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**Uma TG.**

Assistant Professor,  
Department of Commerce and  
Management, Maharani  
Women's Arts, Commerce and  
Management College, Seshadri  
Road, Bengaluru-560 001

**Mallikarjun Chanmal**

Associate Professor and HOD  
of Commerce, HKES's Sree  
Veerendra Patil Degree  
College, Sadashiva Nagar,  
Bengaluru-560 080

## **An empirical study of urban infrastructure in Bengaluru**

**Uma TG. and Mallikarjun Chanmal**

**Abstract**

There is a strong positive link between national levels of human development and urbanization levels, while cities spearhead their countries' economic development, transforming society through extraordinary growth in the productivity of labour and promising to liberate the masses from poverty, hunger, disease and premature death. However, the implications of rapid urban growth include increasing unemployment, lack of urban services, overburdening of existing infrastructure and lack of access to land, finance and adequate shelter, increasing violent crime and sexually transmitted diseases, and environmental degradation. Even as national output is rising, a decline in the quality of life for a majority of population that offsets the benefit of national economic growth is often witnessed. Urbanization thus imposes significant burden to sustainable development.

**Keywords:** Urban infrastructure, Health, Economic Growth, Waste Collection, Urbanization

### **1.1 Introduction**

India's cities are facing a crucial moment in planning. In the context of rapid urbanization and industrial growth, the national government is increasingly pursuing an agenda of economic growth and development. The 74th Amendment of the Constitution, as well as the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the National Urban Livelihoods Mission (NULM), the recommendations of the National Commission for Enterprises in the Unorganized Sector (NCEUS), and other government schemes have emphasized the importance of managing development at an urban and regional scale.

A rough estimate of population of Greater Bangalore by excluding the population of 110 villages as on 2006, is 7.99 million. Hence, by looking at the enormity of the population size of the city, one can assume its huge requirements both in terms of infrastructure and services as well as institutional structure required for efficient city management. Though the state government has earmarked 370,000 million rupees for the establishment of the Greater Bangalore, this is definitely a meagre amount to promote planned development with adequate infrastructure and services. In terms of administrative entity, in the context of proposed Greater Bangalore, it is preferable to manage the city as a single administrative unit, but with decentralised planning of various urban services and functions.

### **1.2 Integrating Planning And Infrastructure Development**

The plan making and formulation is good opportunity to assess social and economic needs of the population to address 'quality of life' issues. The identification and coherent programme for implementation necessitates a macro view of the urban area and interlinkages with land use and development. Planning for infrastructure and integration can occur at three levels. The macro level, which is at the city level; its impact is wide and extensive. Concerted efforts to streamline development are a necessity as in case of city level drainages, transportation network, etc.

### **1.3 Statement of The Problem**

Urban infrastructure creation is inadequate in India because the investment is not forthcoming in commensurate with the population growth. As a result, there is a huge gap in urban infrastructure in creation and provision leading to the problems for the stakeholders. From the point of view of service delivery agencies, they lack sufficient funds to create

**Correspondence**

**Mallikarjun Chanmal**

Associate Professor and HOD  
of Commerce, HKES's Sree  
Veerendra Patil Degree  
College, Sadashiva Nagar,  
Bengaluru-560 080

Necessary infrastructure for the ease of living and standard of living. Infrastructure creation is a double edged weapon leading to up gradation of the standard of living and on the other having cumulative social impacts like displacement, concentration of people leading to consumerism etc. and environmental harm caused from the chopping of trees, pollution therefrom. The need of the hour in Bengaluru is the sustainable urban infrastructure leading to enhancement of urban infrastructure considering the environmental issues. The study revolves around how the agencies foreseeing the economic, physical and social infrastructure can enhance the quality of living of the people in the city of Bengaluru through various measures.

#### 1.4 Review Of Literature

1. **Bangalore Redefining Urban Infrastructure (2012)** propagates that India's cities are facing a crucial moment in planning. In the context of rapid urbanization and industrial growth, the national government is increasingly pursuing an agenda of economic growth and development. The 74<sup>th</sup> Amendment of the Constitution, as well as the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the National Urban Livelihoods Mission (NULM), the recommendations of the National Commission for Enterprises in the Unorganized Sector (NCEUS), and other government schemes have emphasized the importance of managing development at an urban and regional scale.
2. **Bangalore Urban District Profile** iterates that Karnataka is a State of action. We have witnessed rapid and unparalleled growth across our knowledge-based sectors. Each of our 30 districts is unique in its own right, offering investment potential like no other state in the country. Over 700 MNCs are already reaping the advantages of making Karnataka their home. One new global company moves into our State every week and a new industrial unit is approved every day. Supported by rich natural resources and progressive policies, the State presents to its investors the right blend of strengths and opportunities.
3. According to **Draft Master Plan-2015 An Integrated Planning Approach** as one of the world's fastest growing cities, Bangalore is experiencing a steady increase in population (3.25% current annual growth rate). Its population is likely to be 10 million by 2021. The growth is spurred by the advantages conferred on the city by entrepreneurial and intellectual capacity incubated through a series of private and government actions.
4. **Report of the Working Group on Financing Urban Infrastructure (2011)** iterates that land is a key driver for urbanization both as a factor and as a resource that can be monetized. A strong and dedicated effort is needed from all tiers of government to exploit this resource to build urban infrastructure. An institutional framework to deal with the issues related to land needs to be put in place urgently to be able to unlock land value in a significant way.

5. **Olivier Toutain and S. Gopiprasad** state that Urban India today, faces serious challenges of growth and its management. Across geographies, the issues of urbanization manifest in the form of over-crowding, congestion, insufficient infrastructure, inadequate service provisioning—mainly in terms of drinking water, sanitation, energy, transport, solid waste management, environmental degradation, and pollution, etc. These, along with the poor management of rapid growth, affect the socio-economic development of the country.

6. **Urban India 2011: Evidence Report** iterates that India's urban infrastructure and services are the basic foundations for settlements' economic, social, cultural, and environmental dynamics. Improving them is more than a matter of investment targets and per capita access; these are strategic investments in the structure, functionality, liveability, and sustainability of India's cities.

#### 1.5 Objectives of the Study

1. To know the existing infrastructure facilities
2. To understand the Planning And Development Agencies
3. To identify the Institutional Arrangements In Bengaluru Governance Structure

#### 1.5 Methodology

In the present article, what has happened and what is happening in the urban infrastructure and its impact on the people is discussed.

#### 1.6 Existing Infrastructure Facilities

Provision of adequate infrastructure is essential in ensuring smooth functioning of the IT parks. Infrastructure services should be provided which are dynamic, intelligent and smart, and replacing the static, poorly maintained infrastructure services. Proper access to the IT Park and also efficient internal connectivity to all activities within the park has to be provided. Proper physical and social infrastructure along with the specifically needed IT infrastructure facilities have to be provided. The technical infrastructure should be designed proactively as per the international standards of capacity, reliability, costs and service levels.

Social infrastructure will help in maintaining the freshness and fitness of professionals and in turn increasing the productivity as these work centers will be abuzz with activities round the clock. Even though the IT industry is highlighting the city's infrastructure inadequacies, Bangalore has been the preferred destination for IT ventures from across the world. A well planned park will translate into the growth and development of the sector and lead to healthier economy. It forms a primary strategy for promoting direct foreign investment, technology transfer, research, development, employment and overall economic growth.

It should be planned to have office, residential, educational, commercial, health and recreation facilities along with all civic amenities and other supporting infrastructure facilities. So that the technicians need not travel for hours on back breaking stretches to reach their offices. Within the park, "walk-to-work" culture has to be developed as this will better employees' health by freeing their stress, reduce

petrol consumption, save the environment and help reduce vehicular congestion.

**Table 1:** Characteristics of Healthy Urban Area

• A clean, safe physical environment of high quality;
• Stable and sustainable ecosystems;
• A strong, mutually supportive, integrated and non-exploitative community;
• A high degree of participation and control by inhabitants over decisions affecting their lives, health and wellbeing;
• Basic needs of all inhabitants met (in terms of food, water, shelter, income, safety and employment);
• Access to a wide variety of experiences and social and cultural resources;
• A diverse, vital and innovative urban economy;
• Enabling connections with the cultural and biological heritage of the various urban inhabitants;
• An urban form that is compatible with enhancement of all the other specified characteristics;
• An optimum level of appropriate public health and care services accessible to all; and
• High levels of positive health outcomes and low levels of morbidity.

Source: WHO (1992), *Twenty Steps for Developing a Health Cities Project*

**1.7 Planning And Development Agencies**

Though urban planning and development are essential functions of the municipal bodies as per the Constitution of India, in Bangalore various statutorily constituted para-statal like BDA and BMRDA perform these functions. The

BDA was constituted to control, monitor, and facilitate urban development of Bangalore Metropolitan Area which correlates to the BBMP area. The BDA, which formulates the Comprehensive Development Plan (CDP) for the city, is also responsible for land use zoning, regulation and planning of land, providing sites, creating urban infrastructure and improving urban environment. In the larger Bangalore Metropolitan Area comprising of Bangalore urban, Bangalore rural and Ramanagaram districts, the Bangalore Metropolitan Region Development Authority (BMRDA) is responsible for planning, coordinating, and supervising the orderly development of land.

While the Bangalore International Airport Area Planning Authority (BIAAPA) is vested with the sanctioning of land-use of the area around the new Bengaluru International Airport. Bangalore also has the Lake Development Authority (LDA) responsible for protection, conservation, reclamation, restoration, regeneration, and integrated development of lakes in the BMRDA jurisdiction. Another government body is the Karnataka Slum Clearance Board's (KSCB) whose functions include rehabilitation of all the declared slum areas in the Urban Local Bodies of the State. Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC), which is the nodal agency for externally aided projects, has been set up to assist the urban agencies in the state in planning, financing, and providing expertise to develop urban infrastructure.

**Table 2:** Urban agencies in Bengaluru city

Para-Statal	Functions	Functional Overlap
Bda	Responsible for land use zoning, regulation and planning of land, providing sites, creating urban infrastructure and improving urban environment	A function of BBMP under the Constitution which is also partly carried out by BMRDA and ABIDe
Bmrda	Responsible for planning, coordinating, and supervising the orderly development of land in the larger Bangalore Metropolitan Region	A Municipal Corporation function mainly carried by BDA in city limits
Kuidfc	Provides assistance for urban agencies in planning, financing, and providing expertise to develop urban infrastructure	A Municipal Corporation function; similar tasks also carried out by ABIDe
Kscb	Performs rehabilitation of all declared slum areas in the city	A Municipal Corporation function also performed by BDA and BBMP
Bwssb	Responsible for the pumping and distribution of drinking water, sewerage collection, water and waste water treatment and disposal	A Municipal Corporation function; some aspects like waste water disposal also carried out by BBMP

**Table 3:** Responsibilities of Main Urban Service Providers in Bangalore

	Service Delivery	Policy-making	Regulation
Water and sanitation	BWSSB, BMP, Municipalities	BWSSB, BMP, Municipalities	BWSSB
Solid waste management	BMP, Municipalities	BMP, Municipalities	BMP, Municipalities
Road infrastructure	BDA, BMP, Municipalities, R&B departments	BDA, BMP, Municipalities	BDA, BMP, Municipalities
Public transportation and traffic	BMTC, Traffic police	BMTC, Traffic police	BMTC, Traffic police
Housing, town planning	BDA, Karnataka Housing, BMRDA	BDA, BMRDA	BDA, BMRDA, BMP, Municipalities

Source: Water and Sanitation Programme: South Asia (2005)

**1.8 Institutional Arrangements In Bengaluru Governance Structure**

To cater to the needs of the large and diverse population, the responsibility for provision of municipal services, city

planning, and urban infrastructure services such as urban transport, electricity, and water and sanitation, rests with numerous local governments and parastatal agencies.

**Table 4:** A summary of Agencies and their Responsibilities

Functions	Agency
Urban Planning/ Town Planning	BDA, BMRDA
Water Supply	BWSSB
Roads and Bridges	BDA, BBMP
Public health, Sanitation & Solid Waste Management	BWSSB, BBMP
Fire Services	Fire Department
Slum improvement and upgradation	KSCB, BDA, BMP
Provision of urban amenities and facilitates as parks, gardens, playgrounds	BBMP, BDA(Urban Extensions)
Vital Statistics- registration of births/ deaths	BBMP
Public amenities including street lighting, parking lots, bus stops and public conveniences	BMP, BDA

### 1.9 Conclusion

For any country or city, the development of infrastructure is very crucial. Infrastructure wields the power of urbanising the rural and mofussil areas. Infrastructure is of two kinds- economic infrastructure and social infrastructure. The former is the growth engine of economic development of any country. The latter facilitates the living conditions of the people of the region. So, economic infrastructure contributes to social infrastructure. Bangalore city is the most happening city of India and the world. It is called as Silicon Valley of India, R & D hub, Garments hub and the like. It houses around one-crore population and contributes 47% to Karnataka's GDP. It contributes \$ 93 billion to India's GDP. The city was founded by the visionary ruler and Karnataka Ratna Shri Kempe Gowda. The character, structure and topography of Bangalore has changed rapidly and drastically. The challenge is increasing the supply of various infrastructure facilities like water, sanitation, housing, power, road, transport, rail, port and airport. Further, the social infrastructure like hospitals, parks, educational institutions, old age homes, orphanages, community halls are to be increased in consonance with the robust growth of city's population. The most teething problem is power and traffic management in Bangalore city. The supply Bangalore urban infrastructure is not commensurate with the demand for the same. The gap in the infrastructure is the cause for numerous civic and other problems of Bangalore city. The Urban Local Bodies, notwithstanding the constraints, are working for the creation, sustenance and upgrading the urban infrastructure of Bangalore. The case in point is green infrastructure, metro rail, roof top solar grid and so on.

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