Urban Areas (HDRUA) Act, 1975, legally permitted private participation in the supply of serviced urban land by designating certain planned areas for private land assembly. While this mechanism is commonly termed as Joint Development Model of Haryana, variations of public private partnership models of land assembly are used in Uttar Pradesh, Gujarat and Tamil Nadu. **In the JDM, private developers acquire and assemble land through market price negotiations from landowners and then apply for a licence to develop the land into residential, commercial or industrial colonies in conformity with the land use plan.** The mechanism ensures that adequate educational, health, recreational and



cultural amenities as per the norms and standards provided in the development plan of the area is provided by the owner/private developer. Additionally, the private developer must reserve land for roads, open spaces and such common facilities, which varies from a minimum of 20% of the gross land area, in case of low density eco- friendly colony to 45% in case of plotted or group housing colony development (Haryana Development and Regulation of Urban Areas, 1975 n.d.). In the process, the infrastructure amenities for the colonies are built by the private developers, who make profitable gains through sale of plots in the open market. The external trunk infrastructure amenities are to be provided by the government authorities.

**Financing of JDM:** The developer deposits infrastructure development charges, which are to be used for stimulating socio-economic growth and the development of major infrastructure projects in Haryana. The HDRUA Act stipulates that the private developer, making a net profit above 15% after the completion of the project period, must deposit the surplus amount in the State government treasury or spend this money for further facilities. The private developer makes profit through sale of plots/flats in the open market. Being a land development model, the supporting legislation does not have any provision for arriving at the land value and compensation offered to the original owners of the land. Cost of developing the internal infrastructure in the colonies will be borne by the private developer. **Trunk infrastructure facilities which are to be developed by the government authority are partially funded through the external development charges which the developer must pay.**

To ensure affordable housing, the colonizer must sell 25% of plot in case of plotted colony development on a no profit no loss basis at a price determined by the director of the authority. Secondly, the colonizer must reserve 15% of the total developed residential plots/proposed to be development for allotment to economically weaker sections (EWS) in case of development of a group housing and 20% in case of plotted colony development. Around 8000 plots for EWS were developed in Gurgaon using this model (Rao 2012). In order to ensure the upkeep and maintenance of the group housing colony, for a period of 5 years from the period of completion, the authority keeps 1/5th of the bank guarantee amount unreleased. The act states that the colonizer must deposit 30% of the amount collected from the plot-holders within a period of 10 days of its realisation in a separate account which will be released only on satisfactory completion of internal infrastructure amenities.

**Advantages & Disadvantages of JDM:** In JDM, by engaging the resources of private developers in urban development, the financial burden of developing infrastructure amenities in the layout are transferred from the authority to the private developers. Guided by the profit motives, private developers built layouts with infrastructure amenities within the stipulated time framework. However, with the intention of maximizing profits motives private developers tend to build their colonies at locations only where they could easily assemble land from the market through negotiations with local landowners (Souro D 2006). Landowners do not receive any post development benefits. While there are provisions in the Act and rules to ensure the execution of the development works by the private developers, there are no clauses in the Act to ensure the implementation of external development works by the authority.

## 5) The Cluster Redevelopment Scheme (CRS), (Maharashtra)

**Planning and Area Development in CRS:** The Cluster Redevelopment Scheme (CRS) was introduced for the redevelopment of dilapidated and old buildings in Mumbai city through an amendment in the Development Control Regulations in 2009. Clusters for redevelopment are chosen as per the Development Plan or an Urban Renewal Plan. **Under this scheme, cluster of buildings that are eligible as per the norms set by Maharashtra Housing and Area Development Authority (MHADA) having a minimum area of 4,000 sqm are redeveloped and handed over to eligible tenants either by a private developer or a government agency (Municipal Corporation of Greater Mumbai 2016).** Through the CRS, a group of dilapidated buildings which have poor or no access to infrastructure facilities such as sewerage treatment facilities, road networks and open spaces are upgraded through redevelopment. The scheme ensures holistic development of housing complete with infrastructure facilities such as wider roads networks, footpaths and open spaces. High power committee appointed for the CRS ensures that the reservations made in the Development Plan get implemented through the scheme. To ensure the development of buildable reservation as mandated in the DP for the land taken for CRS, the promoter must hand over built up area equal to 60% of the basic FSI under such reservations to the authority free of cost and should be made available free of FSI. The scheme also mandates that 10% of the URS shall be provided for recreational open spaces. The promoter must hand over BUA equivalent to 30% of zonal FSI, in case of development of reservations of Rehabilitation & Resettlement under URS, free of cost and free of FSI in addition to rehabilitation of existing tenements or users.

**Financing of CRS:** CRS leverages the built-up land for a social cause (that is affordable housing for EWS) as a tool for capturing the benefits of redevelopment. Municipal Corporation of Greater Mumbai (MCGM) charges the promoter a surcharge also referred as the infrastructure charge at the rate of 100% of development charge, subject to a minimum of Rs 5000 per sq.m for BUA over and above the zonal FSI for the rehabilitation and free sale component. The surcharge is in addition to the development charges which are levied as per the section 124 of the MRTP Act 1966 (Municipal Corporation of Greater Mumbai 2016).

**The promoter or developer of the CRS redevelops cluster of old and dilapidated of buildings that are eligible as per the criteria set by the authority, with the consent of the landlord and 70% of the tenants.** The promoter of the scheme pools land belonging to various categories of land holders including public land through:

- i) Purchase of land belonging to state government or MCGM or MHADA or agency under state government;
- ii) Exchange of such land with a suitable land of equivalent value as per land rates in the Annual Statement of Rates (ASR);
- iii) Procurement of development rights over such land;
- iv) Transfer of all land included in the CRS to a legal entity;
- v) Acquisition of land, if the promoter purchases rights over at least 70% of the land comprised in the URC and there are dangerous buildings on the balance land contained in the CRS.

Different percentage of incentive floor space index (FSI) for various ranges of amalgamated plots are used for the cluster development. The scheme provides incentive FSI over and above the rehabilitation FSI to developers to cross-subsidise the cost of rehabilitation tenants free in new and structurally safe houses (Mehta n.d.). The promoter receives incentive FSI in addition to the permissible FSI (total permissible FSI is 4). Incentive FSI is calculated as per the formula given below (Municipal Corporation of Greater Mumbai 2016).

$$\text{Incentive FSI} = \frac{\text{Land Rate in Rs/sqm of the land included in the URS}}{\text{Rate of Construction in Rs/sqm}}$$

Each eligible tenant gets carpet area equivalent to the area occupied by such tenant in the old building and 'additional area' for residential/residential cum commercial tenement based on the size of the URC. Each eligible slum dweller get a carpet area of 25 sq.ms in the scheme. The promoter is entitled to create a corpus fund, which is a minimum of 50,000 per tenement or as directed by the High-Power Committee (HPC), which is used for the maintenance of the rehabilitation buildings for a period of 10 years.

**Advantages & Disadvantages of CRS:** The scheme facilitates rehabilitation of eligible tenants in better housing facilities as well as development of public amenities such as open spaces and wider road networks on land which otherwise remain non-accessible for public purposes. The mechanism ensures that consent is obtained prior to proceeding with CRS and mandates a feasibility study to assess its impacts in advance. Mechanisms to prevent malpractices while obtaining the consent is not clear, as there is a possibility that the consent might be obtained through coercion. Though the scheme requires consent of the tenants prior to the initiation of the process, **there is no scope for tenants to participate in the planning and implementation of the scheme.**

## 6) Accommodation Reservation (AR) and Transfer of Development Rights (TDR), (Mumbai, Maharashtra)

**Planning and Area Development in AR and TDR:** AR and TDR principles were introduced through the Development Control Regulations (DCR) for Greater Mumbai in 1991 as an alternative form of accessing land without compulsory method for implementing Development Plan reservations in Mumbai city (V. K. Phatak 2013).. **Under Accommodation Reservation, when a land is reserved for public purposes such as for road widening, open space, library or a dispensary, the landowner hands over a portion of his land to the public authority or constructs the amenities as per the stipulations of the public authority free of cost.** As a compensation for the land or built-up area surrendered, the landowner avails non-monetary compensation in the form of the estimated development potential of the entire plot, now in respect of the remaining parcel of the land under his/her possession. The Development Plan, as per the MRTP Act, 1966 designates land for public purposes such as physical infrastructure facilities, transport and communication, social facilities, public entertainment facilities, community facilities and transport facilities, industries etc. The MRTP Act, 1966 provide a clause which states that any land reserved or designated in the regional plan, development plan or town planning for a public purpose or purposes included in the plan, then such land shall be deemed to be needed for a public purpose. While acquisition of land remained a

challenge, some of the amenities designated as public purpose were realized through AR and TDR in Greater Mumbai. However, considering the very poor implementation of the past DPs, AR policy has been highly incentivised in the recently formulated Development Plan for Greater Mumbai. In addition to the FSI incentives, if in case, the land is reserved for non-buildable reservation, such as playground or garden, then the landowner would get additional benefit of not requiring to keep 15% reservation ground (RG) in his portion of the plot. (Municipal Corporation of Greater Mumbai 2016). TDR mechanisms is also used for procuring land reserved for nalla widening, heritage buildings, redevelopment of cessed buildings, urban renewal schemes, build up area for transit tenements etc.

**Financing of AR/TDR:** The land or built up amenity is obtained by the authority without paying any monetary compensation. The landowner gets incentive FSI and transferable DR instead of direct monetary compensation for the land surrendered and the amenity constructed. In case, the landowner doesn't consume the FSI on the remaining portion of land s/he owns, s/he can avail such FSI in the form of TDR. Development Right Certificate issued states in figures and in words, the FSI credit of Built Up Area (BUA) in square meters to which the owner of the said reserved plot is entitled, the place and ready reckoner zone number, year of issue of DRC and ward in which the DRs are earned. The land value is determined as per the Ready Reckoner rates given in the Annual Statement of Rates, maintained by the Inspector General of Registration and Controller of Stamps, Government of Maharashtra. The date of consideration for such value is the date of notification or declaration of the Development Plan. The information on the utilisation of TDR in the form of the Development Rights, development plan reservations to be surrendered and areas for utilisation of the TDR on receiving plots is published in advance from time to time in a phased annual programme by the authority in charge. The Municipal Commissioner maintains a register of all transactions related to the grant or utilisation of Development Rights.

**Advantages & Disadvantages of AR/TDR:** The mechanism is efficient in providing the necessary infrastructure services to a heavily congested area, wherein TDR is offered to a private entity for building the infrastructure. The mechanism enables supply of built up area free of cost for resettlement of transit tenements and affordable housing tenements in Greater Mumbai. While Accommodation Reservation has benefitted MCGM in obtaining built public amenities, the actual 'quality and design' of public goods amenities has been inconsistent (Municipal Corporation of Greater Mumbai). Similarly, due to lack of monitoring of application of TDR, implementation of reservations of DP has remained partial in the city of Greater Mumbai

## 5.2 Recommendations to access and plan land for PRR project

### a) Utilise various alternative mechanisms in the form of a hybrid<sup>4</sup> model

A reassessment of the project needs to be undertaken to understand the current status of land acquisition (including government land) to see how much land is yet to be acquired. This yet to be acquired land could be categorised into fully developed, semi developed and agricultural lands and the choice of appropriate alternative mechanism could be applied. Land pooling and readjustment models (like the TPS) could be utilised in the agricultural land stretches of the road alignment. Difficult stretches could be accessed using the resources of the private sector using the JDM model allowing market price negotiations between the landowner and the private developer with pre-determined incentives that the government will provide. Lastly, the CRS approach could be explored for densely built up areas (residential, commercial and mixed use areas) ensuring rehabilitation and reconstruction of homes and businesses that have been set up. The project could be phased accordingly. However, while considering these mechanisms, it is important to contextualise these mechanisms considering the local conditions, the development objectives and shortcomings of the current land delivery system. For instance, consensus building to ensure participatory land development process could be incorporated into the alternative mechanism chosen to minimise the opposition from the landowning farmers.

### b) Master plan to incorporate area development approach

Bengaluru's City Master Plan is currently under revision and is a legally enabled process by which the resulting plan is a statutory one which should be followed by all. While the courts have given a go ahead for land acquisition for the 100m right of way of the PRR itself, it does not permit further acquisition related to the project unless and until the PRR is implemented. This is where the full potential of a master plan can be realised where strategies of land readjustment and land pooling such as the T P Scheme or the Land Pooling Scheme could be utilised to ensure planned and serviced land as a Phase 2 of the PRR. Local area planning could also be introduced as a micro level plan to the macro level master plan to enable area development. This will also give the BDA ample opportunities to factor in cost recovery mechanisms.

### c) A dynamic leader and efficient project management are key to drive project success

The presence of a visible and dynamic official will play a pivotal role in the execution of the project determining the success and timely completion of such projects. This has been seen in the Ahmedabad Ring Road project as well as in Amravati Capital City Development. A credible face explaining the projects benefits, convincing people, and thereby winning their confidence and trust is imperative. Strong political will should back such a leader along with a robust project management and delivery team that assesses risks, factors in operation and maintenance costs and chooses appropriate delivery mechanisms based on a wide array of issues such as regulatory status, land owner priorities and degree of risk.

<sup>4</sup> Article in Deccan herald refer to adopting a hybrid model to build the Peripheral Ring Road of Bengaluru <http://www.deccanherald.com/content/520881/govt-looking-hybrid-model-peripheral.html> , Also refer (Jain 2012)



**d) Land value capture for land owners and government agency alike**

The unearned increment resulting from the rise in land values and change in use of land from public investment or decisions or due to the general growth of the community must be subject to appropriate recapture by public agencies (United Nations 1976). Land readjustment and pooling ensure that post development benefits such as land value increments and the developed land with services are shared between the government agencies as well as with the landowners. While government agencies get land for the envisaged development free of cost, the landowners benefit from the rise in value of the land they possess. This approach to accessing land is less prone to resentment from the landowners, as they are not left out in the process of land development. JDM uses infrastructure development charges for service delivery, which gets transferred to the end user. CRS leverages built-up area for a social cause (that is affordable housing for EWS) as a tool for capturing the benefits of redevelopment. The land based fiscal tools should be essentially seen as benefit tax used for financing capital investment (or also to service debt when required), but certainly not for general administrative or O & M expenditure (V. Phatak 2013).

**e) Project Legacy: Planned, financed and serviced urban expansion**

The legacy of the ORR should serve as a reminder that the PRR must not take the same route. While BDA managed to develop a few layouts with fair connectivity to the ORR, it was not to scale and most sections today have poor access. The PRR should have broader benefits that percolate beyond the linear corridor through creating planned developments with interlinked street networks. Area development schemes such as LPS, TPS and JDM ensure that planned developments happen in the urban periphery. CRS does the same in an already built upon context. These areas benefit through planned services such as road networks, water supply, sewerage and electricity as well as social and recreational amenities. Private developments in the urban expansion areas are to be regulated through such area development schemes that are guided by a macro level development plan.

**f) Getting land owners, government agencies and the private sector on a single platform**

Opting to use alternative mechanisms to build the road or develop the area reduces the strain on government coffers as the burden of upfront payment of cash compensation as is done in compulsory acquisition is eliminated. In addition to this benefit, government agencies have options to use land as a fiscal tool to finance further infrastructure developments.

From the point of view of land owners, the leading causes for resentment typically includes displacement, insufficient compensation, urgency clauses misappropriated, absence of a space for communication between the impacted community and the project implementers for transparent negotiations, and the absence of a choice in moving into a transformed common future associated with the process leading to their displacement (Bapat 2009).

Mechanisms such as TPS, LPS and CRS ensure that many of the above concerns are addressed. Provisions for landless labourers will need to be an additional factor to be addressed as some of these State led mechanisms do not have provisions for the same. The impact of land acquisition on the landless farmers could be reduced, if a percentage of land acquired is reserved for affordable housing and auctioned at subsidised prices to eligible landless project affected families.

Private developers too who are large players in the land market have ample opportunity to engage with government agencies using models such as JDM and CRS. The government too needs to hone its skills in engaging in public private partnerships in a structured and defined manner to not only leverage the resources of the private sector but to also prevent any unethical practices or create information asymmetry.

### 5.3 Amendments Recommended in the Legislation on T P Scheme

The following amendments need to be considered in the Town Planning Sections of KTCPA, 1961 to ensure availability of planned and serviced land for public purposes:

- i. Access the land to carry out development prior to the final approval of the scheme, by the authorities concerned, so that procedural delays if any can be avoided;
- ii. Revenue recovering methods such as earmarking a percentage of saleable plots for sale to meet the infrastructure costs in the scheme areas;
- iii. Provision to make TP scheme for areas adjacent to an existing TP scheme area or a rural area in the city periphery that is in transition to an urban area, which do not fall within the master plan limits;
- iv. Designate a percentage of land for affordable housing of the economically and socially backward classes which will include landless project affected people in the TP scheme;
- v. Provision to convene meetings with landowners to explain tentative proposals in the draft scheme for their views and suggestions;
- vi. Introduce section on constitution of Board of Appeal, so that the persons aggrieved by the decision of the town planning officer can go for an appeal to the Board.

Draft Bill on amendment to TP Scheme to the KTCPA, 1961 dated Jan 5 2015, has recommended all the above changes to the TP scheme except on point no. iii and iv. It is suggested that the amendment should incorporate the provision to designate land for economically and socially backward classes, specifically the landless project affected people so that the scheme becomes socially equitable. To manage the urban expansion areas, it is significant to consider a provision of TPS for the non-master plan areas, which are abutting a scheme area or rural areas which are in transition to urban areas.

## Bibliography

Bangalore Mirror. "BDA Finally Moves to Build the PRR." *Bangalore Mirror*, 11 January 2016.

—. "Land already acquired by highway dept bottleneck for whitefield metro project." 7 October 2015.

Bapat, Jyotsna. "Resettlement Entitlements :Moral Economy of Land Rights and Beyond." *India Infrastructure Report,Infrastructure Development Finance Company*, 2009: 97-102.

BDA. *Peripheral Ring Road Project: Final Revised Draft Resettlement Action Plan*. Action Plan, Bengaluru Development Authority, UDD, Karnataka, 2015.

Bharadwaj, K.V Aditya. "Impasse over peripheral ring road project continues." Bangalore: The Hindu, 2016.

Bharadwaj, K.V Aditya. *Last Ditch Effort to Save Peripheral Ring Road*. 25 July 2015.

—. "Rush to build." Bengaluru: The Hindu, 18 January 2016.

BMRCL. *RFP for the consultancy assignment to assess the market value of land proposed to be acquired by the BMRCL, along the proposed phase II alignment of the Bangalore metro rail project*. Bengaluru, July 2013.

BMRDA. 29 November 2006. <http://www.bmrda.kar.nic.in/Binder1.pdf> (accessed May 27, 2016).

BR, Rohith. "Bengaluru development body to try landpooling for Bidadi Smart City project." Bengaluru: Economic Times Reality , 1 December 2016.

Chief Minister, GoK. *Chief Minister's Speech at the Inaugural of Invest Karnataka -2016 Investor's meet at Bengaluru Palace*. Bangalore: Department of Information and Public Relations,Government of Karnataka, 3 February 2016.

CIDCO. *Modified Draft Interim Development Plan for 23 villages in Navi Mumbai Airport Influence Notified Area (NAINA), 2014 - 2034*. Navi Mumbai: CIDCO, 2014-2034.

CIDCO. "Modified Draft Interim Development Plan for Part of NAINA (23 Villages in Panvel Taluka)." 2015.

City and Industrial Development Corporation. "Modified Draft Development Control and Promotion Regulations for Interim Development Plan Of Navi Mumbai Airport Influence Notified Area (NAINA) (23 Villages in Panvel Taluka)." Navi Mumbai, Maharashtra: CIDCO, September 2015.

Datta, S, V Mahajan, and AK Singha. "Land for Infrastructure Development: Livelihoods and Fair Compensation." In *India Infrastructure Report: Land - A Critical Resource for Infrastructure*, by IDFC, 111-122. 2009.

Deccan Herald. "NHAI, PWD to build Satellite Town Ring Road for Bangalore." 24 July 2012.

—. "Without autonomy, BMLTA turns defunct." 4 April 2014.

Deuskar, Chandan. "A Better Way to Grow?: Land Readjustment through Town Planning Schemes in Ahmedabad." *Master in City Planning Thesis*. Massachusetts: Massachusetts Institute of Technology, June 2011.

ET 2015. "Fate of Peripheral Ring Road Plan to be Decided by CM Siddaramaiah in the State Budget." *The Economic Times*, 11 March 2015.

Expert Committee on BBMP Restructuring. "Way Forward." 2015.

GTPUD Act. Government of Gujarat, 1976.

Haryana Development and Regulation of Urban Areas, 1975. Vers. Haryana Act no.8 of 1975. <http://tcpharyana.gov.in/CIM/HaryanaDevelopmentAndRegu.htm>.

Hindu. "Last-ditch effort to save Peripheral Ring Road." Bengaluru: The Hindu; Bharadwaj, K.V Aditya, 25 July 2015.

Jain, AK. "Towards a Hybrid Land Policy for Inclusive Development." *Meeting of the Working Group of Asia-Pacific Ministerial Conference On Housing and Human Settlements (APMCHUD) on 'Urban and Rural Planning and Management', A Report*. Delhi: Ministry of Housing & Urban Poverty Alleviation, Government of India, 2012. 166- 167.

Karnataka Evaluation Authority. *Evaluation of Transfer of Development Rights (TDR) Scheme in BBMP Bruhat Bangalore Mahanagara Palike (BBMP) and Urban Development Ministry*. Bengaluru.

Kidiyoor, Suchith. *Metro Come, Acquire my land*. Bengaluru: Bangalore Mirror , 30 December 2015.

Kim, Yoonhee, Alexandra Panman, and Alejandro Rodriguez. *Colombia Urbanization Review: Amplifying the Gains from the Urban Transition*. The World Bank, 2012.

KUIDFC. "Framework for Land Acquisition." *The World Bank Assisted Karnataka Urban Water Supply and Sanitation Sector Improvements Project*. World bank, October 2003.

Livemint. "After DLF's exit, Bidadi project put back on track." 2010.

Manjula, V. "Bangalore Metropolitan Land Transport Authority - A Case Study." *Urban Mobility India*. 2012.

Mehta, Chaitanya. "View on Cluster Redevelopment."

Ministry of Housing and Urban Poverty Alleviation. *India Habitat III National Report 2016*. New Delhi: MHUPA, 2016.

Municipal Administration & Urban Development (M2) Department, Govt of Andhra Pradesh. "The Andhra Pradesh Capital City Land Pooling Scheme (Formulation and Implementation) Rules, 2015." 1 January 2015.

Municipal Corporation of Greater Mumbai. "Draft Development Control Regulations, Draft Development Plan -2034, Greater Mumbai." Mumbai: MCGM, Government of Maharashtra, May 2016.

Municipal Corporation of Greater Mumbai. "Draft Development Plan 2034 -Greater Mumbai." Mumbai, 2016.

Parliamentary affairs secretariat. *Karnataka Act no.35 of 2015, The Karnataka Town and Country Planning (Amendment) Bill of 2015*. Bengaluru, 10 9 2015.

Phatak, Vidyadhar K. "Land Based Fiscal Tools and Practices for Generating Additional Financial Resources." Capacity Building for urban development project, A partnership program between Ministry of Urban Development ,GoI and World Bank, 2013.

Phatak, VK. *Land Based Fiscal Tools and Practices for Generating Additional Financial Resources*. MoUD, 2013.

Prakash, Rakesh. *Government moots 'Influence Zone' as it reboots satellite town ring road project*. The Times of India . Bengaluru, 14 December 2016.

Rao, P.S.N. "Peri-Urban Land Development in Metropolitan Cities : Issues and Concerns." *Meeting of the Working Group of Asia-Pacific Ministerial Conference On Housing and Human Settlements (APMCHUD) on 'Urban and Rural Planning and Management', A Report*. New Delhi: Ministry of Housing & Urban Poverty Alleviation, Government of India, 2012. 134-135.

RAP . *Peripheral Ring Road Project: Final Revised Draft Resettlement Action Plan*. Action Plan, Bengaluru Development Authority, UDD, Karnataka, 2015.

Souro D, Joardar. "Development Mechanism in Spatial Integration of Cities." *42nd ISOCARP Congress*. 2006.

Task Force for Recovery of Public land and its Protection. *Greed and Connivance*. Bangalore: Government of Karnataka, 2011.

The Hindu. "Now be better connected to satellite towns." 11 July 2008.

—. "CM tells officials to complete stalled flyovers by year-end." *The Hindu*, 15 June 2016.

The New Indian Express. "Big Plans to Tackle Bangalore Woes." 13 January 2016.

United Nations. *Report of Habitat: United Nations Conference on Human Settlements*. Vancouver: United Nations, 1976.

World Bank. "Land Governance Assessment Framework - Karnataka." 2014.



# SPATIAL CENTRE RECOMMENDATIONS

Expert Committee : BBMP Restructuring

2016 - 2017



**BBMP**  
RESTRUCTURING

Chairman: B. S. Patil, IAS (Retd)  
Members: Siddalah, IAS (Retd)  
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**ಬಿಬಿಎಂಪಿ**  
ಪುನಾರ್ಗಟನೆ



# Framework for Bengaluru Spatial Information Centre

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## Executive Summary

There are numerous spatial platforms being created in India in recent years by several government departments and agencies at national and state levels to act as decision support systems. The National Remote Sensing Center (ISRO), supports many agencies to build their specific portals through their Bhuvan platform. A National Geospatial Information System (NGIS) is being implemented to integrate geo-spatial data available with several organizations such as Survey of India, National Informatics Centre (NIC), National Remote Sensing Center (NRSC) and Ministry of Earth Sciences (MoES) to develop a GIS platform for e-Governance applications at the national level. The national vision, formalized in the National Centre of Geo-Informatics (NCoG), moves away from GIS as just a database tool or scientific software, towards GIS as a mapping tool for the governed. The agency's stated objective is to provide a national platform for developing geo-informatics related resources and capabilities across the country.

State governments too are competing to establish state wide Decision Support System (DSS). Delhi, Karnataka, Gujarat, Maharashtra and Rajasthan are ahead of the other States. Geospatial Delhi Limited (GSDL) for example is established with an act of law. Based on the Karnataka Jnana Aayoga-GIS Task Force recommendation, Karnataka too embarked on its own initiative to coordinate geospatial data infrastructure. Spatial data is part of the progressive "information regime" the state sees as necessary to meet predicted growth targets. The Karnataka Government has allocated Rs.150 crores in the financial year 2015-16 to establish a K-GIS portal, spread over three years and has assigned the task to Karnataka State Remote Sensing Applications Centre (KSRSAC).

Various state government departments in Karnataka and city agencies are incurring considerable costs in creating spatial databases by acquiring high resolution satellite images and hiring external GIS consultants. Prominent city agencies in Bengaluru like the BBMP, BDA, BESCO, BWSSB, BMTC, BMRDA, etc. have their own spatial datasets. Many of these datasets created by multiple consultants are typically fragmented, inconsistent and seldom follow national spatial data infrastructure (NSDI) guidelines of India or vendor neutral and inter-operability formats.

Table-1 of the report for example indicates the duplication with regards to a single layer 'Roads' as spatially documented by various agencies (without considering NHAI, state level departments such as PWD, or even BDA's RMP-2015 data). About nine public agencies have the same 'Roads' data indicated in 18 ways and 6 different formats and most importantly none of them are an exact match to the other creating ambiguity about its accuracy and authenticity. This ambiguity during the coordination of a project, increases delays in execution, arriving at the right alignments, incurs time and resource losses and most importantly causes inconvenience to people.

In addition, several academic institutions, NGOs and citizen groups use spatial tools and applications typically to understand access to utilities and services within the city. Part of their resources are duplicated to build and recreate basic datasets which are already available with individual government departments and agencies. Both citizen groups and private agencies are recreating and adding to open data and developing valuable tools and applications with them.

With several such challenges related to the creation and maintenance of multiple spatial databases in the city, the BBMP Restructuring Expert Committee recommended the establishment of a

common spatial information centre in its report submitted to Govt. of Karnataka in June, 2015. As part of the same exercise, the Committee put in considerable efforts to put together spatial (and non-spatial) datasets across agencies (104 layers in all) onto a single platform. This needs to be furthered, kept current and disseminated (including to the public) based on accepted protocols.

As the epicentre of Karnataka's growth, Bengaluru's own rapid urbanization means the city urgently needs uniform, large scale accurate spatial datasets for planning and monitoring of development activity. More compelling than the demographic reasons for the information centre is the present state of data usage at the agency level. Disaggregated data with various agencies, data duplication, multiple file formats, large amounts of spending by individual agencies on decision support systems, and limited know-how of the staff are some of the challenges. Digital India, National GIS initiative, data sharing policy, launch of national and state geoportals, Karnataka GIS project and recommendations by high powered steering committees for establishing a unified spatial information centre are promising opportunities.

An independent statutory agency must be created to carry out data collation, creation, record keeping, maintenance and ensuring sharing protocols for agencies operating in the Bengaluru Metropolitan Region (covering Bengaluru Urban, Rural and Ramanagaram districts). Agencies and other departments will continue to retain ownership of their respective data whereas the spatial information centre will help in base map creation, data standardisation and sharing protocols. Most of the data will be exchanged across multiple departments, businesses and with the public. Open data formats and standard exchange protocols should be followed extensively keeping in view the common citizen with less or no access to software. Seamless data consumption and exchange should happen over browsers at the user end through web services. To enable this, web based service protocols should be followed to exchange spatial information such as WMS - Web Map Service, WMTS – Web Map Tile Service, WCS - Web Coverage Service, WPS - Web Processing Service, etc.

Spatial Information Centre will be a one-point source and custodian of all the geospatial databases for the entire metropolitan region. To meet this objective of creating a common geospatial database, the following key recommendations are made in this report:

1. Urban Development Department (UDD) of the Government of Karnataka should undertake the responsibility to initiate the process of setting up the Bengaluru Spatial Information Centre (BASIC) for a jurisdiction of the Bengaluru Metropolitan Region (BMR) through enacting a spatial act.
2. Pass a Geo-Spatial Act for Bengaluru to mandate the setting up of an independent agency at the Bengaluru Metropolitan Region (BMR) scale to be the single source and custodian of all geo spatial data for the city-region.
3. Set up the Bengaluru Spatial Information Centre (BASIC) as an independent statutory agency as per the provisions of the Geo-Spatial Act with appropriate infrastructure and professional staff.
4. Mainstreaming BASIC to become the preferred spatial data platform across varied stakeholders for data creation, updation, storage and sharing that is current and reliable
5. BASIC to transition into an open data platform opening data to the public, enabling crowd sourcing, and promoting geo spatial literacy.

## 1. Recommendations towards realising the ‘Bengaluru Spatial Information Centre’ (BASIC)

Government agencies are incurring considerable costs in acquiring high resolution satellite images and hiring GIS consultants to create spatial databases. These datasets created by multiple consultants are mostly fragmented, inconsistent and rarely follow established guidelines or vendor neutral and inter-operability procedures. At times, much of the work done by one agency gets duplicated by another as seen by the BBMP Restructuring Committee during 2014-15 while preparing its initial Way Forward Report. The Committee then put in considerable efforts to put together spatial (and non-spatial) datasets across agencies onto a single platform. This is necessary to make informed decisions about the current ground situation across multiple parameters (like demographics, infrastructure, revenue collection, public spaces, etc.), determine the size and shape of the proposed multiple Municipal Corporations and used extensively in planning and providing services.

### Objectives of Spatial Information Centre:

- A single agency is to be responsible for collating, creating and sharing authoritative GIS datasets which is to be made available to all agencies, enterprises and citizens;
- Integrating and standardising fragmented data from individual departments, mapping procedures and establishing data sharing protocols;
- Developing 2D and 3D geospatial information, data analytics and user friendly visualisation applications;
- Obtaining updates from Government agencies, Departments, public sources and ensuring datasets are up to date;
- Following vendor neutral, platform neutral and interoperability principles for easy sharing across the agencies and public at large

### Important recommendations towards realising Bengaluru Spatial Information Centre:

1. **The Urban Development Department (UDD) of the Government of Karnataka should initiate and undertake the responsibility of setting up the Bengaluru Spatial Information Centre (BASIC) for the Bengaluru Metropolitan Region (BMR) through a Government Order (GO)**

As Bengaluru is growing rapidly, it urgently needs uniform, highly detailed and accurate spatial information for proper planning and monitoring of various developmental activities. Setting up a new centre (Bengaluru Spatial Information Centre, BASIC) which collates spatial information and coordinates with all the agencies and shares information on a single platform is necessary. This is also essential to provide consistent and reliable citizen centric services across all agencies within the corporation limits and contiguous areas beyond it. Hence it is recommended that the UDD of the State, should take the initiative as several critical government agencies operating in Bengaluru are functioning under this department. While it is necessary to formulate an Act to enable this process, in the interim, the State government should pass an Order to enable setting up of Bengaluru Spatial Information



Centre, for a jurisdiction of not less than Bengaluru Metropolitan Region (BMR) (covering Bengaluru Urban, Rural and Ramanagaram districts). There should be a mandate made in the GO, so that all agencies compulsorily share a copy of their datasets (spatial and non-spatial) whose jurisdictional limits falls in whole or part, anywhere inside BMR. This will hence be in line with The National Data Sharing and Accessibility Policy, 2012, leveraging Geospatial Information Systems (GIS) for decision support systems & development (as part of the Digital India Initiative). To establish the Centre, a task force should be set up on a priority basis and assigned the task of adopting a consultative process for the smooth operation of the Centre and to come out with appropriate frameworks for enacting the Geospatial Act.

**2. Pass a Geo-Spatial Act for Bengaluru to mandate the setting up of an independent agency at the Bengaluru Metropolitan Region (BMR) scale to be the single source and custodian of all geo spatial data for the city-region.**

Establishing the Bengaluru Spatial Information Centre (BASIC) enabled by the spatial repository act and housed in an appropriate organization is essential not just for seamless coordination among the government agencies but also to expose as much data as possible to the public to enable data analytics and build applications that collectively helps improve the citizen experience in the city. This is also one of the proposals made by this committee in the earlier report submitted to the Karnataka Government in July, 2015.

- **Conformity of the Geo-Spatial Act to various policies and related Acts:** This Act should be passed along the lines of 'The Delhi Geo-Spatial Data Infrastructure (Management, Administration, Security and Safety) Act, 2011', the National Data Sharing and Accessibility Policy, 2012, Karnataka GIS initiative by Department of IT, BT and ST, Government of Karnataka, Digital India Initiative, leveraging Geospatial Information Systems (GIS) for decision support systems & development, etc.
- **Key aspects to be addressed in the Geo-Spatial Act:** This act should clearly address the setting up of a regulatory authority, it's mandatory and additional functions, data sharing by all agencies, data creation, level of details (scale/resolution), ownership, sharing protocols (Government-to-Government: G2G, Government-to-Citizen: G2C, and Government-to-Business: G2B), opening data for public, crowding sourcing and verification, budget, intellectual rights, data updating, emerging technologies and standards, etc.
- **Institutional aspects to enable enactment of the Geo-Spatial Act:** An independent agency should carry out the data collation, creation, record keeping, maintenance, and sharing activities for the Bengaluru Metropolitan Region (BMR). Training and capacity building needs of officials from all the parastatals agencies with respect to Geospatial technologies should also be considered.

**3. Set up the Bengaluru Spatial Information Centre (BASIC) as an independent statutory agency as per the provisions of the Geo-Spatial Act with appropriate infrastructure and professional staff.**

- **Objective:** Provide Geospatial information for the benefit of all citizens to meet their day to day needs and promote use of geospatial technologies by government agencies. Integrate and establish mapping procedures and sharing protocols. Act as a single window agency for all spatial information within the city and its region.
- **State of the art Infrastructure:** Establish a 'GIS Platform' with state of the art computing and networking structures as a multi-tiered platform with a front-end portal offering various GIS data and applications services, and at the back-end a high-capacity data centre for storage, and server architecture to maintain security and controlled access.
- **Skilled and Professional Human Resources:** Lateral entry should be allowed for recruiting qualified and established professionals to take charge and lead the center. Skilled man power is essential for developing emerging applications in data analytics, visualisation and improved security to protect the data from being misused.
- **Institutional requirements for BASIC:** The institution should have technical sections which separately consider (data) collation, creation (of new data, applications) and sharing (across agencies, public and enterprises). These verticals would create the standards for each area of work and address capacity building. These are apart from administration and other services for running the center.

**4. Mainstreaming BASIC to become the preferred destination across varied stakeholders for data creation, storage and sharing that is current and of high quality.**

- **Reducing functional overlaps between agencies:** Some of BASIC's proposed functions may overlap with existing services currently being provided by state agencies such as KRSAC under K-GIS project. The task force that will be set up for BASIC must conduct discussions with such agencies to prevent redundancy.
- **Data collation from stakeholders:** In most cases, the BASIC server will hook on to the servers of participating agencies rather than separately storing data. Wherever this is not possible the center will use its dedicated storage facility to host the data.
- **Sharing protocols:** For sharing, the BASIC portal will act as a dual gateway, segregating traffic of Government-to-Government (G2G, this includes intra agency only access), Government-to-Citizen (G2C), and Government-to-Business (G2B) access based on log-on procedures and an Access/Service Policy which would be user-friendly. Open data formats and standard exchange protocols should be followed extensively keeping in view the common citizen through web services. Web based service protocols could be

deployed for exchange of spatial information like Web Map Service (WMS), Web Map Tile Service (WMTS), etc.

- **Data ownership:** City departments retain ownership of their respective data. As custodian and service provider, BASIC is the vehicle for facilitating the usage of this data by the owning department and its accessibility to other city departments.
- **Funding Mechanism:** Initially depend on government funds in the short to medium term, and then move to being self-sustaining in the long term (through consultancy works for government & private sector, intellectual rights, training programs).
- **Quality Assurance:** One of the BASIC's primary value additions will be its quality guarantee. It will establish sharing protocols and identify the relevant agency responsible for the authenticity of any information (such as BWSSB for water and sanitation lines, the Revenue Department for administrative boundaries, BBMP for roads, etc.) and accordingly re-evaluates the quality of other department information to assure overall quality.

**5. BASIC to transition into an open data platform opening data to the public, enabling crowd sourcing, and promoting geo spatial literacy.**

- **Opening data to the public:** BASIC in the long term will seek to empower citizens with access to maps, images, geospatial information, e-governance and public services. Informed participation of citizens in city development will thereby be enabled with feedback loops as well as crowd sourcing of information to better monitoring, evaluation and accountability of various agencies operating in the city.
- **Promote geo-spatial literacy:** Allocate resources to provide outreach and training for government officials, different citizen user groups and at education institutions to expose students from schools to the university level to GIS. Involving educational institutions with special courses and classes would promote geo-literacy and an open governance paradigm among the next generation of citizens.

## 2. Background

Over the years, many initiatives have been undertaken by various State Governments and Central Ministries to usher in an era of e-governance. Sustained efforts have been made at multiple levels to improve the delivery of public services and simplify the process of accessing them. E-governance in India has steadily

evolved from computerization of Government Departments to initiatives that encapsulate the finer points of Governance, such as citizen centricity, service orientation and transparency. For instance, Unique Identification Authority of India's Aadhaar project helped to save Rs.50,000 on subsidies (Business Standard 2017) by investing Rs.10,000 crores. Railway's digital platform is estimated to save Rs.60,000 crores by investing Rs.12,000 crores (The Hindu 2017).

- *Aadhaar project helped to save Rs.50,000 crores on subsidies (by investing Rs.10,000 crores)*
- *Railway's digital platform is estimated to save Rs.60,000 crores (by investing Rs.12,000 crores)*

The National e-Governance Plan (NeGP) was approved in 2006 to take a holistic view of e-governance initiatives across the country, integrating them into a collective vision. Around this idea, a massive countrywide infrastructure reaching down to the remotest of places is being developed, and large-scale digitization of records is taking place to enable easy and reliable access over the internet. The ultimate objective is to make all government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of such services at affordable costs to realise basic needs.

Six elements are crucial for ensuring that governance and services are made available on demand to all citizens and other stakeholders in the country:

1. Seamlessly integrated services across departments or jurisdictions;
2. Availability of services in real time from online & mobile platforms;
3. All citizen entitlements to be portable and available on the cloud;
4. Digitally transformed services for improving ease of doing business;
5. Making financial transactions electronic & cashless;
6. Leveraging Geospatial Information Systems (GIS) for decision support systems & development.

### 2.1 Understanding GIS and its potential application

- **What is Geographical Information (GI)?**

Any information that has a geographical reference, consisting mainly of satellite images, aerial images, maps – topographic and thematic, ground survey data, positioning data, geo-tagged attributes, and any derivatives from their processing. All these formats are amenable to visual display, integration, processing and serving as spatial imagery (Karnataka Jnana Aayoga 2013).

- **What is Geographical Information Systems (GIS)?**

GIS pertains to the "total system" for GI – technologies for creating, storing, archiving, accessing, processing, and disseminating GI (Karnataka Jnana Aayoga 2013). A geographic

information system integrates hardware, software, and data for capturing, managing, analysing, and displaying all forms of geographically referenced information.

- **Why GIS?**

GIS Applications can strengthen planning activities, contribute to sustainable development, and improve the private sector's management capacity. Not just a powerful technology for analysis, GIS also holds great potential for inclusive state-building. If made available to the public, geospatial repositories can power open-governance by crowd-sourcing citizen data and engendering accountability from city agencies.

- **What is a GIS portal?**

An internet based geospatial data clearinghouse that allow the users of the system to share and use the information of all supplying entities.

Applications of GIS can be critical to many aspects of governance and development and can help in reaching the gains of development to the most needy people at the most needy locations in the most scientific and transparent manner. Thus, GIS can power and support open-governance methods by involving citizens, opening information in easy-to-understand map formats and to assist in bringing accountability and responsibility to public and governance activities. At the same time, GIS can also help enterprises by enabling spatial solutions in support of their enterprise activities (be it in private participation of state-development or in the efficiency of businesses). Citizens benefit from the GIS greatly by enabling the mapping of their aspirations, demands, complaints and suggestions and become important stake-holders in developmental efforts.

GIS can be a major differentiator for decision-making at all levels of governance – be it in government, in enterprises or by citizens; be it state-level, district/panchayat or local-body levels or be it for long-term planning or for immediate decisions/actions. Hence, when it comes to GIS, the focus must be on Decision Support and a further emphasis on improving quality of decision making and empowering citizens.

## 2.2 Geospatial platforms as critical architecture for modern day governance

Today there is increasing global consensus that a government that leads in GIS systems leads in innovation and economic growth as well. With the power to dimensionalise data, spatial information is important to today's new IT regime. Cities and states around the world are capitalizing on the financial and efficiency benefits of dissolving municipal silos in order to streamline and operationalize spatial data. Called "mapping portals," "geospatial hubs," and "geoportals," these repositories are increasingly considered critical architecture for modern governance. Several state and national governments have already adopted these platforms in one way or the other.

State and National government GIS platforms are expected to provide a single gateway for an integrated view of information across all departments for local level planning. This will facilitate a single window service to citizens to increase the efficiency and productivity of all departments/agencies such as Agriculture, Medical & Health, Law Order & Police, Energy & Utilities, Revenue & Commercial Taxes, Urban Development, Water & Waste Water, Environment & Forestry. It will further develop and maintain up-to-date geospatial and non-geospatial datasets for dissemination of the right information to the right people (including govt. agencies, NGOs, RWAs, private sector and citizens) at the right time for faster analysis and decision making. The system needs to be designed with open standards & workflows to facilitate interoperability with existing applications.



The primary objective of State-GIS platforms is to establish and implement a web based single gateway integrated GIS platform to access, acquire, process, store, distribute and improve the utilization of geospatial information through:

- Intelligent web services being generated and published by various agencies;
- Advanced tools for GIS based analysis;
- Web & mobile maps & apps;
- Segment specific solution templates;
- Executive dashboards and
- Spatial information for further integration with other enterprise applications and empowering citizens.

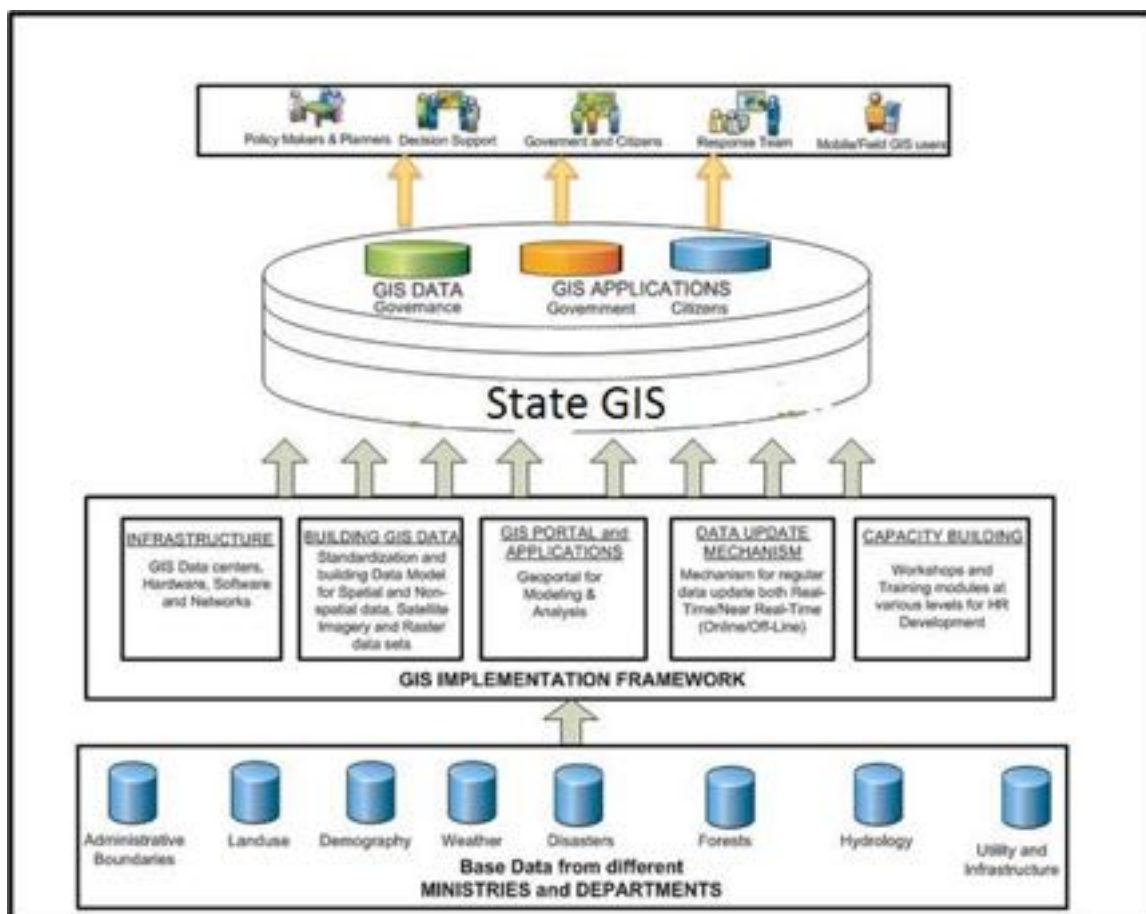


Figure 1: Key Elements of State-GIS

Image Source: (ESRI, ArcIndia News 2014)

## 2.3 Importance and increasing relevance of Open data

Open data has the potential to transform governance and accelerate economic development. Uses for open data are ever expanding, but include transparency in public procurement, election monitoring, and searchable performance indicators in a range of sectors from health care to transportation. The bulk of existing evidence about the impact of open data focuses on high-income countries, but is increasingly demonstrating impacts in low and middle income countries.

The global conversation around mobilizing the data revolution revolves around not just spatial data, but “open data” more broadly. As per the Open Government data division, *“A dataset is considered to be open if it is accessible and free to use, reuse, and redistribute. Open data should be machine readable and easily accessible. Open data can be used to launch commercial and non-profit ventures, to do research, make data driven decisions and solve complex problems.”* (World Resources Institute India, Embarq 2015)

### 3. Scope, Limitations, Approach, and Methodology

#### Aim and Objectives

- To understand the need for creating a unified spatial information centre for Bengaluru;
- To establish frameworks for an independent and unified spatial information center;
- To recommend key aspects to consider while drafting the geo-spatial act for Bengaluru;
- To demonstrate the potential of data analytics by combining datasets from different agencies;
- To showcase how data can be visualised (multiple layers or information used within BBMP).

#### Scope and Limitations

Data and research is limited to secondary sources, that are available in the public domain. This includes accessing government websites, journals, research papers, and open source maps. The report does not focus on aspects of computer and hardware architecture, programme codes, proprietary and other specially developed tools; existing departments functioning within BMR, their databases, expenditure on creating and maintaining spatial datasets and human skill sets available with them, etc. Study area is limited to Bruhat Bengaluru Mahanagara Palike (BBMP) and the agencies functioning in all or part of the Bengaluru Metropolitan Region (BMR) (consisting of Bengaluru Urban, Bengaluru Rural and Ramanagaram districts).

#### Approach and Methodology

The report suggests the need and ways to establish a unified, integrated and synchronised geospatial database for the city for better management and governance.

The following tasks were conducted as part of this report

- Data and research is from secondary sources, importantly the Delhi Geo-Spatial Act, 2011, National Data Sharing and Accessibility Policy, 2012, K-GIS vision document, K-GIS standards volume-1 (Karnataka GIS initiative by Department of IT, BT and ST)
- Interactions were held with a limited number of government agencies such as BBMP, BDA, BMRDA, KSSIDC, BMRCL and BWSSB to understand the issues related to project coordination, data inaccuracy, respective departmental initiatives in usage of geospatial technologies, challenges and opportunities to be part of proposed spatial information centre. Multiple consultations were conducted with KRSAC experts to understand detailed domain expertise.

## 4. Analysis of Existing Situation

Applications of GIS have great national and local relevance to support governance activities, help prepare sustainable development strategies, involve citizens in participatory democracy, enable enterprises to manage business better and bring geographical knowledge to citizens. Thus, GIS has become not only an important technology but is also becoming a tool that assists in governance, development of society and supports citizen activities

Leveraging Geospatial Information Systems (GIS) for decision support systems & development is one of the six elements that are crucial to ensure governance and services is made available on demand to all citizens and other stakeholders in the country as part of Digital India initiative.

### 4.1 Spatial Data Platforms in the Indian Context

There are numerous spatial platforms created in the last few years by multiple government departments and agencies both at national and state level to act as decision support system (DSS). National Remote Sensing Centre (ISRO) is supporting many agencies to build their specific portals on its [Bhuvan](#) platform. Similarly, National Geo-Informatics website and Bhuvan home page. Bhuvan homepage also provides links to specific departmental and agencies geoportals.

#### a) National GIS Vision

The National Government has planned to leverage Geospatial Information System (GIS) for decision support systems (DSS) & development. Various government services can be offered in a better way by proper use of GIS technology in the e-governance applications. National Geospatial Information System (NGIS) is being implemented to integrate geo-spatial data available with several organizations such as Survey of India, National Informatics Centre (NIC), National Remote Sensing Centre (NRSC) and Ministry of Earth Sciences (MoES) to develop a GIS platform for e-Governance applications.

This GIS platform will be leveraged as a service for the benefit of various mission mode projects and other e-governance initiatives. NGIS can also be leveraged for monitoring the physical progress of projects, disaster management and specialized needs of public safety agencies.

Today's national vision, formalized in the National Centre of Geo-Informatics (NCoG), moves away from GIS as just a database tool or scientific software, and toward GIS as a mapping tool for the governed (Government of India n.d.). The new agency's stated objective is to provide a national platform for developing geo-informatics related resources and capabilities across the country (Government of India 2016).



Figure 2: Screenshot from National Centre Of Geo-Informatics Website

Source: <https://ncog.gov.in/>



Figure 3: Screenshot from National Centre Of Geo-Informatics Website

Source: <https://ncog.gov.in/edistrict>



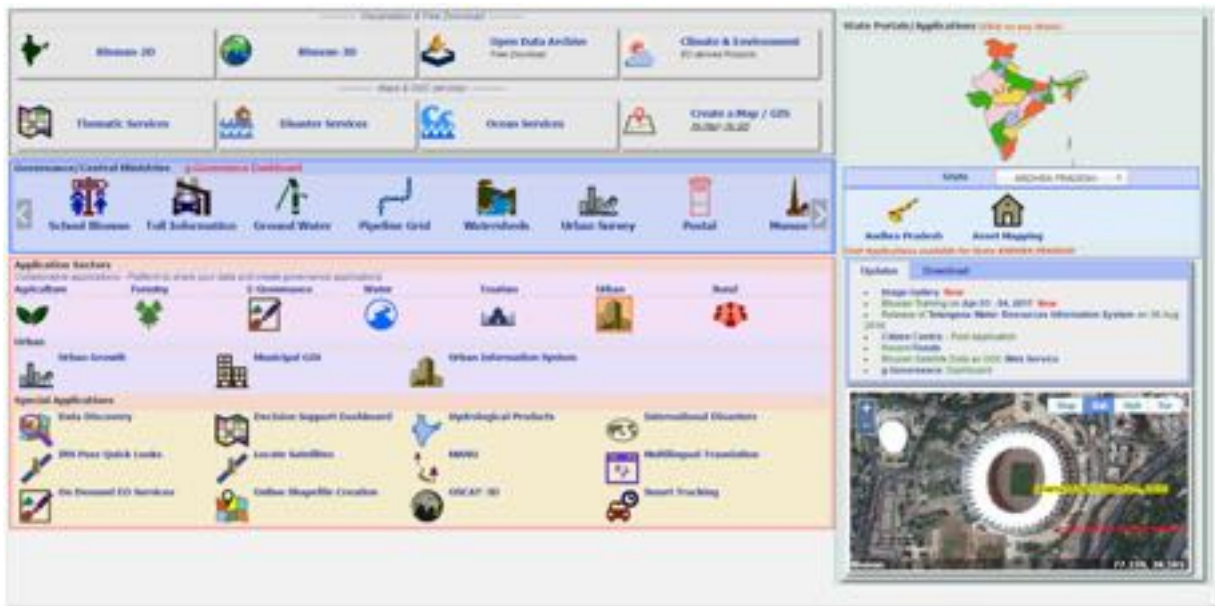


Figure 4: Screenshot from BHUVAN, Indian geo-platform of ISRO

Source: [http://bhuvan.nrsc.gov.in/bhuvan\\_links.php#](http://bhuvan.nrsc.gov.in/bhuvan_links.php#)

## b) Delhi State Spatial Data Infrastructure

Initiated in 2011, the Delhi State Spatial Data Infrastructure (DSSDI) project is accessible to the public online (The Delhi Geospatial Delhi Limited, A Govt. of NCT of Delhi Company n.d.).

The entity's objective is to leverage all contemporary and emerging geospatial technologies for policy implementation and to provide geospatial information for the benefit of Government agencies and Delhi citizens. The portal currently offers a limited suite of applications for governance and is expected to grow as its user base expands to include more agencies as well as the private sector.



Figure 5: Screenshot from Delhi Geospatial portal

Source: <http://gsdl.org.in/Application.html>



Geospatial Delhi Limited (GSDL), an independent company under the Delhi government is created to provide Information Technology Enabled Services (ITES) and solutions for Govt. Departments in Utilities, Social, Environment, Land & Property, Demographic, Emergency and Transport segments for better governance. It utilizes all contemporary and emerging technologies to provide geospatial information for various applications by using tools such as GIS, GPS, Remote Sensing, etc.

**Case study: Delhi Act as Necessary First Step towards setting up the Geospatial Delhi Limited**

The Delhi Geospatial Data Infrastructure (management control, administration, security and safety) Act, 2011 established the foundation for the formulation of the "Geospatial Delhi Limited" (GSDL). In this way, Delhi leveraged a legislative mechanism in order to establish the entity and to specify its structure. In addition to its legal configuration, the act details the purpose, the administration and the authority of GSDL. The Act outlines the entity's governing body, the NCTD Department of Information Technology, and the constitution of its regulatory authority, a cabinet of department secretaries headed by the Chief Secretary of the Government. To ensure enforcement of the act, the governing body formulated rules and the regulatory authority issued regulations, which may be re-issued as needed.

Geospatial Delhi Limited is Registered under the Companies Act, 1956. By incorporating it as a private entity, GSDL was able to offer shares to the public, raising its own capital. With this autonomous funding, GSDL has sufficient resources to create its own data, rather than collect and standardize existing departmental data. As designed, the GSDL then sells these data to city departments.

### c) Open Data in India

The National Data Sharing and Accessibility Policy (NDSAP), enacted in 2012, was designed to expand access to all shareable, non-sensitive data generated with public funds. The resulting 'Open Government Data Platform India' boasts over 27,330 resources with 7.3 million views and 2.9 million downloads since inception (Government of India 2016). However, in practice, the NDSAP has not been implemented equally across all agencies and departments. The website's data catalogue shows that in practice some ministries have shared dramatically more data than others: contrast the Planning Commission's 777 shared datasets with the Ministry of Commerce and Industry's 16 datasets or the Ministry of Information and Broadcasting, which has made available only 9 datasets.

One of the unique features of India's Open Data portal is that users can demand a specific dataset from the government and others looking for similar data can endorse these requests. It becomes mandatory for a department to release that data if 1000 such endorsements are raised for a particular dataset (World Economic Forum 2015). To encourage a new way of approaching government data, the Ministry of Electronics and Information Technology administers the Digital India Awards, acknowledging exemplary practices in e-governance (Government of India 2016).

Outside of the national project, India is behind the open data curve. Only one state has an open data portal: The State of Sikkim became the first Indian state to launch an open data portal using the <http://www.data.gov.in/> platform in June of 2016 (Government of Sikkim 2016). As for city level open data, only private foundations and citizens have taken on the task to date; Open City is the most recent attempt (<http://opencity.in/>) (Bangalore 2016).

#### Case Study: Open Data in Mexico Attracts Private Sector Investment

Making previously inaccessible information available is a major public service, but the critical next step is enabling citizens to act on that information. An exemplary product of Mexico's open data is the *Mejora Tu Escuela* ("Improve Your School"), an online platform that provides citizens with information about school performance. Launched in 2013, *Mejora Tu Escuela* is a public, independent, nonprofit initiative with investments from the Mexican Institute for Competitiveness (IMCO) and Omidyar Network. It helps parents choose the best option for their children, empowers them to demand higher-quality education, and gives them tools to get involved in their children's schooling. It also provides school administrators, policymakers and NGOs with data to identify areas requiring improvement and hotbeds of corruption, in the process raising the overall quality of education in Mexico. The impact of *Mejora Tu Escuela* is evident in the amount of traffic the site receives – between 40,000-45,000 unique visits a day.

#### d) Karnataka GIS (K-GIS)

Karnataka embarked on its own initiative to coordinate geospatial data infrastructure and approached its K-GIS design anticipating sustained high rates of growth into the future. Spatial data is part of the progressive "information regime" the state sees as necessary to meet the predicted growth. The Karnataka Jnana Aayoga-GIS Task Force described their goal as "a regime powered by modern metrics systems, efficient informatics and analytics with real-time information delivery and a constant interaction between government and citizens – such a regime will have to be the foundation for the governing as well as the governed." (Karnataka Jnana Aayoga 2013). Funds of INR 150 crores were allocated in FY 2015-16 to establish the K-GIS portal (Government of Karnataka 2015). Once accessible, it will offer seamless state-wide GIS data layers as well as a wide range of GIS applications.

- **Karnataka GIS in detail**

K-GIS will be implemented in a phased manner by Karnataka State Remote Sensing Applications Centre (KSRSAC) in association with Karnataka State Council for Science and Technology (KSCST) and Karnataka State Natural Disaster Monitoring Centre (KSNDMC).

An apex body-Karnataka GIS Council- would be set-up under the Chairmanship of a renowned GIS expert, who will guide, define procedures and suggest a detailed plan of activities, under K-GIS. Important stakeholders in the project include line Departments, Industry and Academia. K-GIS is a "*public and merit good*" - serving the larger good for the larger majority. K-GIS is "mission critical" for State Government and enterprise level GIS activity and should also provide a premise for future public and private collaboration within the state in the critical area of GIS. It serves the basic needs of and empowers citizens by serving state-wide maps/image/geo-spatial information; geo-enabling e-governance and public services and enabling a "crowd-sourced" interactive/participatory process of citizen involvement in development and state-building and providing feedback/inputs/data as a virtual geographical ingest.

It is a major support to high-quality state governance by embedding GIS in different aspects of governance - planning and implementation at national/state/local levels; bringing GIS support in decision-making; enable a sound process of monitoring development and identifying "gaps in development"; make GIS data available at all levels - that helps bringing accountability and responsibility in state's governance. It also supports the accelerated development of a number of Enterprise-GIS solutions being undertaken by private enterprise and help align them to state/national development - by allowing integration of

the K-GIS into enterprise solutions in an appropriate manner and also contributes innovative GIS software and data content/applications for larger and wider use. K-GIS precisely addresses these aspects and aims at bringing a new paradigm for development and supporting a new model of governance by providing GIS Decision Support Systems (DSS).

- **Infrastructure**

It comprises of GIS Platform for computing and networking, which will be developed, hosted, and based in a suitable place in Karnataka. As part of the K-GIS infrastructure, it is also planned to position K- Dashboards for key dignitaries such as the Chief Minister's Office (CMO) and the Chief Secretary for high-level reviews/meets etc., and promote GIS usage to key dignitary-levels. The K-GIS infrastructure will be a bank of specialized computing facilities, necessary GIS engines and other software, a high-capacity Data Centre, a comprehensive User Portal and an Administration/Management Portal with appropriate security and risk management solutions.

- **Framework**

Spatial Framework (SF) is a common geographically referenced GIS foundation spatial data on which assembly and maintenance of a seamless coverage of the best available, most current and authoritative, well organized, standardized and quality controlled GIS data is available. It is the frame work of ground control for latitude, longitude and height throughout the state of Karnataka. Spatial Framework (SF) is the most critical asset for seamlessness of the spatial database, integration of multi scale spatial data, exchange of geospatial information among government and other organizations of the state. The Spatial Framework consists of datum, projection and bounding limits and allows accurate registration, transformation and visualization of the spatial information. Under the K-GIS mission, it is planned to create a spatial frame work for the state of Karnataka consisting of precisely controlled primary, secondary, tertiary, TRPs and CPs to meet the accuracy as defined in the Karnataka Geographical Information System (K- GIS) standards.

- **K-GIS Portal & DSS**

K-GIS Portal will be developed as a single gateway for access - with detailed modules of GIS metadata search, GIS data access and GIS applications access by integrating the K-GIS Applications. K-GIS DSS Applications provide service for different state departments in government; target groups in private enterprises and to citizens. The National GIS DSS (which are more suited for central ministries/departments) would also be integrated with the K-GIS DSS.



Figure 6: K-GIS DSS Applications

Source: [http://www.karnataka.gov.in/ksrsac/project-karnataka\\_gis.html](http://www.karnataka.gov.in/ksrsac/project-karnataka_gis.html)

- **Capacity building**

K-GIS Capacity building and training to different departments and user groups would be taken up. K-GIS will link with Karnataka Knowledge Commission and other Knowledge building institutions for training, education and research needs as part of the overall capacity-building.

## 4.2 Geospatial data generated by Government agencies in Bengaluru

Karnataka state government departments and agencies are incurring considerable costs to create spatial data by acquiring high resolution satellite images and hiring GIS consultants. Most of the prominent agencies working in Bengaluru like BBMP, BDA, BSCOM, BWSSB, BMTCL, BMRDA, etc. have their own spatial datasets. Karnataka Geoportal by Karnataka State Council for Science and Technology (KSCST), WebGIS Portal for data visualisation by Karnataka State Natural Disaster Monitoring Centre (KSNDMC) are few other examples which have state wide spatial information.

Most of these datasets (especially agencies working locally for Bengaluru) are created by multiple consultants and are mostly fragmented, inconsistent and don't follow national spatial data infrastructure (NSDI) guidelines of India or vendor neutral and inter-operability procedures.

Table 1 shows the duplication with regards to one layer, “Roads” from major agencies (without considering NHAI, state level departments like PWD, etc.). About nine public agencies have the same roads data in 18 ways and 6 different formats and most importantly none of them exactly match with each other creating confusion about the accuracy and authenticity. This generally creates ambiguity during project coordination time, increasing delays in project execution, incurring huge losses and most importantly causing inconvenience to the public.

	Agency	Layer Classification	Sector / subsector	Geospatial Information	Projection System	Feature Class	Data counts
1	BESCOM	RoadCenterLine	Mobility / Roads	Road network with flyovers, bridges, type (NH, SH, major, minor, track)	WGS_1984_UTM_Zone_43N	Line	16,161
2	BESCOM	Road Edge	Mobility / Roads	Extents of road edge	WGS_1984_UTM_Zone_43N	polygon	38
3	BMRCL	Mobility / Metro	Mobility / Metro	Alignment drawings	AutoCAD		
4	BMRDA	LPAs	Mobility / Roads	Master plans of LPAs in BMRDA, Road alignments	Everest_Bangladesh_Polyconic		
5	BTP	Corridors	Mobility / Roads	Corridors	KML	Line	21
6	KRSRAC	Roads Centre line	Mobility / Roads	Alignment	Everest_Bangladesh_Polyconic	Line	78,895
7	KRSRAC	Roads Polygons	Mobility / Roads	Same as above in polygons	Everest_Bangladesh_Polyconic	Polygon	327
8	BWSSB	New Roads	Mobility / Roads	Road name (for some roads), length and type	PCS_Transverse_Mercator	Line	2,18,067
9	BWSSB	Road	Mobility / Roads	Road alignment	PCS_Transverse_Mercator	Line	1,85,683
10	BMTTC	Big10routes	Mobility / BMTTC	Big 10 bus routes	GCS_WGS_1984	Line	13
11	BMTTC	Routes	Mobility / BMTTC	Bus stop name, location and bus route no.	GCS_WGS_1984	Point	5,451
12	BBMP	Zone wise - New Roads	Mobility / Roads	Road name, type, length (with ward name, no. zone name)	GCS_WGS_1984	Polygon	1,07,394
13	BBMP	Zone wise - Roads Center line	Mobility / Roads	Road name, type, length (with ward name, no. zone name)	GCS_WGS_1984	Line	92,825
14	BDA	BDA	Mobility / Roads	Orthorectified image for BMA, road center line, edges	Raster		
15	BDA	RMP - 2031	Mobility / Roads	Flyovers/bridges in BMA limits	WGS_1984_UTM_Zone_43N	polygon	1,071
16	BDA	RMP - 2031		Location of trees along major road corridors	WGS_1984_UTM_Zone_43N	point	2,75,589
17	KRSRAC	Flyover	Mobility / Roads	Type of Flyover	Everest_Bangladesh_Polyconic	Line	127
18	KRSRAC	Flyover Polygon	Mobility / Roads	Type of Flyover	Everest_Bangladesh_Polyconic	Polygon	97

**Table 1: Bengaluru road information with multiple agencies in varying formats**

Data Source: Information collected by BBMP expert committee, (Expert Committee: BBMP Restructuring 2015)



Another dataset example of building footprints and land use details for the same area compiled by BDA and BESCOM differ.



Data Source: BDA, BBMP



Data Source: BESCOM



Source: (Clear Value n.d.), BDA - Revised Master Plan - 2015

Figure 7: Building footprints generated by multiple agencies

Agencies also use geo spatial technologies to manage resources, operations and maintenance. The BWSSB mapped its entire network more than thirteen years ago in GIS. Currently experts from National Informatics Centre (NIC) look into updating this database. Several other agencies too in the city use geospatial technologies such as the BDA for its Master Planning efforts, BMRDA for its Revised Structure Plan etc.

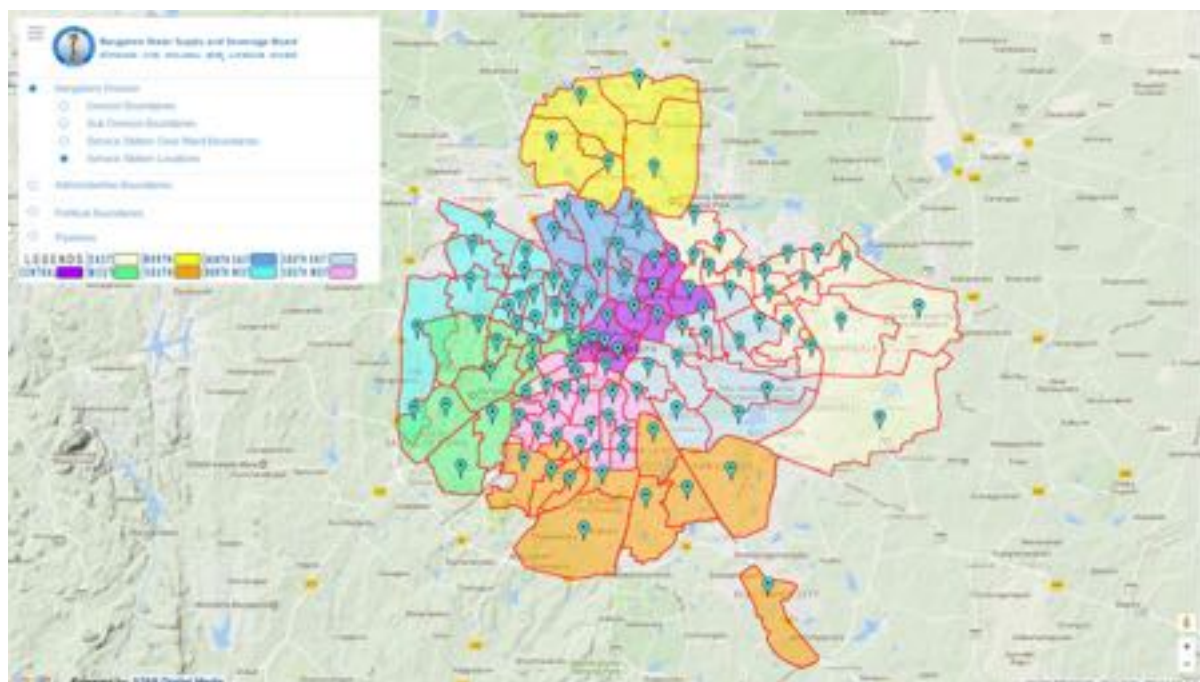


Figure 8: Service station locations of BWSSB in Bengaluru

Source: <http://stardigitalmedia.co.in/bwssb4/>

### 4.3 Geospatial data generated by private enterprises and citizen groups in Bengaluru

Institutions, public and civil societies saw the potential geospatial technologies with the introduction of Google Maps, Google Earth and other similar applications. Online E-tailers (like Flipkart, Amazon), taxi aggregators (like Uber, Ola, Meru), logistics delivery agencies (FedEx, DHL, Bluedart) also depend on spatial tools and many small and large private enterprises too are investing in such technologies for commercial and business purposes. Academic institutions, NGOs and citizen groups use spatial tools and applications typically to understand access to utilities and services within the city.

Government datasets are often more comprehensive whereas private enterprises and citizens groups update the data more regularly (Compare figure 7 and figure 9)





Figure 9: Openly available spatial Datasets of Bengaluru in Open street maps  
Source: <http://www.openstreetmap.org/#map=16/12.9776/77.5727>

Figure 10, Figure 11 and Figure 12 shows the value addition created by giving a spatial dimension to public information. Figure 13 showcases the Opencity initiative by citizen groups and currently available datasets. Figure 13 and Figure 14, show building encroachments on Rajakaluves to the public. Citizen could easily check the status of their buildings based on their postal address. Agencies like CSTEP, IISc, IIMB, Janaagraha, Oorvani Foundation and many others are creating spatial datasets for Bengaluru..

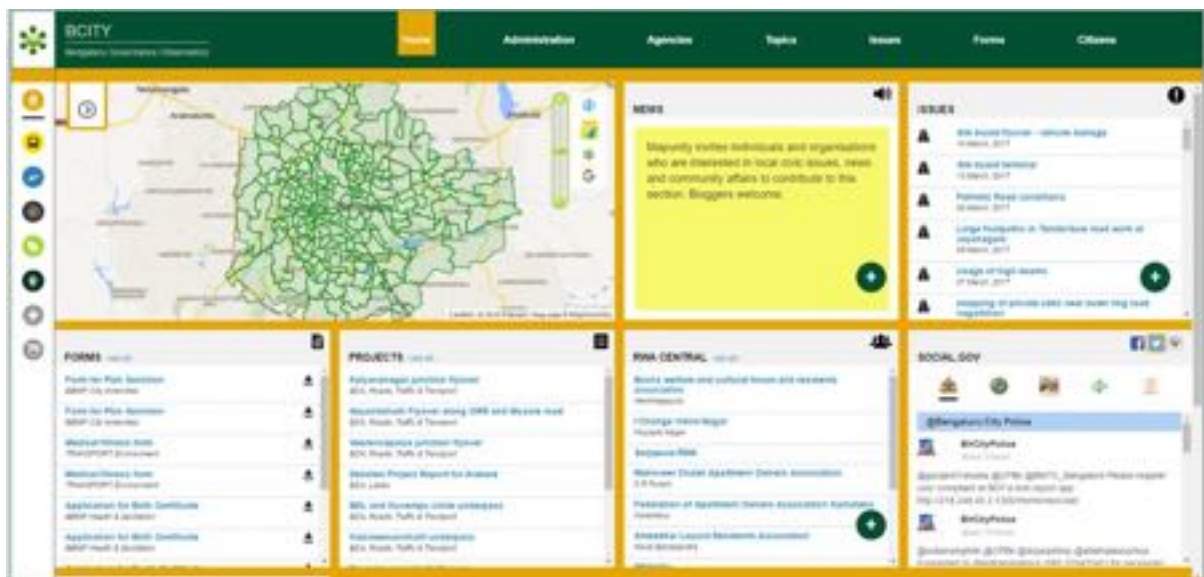
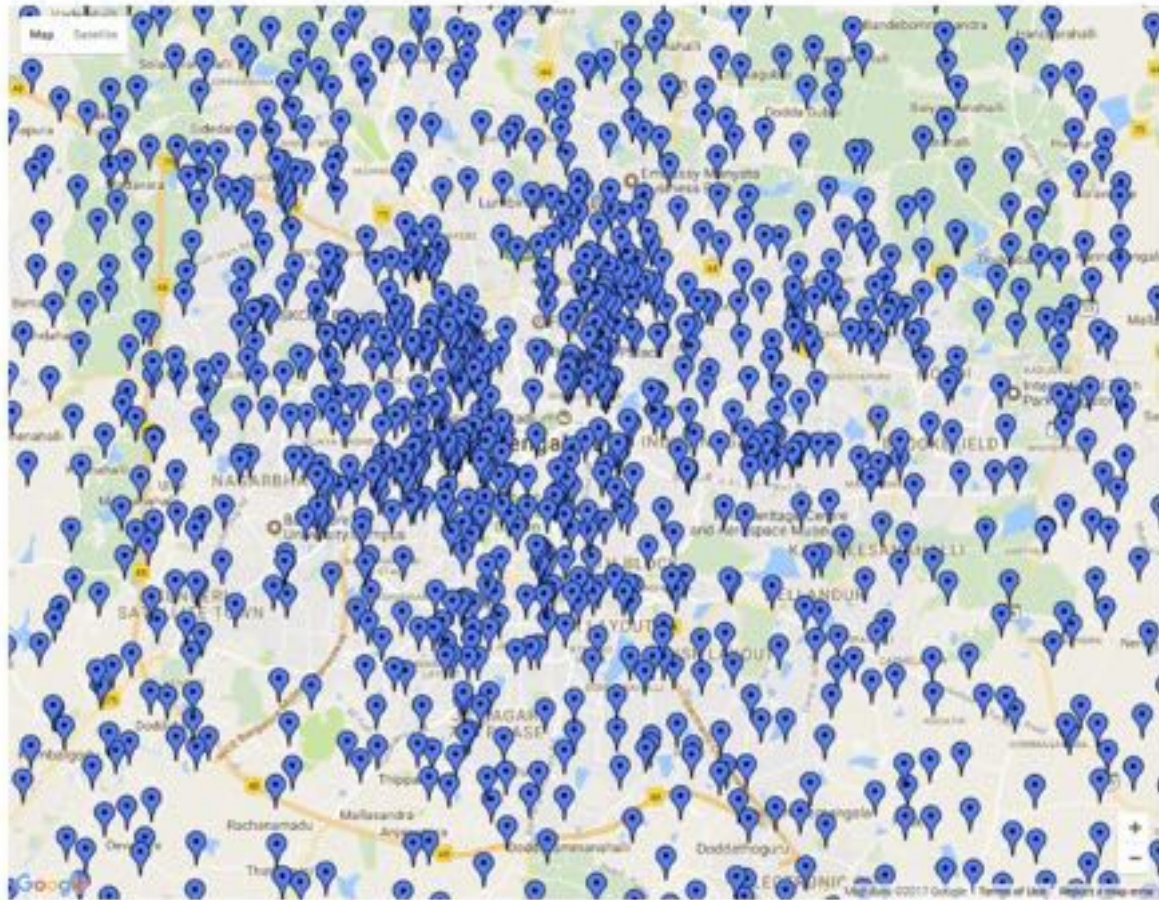


Figure 10: Screenshot-Ward level information of Bengaluru  
Source: <http://Bengaluru.mapunity.com/Government>

Locate a school on the map and search by the school name in the table below the map to get the details of that school.

Download KML



Scroll to the right in the table below to view concerned officers contact details.

CSV

Show 100 entries

Search:

DISE Id	School Name	Management	Medium of Instruction	Category	Sex	Cluster	Block	District	School Type	Assemb
33336	GKPS OOPASANDRA	ed	kannada	Lower Primary	co-ed	nerlooru	anekal	bengaluru south	primary	Anekal
32856	GKPS CHODASANDRA	ed	kannada	Lower Primary	co-ed	hullooru	anekal	bengaluru south	primary	K.R. Pura

Figure 11: Screenshot-Bengaluru school's distribution and information in 2013

Source: <http://opencity.in/data/Bengaluru-schools-2013>



Open Bangalore
AVAILABLE DATA

## AVAILABLE DATA

Right click on the link and use save as to download the individual files. You can also download the entire database [here](#).

- GIS/Maps
- Education
- Public Transport
- Weather
- Election
- Police
- Census

### GIS/Maps

We have both shape files and kml files of Bangalore Ward Maps. We also have SVG maps of Bangalore with all required attributes.

- Bangalore Ward Maps in KML format – 2012**
- Bangalore Ward Maps 2012 in Shape File format –**  
[bbmpwards.shx](#), [bbmpwards.fix](#), [bbmpwards.gis](#), [bbmpwards.dbf](#), [bbmpwards.sql](#), [bbmpwards.shp](#)
- Bangalore Ward Maps in SVG format – 2012 – Wards have been defined as paths and they have ward number as an attribute WARD\_NO.
- Before BBMP there was DMP, **DMP ward maps are available**.
- Bangalore Pincode Area [Download geojson map file](#) or [View it on Github](#)
- BWSSB (water board) Division, subdivision and main lines KML. Maps obtained from BWSSB website.

### Education

- [List of Pre Schools in Bangalore](#) – has location information too.
- [List of Schools in Bangalore](#) – has location information too.

### Public Transport

Download Everything from Github

- >[BMTC Bangalore Routes, Busstops and Routes-Stop in an SQLITE – 2015](#) – I has everything, use it if you are a developer..
- >[BMTC Bangalore Bus Stops – 2015](#) – [GeoJSON](#) – [BMTC Routes](#)

OpenCity

## Content Type: Geotagged

**Bangalore Schools List 2015 with Map View**  
Upload a school on the map and search by the school name in the table below the map to get the details of the school.  
Download CSV

**BBMP Parks 2016**

**BBMP Toilets 2016**

**BMTC Bus Stops 2016**

**BBMP Ward Information with Map View**  
Map View Download CSV Details of the wards under BBMP jurisdiction.

**Trees to be cut in Metro Reach 2 extension and Reach 4b, along Kanakapura Road and Mysore Road**

**Bus stops 2016**

**2012 BMTC Bus stops**



**Bangalore Preschools**

Source: <http://openBangalore.org/available-data/>

Source: [http://opencity.in/content\\_type/geotagged](http://opencity.in/content_type/geotagged)

Figure 12: Screenshot-Open City initiative and available datasets on Bengaluru



[Select Language ▼](#)

## Rajakaluve Encroachment Finder

Please use address details from sale deed for correct results

**Taluk**  
Bangalore North / ಬೆಂಗಳೂರು ಉತ್ತರ ▼

**Hobli**  
Yashvantapura / ಯಶವಂತಪುರ ▼

**Village** [View All](#)  
Abbagera / ಅಬ್ಬಗೇರೆ ▼

**Disclaimer:** The information provided on this link is based solely on public data available on the BBMP website. The information has not been modified or altered in any manner and does not contain any opinion or views of IMB or its Management or employees. Please seek legal opinion to validate this information before you act upon it.

### IS YOUR PROPERTY ON A RAJAKALUVE?

Here is a way to find out. BBMP has notified properties with survey numbers that are encroaching on [BBMP website](#). Our portal makes it easy to access these documents and give a summary view. In addition, we give indication of possible notification from BBMP in future based on documents collected from [Land Records Website](#). Use the drop down menu on the left to select the (taluk, hobli, village) combination for your property. A list of all affected survey numbers will be displayed below with links to relevant documents.

Based on BBMP data provided on: 17th Dec 2016

#### Colour Legend

- —On a Rajakaluve & notified as encroaching—  
Your survey has been notified by BBMP for encroachment.
- —On a Rajakaluve but not yet notified as encroaching—  
Your survey has not been notified by BBMP. However, as per Revenue Department, rajakaluve passes through your survey.
- —Near Rajakaluve but status is unclear—  
Your survey is mentioned either in the BBMP or Revenue Department documents but it is not clear that you are encroaching.
- —Listed as Non-Encroaching—  
Your survey number is clearly mentioned as

### 18495 - Abbagera Village

(Bangalore North Taluk, Yashavantapura 1 Hobli)

## ಅಬ್ಬಗೇರೆ ಗ್ರಾಮ

(ಬೆಂಗಳೂರು ಉತ್ತರ ತಾಲ್ಲೂಕು, ಯಶವಂತಪುರ ಹೋಬಳಿ)

Survey Number	Encroaching as per BBMP Notification	Encroaching as per Revenue Dept.	Document Details
1	yes	yes	<a href="#">View</a>
2	yes	yes	<a href="#">View</a>
10	yes	yes	<a href="#">View</a>
12	yes	yes	<a href="#">View</a>
37	yes	yes	<a href="#">View</a>
76	yes	yes	<a href="#">View</a>
77	yes	yes	<a href="#">View</a>
78	yes	yes	<a href="#">View</a>

Figure 13: Screenshot-Rajakaluve encroachment finder  
Source: <http://rajakaluve.org/?village=18495&survey=1>



Figure 14: Spatial illustration of encroachments visualised on google earth

Source: <http://rajakaluve.org/?village=18495&survey=1> (based on Revenue Dept. data)

#### Case Study: Singapore's Successful Dengue Cluster Map

The government of Singapore and the city's National Environmental Agency (NEA) use open spatial data to control the spread of dengue fever epidemics. In 2005, the NEA started sharing information on the location of dengue clusters as well as disease prevention information online, through a website now known as the "Dengue Website." That website assembled cluster maps that help authorities and the public geographically visualize locations where dengue is a problem. These maps help plan vector control operations, update the public, and enable the affected areas to take necessary precautions. The NEA's data-driven cluster map has evolved, becoming an integral part of the campaign against dengue. The site typically sees between 25,000 and 45,000 monthly visits, and almost 100,000 during peak season. The data was opened to app developers, who have filled in data gaps and used it to create a more nuanced and rich picture of the spread of dengue fever.

Source: (thegovlab.org 2016), (Singapore Government - National Environment Agency 2016)

## 5. Challenges and Opportunities

### Challenges

- **Silos:** Government agencies use their own geospatial technologies in a vacuum, uninformed about the corresponding data of their partner agencies. Without sharing procedures, departments have no formal means of accessing extra-departmental data that might enhance or inform their own knowledge and administrative processes.
- **Duplication:** Each city department addressing its GIS needs on its own is both technology and labour intensive and typically requires downstream geoprocessing. There could be as many GIS data efforts in the city as there are departments. The same or similar GIS-data is, in all likelihood, being generated and maintained by multiple ministries. Such large-scale duplication and redundancy is an inefficient use of resources and encourages data inconsistency.
- **Unstandardized data:** Without any standardization across departments, the datasets are produced in varied formats, standards, projections and scales, rendering data effectively unusable across departments.
- **Cost:** Government departments spend considerable resources in acquiring high resolution satellite imagery and hiring GIS consultants. These datasets purchased from multiple consultants are mostly fragmented, inconsistent and often out of compliance with national spatial data infrastructure (NSDI) and inter-operability guidelines.
- **GIS-readiness:** There is very little “GIS-Ready” data that is both up-to-date and easily accessible. In spite of the large amount of survey data, topographic maps, satellite images, census data, etc., users must invest substantial technological processing of these data to produce useable content.
- **Decision-making utility:** The lack of easily accessible and serviceable data limits effective policy making. Currently, to obtain a cross-sector snapshot of local conditions, capturing demographics, infrastructure, transit, public spaces, etc., the data of over 23 city agencies, consisting of at least 102 layers would need to be collated and then processed into a universal format. As a consequence, a holistic view of the status on the ground or the state of implementation for any given sector or program is extremely difficult.
- **Limited know-how:** Existing staff in government agencies are often not capacitated to use newer technologies and rely on external consultants to prepare GIS databases.

### Opportunities

- **Digital India initiative:** Leveraging Geospatial Information Systems (GIS) for decision support systems & development is one of the six elements that are crucial for ensuring that governance and services to be made available on demand to all citizens and other stakeholders in the country as part of Digital India initiative.
- **National GIS initiative:** The National Government plans to leverage GIS for decision support systems (DSS) & development. National Geospatial Information System (NGIS) is being

implemented to integrate geo-spatial data available with several organizations like Survey of India, NIC, NRSC and MoES to develop a GIS platform for e-Governance applications. The new agency's stated objective is to provide a national platform for developing geo-informatics related resources and capabilities across the country.

- National Data Sharing and Accessibility Policy – 2012:** The NDSAP-2012 policy is designed to promote data sharing and enable access to Government of India owned data for national planning and development. This policy will apply to all data and information created, generated, collected and achieved using public funds provided by Government of India directly or through authorised agencies by various Ministries / Departments/ Organisations/ Agencies and Autonomous bodies.
- National and State Geo-portals:** Several geoportals have been launched in the last five years. Bhuvan itself hosts multiple portals for many departments and projects of both national and state governments, National Centre Of Geo-Informatics, applications on Delhi Geospatial Ltd. for Delhi, Karnataka Geoportal by KSCST, WebGIS Portal for data visualisation by KSNMDC provide opportunities to learn and deploy.
- K-GIS project:** Government of Karnataka has already allocated funds in FY 2015-16 to establish the K-GIS portal. Once accessible, it will offer seamless state-wide GIS data layers as well as a wide range of GIS applications. The Karnataka Jnana Aayoga-GIS Task Force described their goal as *"a regime powered by modern metrics systems, efficient informatics and analytics with real-time information delivery and a constant interaction between government and citizens – such a regime will have to be the foundation for the governing as well as the governed"*, which forms the basis for establishing K-GIS.
- BBMP expert committee recommendation:** One of the proposal made by the committee in its Way Forward report submitted to the Karnataka Government in July, 2015 is for establishing Bengaluru Spatial Information Centre (BASIC). This enables seamless coordination among the government agencies in the city-region and to expose as much data as possible to the public. The Committee has compiled about 102 layers (Refer Annexure-1) which could work as a starting point towards establishing the information centre.
- Private and citizen groups initiatives:** Academic institutions, NGOs, private agencies and citizen groups are contributing to building datasets, applications, tools, data analytics and value addition to such data. All these and other crowd sourced efforts are also opportunities for establishing the information centre.
- Technology to use unstructured data:** Technology is being developed to see the patterns in unstructured data. Programming and other algorithms also help in bringing structure to unstructured data to strengthen and complete other data sets and find the patterns.

**Case Study : NYC App Challenge Generates Innovation**

NYC BigApps is the premier civic tech initiative of the City of New York. Led by the New York City Economic Development Corporation (NYCEDC), BigApps “challenges developers, designers, and entrepreneurs to create functioning, marketable tech tools that help solve pressing civic challenges.” They request products around “Challenge Tracks”, associated with city needs identified in Mayor de Blasio’s OneNYC plan. In 2015 the Challenge Tracks included *Affordable Housing*, *Zero Waste*, *Connected Cities*, and *Civic Engagement*. The prize money varies by year depending on fundraising, but is sufficient (\$25,000 in 2015) to attract hundreds of ideas each year. The competition is sponsored by a broad array of private entities who contribute financially to the award funds. NYCEDC partners with over a dozen City agencies, policy advocates, and tech experts to offer mentorship to contenders; they also aggregate open data repositories and tools for city data and internet-based APIs.

The 2015 Grand Prize winner in the Connected Cities Challenge Track was an app called CityCharge, a solar-powered charging station for public spaces that uses Bluetooth and beacon technology to gather environmental data, while acting as a WiFi hotspot.

Source: (New York City Economic Development Corporation (NYCEDC) 2015)



## 6. Framework to setup Bengaluru Spatial Information Centre (BASIC)

An independent statutory agency must be created to carry out the data collation, creation, record keeping, maintenance, and enabling sharing activities for the entire Bengaluru Metropolitan Region (BMR) (covering Bengaluru Urban, Rural and Ramanagaram districts). This agency will be the one-point source and custodian of all the geospatial databases for the entire metropolitan region. This in turn helps in coordinated planning and project implementation across agencies. Hence, Bangalore Spatial Information Centre has the potential to greatly reduce expenses of the exchequer by minimizing project delays and reducing the duplicity of works.

*Bangalore Spatial Information Centre has the potential to greatly reduce expenses of the exchequer by minimizing project delays and reducing the duplicity of works*

### 6.1 Vision & Objectives

*“A new information regime supporting good governance, sustainable development and citizen empowerment offering GIS decision support services for government, private enterprise and citizens and maintaining a Bengaluru city-region wide, standardised, seamless and most current GIS asset positioning Bengaluru at the forefront in the use of GIS technology and applications.”*  
Adapted from K-GIS vision, (Karnataka-GIS: User Needs Document)

This agency, Bengaluru Spatial Information Centre (BASIC), could be created through enacting a “Geo-spatial Act” for Bengaluru along the lines of the “The Delhi Geo-Spatial Data Infrastructure (Management, Administration, Security and Safety) Act, 2011.”

This is also in line with the ‘National Data Sharing and Accessibility Policy, 2012’ by Department of science and technology, Government of India and in line with Karnataka GIS initiative by Department of IT, BT and ST, Government of Karnataka. (Government of India 2012)

The primary objective of BASIC is to create an authoritative GIS database available to all agencies, enterprises and citizens (see application in Annexure-2):

1. Establish single agency
2. Integrate data by bringing together the fragmented data from individual departments, standardise the mapping procedures and sharing protocols
3. Collect data from above the ground, on the ground and below the ground. Develop 2D and 3D geospatial information, applications and share with all users
4. Obtain updates from government agencies, departments, public sources and keep the datasets up to date
5. Drive a shift in the city culture by highlighting innovative case studies, running an annual competition, etc., to motivate innovative use of spatial data (Lilian Coral 2016)
6. Provide Geospatial information for the benefit of all citizens to meet their day to day needs and promote use of geospatial technologies by government agencies and citizens; taking clue from the objective 3 of (Geospatial Delhi Limited (A Government of NCT of Delhi Company) 2016)

7. Provide Bengaluru with information and assistance for framing, decision making, and implementing policies for issues related to geospatial data; taking clue from objectives 1 and 3, (Geospatial Delhi Limited (A Government of NCT of Delhi Company) 2016)
8. Build capacity for effective use of geospatial technologies for city planning and development; taking clue from the objective 3 of (Geospatial Delhi Limited (A Government of NCT of Delhi Company) 2016)

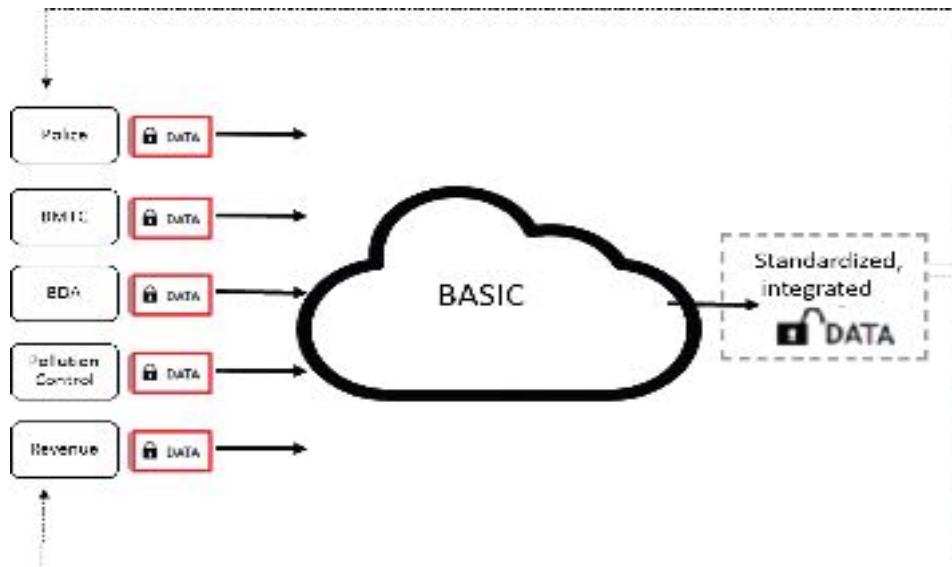


Figure 15: Vision of Bengaluru Spatial Information Centre (BASIC)

Source: WRI India



Figure 16: Secured data integration and exchange with spatial information centre

Source: WRI India

## 6.2 Infrastructure Requirements

To truly transform data usage, the government must invest in up-to-date softwares, dedicated optical fibre cable (OFC) line for stable internet connection, supercomputers for hosting and processing larger datasets and able staff. Lateral hiring of staff must be enabled to run and manage the centre professionally.

The following infrastructure recommendations are largely based on the results of the Karnataka-GIS (K-GIS) User Needs Assessment report (Government of Karnataka 2013). In the K-GIS Vision Document, a multi-disciplinary Task Force performed a comprehensive initial assessment of GIS Decision Support System (DSS) requirements for governance, enterprises, and citizens through a process of user-level consultations. Consisting of meetings with state departments, the private sector, academia and NGOs, the consultations produced a set of recommendations. The insights captured are of great value to Bengaluru's Spatial Information Centre design process.

- **Physical Infrastructure**

The Centre's Infrastructure can be described as a "GIS Platform" with computing and networking infrastructure. As envisioned, it is structured as a multi-tiered platform with a front-end portal offering various GIS data and applications services, a back-end high-capacity Data Centre for storage, and server architecture to maintain security and controlled access (Government of Karnataka 2013).

### Hardware

The specific hardware supporting the system should be selected based on the expert recommendation of the Bengaluru Department of Information Technology and in compliance with any agency hardware requirements. The BASIC's specialized hardware should comply with the following basic parameters for long-term functionality:

- **Integrated:** Datasets generated by various agencies should be hosted on information centre systems or accessible and seamlessly integrated into the system architecture through hooking onto agencies servers
- **Future-oriented:** The GIS DSS framework should use web-based GIS and database technologies with inherent extensibility for future growth. The framework must be state of the art so as to support the state GIS activities for decades to come (Karnataka Jnana Aayoga 2013).
- **Virtual:** the system should be entirely in the cloud for superior consistency, maintenance, and access (Karnataka Jnana Aayoga 2013).
- **High bandwidth:** High bandwidth capacity will be necessary to manage the data traffic (Karnataka Jnana Aayoga 2013).
- **Locally Hosted:** The BASIC Infrastructure should be developed, hosted and based in Bengaluru in order to safeguard the system as well as provide GIS Data and Application services on 24x7 basis (Karnataka Jnana Aayoga 2013).

### Software

The BASIC framework should be based on a Service Oriented Solution architecture. Drawing on the Karnataka-GIS Vision Document, the information centre's specialised software should comply with the following basic parameters for optimal usability:

- Minimize data translations and system conversions.

- Provide tools for seamless integration of both spatial and geo-tagged non-spatial features.
- Provide GIS data and GIS App services on both mobile and desktop platforms.
- Configure multilingual capability.
- Provide tools for Security Management to configure Role Based Access Control.
- Ensure interoperability.
- Integrate and encourage use of Open source GIS programs (such as QGIS) and open source web mapping (such as OpenLayers and MapBuilder) with BASIC.
- Store metadata (the narrative information about the spatial data) alongside the geodata in the same database, ensuring that geodata always retains its metadata when transferred, shared, or downloaded.
- Elect a vendor-neutral model so that the best technology can be used at any time.

### 6.3 Data Ownership, storage and sharing protocols

- **Data ownership**

City departments retain ownership of their respective data. BASIC will own any data it creates outside of or in conjunction with existing agency datasets. As custodian and service provider, BASIC is the vehicle for facilitating the usage of this data by the owning department and its accessibility to other city departments. As part of ongoing K-GIS project, each department is identified for some specific datasets like Survey of India responsible for administrative boundaries of state & district whereas state Revenue Department for sub-districts, hoblis, villages/cities; electoral boundaries by State Election Commission of Karnataka, etc. Data from these identified agencies is considered authentic in case of any discrepancy with other datasets.

- **Data storage and sharing**

To achieve the intended seamless interoperability, all departments will be required to adopt the standards designed (in consultation) in a timebound manner. These standards are to be followed for datasets, maps, tools, and programs wherever possible and adopted in the medium to long term (or custom designed by BASIC to suit individual agencies requirements).

The precise means for data sharing with the centre is at the discretion of each department:

- It may provide the raw data to the centre for formatting, ingestion, and storage. This happens physically and hence not updated daily. Data is stored on BASIC servers.
- Agencies may continue to manage the data themselves and provide hooking facility with its server. In this case the data will be fetched in real time from respective agencies (not stored on BASIC servers)

- **Data Sharing Protocols:**

BASIC to follows mandated ISO standards, National GIS, National Spatial Data Infrastructure, National Natural Resources Management System, Open Geospatial Consortium (OGC), etc. Further it draws upon the standard protocols already designed for K-GIS.

Most of the data will be exchanged across multiple departments, businesses and with public. Open data formats and standard exchange protocols should be followed extensively keeping in view of common citizen with less or no access to software. Seamless data consumption and exchange should happen over browser at user end through web services. For this follow web based service protocols for exchange of spatial information like,

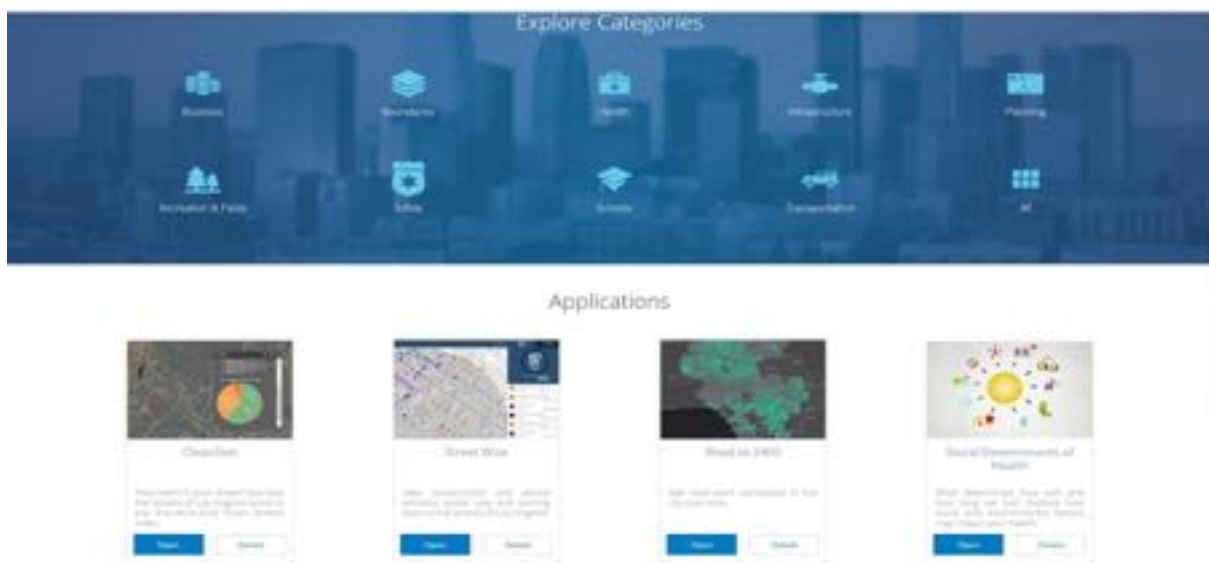
- **WMS** - Web Map Service
- **WMTS** – Web Map Tile Service
- **WCS** - Web Coverage Service
- **WPS** - Web Processing Service
- **WFS & WFS-T** - Web Feature Service & Web Feature Service - transactions
- **City GML** – City Geography Markup Language, open standardised data model and exchange format to store digital 3D models of cities and landscapes.

Refer the information boxes for data sharing, user interface and applications for Los Angeles city

### Case Study : Hands-off Approach to Collaboration and Innovation in Los Angeles

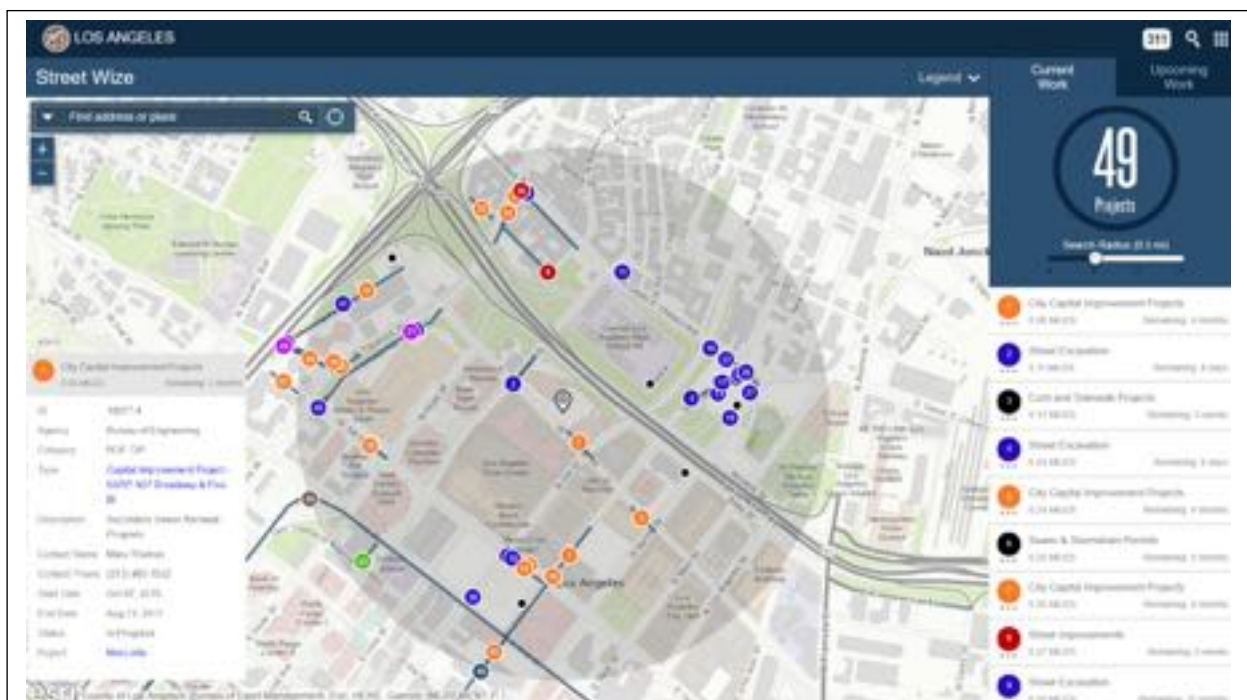
In 2016 Los Angeles launched the GeoHub as part of its efforts to keep up with its regional competitor and global “tech hub,” the San Jose-San Francisco-Oakland metropolitan area. The Mayor enacted Executive Directive 3 to launch the open data program. Los Angeles GeoHub, an open data web portal, allows the public to download datasets as shapefiles, KML files, or into spreadsheets. They can also visualize the data as online maps using ArcGIS. This location-as-a-service (LaaS) platform, means users can access live, continuously updated data directly from the city as a service—rather than as a static download. The mayor’s mapping team hopes this will encourage citizens and entrepreneurs to create dynamic applications for public and commercial use. Developers can access the city’s data, along with open APIs, to build apps that they can bring to market. The GeoHub is an effort to harness the existing entrepreneurial activity for the benefit of the city.

LA GeoHub sharing protocol: City staff can join groups to collaborate and create maps together. LA’s sharing protocols are not prescriptive, instead they encourage cross-departmental collaboration and expect to see groups come together organically to visualize multifaceted city issues. The GeoHub has only been operational since April 2016, so this collaboration model is as yet unproven. The platform allows users to assign different roles to users to maintain quality control. The Mayor’s Data Team functions as administrators of the Hub, but each city department can appoint an administrator for their “organization” and city staff can either be publishers or users added to the various organizations or groups they’ve joined.



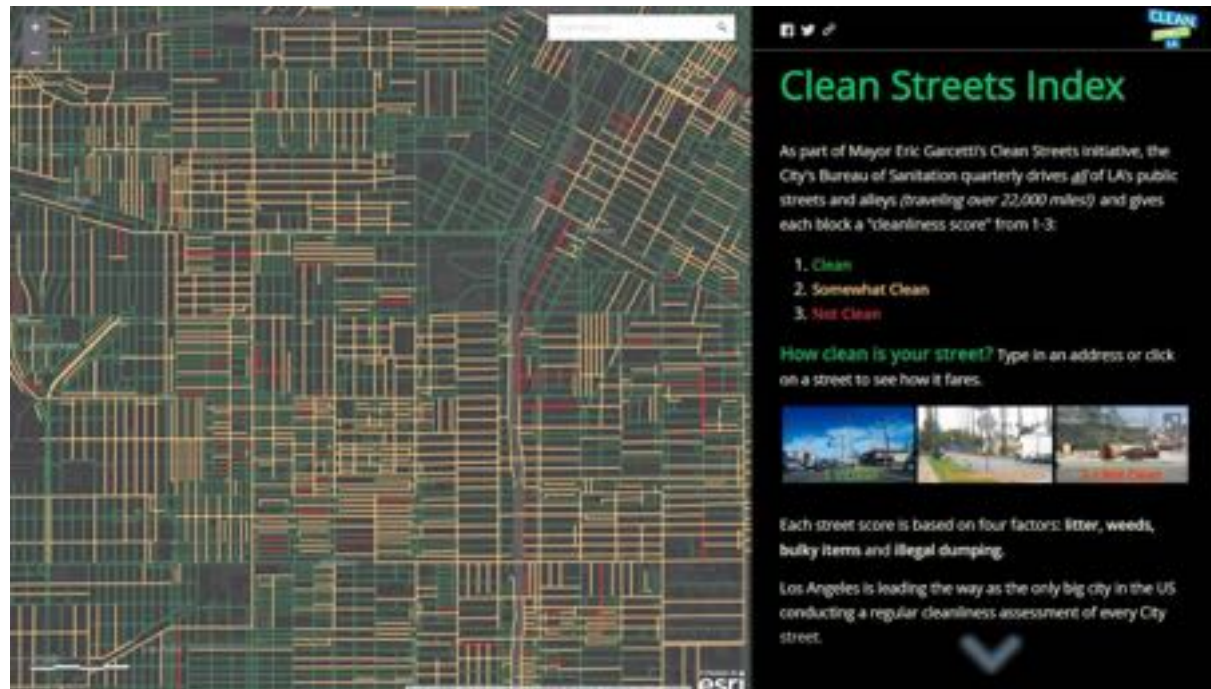
Source: (Esri ArcNews 2016),(Office of Mayor Eric Garcetti, City of Los Angeles 2016) and (Lilian Coral 2016)





**Street Wize (Application):** View construction and permit activities around any location

Source: <http://laways.s3-website-us-west-1.amazonaws.com/>



**CleanStat (Application):** Rate your street cleanliness

Source: <https://lahub.maps.arcgis.com/apps/MapJournal/index.html?appid=4b62eb4528944af9ac1535817da965c4>

## 6.4 Organisational Structure

Reflecting its government-wide reach, every department that works (in Bengaluru and its region) and provides spatial data will be represented in the statutory agency's organisational structure. In the proposed structure a governing body is made up of principal secretaries representing all the city level agencies and departments to oversee BASIC, ensuring leadership buy-in and coordination.

An Executive committee is proposed with the principal secretary of UDD and all administrative heads of the organisations working in Bengaluru and its region. Experts from state agencies like K-GIS, KSNDMC, KSCST, NIC and experts from national agencies like NCoG, NIC, Bhuvan, academia will be on executive committee to advise on administration and on technical aspects. Considering the continuously evolving nature of the technology, technical expert members of the executive committee needs to be revised on a regular basis.

BASIC will be headed by a Director and have four verticals - Administration, Projects, Quality Control & Standardisation and Training and Capacity Building Teams will be fully staffed with its own management structure. BASIC will be overseen by a director's office, determining roles, staffing needs and workload distribution for each team.

### Preventing Institutional Redundancy

Some of BASIC's proposed functions may overlap with existing services currently provided by state agencies such as K-GIS, KRSAC, KSNDMC, etc. Task force committee in consultations with such agencies will facilitate the coordination necessary to prevent redundancy.



Figure 17: Proposed Organisational structure

## 6.5 Funding & Institutional Mechanism

### Funding Pattern

Funding should come from Karnataka government through Urban Development Department as most of the major city agencies like BBMP, BDA, BMRDA, BWSSB, DMA, DTCP, KUIDFC, etc., directly report to UD principal secretary. The establishment and initial operations of the agency need to be supported over a minimum initial period, for example the first three years, followed by an annual recurring expense for BASIC operations. The funds for establishing the Centre will be committed through the enactment of geospatial legislation.

BASIC administration should prepare blue print to manage its own resources beyond seed funding period and steer the institution in that direction like offering value addition, intellectual property rights, developing tools and applications, training and capacity building, research & consultancy services, etc. For this centre should be led by an able administrator through a lateral hiring system.

### Institutional Mechanism

- **Initiate establishment process with Government Order**
  - Pass Government Order to enable setting up of Bengaluru Spatial Information Center
  - Jurisdiction should not be less than Bengaluru Metropolitan Region
  - Mandate all the agencies to compulsorily share a copy of their datasets
- **Set up a task force with an able leader**
  - Setup task force to establish the center
  - Identify a champion to lead the task force.
  - Adopt consultative process for smooth running of the center
  - Prepare draft bill for enacting the Geospatial Act.
- **Pass Geo-Spatial Act for Bengaluru**

Like Delhi, Karnataka envisions enacting legislation for Bengaluru Spatial Information Centre (BASIC). A requisite procedural step to achieve the mandate necessary for the entity to be effective. Bengaluru needs to enact legislation enshrining the objective, structure, administration, budget, authority, and enforcement mechanism for BASIC. Prepare blueprint for future where BASIC provides technological edge to the city and manage its own resources (beyond initial period) and steer the institution on a successful path achieving and serving its intended objectives.

## Annexure 1: 102 Spatial Layers collated by the BBMP-R Committee

Sector	Sub sector	Layer	Geospatial Information (available)	Projection	Feature	Count	Limits	Source
Development_Plans	BDA_Landuse	Existing_la nduse	Residential, commercial, industrial, Agriculture, Forest, villages, wasteland, others	WGS_1984_UTM_Zone _43N	Polygon	3685	BDA	BESCOM
Development_Plans	Layouts	BDA_layou ts	Name of BDA Layout with village and hobli name, area, approval date, survey nos., no. of plots	GCS_WGS_1984	Point	232	BDA	CSTEP
Development_Plans	Layouts	Private_lay outs	Name of layout with village and hobli name, area (acres-gunta), registration date, survey nos., no. of plots	GCS_WGS_1984	Point	256	BDA	CSTEP
Development_Plans	Layouts	Unauthoris ed_layouts	Location and address of unauthorised layouts with village name and status	GCS_WGS_1984	point	123	BDA	CSTEP
Environment	Drainage	Watershed s	Extents of basins, watersheds, subwatersheds, mini watersheds and microwatersheds	Everest_Bangladesh_P olyconic	line	779	BDA	BDA
Environment	Drainage	Watershed s	Extents of basins, watersheds, subwatersheds, mini watersheds and microwatersheds	Everest_Bangladesh_P olyconic	Polygon	303	BDA	BDA
Environment	Drainage	Network	Length of natural drainage (network)	Everest_Bangladesh_P olyconic	line	3473	BDA	BDA
Environment	Forests	Reserved_F orests	Name and location of Reserved forests in BMR limits	GCS_WGS_1984	Polygon	174	BMR	Forest Department
Environment	Geology	Soil_types	Soil type, location and classification (order, suborder, group, subgroup, family, series, soil depth, texture, classification nos., etc)	Everest_Bangladesh_P olyconic	polygon	1721	BDA	BDA
Environment	Geology	Lineaments	Data on structures/Lineaments	Unclassified	Line	1380	BDA	Mines & Geology
Environment	Geology	Groundwat er_prospec ts	Extents of ground water prospects (good to poor)	WGS_1984_UTM_Zone _43N	Polygon	703	BDA	BDA

## FRAMEWORK FOR BENGALURU SPATIAL INFORMATION CENTER

<b>Environment</b>	Landuse_landcover (LULC)	Landuse and Landcover	Landuse and Landcover (NRSC classifications - type-1,2 and 3)	Everest_Bangladesh_Polyconic	Polygon	2849	BDA	BDA
<b>Environment</b>	Openspaces	BDA_Parks_openspaces	Location of park/open space with layout name, area (with measurements in E-W and N-S directions), date of handover to municipality	GCS_WGS_1984	Point	574	BDA	CSTEP
<b>Environment</b>	Openspaces	Parks_playgrounds	Location and type (park or playground)	GCS_WGS_1984	polygon	287	BBMP	CSTEP
<b>Environment</b>	Trees		Location of trees along major road corridors	WGS_1984_UTM_Zone_43N	point	275589	BDA	BDA
<b>Environment</b>	Waterbodies	Lakes	Location and extents of waterbodies	Everest_Bangladesh_Polyconic	polygon	565	BDA	BDA
<b>Environment</b>	Waterbodies	Lakes	Type, location and extents of waterbody	WGS_1984_UTM_Zone_43N	polygon	452	BDA	BESCOM
<b>Environment</b>	Waterbodies	Rivers	Location of rivers	Unclassified	polygon	3	BMR	CSTEP
<b>Jurisdiction</b>	Administrative	Hoblis	Hobli jurisdictions and names in BMA	WGS_1984_UTM_Zone_43N	polygon	16	BDA	BDA
<b>Jurisdiction</b>	Administrative	Taluk	Name and extents of Taluk boundaries	WGS_1984_UTM_Zone_43N	polygon	4	BDA	BDA
<b>Jurisdiction</b>	Administrative	ULBs_census_2001	Name, location and primary census abstract details of census 2001 for ULBs in BMA	Unclassified	Polygon	8	BDA	BESCOM
<b>Jurisdiction</b>	Administrative	BBMP_boundary	BBMP boundary	WGS_1984_UTM_Zone_43N	polygon	1	BBMP	BBMP
<b>Jurisdiction</b>	Administrative	BBMP_zones	BBMP zones	WGS_1984_UTM_Zone_43N	polygon	8	BBMP	BBMP
<b>Jurisdiction</b>	Administrative	BBMP_wards_MLAs	BBMP ward boundaries	WGS_1984_UTM_Zone_43N	polygon	198	BBMP	BBMP
<b>Jurisdiction</b>	Electoral_Constituencies	Assembly	Name and extents of assembly constituencies in BMA limits	Unclassified	polygon	28	BDA	BDA



## FRAMEWORK FOR BENGALURU SPATIAL INFORMATION CENTER

<b>Jurisdiction</b>	Electoral_Constituencies	Parliament	Name and extents of parliament constituencies in BMA limits	Unclassified	polygon	5	BDA	BDA
<b>Jurisdiction</b>	Electoral_Constituencies	BBMP_MLAs	MLA constituencies within BBMP		Polygon	198	BBMP	BDA
<b>Jurisdiction</b>	Fire	Fire_stations	Name and location of fire stations	WGS_1984_UTM_Zone_43N	Points	13	BBMP	CSTEP
<b>Jurisdiction</b>	Police	Division_limits	Name of the division	WGS_1984_UTM_Zone_43N	Polygon	7	BDA	Police Department
<b>Jurisdiction</b>	Police	Subdivision_limits	Name of the subdivision and corresponding division name	WGS_1984_UTM_Zone_43N	Polygon	21	BDA	Police Department
<b>Jurisdiction</b>	Police	Police_station_limits	Name of the police station, its limits with subdivision and division names	WGS_1984_UTM_Zone_43N	Polygon	103	BDA	Police Department
<b>Jurisdiction</b>	Postal	Pincode_limits	PIN code jurisdictions and post office name	WGS_1984_UTM_Zone_43N	Polygon	100	BDA	Open Source
<b>Mobility</b>	Bus	Bus_depots	Location of bus depot, Rickshaw stand	WGS_1984_UTM_Zone_43N	point	8	BDA	BESCOM
<b>Mobility</b>	Bus	Big_10_routes	Bus route number and number of stops (en route)	GCS_WGS_1983	Line	13		BMTC
<b>Mobility</b>	Bus	Bus_shelters	BMTC bus shelter name and location	GCS_WGS_1984	Point	1076		BMTC
<b>Mobility</b>	Bus	Bus_stops	Bus stop name, location and geocode ID	GCS_WGS_1984	Point	7686		BMTC
<b>Mobility</b>	Bus	Bus_stations	Major BMTC bus depots/stations/stops	GCS_WGS_1984	Point	116	BBMP	BMTC
<b>Mobility</b>	Bus	Bus_depots	Bus depot name, number, status, category, area, survey no., hobli, taluk, district	GCS_WGS_1985	Point	38		BMTC
<b>Mobility</b>	Bus	Routes	BMTC draft bus route number, origin, destination, distance, number of stops (en route)	GCS_WGS_1986	Line	2426		BMTC
<b>Mobility</b>	Bus	Bus_stops	Bus stop name, location and bus route no.	GCS_WGS_1984	Point	5451		BMTC
<b>Mobility</b>	Bus	Bus_Termi	Name and location of Interstate bus	GCS_WGS_1985	Point	2	BBMP	CSTEP

## FRAMEWORK FOR BENGALURU SPATIAL INFORMATION CENTER

		nals	terminals					
<b>Mobility</b>	Grade_separators	Flyovers_bridges	Flyovers/bridges in BMA limits	WGS_1984_UTM_Zone_43N	polygon	1071	BDA	BDA
<b>Mobility</b>	Metro	Alignment	Alignment drawings in DWG format					BMRL
<b>Mobility</b>	Metro	Alignment_phase-1	Metro alignment		Line			BMRL
<b>Mobility</b>	Metro	Stations_phase-1	Metro stations		Point			BMRL
<b>Mobility</b>	Railways	Stations	Stations Name and location	WGS_1984_UTM_Zone_43N	Point	89		Railway
<b>Mobility</b>	Railways	Network	Railway track alignment and gauge type	WGS_1984_UTM_Zone_43N	line		BDA	BESCOM
<b>Mobility</b>	Railways	Stations	Schematic alignment with existing stations names and proposed new lines in Bangalore division (in DWG format)					Railway
<b>Mobility</b>	Railways	Network_polygon	Railway track alignment and gauge type		Polygon	1		Railway
<b>Mobility</b>	Roads	Arterial_roads	Bangalore arterial roads	GCS_WGS_1984	Line	19	BDA	CSTEP
<b>Mobility</b>	Roads	Road_Edges	Extents of road edges	WGS_1984_UTM_Zone_43N	polygon	38	BDA	BESCOM
<b>Mobility</b>	Roads	Extents	Same as above in polygons		Polygon	327	BDA	BESCOM
<b>Mobility</b>	Roads	Names	Road name (for some roads), length and type	PCS_Transverse_Mercator	Line	218067	BBMP	BBMP
<b>Mobility</b>	Roads	Center_lines	ID, Name, Type , Ward no, Ward name, Zone, Length		Line	92825	BBMP	BBMP
<b>Mobility</b>	Traffic_Police	Surveillance Cameras	Surveillance Cameras	kml	Point	160		BTP
<b>Mobility</b>	Traffic_Police	Signals	Signal Lights (Old and New)	kml	Point	299		BTP
<b>Mobility</b>	Traffic_Police	Major_corridors	Corridors	kml	Line	21		BTP
<b>Properties</b>	BBMP	BBMP_offi	Name, location, address and contact	GCS_WGS_1984	point	126	BBMP	CSTEP

## FRAMEWORK FOR BENGALURU SPATIAL INFORMATION CENTER

		ces	no. of BBMP offices					
Properties	BDA	BDA_office_s	BDA office locations with address and contact nos. zonewise	GCS_WGS_1984	point	5	BDA	CSTEP
Properties	BESCOM	BESCOM_offices	Location of BESCOM office with address and phone number	GCS_WGS_1984	point	115	BBMP	CSTEP
Properties	BWSSB	BWSSB_offices	Major BWSSB office location with address and contact no.	GCS_WGS_1984	Point	77	BBMP	CSTEP
Properties	BMTC	BMTC_Properties	BMTC property name, area (as per records), survey no, hobli, taluk, district, status, category, photo	GCS_WGS_1984	Polygon	235		BMTC
Properties	Buildings	Individual_buildings	Individual building location, height and plinth area	WGS_1984_UTM_Zone_43N	polygon	1E+06	BDA	BDA
Properties	Buildings	Buildings	Individual building location, type of use, footprint (plinth)	WGS_1984_UTM_Zone_43N	polygon	37220	BDA	BESCOM
Properties	Plots	Individual_Plots	NPLNO, NPID, Street ID, Ngrid No, Notice no, Apl_no, OPID, OPLNo, NwardNo, NwardName, Zone, Usage, No_Floors, Floors, type, aplno0809, owner, address, no, category id, apt name, remarks, usage from date, npid old,		Polygon	1E+06	BBMP	BBMP
Properties	Buildings	BBMP_offices	Name, location and address of BBMP offices	GCS_WGS_1984	Points	126		CSTEP
Properties	Buildings	BDA_office_s	Zonewise and BDA head office location, address with contact nos.	GCS_WGS_1985	Points	5		CSTEP
Properties	Buildings	Farm_houses	Name and location of farm houses	GCS_WGS_1984	Point	43	BBMP	CSTEP
Properties	Grade_separators	Flyovers	Type of Flyover		Line	127		CSTEP
Properties	Grade_separators	Flyovers	Type of Flyover		Polygon	97		CSTEP
Properties	Fire	Fire_stations	Name, location and contact no. of fire stations in Bangalore	GCS_WGS_1989	point	13	BBMP	CSTEP

## FRAMEWORK FOR BENGALURU SPATIAL INFORMATION CENTER

<b>Properties</b>	KEB	KEB_offices	Name and location of KEB offices in Bangalore	GCS_WGS_1990	point	14	BDA	CSTEP
<b>Properties</b>	Police	Police_stations	Name of the police station, PS no., division, subdivision, contact no., CUG no.		Point	107	BDA	CSTEP
<b>Properties</b>	Traffic_Police	Stations	Police station name, location and contact details	kml	Point	33	BDA	Police Department
<b>Properties</b>	KSPCB	KSPCB_offices	Location, address and contact no. of state pollution board offices	GCS_WGS_1984	point	3	BBMP	CSTEP
<b>Utilities</b>	BESCOM	BMAZ_limits	Extents of BESCOM Bangalore zone	WGS_1984_UTM_Zone_43N	polygon	1		BESCOM
<b>Utilities</b>	BESCOM	Zone_limits	Bangalore Zone boundary	WGS_1984_UTM_Zone_43N	polygon	3		BESCOM
<b>Utilities</b>	BESCOM	Division_limits	Name and extents of BESCOM divisions in Bangalore zone	WGS_1984_UTM_Zone_43N	polygon	12		BESCOM
<b>Utilities</b>	BESCOM	Subdivision_limits	Extents of BESCOM subdivisions in Bangalore zone	WGS_1984_UTM_Zone_43N	polygon	42		BESCOM
<b>Utilities</b>	BESCOM	Circle_limits	Name and extents of BESCOM circles, divisions and subdivisions in Bangalore metropolitan area zone	WGS_1984_UTM_Zone_43N	polygon	48		BESCOM
<b>Utilities</b>	BESCOM	Section_limits	Name and extents of BESCOM sections in Bangalore zone	WGS_1984_UTM_Zone_43N	polygon	131		BESCOM
<b>Utilities</b>	BESCOM	Sections_hierarchy	Name and extents of BESCOM circles, divisions, subdivisions and sections in Bangalore metropolitan area zone	WGS_1984_UTM_Zone_43N	polygon	131		BESCOM
<b>Utilities</b>	BWSSB	Subdivision_limits	Name and subdivisions number	PCS_Transverse_Mercator	Polygon	31		BWSSB
<b>Utilities</b>	BWSSB	Division_limits	Name of the division	PCS_Transverse_Mercator	Polygon	9		BWSSB
<b>Utilities</b>	BWSSB	Service_stations_limits	Name of the service stations with division details	PCS_Transverse_Mercator	Polygon	110		BWSSB

## FRAMEWORK FOR BENGALURU SPATIAL INFORMATION CENTER

Utilities	BWSSB	Manholes	Manholes - location, type, material, depth, month & year of installation, cover state, cover material, SSID, etc.	PCS_Transverse_Merca tor	Point	164368		BWSSB
Utilities	BWSSB	Sewer_net work	Sewer Lines - pipe alignment, length, flow type, diameter, material, month & year of installation, joint type, ss managed, replaced year, name of contractor, etc.	PCS_Transverse_Merca tor	Line	54424		BWSSB
Utilities	BWSSB	Valves	Valve location, type, diameter, material, operation type, month & year of installation, etc	PCS_Transverse_Merca tor	Point	31437		BWSSB
Utilities	BWSSB	Water_pip es	Water pipe line alignment, type, length, diameter, material, month & year of installation, joint type, SSID, etc.	PCS_Transverse_Merca tor	Line	64354		BWSSB
Utilities	BWSSB	Drainage_n etwrok	Name, location and length of drain network	PCS_Transverse_Merca tor	Line	1339	BDA	BWSSB
Welfare	Education	Schools	School name, location, administration type, year established, staff and student nos., medium of instruction, no. of computers, classrooms, toilet nos. (separtely for girls & boys), etc	WGS_1984_UTM_Zone _43N	Point	5443	Bangalo re urban and rural districts	Akshara Foundation
Welfare	Food_Civil_suppl ies	KFCSC	Name, location, address, contact no. of food and civil supplies corporation units		Point	5	BBMP	CSTEP
Welfare	Health	Hospitals	Name and location of hospitals	GCS_WGS_1984	Points	454		CSTEP
Welfare	Health	Hospitals	Hospitals name, location, address, speciality, certified status, no. of beds, type - Govt./Pvt., contact no., etc	GCS_WGS_1984	point	135	BBMP	CSTEP
Welfare	Amenities	Civic_amen ities	Layout wise civic amenity site location with site area, no., allottee and purpose	GCS_WGS_1984	point	890	BBMP	CSTEP
Welfare	Birth_Death	Cremation _burial	Name and location of cremation/burial grounds in Bangalore	GCS_WGS_1984	Point	12	BBMP	CSTEP



## FRAMEWORK FOR BENGALURU SPATIAL INFORMATION CENTER

		grounds						
<b>Others</b>	Facilities	Landmarks	Name, location, address and contact nos. of facilities (clinics, clubs, colleges, hotels, libraries, pharmacies, temples, police stations, pubs, restaurants, etc.)	unclassified	Points	12705		CSTEP
<b>Others</b>	Facilities	Railway_Reservation_Centers	Name, location and address of railway ticket reservation counters	GCS_WGS_1984	Point	8	BBMP	CSTEP
<b>Others</b>	Landmarks	Landmarks	Name and location of major landmarks	WGS_1984_UTM_Zone_43N	point	448	BDA	BESCOM
<b>Others</b>	Landmarks	Landmarks	Landmarks with address		Points	54889		ONZE
<b>Others</b>	Landmarks	Landmarks	Landmark name and location	PCS_Transverse_Mercator	Point	14341	BDA	ONZE
<b>Others</b>	Settlements	Village_geo codes	Location of settlements in BMR (No data inside Bangalore urban district and partial data outside)	GCS_WGS_1984	Points	1473		ONZE

## Annexure 2: Major areas of Applications for City Planning, Implementation and Management

	Areas	Applications
1	<b>Safety &amp; Security:</b> <i>The twenty-first century is more complex, intricate, and reliant on technology than ever before. A safe community embraces a methodology and infrastructure where all sectors of the community work together collaboratively to safeguard citizens' well-being and property. Sharing information fosters partnerships that enhance safety, manage risk, and increase overall communal engagement. As governments work toward collective integration, their combined resources help anticipate crime and other outcomes before they occur.</i>	<ol style="list-style-type: none"> <li>1) Disaster Response</li> <li>2) Health Threats</li> <li>3) Crime Management</li> <li>4) Community resilience</li> <li>5) Infrastructure protection</li> <li>6) Event Security</li> </ol>
2	<b>Healthy:</b> <i>When it comes to community health, many different services, departments, and nonprofits interact for the benefit of the public. Before they act, they pull data from all available sources to justify decisions during planning or moments of crisis. To predict future illnesses before people become sick, find transmission patterns by visualizing real-time and historical threat data. By accessing shared insights through a central platform, multiple audiences stay informed and are readied to fulfill their roles if needed.</i>	<ol style="list-style-type: none"> <li>7) Public Health</li> <li>8) Human Services</li> <li>9) Health Care Providers</li> <li>10) Food quality inspection</li> </ol>
3	<b>Liveable:</b> <i>Municipal and utility professionals do the difficult jobs that make their communities livable. Their daily operations include everything from making the movement of people, goods, and services flow safely to maintaining the aesthetic character representative of an area's quality of life. Even though their work is essential to business and the lives of every person, it's not uncommon that their efforts go unrecognized or without enough support. Citizens can change this. When GIS connects the community to government programs, crowdsourced information can combine with enterprise data and IOT feeds to proactively assess where necessary infrastructure repairs and other opportunities to improve livability exist.</i>	<ol style="list-style-type: none"> <li>11) City Asset Management (Roads, buildings &amp; bridges)</li> <li>12) Vector surveillance</li> <li>13) Weather Management</li> <li>14) Solid Waste Management</li> <li>15) Parks and Playgrounds</li> <li>16) Water and sanitation</li> <li>17) Energy and other utilities and services</li> </ol>
4	<b>Sustainable Planning:</b> <i>To the benefit of sustainability, GIS connects citizens to their government so they may work together to fight deforestation, uphold community health, and preserve living standards. Planners and urban designers use this technology to balance competing interests, fuse data from a variety of sources, and communicate their intentions to multiple audiences. By incorporating geodesign into planning, communities are better positioned to provide citizens a sustainable future that won't compromise the land, water, or air quality they hold dear.</i>	<ol style="list-style-type: none"> <li>18) Comprehensive Planning and development</li> <li>19) Environmental Planning &amp; implementation</li> <li>20) Transportation Planning &amp; management</li> <li>21) Urban Planning and Design</li> </ol>
5	<b>Prosperous:</b> <i>Communities prosper when they use authoritative data to identify market trends that attract investments. Whether appealing to potential residents or businesses, economic development planners help communities grow by emphasizing the importance of location. To better prepare a community for prosperity, connect entrepreneurs to information so they may reveal investment opportunities.</i>	<ol style="list-style-type: none"> <li>22) Attract Business</li> <li>23) Capital investment</li> <li>24) Research and Development</li> <li>25) Branding and tourism</li> <li>26) Employment opportunities</li> <li>27) Social Cohesion</li> </ol>
6	<b>City Management</b>	28) Urban insight

	<p><i>A well-run community identifies opportunities to achieve advantageous collaboration. If data and developments are shared openly, both citizens and infrastructure providers benefit from events such as road resurfacing. When multiple agencies can inspect and repair assets simultaneously, time and money are saved while reducing future disruptions in the process.</i></p>	<p>29) Capital Investment  30) Project Proposals and priorities  31) Intelligent response  32) Citizen engagement  33) Field Services  34) Educational facilities  35) Open Government (&amp; open data)</p>
<p>Data Source: <a href="http://www.esri.com/smart-communities">http://www.esri.com/smart-communities</a></p>		

## Bibliography

Bengaluru, Citizens Matter. *Launching OpenCity.in - a data portal for Indian cities*. 14 April 2016. [http://Bengaluru.citizenmatters.in/blogs/editors-blog/blog\\_posts/launching-opencity-in-a-data-portal-for-indian-cities?utm\\_source=copy](http://Bengaluru.citizenmatters.in/blogs/editors-blog/blog_posts/launching-opencity-in-a-data-portal-for-indian-cities?utm_source=copy) (accessed August 8, 2016).

Clear Value. *Clear Value*. <http://www.clearvalue.in/cdp/cdpMap.html?Loc=BlrCore> (accessed 03 03, 2017).

Esri ArcNews. *India: A Vision for National GIS*. Fall 2013. <http://www.esri.com/esri-news/arcnews/fall13articles/india-a-vision-for-national-gis> (accessed August 8, 2016).

—. “Los Angeles Launched GeoHub.” Spring 2016. <http://www.esri.com/esri-news/arcnews/spring16articles/los-angeles-launched-geohub> (accessed August 8, 2016).

ESRI, ArcIndia News. *ArcIndia News | Geo-Enabling Digital India*. 2014. <http://www.esri.in/esri-news/publication/vol8-issue3/articles/state-gis-an-integrated-and-collaborative-platform-for-geo-enabling-governance> (accessed March 03, 2017).

Expert Committee: BBMP Restructuring. *Bengaluru: Way Forward*. Government of Karnataka, Expert Committee: BBMP Restructuring, 2015.

Geospatial Delhi Limited (A Government of NCT of Delhi Company). *About GSDL*. 2016. <http://gsdl.org.in/Aboutus> (accessed August 8, 2016).

Government of India. *Digital India Awards 2016*. 8 August 2016. <http://digitalindiaawards.gov.in/> (accessed August 8, 2016).

—. “Launch of National Centre for Geo Informatics.” *Department of Electronics and Information Technology - Digital India*. <http://www.digitalindia.gov.in/writereaddata/files/ggd/deity/1%20Launch%20of%20National%20Centre%20for%20Geo%20Informatics.pdf> (accessed August 8, 2016).

—. *National Centre of Geo Informatics (NCoG)*. 17 March 2016. <http://negd.gov.in/national-centre-geo-informatics-ncog> (accessed August 8, 2016).

—. “National Data Sharing and Accessibility Policy - 2012.” *Department of Science & Technology*. 2012. <http://ogpl.gov.in/NDSAP/NDSAP-30Jan2012.pdf> (accessed August 8, 2016).

—. *Open Government Data (OGD) Platform India*. 8 August 2016. <https://data.gov.in/>.

Government of Karnataka. *Karnataka - GIS (K-GIS): Unique tool for governance and citizens services*. 2015. <http://www.karnataka.gov.in/jnanaayoga/Pages/ini-kgis.aspx> (accessed August 8, 2016).

—. “Karnataka-GIS: Stakeholder Consultation and User Needs Document.” February 2013. <http://www.karnataka.gov.in/jnanaayoga/Archives/KJA%20Reports%20Sep%202008-March%202013/KGIS%20Stakeholder%20Book.pdf> (accessed August 8, 2016).

Government of Sikkim. *Open Government Data Portal of Sikkim*. 8 August 2016. <https://sikkim.data.gov.in/> (accessed August 8, 2016).

Karnataka Jnana Aayoga. "KARNATAKA-GIS: VISION DOCUMENT." *Karnataka - GIS (K-GIS): Unique tool for governance and citizens services*. February 2013. <http://www.karnataka.gov.in/jnanaayoga/Archives/KJA%20Reports%20Sep%202008-March%202013/KGIS%20Vision%20Document.pdf> (accessed August 8, 2016).

Lilian Coral, Chief Data Officer at Office of Mayor Eric Garcetti, City of Los Angeles, interview by Kate Traynor. *Los Angeles GeoHub objectives, establishment, and process* (4 August 2016).

New York City Economic Development Corporation (NYCEDC). *Connected Cities: Data Sets & Other Tools*. 2015. <http://bigapps.nyc/p/resources/connected-cities-data-sets-other-tools/> (accessed August 8, 2016).

Office of Mayor Eric Garcetti, City of Los Angeles. "Los Angeles GeoHub." *City of Los Angeles*. 2016. <http://geohub.lacity.org/> (accessed August 8, 2016).

Oracle. *Data Visualization*. <https://www.oracle.com/solutions/business-analytics/data-visualization.html> (accessed 03 03, 2017).

Singapore Government - National Environment Agency. *The Dengue Website*. 2016. <http://www.dengue.gov.sg/> (accessed August 8, 2016).

The Delhi Geospatial Delhi Limited, A Govt. of NCT of Delhi Company. *Geospatial Delhi Limited - Home*. <http://gsdl.org.in/index> (accessed August 8, 2016).

thegovlab.org. *Singapore's Dengue Cluster Map*. 2016. <http://odimpact.org/case-singapores-dengue-cluster-map.html> (accessed August 8, 2016).

World Economic Forum. *How is open data changing India?* 19 February 2015. <https://www.weforum.org/agenda/2015/02/how-is-open-data-changing-india/> (accessed August 8, 2016).

World Resources Institute India, Embarq. "Open Data In Urban Transport As A Driver Of Innovation And Entrepreneurship." <http://wricitiesindia.org/our-work/topics/innovation>, 2015.



## Summary of Focused Group Discussions

### Discussions with Government Agencies | Detailed Recommendations

*Between September 2016 and March 2017, a series of focussed group discussions were held with various government agencies operating in the Bengaluru Metropolitan Area and Region. The BBMP Restructuring Expert Committee, facilitated meetings with several government agencies to understand their respective roles and responsibilities, challenges faced in administration and services provision, coordination and overlaps with other agencies as well as their inputs and suggestions on what could be done to improve the current system. Feedback and opinions on preliminary directions taken in the detailed recommendations reports were also sought. A summary of the discussions held with the government agencies are described below:*

#### 1. Karnataka State Industrial and Infrastructure Development Corporation (KSIIDC):

**Broad Functions and its Role in Development of Bengaluru and its Region:** KSIIDC in general undertake development of major infrastructure projects located outside Bengaluru city which are assigned to it by other nodal agencies at the State and Central Government level. The agency extent its assistance in creating Special Purpose Vehicles (SPVs) for implementing, operating and managing various projects and KSIIDC started off with the setting up of SPV for Kempegowda International Airport. It provides financial assistance to induce industrial growth to entrepreneurs and help in managing non-performing assets. Currently KSIIDC has been assigned as the nodal agency in the development of a large industrial project which is conceptualised as mixed use walk to work development on 13000 acres of land near Tumkur and is also the nodal and development agency of the ongoing international convention centre adjacent to Kempegowda International Airport. KSIIDC does not undertake any land acquisition, as the land acquisition work for the projects are carried out through the Revenue Department or by the corresponding implementing agencies.

**Planning:** Bengaluru International airport changed the scenario of development in the northern parts of the city. Projects that are strategic induce desired growth, however expected implications of such strategic projects need to be planned and provisioned in advance. Strategic planning would be an advantageous approach, considering the current method of conceptualising major projects and later incorporating into the master plans. Investment prioritisation, fund flow analysis of benefits and repayment, expected balance sheet based on phasing are the basic factors that need to considering in strategic planning approach. Sector wise Master Plan especially for key sectors such as water supply, transport etc, would help comprehensive allocation of resources and monitoring service benchmarks.

For any development projects, land pooling need to an integral part of the project as it will involve the project affected people at various levels of the projects and ensure that livelihood concerns are incorporated in long term planning. Stakeholder consultation where the general public is consulted

could be mandated for all projects, as it help to get inputs for the projects as well as help in building consensus.

**Means of coordination:** A super local body similar to proposed Greater Bengaluru Authority (GBA), which will have parastatal agencies such as BESCOM, BMTC, BWSSB, and other service providers under it will reduce difficulties in coordination. There needs to be a single window system to coordinate with all the departments and hence speed up the implementation of projects.

To have better decision making, institutions need to be headed by top officials of the State who can bring together all the agencies. Having a chief regional planner for Bengaluru with common database would improve information sharing process and all planning and development process could be made available online.

**Local infrastructure issues:** To have coordinated infrastructure provisioning in Bengaluru, at the local level underground utility ducting in all streets of Bengaluru need to be considered as a top priority. This will reduce coordination issues and will help easy maintenance and ensure high quality services. Safety is very important feature which needs to be integrated in the infrastructure design. It is essential to develop a model BDA layout with all the best practices and this can be replicated across various areas in the city.

## 2. Bengaluru Metro Rail Corporation Limited (BMRL):

**Broad functions of Bengaluru Metro:** Bengaluru Metro has prepared plan for Phase-3, through consultants who have conducted various studies and multiple options of Metro alignments have been submitted to State Government for finalisation.

**Planning:** Metro alignments are decided based on transport analysis including current transport demand, demography, urban land use, growth dynamics of the city, cost of building on land, benefit of the project, areas left out of service and other factors. Not much coordination in planning with any other agency is required for the metro project. All the other agencies incorporate metro alignment in their proposals. KIADB is the nodal agency for acquiring land, however the cost of acquisition is borne by BMRL. High powered land grant committee under State Govt–headed by chief secretary of Urban Development Department (UDD) provides the clearance for land acquisition and associated cost.

**Means of coordination:** Metro implementation is facilitated by coordination committee headed by Chief Secretary of UDD and includes head of agencies such as BDA, UDD, BBMP, BMRL, Traffic police, BWSSB, Revenue Dept, BESCOM, KIADB, Transport Dept and BMTC. This committee helps to coordinate decisions taken to favour implementation of Metro. There is also a BBMP coordination committee for Metro and as per State Govt order they meet every fortnight. This committee has commissioner of BBMP as Chairman and has officials from BDA, BESCOM, BWSSB, BMRL and traffic police to sort-out day to day issues faced in implementation of Metro. However, BMRL spends considerable time during the project planning and implementation phase of the project due to lack of clarity on the exact alignment of the underground water and sewer lines, particularly within the

core city areas. BBMP only coordinate with BMRC at city level, no ward level coordination is required. BBMP database is used by BMRC for easier coordination.

### 3. Bengaluru Traffic Police:

**Broad functions of Bengaluru Traffic Police:** Traffic Police manages smooth flow of traffic movement, by ensuring obstruction free street space for movement. They manage more than 13,000 kms of road length with 44,000 intersections.

**Planning:** Traffic Police is not part of any planning of comprehensive transport for the city. There are several drawbacks in the current planning such as lack of importance for last mile connectivity to public transport corridors, lack of parking management, lack of segregation of heavy vehicles, low capacities of road network and lack of transport demand management measures such as congestion pricing. Lack of parking policy including parking pricing is one of the major challenges for traffic management.

Some of the key requirements for the effective functioning of the department include spatial mapping of all the parking supply in the city, parking provision within each of the local areas (including private buildings), staggering of timing of all the government facilities with peak demand, capacity building for traffic police on long-term and usage of latest technologies to integrate information on violation, evidence reporting, accident and crime analysis.

**Means of coordination:** Currently coordination with other government agencies are mostly need based and issues specific. There is operational coordination with BMTC on managing break down buses and reduce time taken to remove them and ease traffic flow. There is also coordination with BWSSB, NHAI, SH, BDA, BESCOM and BBMP for earthworks on streets for rerouting of traffic. There is a lack of comprehensive approach towards pruning of trees, water logging, pot holes, routing of private buses, facilities for truck traffic and such other functions. These functions requiring coordination with multiple departments continues to be a problem and affects the traffic management. A common data base with extensive details on transport network will help traffic management, however for its execution all the departments need to come together. Common database helps to know the other camera locations (both from public and private buildings) and possibility of interlinking with traffic servers for better management of traffic. Currently Traffic Police Department use Google traffic maps for alerting the people about traffic. Road cutting permissions with clear marking on one base along with start and end dates (of permission) will ensure better coordination.

### 4. Bengaluru Metropolitan Region Development Authority (BMRDA):

**Role of BMRDA:** All the areas under BMRDA currently falls under the jurisdiction of various local planning authorities and hence these authorities look into the planning functions (formulating master plans and approving layout plans) of their local planning areas. BMRDA has thus become the coordination and monitoring body for the Bengaluru Metropolitan Region and is not involved in any approval process directly. However, all the approvals (land use changes and project approvals) of the Local Planning Authorities in the BMR region should be directed through BMRDA

**Planning:** Common database for BMR area shared across all the departments would be very helpful to enhance coordination in planning. However, lack of technical capacity of staff to handle the database and availability of other resources such as equipment, software, renewal, maintenance and high speed connectivity are major impediments in achieving the same.

Local Planning Authority has been formed to take up implementation of Satellite Town Ring Road (STRR) forming ring around the entire region. Land bank along the STRR is being considered by the authority by mandating to surrender 5% of the land by all the land owners coming for development approval to the authority. This pool of land would be used to acquire land and network of roads along the Ring Road. Town Planning Scheme is proposed to be adopted to plan areas along the proposed Ring road. However there is no government order made on the method of land acquisition for the STRR project. Currently the tendering for preparing the master plan is progressing, and the master plan would be prepared soon for the area. Bidadi smart city planning authority has also been created for Bidadi and the master planning process for the area is currently undertaken. While the concepts of land pooling scheme is being discussed for Bidadi township development, no decision is taken on the method of acquiring land for the township development.

**Means of coordination:** BMRDA ensures that investment in the jurisdictions of the urban local bodies are made as per the Master Plan in the ULB areas by undertaking a close scrutiny of the projects prepared by the ULBs.

## 5. Bengaluru Water Supply and Sewerage Board (BWSSB):

**Role of BWSSB:** BWSSB provide water supply to about 9 lakh connections in the BBMP area through the 1400 MLD of water supplied from Cauvery. There are also bore well water supply to some areas within the jurisdiction of BBMP. Unaccounted loss of water is about 45%, which has recently come down due to projects implemented in the southern and western parts of the city.

- **Organizational setup:** The BWSSB management system works in a hierarchy that has zones, divisions, sub-divisions and service stations, structured based on the population size and demand:
  - There are four zones under BWSSB, where all the major decisions of fund flow, approval of major projects and overall management are handled.
  - Each zone consists of multiple divisions; with a total of eleven divisions in the city. All the ground level reservoirs and pumping are managed at the divisional level. Divisional office also issue tenders to implement water supply related works.
  - Each division consists of multiple sub- divisional offices; there are 31 sub-divisions in the city. Sanctioning of new connections, meter deployment, service stations are managed at the sub-division. Proposals for new lines are prepared at this level and cost estimates are sent to higher level.
  - Each sub-division consists of multiple service stations; there are 110 service stations in the city. Daily operations, monitoring and grievance cells are managed at this level.
  - Similarly, all large trunk sewer lines (above 400 mm diameter pipelines) are managed at the waste water management division and projects are also decided by

this division. Smaller diameter pipelines are managed by the sub- division units. All the open nallahs and storm water are managed by BBMP.

- There is a dedicated Superintendent Engineer to coordinate land acquisition related works with Revenue and other departments.

BWSSB has its own setup of institutional structure which does not coincide with the administrative boundaries at scales with BBMP structure in the current system. However, means of aligning with the local government such as GBA structure could be explored.

**Planning:** In newly expanding areas, when BDA develops layouts, it deposits money to BWSSB to develop water supply infrastructure for the area. When villages get merged with the city, the water supply system run by panchayats including bore wells in the villages are handed over to BBMP, which in turn hands it over to BWSSB. To supply Cauvery water to the 110 villages, additional 700 MLD of Cauvery water is being augmented and is expected to be operational in 2019. The supply to these villages are currently through bore wells, which is provided free of cost by BBMP. From the households, which uses bore well water supply, a sanitary fee is collected by BWSSB. Currently treated water from tertiary sewage treatment plant is being supplied to a factory in Yelahanka and Bengaluru International Airport for non-domestic purposes. More tertiary sewage treatment plants are being planned to effectively recycle waste water.

**Means of coordination:** Decisions on providing water supply to new areas and other projects related to BWSSB are taken during the Board meeting which include heads of agencies such as BBMP, BDA, BMRDA, KUIDFC and other major agencies operating in the city.

**GIS database:** BWSSB already has a database for all water supply and sewerage lines through the BISON project; the digital data infrastructure for Bengaluru developed 15 years back. Now BWSSB has taken up mandatory updating of GIS database, with every new water supply and sewer project that has been implemented. Payments are made to the project contractors only after updating the details in BWSSB database.

## 6. Bruhat Bengaluru Mahanagara Palike (BBMP)

**Role of BBMP in newly expanding areas:** Government as per KMC Act considers physical proximity to the city, dependency on the city for employment, growth of industries and commerce, conversion of the areas into residential or industrial use and based on demands by the people, amalgamate parts of surrounding area of the city into BBMP jurisdiction. The government also consult with stakeholders such as para-state agencies involved in service provision in the process of expanding BBMP jurisdiction. BBMP is also taking concrete efforts to improve infrastructure in the newly added villages in the jurisdiction. Since 2013-14, the government has made available Rs.250 crores for developing the 110 villages and Rs.750 crores for developing the 7 CMC and 1 TMC areas newly included in the jurisdiction. BBMP has assigned the local engineers with the task of preparing action plan for development works in consultation with representatives from local people. In the 110 villages along the peripheries, where the BWSSB water supply has not reached yet, BBMP supplies water through piped bore well system as well as through tankers through private contractors. Even though core areas are well developed than the outer areas which are newly added, the allocation of budget to match the requirements of the peripheral areas is difficult due to political viewpoints.



Moreover, missing links between newly developing areas and already developed city infrastructure is major challenge.

BDA develops layouts and collect tax till they maintain the area and once it is transferred to BBMP, its maintenance and tax collection is the responsibility of BBMP. When private party develop layouts in the peripheries, BDA provides approval and once developed, roads and gardens are in the layout are handed over to BBMP for maintenance whereas plots for amenities such as education, health and religious etc are allocated by BDA.

**Planning:** Currently spatial planning is under the purview of planning authorities. A joint mechanism comprising planning authorities and implementing and operating agencies is essential to achieve a continuous planning process of constant updating of ongoing developments. Delegating funding powers to planning institutions could be a better approach to achieve better levels of implementation of Master Plans. However, in such cases, the planning body need to have sufficient representation from all the agencies to ensure smooth coordination. Under KMC Act, Ward Committees are constituted, but has not been much effective. If Ward Committees are required to prepare Master Plans for their Wards, then their internal technical capacities would be a major challenge. It is essential to find solution for the same upfront, if Ward plans are to be introduced.

At the local ward level, BBMP functions include solid waste management; managing public grievances; managing programmed works; prohibition of unauthorised building construction and demolition; regulation of authorised building construction; supervision of activities such as laying of OFC laying etc.

**Means of coordination:** Lack of communication between the government agencies is a significant gap in the current system. Usually there is a cordially working relation existing between government agencies, which is currently in the form of issue based problem solving approach. However, a common policy oriented approach to coordination needs to be developed. To enhance coordination, every agency and government department should form designated wing for coordination. Also, it may be required to mandate coordination for all civic agencies in spatial planning, however this may require internal capacity building.

A meeting held every first and third Saturdays of each month under the Chairmanship of Chief Secretary on inter departmental coordination has yielded best results. In addition to this, Minister of Bengaluru Development and Town Planning also carries out regular meetings where higher officials from all department are present. State budgets could ensure that only co-dependent projects are approved (for example when roadwork in a certain area are approved then simultaneously related works of other agencies such as water supply sewerage, electric conduits, bus bays, signal lights etc are also approved), then mandatory cooperation would not be a major issue. To aid coordination efforts, first and third Mondays of every month a meeting is held at BBMP with representatives from all the local agencies under the chairmanship of BBMP Commissioner.

BBMP introduced online application / tool to coordinate any need for cutting the road for underground works such as BWSSB, BESCO, etc. and to enhance multi-government agency

coordination. On studying the applications from the agencies, BBMP coordinates with Traffic Police for clearance before giving approval. Further BBMP is bringing in the concept of utility ducts in all roads. BBMP coordination with BWSSB is mostly happening only at local project levels to ensure smooth implementation.

**Finance for development:** State budget is the basic form of “sector wise planning” and the inputs are drawn from respective departments. However, assimilation of each sub-plan for a Bengaluru specific plan can be achieved only through a dedicated institution formed for this purpose.

**Land acquisition for public purpose:** Substantial amount of land has been acquired through TDR as it helps to implement project without any financial burden on the government agency. Apart from TDR, emergency land acquisition under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (RFCTLARR) Act, 2013 is used. However, purchase of land for public projects through the negotiated purchase has been working well as the process is faster and cheaper than the compulsory acquisition mode. There are also instances, where other government agencies such as BWSSB, BDA and BESCOM have transferred their land free of cost to BBMP.

**GIS Database:** Land use maps of BBMP is already made online. However, it needs to be synchronized with live-data from various platforms such as “BHOOMI”, BBMP property tax software etc with the system. Property tax paid information at plot level, roads and other project information details are available online. OFC, MARCS are GIS tools developed to coordinate for road cutting and with other government agencies like BWSSB, traffic police, etc.

## 7. Bengaluru Development Authority (BDA):

**Planning:** Decentralised planning at ward level could be a major challenge due to basic issue of internal capacities to prepare the plans. Major capacity building for both internal officers and elected councillors, along with sufficient powers are essential. Constant updating of existing land use plan could be a better way forward to enhance speedy planning. Periodic updating in GIS database could also be used to coordinate with agencies involved in development and providing services.

Planning and designing for better management of the city is very important. For instance, in general around 45% of the road areas are occupied by unorganized parking, causing high traffic congestion and hindrances to public services etc. Generating funding to undertake development activities remains a major challenge. Mechanism to channelize funds and innovative methods to generate funds are essential.

**Means of coordination:** In the current setup, coordination with multiple departments and agencies is one of the major challenge for planning and development. Major institutional reforms are required to structure towards coordinated planning. It is good to have a common spatial database. BDA will consider to be part of it only if government issues order.

**Land acquisition:** Various compensation strategies for the land acquired is being used by BDA for its projects. For instance, for BDA layouts, it gives a percentage of developed land instead of paying full

cash compensation for the land acquired. The percentage of land given back is fixed based on various factors based on the project, area, size of the parcels etc.

BDA has formed an SPV, with KUIDFC as partner for the execution of the Peripheral Ring Road (PRR) for Bengaluru. The cost for the land acquisition would be raised through loans by the SPV and international loan from JICA is availed for construction of the PRR. The area is being planned such that area in 100 m either side of the road would be given commercial use (with additional FAR) and beyond for 1-1.5 kms area would be mixed use (with betterment charges). Town Planning scheme would have been a good approach to plan the PRR if it had been thought of in its initial stages of the project. However, it is not possible now due to legal and administrative directives.



