



# In India's Urban Planning: Uncovering Challenges and Solutions for Indian Cities

<sup>1</sup>Basweshwar S. Jirwankar, <sup>2</sup>Darshankumar Patel, <sup>3</sup>Dr. Shrikant Randhavane, <sup>4</sup>Mr. Digvijay Deore

<sup>1,2</sup>Assistant Professor, Department of Civil Engineering, SVKM's Institute of Technology, Dhule, 424001, Maharashtra, India

<sup>3</sup>Coordinator, Department of Civil Engineering, SVKM's Institute of Technology, Dhule, 424001, Maharashtra, India

<sup>4</sup>Lab Assistant, Department of Civil Engineering, SVKM's Institute of Technology, Dhule, 424001, Maharashtra, India

Corresponding Author Email [b.s.jirwankar@gmail.com](mailto:b.s.jirwankar@gmail.com)

## Abstract

The concept of "smart cities" is gaining global traction, often described as "enhanced," "interactive," or "inclusive" urban areas. It represents the latest in a series of tech-driven urban initiatives aimed at enhancing local governance and fostering economic growth. These initiatives encompass a range of programs, from implementing intelligent water meters in every household to establishing citywide Wi-Fi networks. Any element that leverages information, data, and communication technology to enhance a city's efficiency and accessibility falls under the umbrella of "smart city" components. In this article, we will explore the initiatives taken by the Indian government and shed light on the numerous challenges faced by smart cities.

**Keywords:** Smart cities, Urban Planning, Indian Governance, Planning

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## 1. Overview

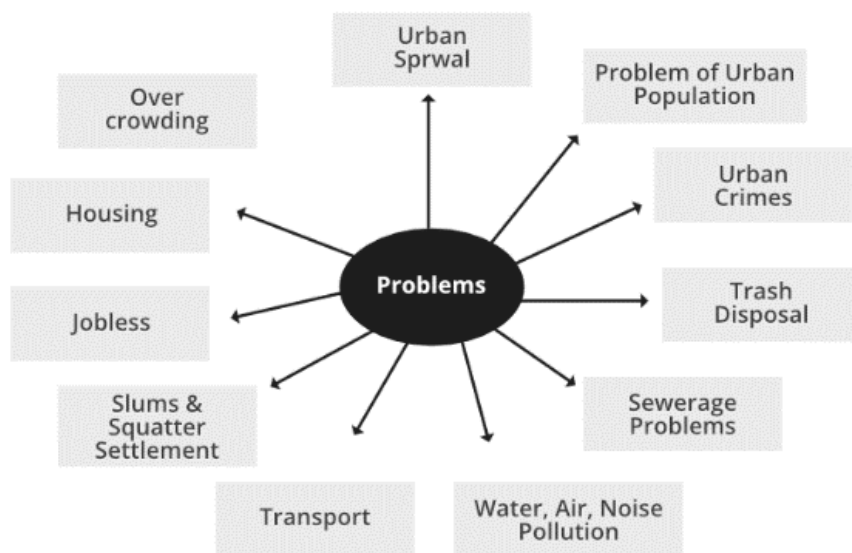
This research underscores the growing importance of urbanization in India and the relevance of smart city development in the present era. In 2011, the urbanization rate stood at 30%, but statistics project that by 2030, this rate will rise to 41%, indicating a rapid acceleration of urbanization. Comparatively, India's investment in urban infrastructure is modest,

with a per capita spending of \$17 per year, while in many other economies, this figure often hovers around \$100 per year. This disparity highlights the relatively low allocation of resources by the Indian government for urban development, which, in turn, affects the quality of urban planning.



The significance of urbanization is heightened by the increasing demand for various forms of employment, as mentioned earlier. As a result, urbanization has evolved into a catalyst for the country's economic, social, and political progress. Consequently, urbanization and effective urban planning deserve closer attention, but regrettably, both are often overlooked. The accelerating pace of urbanization can be attributed to two primary factors:

Fig1. The causes of the rising urbanization



**2. Defies**

The following are the difficulties involved in urban planning for smart cities and in making an existing city smart.

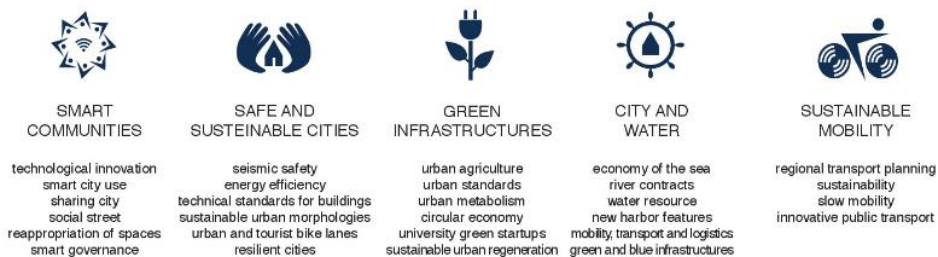


Fig2.Planning for smart cities: challenges

**2.1. Socio-Economic Complications**

Elevated urban population density is intertwined with several socio-economic challenges. When a compact area accommodates a substantial urban population, it naturally leads to high population density. Consequently, the limited infrastructure in these regions poses difficulties for the burgeoning

urban populace. Unregulated expansion of urban areas is yet another critical concern. The excessive demand for facilities and services in these confined spaces exerts stress on public utilities. Consequently, even though these utilities are relied upon by a large number of people, limited access to them becomes a stark reality for the low-income population.

Due to urbanization driven by both natural forces



and migration, the population in a specific region experiences rapid growth. Consequently, residents' demands for essentials such as housing, sanitation, transportation, water, electricity, healthcare, and education increase significantly. However, the limited number of public utilities available to address these requirements results in a decline in service quality as an ever-growing number of people depend on these constrained resources.

## 2.2. Immigrants

Seeking employment or improved living conditions, individuals from rural regions migrate to urban areas. However, regrettably, not all migrants succeed in securing employment. Immigrants can be categorized into one of two groups:

### 2.2.1. Official Segment

When an individual from a small town secures a position with an IT firm in a major city, they are entering the city's formal workforce. This transition assures them of having a job, a place to live, and access to essential amenities. They are now gainfully employed, earning a decent salary, and enjoying job stability.

### 2.2.2. Informal Segment

When job seekers from rural areas, including immigrants, seek employment in metropolitan regions, it's essential to consider the limited job prospects in these cities. The harsh reality is that a significant number of individuals may struggle to find work, leading to stress, hardship, unemployment, and at times, underemployment. Unfortunately, those rural immigrants who are unable to secure employment often face challenges such as living in slums or underdeveloped areas. Consequently, they lack access to social security, financial stability, job security, and a safe and stable way of life. Instead, they may encounter a range of issues, including resorting to begging, theft, becoming involved in criminal activities, and burglary, among others.

### 2.2.3. Communal Tribulations

This detrimental social situation primarily impacts the unorganized or informal sector. The growing urban population has generated a heightened demand, necessitating the expansion or improvement of urban areas. Consequently, this expansion encroaches on agricultural land, natural vegetation, forests, and other natural resources. When land encroachment occurs, it can lead to reduced food production, particularly when food security is already

a concern. This reduced food production can trigger food inflation, marked by rising food commodity prices, which in turn exerts a significant impact on the economy.

Consequently, the costlier food commodities will result in higher prices that are particularly burdensome for economically disadvantaged individuals. This situation will undermine food security, leading to health issues such as malnutrition, food scarcity, and diet-related ailments. Additionally, it will render our nation increasingly reliant on food imports. As a result, the nation's balance of payments position is at its most vulnerable when the dependence on food imports escalates. This dynamic disrupts the equilibrium in the balance of payments equation.

## 2.3. Equilibrium of Expenditures

It is the surplus of imports over exports, which has adverse implications for the economy as it results in currency depreciation. Therefore, the understanding is that an upsurge in food commodity imports can trigger balance of payment crises, exacerbating the economic challenges and contributing to issues like encroachment on natural vegetation and forests. These consequences also have far-reaching, catastrophic effects, including:

- Disruption of ecological balance.
- Deprivation of natural habitats for both humans and animals.
- Contributing to climate change.
- Escalation of pollution, among other issues.

All of these issues are interconnected. Another significant challenge in urbanization is inadequate planning in major cities. We can observe this from the examples of metropolitan areas like Delhi, Mumbai, and Chennai, among others. These cities suffer from subpar urban planning. For instance, Delhi grapples with rapid pollution, and if we turn our attention to other metropolitan areas like Mumbai and Chennai, we see recurring instances of flooding. Recently, Mumbai experienced a flooding crisis, and a few years ago, Chennai faced a similar situation. These disasters are also linked to inadequate planning, making it a substantial concern.

## 2.4. Other Challenges

### 2.4.1. Weak Institutional Mechanisms

There are already certain institutional mechanisms in place, such as the 74th Constitutional Amendment Act, which empowers urban local governance as self-governing institutions. However, the issue lies in the fact that these institutional mechanisms often do not operate effectively. While there are ward committees and municipal bodies, they frequently do not function as intended, highlighting the problem of weak institutional mechanisms. Two critical elements for improving this situation are transparency and accountability. When incorporated and closely associated with these institutional mechanisms, they can significantly enhance their effectiveness and overall strength.

#### 2.4.2. Topography Related Issues

Several cities are situated in hilly areas or are prone to disasters, such as Chennai and Mumbai. These challenges are prevalent in many urban areas. When undertaking urban or town planning, it is essential to consider topography-related challenges. Therefore, there is a need for specialized planning by experts to address the unique circumstances of these cities. Specialized planning should account for the geographical features, environmental vulnerabilities, and disaster preparedness to create resilient urban environments.

#### 2.4.3. Lack of Integrated Planning

In the planning process, various stakeholders and multiple departments are involved. For instance, sanitation falls under the purview of one department, while drinking water issues are overseen by another. Education, healthcare, and housing are managed by yet more departments. All these different aspects require the collaboration of various departments and

stakeholders to formulate a comprehensive plan. Therefore, the integration of these different departments and stakeholders is essential to create a well-rounded and effective planning process.

#### 2.4.4. Private Control of Land

Expanding urban areas face a significant challenge related to the private ownership of land. In numerous instances, urban lands are fragmented, meaning they consist of various small, privately-owned parcels. These fragmented lands pose a two-fold challenge: firstly, they are divided into small pieces, and secondly, they are privatized. Consequently, it becomes challenging for the government to reacquire and consolidate these lands for the implementation of developmental projects. Therefore, asserting control over these lands represents a major obstacle in the realm of urbanization and town planning.

### 3. Institutional Arrangements

This paper draws upon neo-institutional literature and contemporary urban trialing research as a backdrop to investigate the factors contributing to the diversity in institutional arrangements across urban settings.

#### 3.1. Constitutional Provisions

The CAA 74th Amendment Act of June 1993 granted urban local municipalities the status of urban local government, endowing them with the authority to create plans to a certain extent and enabling them to generate revenue or access resources [4]. This act is primarily designed to reinforce decentralization, and its key provisions include the establishment of ward committees, seat reservations, awards and functions, state finance, and election commissions. Consequently, the act addresses the urban local government's roles and functions.

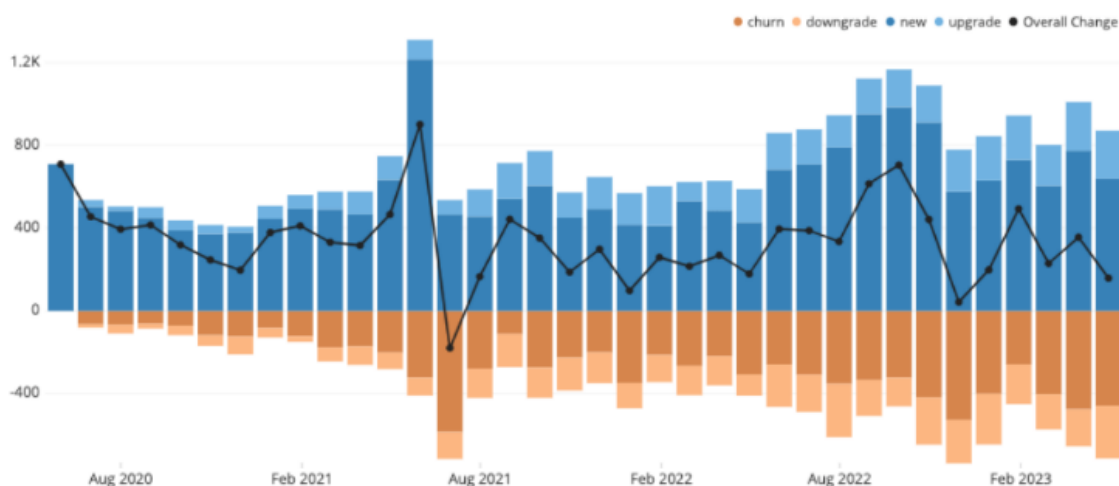


Fig. 3 Infrastructure Development of Major Cities.

### 3.2. State Municipal Laws

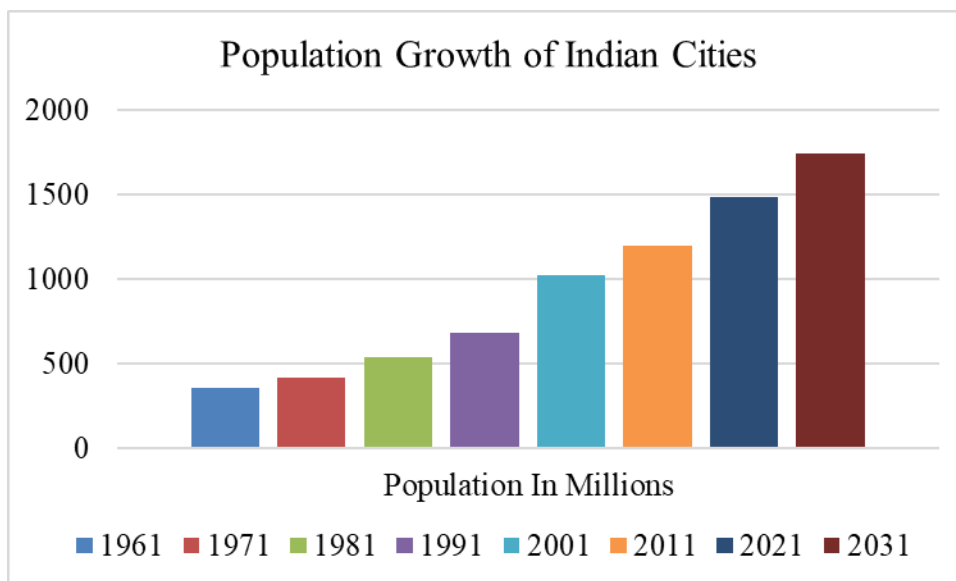
The primary purpose of model municipal laws is to provide states with guidance for the creation of municipal legislation. These laws serve as a reference for states that might lack clarity on how to enact municipal legislation. The fundamental goal of these model municipal laws is to facilitate the implementation of the 74th Constitutional Amendment Act (CAA) [4]. Additionally, you mentioned a stacked bar chart for comparing investment in infrastructure development in different Indian cities. However, the provided text does not contain information or data to create such a chart. If you have specific data on infrastructure investments

in various cities, I can help you create a descriptive graph based on that data.

### 3.3. State Finance Commission and Central Finance Commission

The fundamental role is to allocate funds between the states and local governments, encompassing both rural and urban local government commissions. The Central Finance Commissions are tasked with recommending methods for distributing resources among urban local bodies. These commissions have the authority to propose and provide guidance on funding allocation to resource local bodies.

Fig. 4 Population Growth Yearwise



#### 4. Recommendations for the Challenges Faced

The following are the solutions in order to overcome the problems in urban or town planning in our country.

##### 4.1. Inclusive Cities

Within our cities, we observe a population divided into two distinct classes. The first is the developed or organized class, which enjoys various amenities, stability, and security [5]. The second class comprises

the underdeveloped and economically disadvantaged, often facing social challenges and insecurity, and lacking essential amenities. A city should aspire to be inclusive, catering to the needs of both these classes. Therefore, the planning process should be designed to ensure that urban centers can address the requirements of marginalized groups, including housing, healthcare, water, transportation, and more, while maintaining an affordable price range accessible to all classes [6].

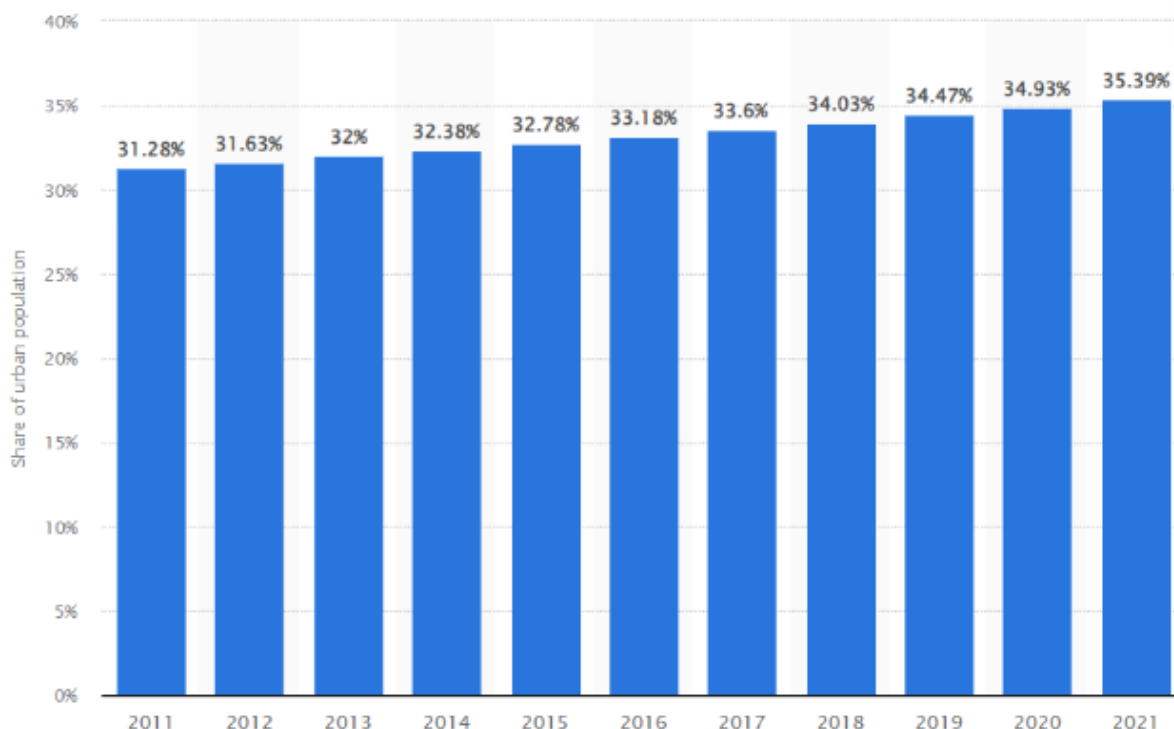


Fig. 5 Urbanization Growth Year wise

#### 4.2. Urban Governance

Efforts to enhance urban governance require increased transparency and accountability to boost overall performance. To address these issues effectively, integrated urban development programs should be implemented. These programs should encompass initiatives at the local, state, and national levels. The integration of such programs can lead to improved results and outcomes, fostering better urban development and governance.

#### 4.3. Financing

The benchmark allocation of 17 dollars per capita in India, compared to 100 dollars in other countries, underscores the limited financial resources available [1]. To address this issue, the government should explore financing solutions through Urban Local Governments, which have access to various funding sources that are currently underutilized. Recent economic surveys reveal significant underutilization by both urban and rural local governments. Proper utilization of these resources, along with the resolution of funding challenges, is crucial. Additionally, state governments can contribute, and Public-Private Partnerships (PPPs) can play a vital role in such programs [1]. The issuance of municipal bonds

is gaining popularity, and the central government can make substantial contributions to address urban financing needs.

#### 4.4. Planning

Various urban areas encounter unique planning challenges, often contingent on their geographical characteristics or vulnerabilities. Some areas may be susceptible to natural disasters, while others confront topographical obstacles, and financial constraints can be a recurring issue. As each city grapples with distinct challenges, it becomes imperative to tailor the planning process to address their specific requirements.

To mitigate these challenges effectively, specialized urban planning becomes indispensable. Such specialized planning endeavors to accommodate the diverse needs and demands of each city, ensuring that planning solutions are tailored to the unique issues each urban area faces. This approach can lead to more resilient and efficient urban development strategies.

#### 4.5. Affordable Housing.

Affordable housing in India refers to residential units that are reasonably priced and within the financial reach of a large section of the population, especially



for those with modest incomes. The Indian government has recognized the importance of affordable housing and has introduced several initiatives and programs to promote its development. Here are some key points related to affordable housing in India:

1. Government Initiatives: The Indian government has launched several schemes to boost affordable housing, such as the Pradhan Mantri AwasYojana (PMAY). PMAY aims to provide affordable housing to all eligible beneficiaries by 2022, with a focus on economically weaker sections and low-income groups.
2. Subsidies and Incentives: PMAY provides subsidies to homebuyers, making it more affordable for them to purchase homes. The Credit-Linked Subsidy Scheme (CLSS) is a component of PMAY that offers interest subsidies on home loans to economically weaker sections and low-income groups.
3. Developer Involvement: Many real estate developers are engaged in constructing affordable housing projects to cater to the demand for low-cost homes.
4. Affordable Housing Finance: Various financial institutions offer specialized home loan products for affordable housing. These loans often come with lower interest rates and flexible terms.

5. Location and Design: Affordable housing projects are often situated in suburban or developing areas to keep land and construction costs lower. The design and construction of these homes are optimized for cost-efficiency.

6. Social and Economic Impact: Affordable housing initiatives contribute to poverty reduction, improved living conditions, and the reduction of slum areas in urban centers. Access to affordable housing can significantly enhance the quality of life for low-income families.

7. Challenges: Challenges in the affordable housing sector in India include land acquisition, infrastructure development, and the need for simplified regulations and faster approvals to expedite construction.

8. Private Sector Participation: Apart from government-led initiatives, the private sector plays a crucial role in the development of affordable housing by contributing to supply and innovation in construction technologies.

Affordable housing is essential for addressing India's housing needs and ensuring that a significant portion of the population has access to safe and decent living spaces. The government, in collaboration with the private sector, continues to work on various strategies to make affordable housing more accessible to all segments of society.



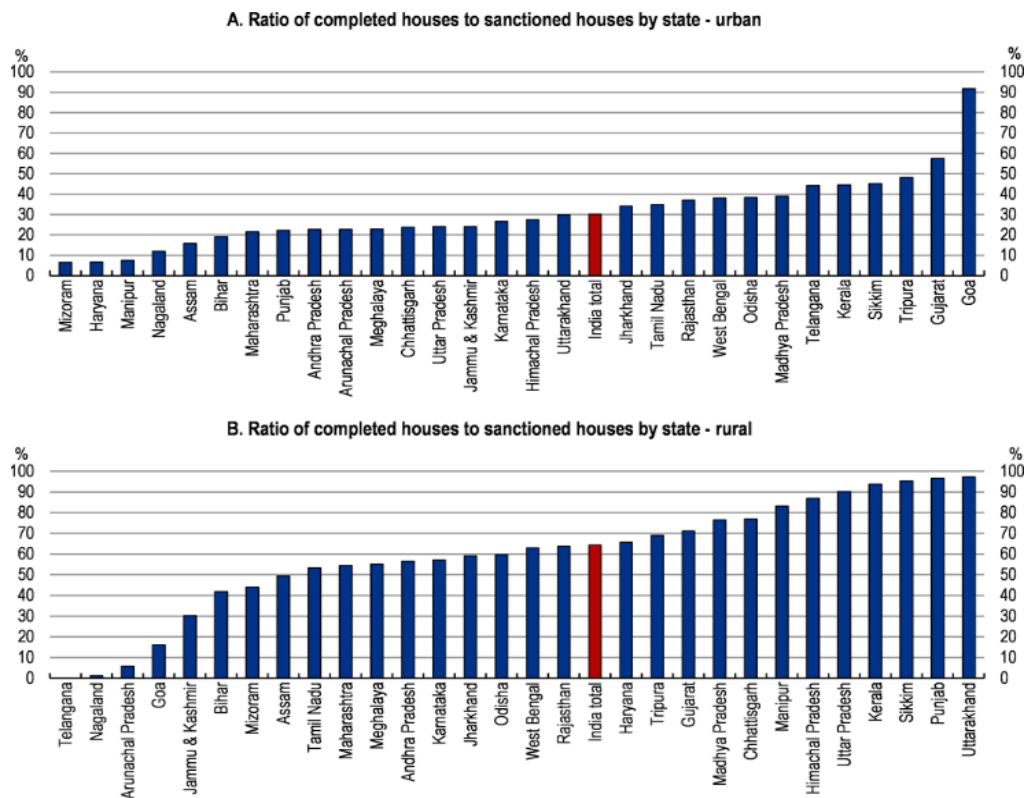


Fig. 6 State wise of Housing Completion

#### 4.6. Delivery of Services

The delivery of services in the context of urban planning refers to the provision and management of essential amenities and utilities to the residents of an urban area. These services are critical for ensuring a high quality of life, public health, and overall well-being within a city. Here are some of key services that are typically addressed in urban planning:

- Sanitation
- Drinking Water
- Electricity
- Healthcare
- Education
- Transportation
- Public Safety
- Housing
- Environmental Services

#### 5. Important Government Initiatives

India has introduced a series of pivotal government initiatives aimed at fostering smart cities, which prioritize sustainable urban development and enhance the overall urban living experience. These initiatives have been instrumental in shaping the

urban landscape and include the following key programs:

City extensions are typically pursued when urban areas experience high population density, as greater population density correlates with increased demands for urbanization. This concept underpins the initiatives of the Smart Cities Mission and its various programs.

##### 5.1 AMRUT

AMRUT stands for the Atal Mission for Rejuvenation and Urban Transformation, an initiative under the Ministry of Housing and Urban Affairs. The primary objective of this mission is to enhance urban infrastructure, focusing on essential amenities such as water supply, sewage, and more. Funding for the AMRUT Mission is a collaborative effort, with contributions coming from three key stakeholders: urban local governments, state governments, and the central government [5].

##### 5.2 Smart Cities Mission

The Smart Cities Mission is an ambitious and transformative initiative launched by the Government of India to develop and rejuvenate urban areas,



making them more sustainable, efficient, and livable. Prime Minister Narendra Modi officially launched the mission in June 2015. The Smart Cities Mission is a comprehensive program that aims to transform urban areas across India into centers of excellence, using

technology and innovation as key enablers. It seeks to address various urban challenges, enhance infrastructure, and improve the overall quality of life in Indian cities.

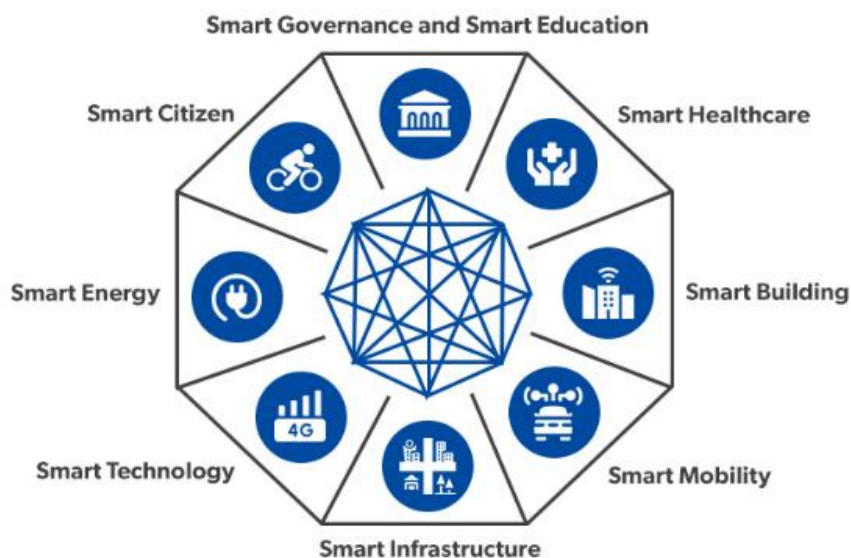


Fig 7. Initiatives in Smart City Mission

### 5.3. Digital India

The Digital India program, a flagship initiative of the Government of India [5], seeks to propel the nation towards becoming a digitally empowered society and a knowledge economy. This program is overseen by the Digital Advisory Group of India, with leadership provided by the Ministry of Communications.

### 5.4. Swachh Bharat

Swachh Bharat, also known as the Swachh Bharat Abhiyan or Clean India Mission, is a major cleanliness and sanitation campaign launched by the Indian government. The initiative was officially inaugurated on October 2, 2014, on the birth anniversary of Mahatma Gandhi, who is often regarded as the father of the Indian nation and an advocate for cleanliness and sanitation.

The primary objective of the Swachh Bharat campaign is to promote cleanliness and hygiene across India, with a particular focus on rural and urban areas. The campaign aims to eliminate open defecation, improve waste management, and ensure access to sanitation facilities for all citizens. Swachh Bharat, also known as the Swachh Bharat Abhiyan or Clean India Mission, is a major cleanliness and

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### 5.5. HRIDAY

HRIDAY stands for the National Heritage City Development and Augmentation Yojana. It is an Indian government scheme launched in January 2015 [5]. The primary objective of the HRIDAY scheme is to preserve and rejuvenate heritage cities in India by focusing on holistic development and infrastructure enhancement while preserving the cultural and historical aspects of these cities. HRIDAY stands for the National Heritage City Development and Augmentation Yojana. It is an Indian government scheme launched in January 2015. The primary objective of the HRIDAY scheme is to preserve and

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## 6. Conclusion

Complementing smart technology in highly populated urban areas requires careful planning and security to ensure its effectiveness. Developers and tech companies should consider both the capabilities of the technology and its impact on people.

1. Smart technology has the potential to significantly improve urban living, particularly in densely populated areas.
2. The deployment of smart technology should be well-planned and secure to prevent potential issues.
3. Developers need to consider how technology affects individuals and communities. The focus should be on enhancing people's lives.
4. Effective smart cities result from the collaboration of technology, city governance, and community efforts to enhance the overall quality of life.
5. The Centre for Science and Environment has provided pollution-related reports for 14 Indian Smart cities, emphasizing the importance of public transport systems in these areas.
6. India is experiencing rapid urbanization, and Indian cities are prone to natural disasters. As a result, solid urban planning is necessary for the development of Smart cities.
7. Smart cities should focus on economic development, job creation, social adaptation, and addressing the challenges posed by immigration.
8. Environmental sustainability is a crucial aspect of smart city development, and measures to combat environmental degradation should be integrated into the planning process.

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