

THE IDEA AND PRACTICES OF SMART CITIES IN INDIA

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A **SMART CITY** is an urban region that is highly advanced in terms of overall infrastructure, communication, sustainable real estate and market viability.

Today, the lifestyles are rapidly changing, the products are becoming market driven, and synthetic materials are freely entering into the value chain. These elements are flooding the markets, the households, and also the garbage bins. The society, which was once completely focussing on 3R's i.e. reuse, reduce and recycle of materials, is clueless about the usage and disposal of these new elements. Globalization and consumerism is dragging us into its whirlpool, where we are unable to efficiently adapt. We are just responding. We need to keep into account the complex nature of such transitions while we plan for our 'SMART CITIES'.

CITIES, ENERGY AND ARCHITECTURE

India is the world's fourth largest energy consumer. It is envisaged that with this pace India will take over China in next decade in terms of energy consumption. Energy efficiency measures will not hold true, if the concerns of T&D losses are not addressed on priority. As per BEE's assessment, lighting and air conditioners use 80 percent of the energy in commercial buildings where as fans and refrigerators consumes maximum energy in residential buildings. In order to manage the energy to further optimize it, we need to know the consumption of the energy at every stage. While we aspire to venture into new age of smart cities it is imperative to know, **what is the state of different resources, how and where are they sourced from? What is their availability? & many more questions.**

STATUS OF THE RESOURCES

- 1. WATER:** The demand for water has been increasing at a high pace in past few decades. The current consumption in the country is approximately 730 trillion litres with irrigation requirements accounting to 89% followed by domestic use at 7% and industrial use at 4%. Demand in country is projected to very soon overtake the availability of water. In some regions, it has already happened.

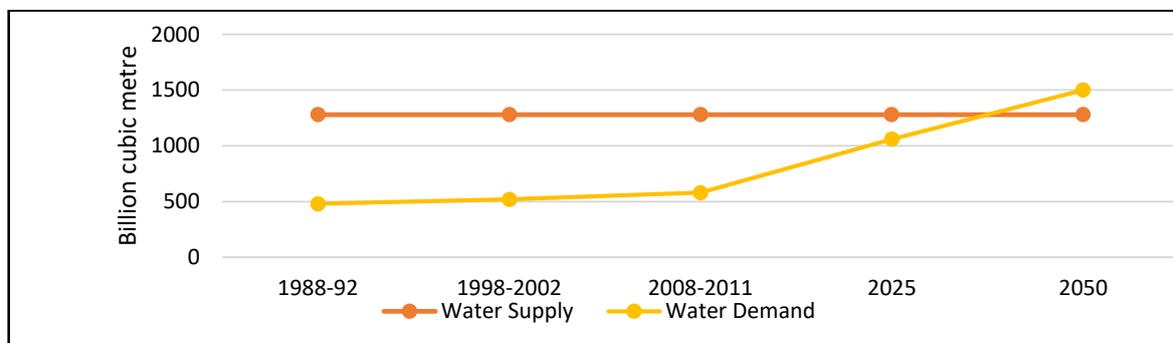


Figure 1. Future Water Scenario in India

Source: Water Sector in India: Overview & Focus Areas for the future, Pan IIT Conclave 2010, KPMG India

In the next decade the demand in water is expected to grow by 20 percent, fuelled primarily by the industrial requirement which are projected to double from 23.2 litres at present to 47 trillion litres. Domestic demand is expected to grow by 40 percent from 41 to 55 trillion litres while irrigation will require only 14 percent more ten years hence. This would mean the cities will have to look for their own fresh water resource. Water security of smart cities, would be a function of protection of the water bodies which supply water, making necessary policy arrangements and ensuring their continual safeguard.

- 2. FOOD:** The state is no different when it comes to procuring food. As per the Down to Earth Data, there are just 100 districts in the country left with more rural than urban population. They must be in all probabilities the districts, where our food s grown.

Food Items	GAP (Supply-Demand) (Unit: million metric tonnes)		
	2011	2021	2026
Rice	1.26	8.98	9.13
Wheat	21.21	27.33	32.04
Total Cereals	21.19	-2.94	-16.97
Pulses	-8.5	-24.92	-39.31
Edible Oil	-6.66	-17.68	-26.99
Sugar	-4.31	-39.67	-74.13

Table 1: Supply Demand Gap for Selected Food Items

Source: Demand Supply Trends & Projections of Food in India (Working Paper 209) ICRIER

A negative gap indicates that the demand of the commodity is more than its supply and this implies a deficit of the commodity in future. The table clearly explains that there is a dire need to strengthen the food security, sufficiency as well as sustainability in cities. A smart city is thus presumed to protect its own food systems and practices while making it efficient enough to make it available at affordable cost and consumable quality. If the agricultural lands continue to get converted for alternative uses, these areas will tend to shift farther away from cities which could mean, more inflated food prices even for basic food items. Thus, shifting or encroaching agriculture lands would mean, a district threat to food and nutrition security.

- 3. LAND:** The process of urbanization establishes some reversible and some irreversible impacts. While the reversible impacts can still be tackled, the irreversible are the ones, need to be reckoned well in advance. Urbanization with the absence of planning may result in permanent damage to the system. The agricultural land once lost for construction cannot be revived further, resulting in permanent loss of food growing area.

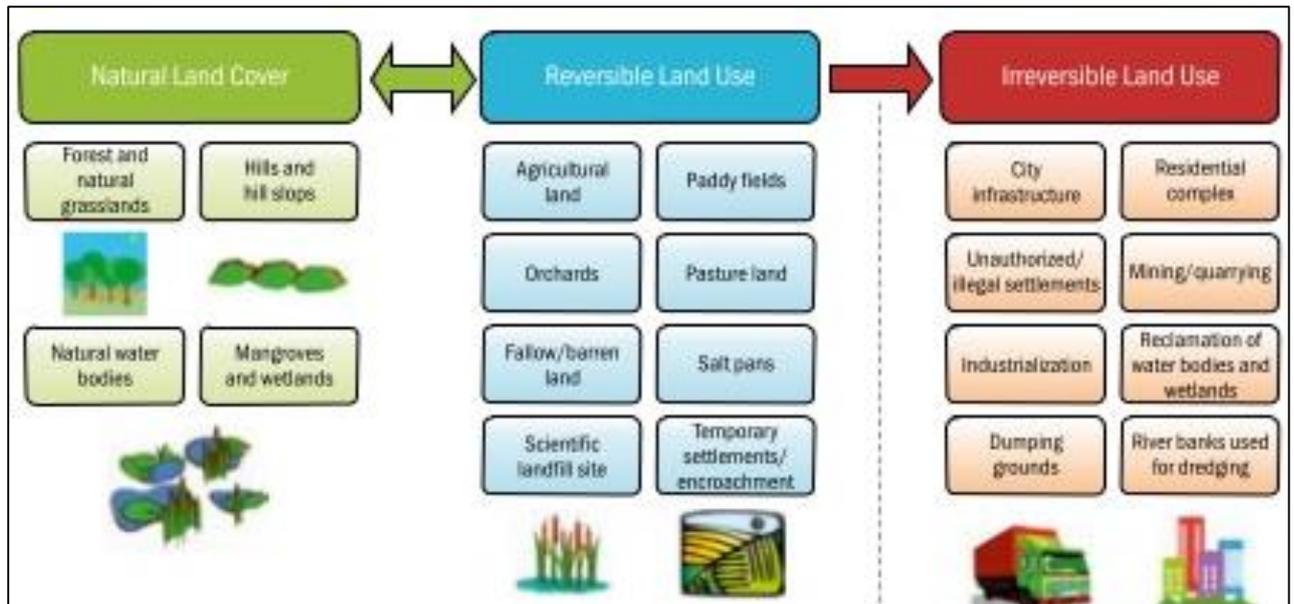


Figure 2: Unidirectional flow of change in natural land cover to land use.

4. **HOUSING** : Housing in India varies significantly and can reflect the socio economic mix of its vast population. Studies suggest that net migration share to the urban growth in the world grew from 21 percent to 24 percent in the last decade which by all means is significant. If there exists no policy to contain the population shoot which is projected to happen in certain locations, the resource management could remain a major and incremental challenge for the civic authorities.

Particulars	Urban (crore units)	Rural (crore units)	Total (crore units)
Current housing shortage	1.9	4.0	5.9
Required housing units by 2022	2.6-2.9	2.3-2.5	4.9-5.4
Total need	4.4-4.8	6.3-6.5	10.7-11.3

Table 2: Housing Requirement by 2022

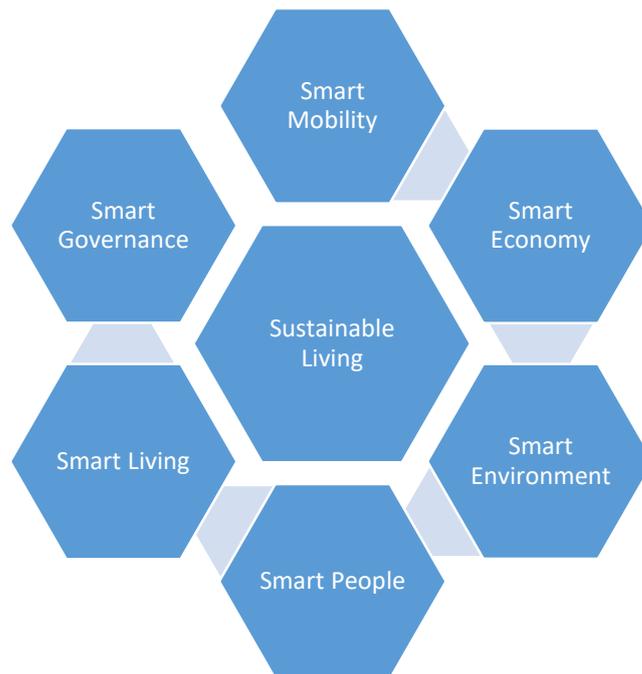
Source: Decoding Housing for all by 2022, KPMG India.

As per the above table 11 crore houses will likely be required by 2022, out of which 70 percent would be concentrated in just nine states. These states are Uttar Pradesh, Bihar, Maharashtra, West Bengal, Madhya Pradesh, Andhra Pradesh, Rajasthan, Tamil Nadu and Karnataka.

WHAT IS A SMART CITY

Smart city has a different definition in India than, say, Europe. Even in India a smart city means different things to different people and the conceptualization of a smart city varies from city to city, state to state and region to region, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents.

In approach of the Smart City Mission, the objective is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of smart solutions. The Smart city Mission of Government is bold, new initiative. The Smart City frame work comprises the following key enablers:



STRATEGY

The Strategic Components of area based development in the Smart Cities Mission are Retrofitting (City Improvement), Redevelopment (city renewal) and Greenfield development (city extension) plus a Pan-City initiative in which Smart solutions are applied covering large parts of the city.

- **Retrofitting** will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and liveable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens. Depending on the existing level of infrastructure services in the identified area and the vision of the residents, the cities will prepare a strategy to become smart. Since existing structures are largely to remain intact in this model, it is expected that more intensive infrastructure service levels and a large number of smart applications will be packed into the retrofitted smart city.

- **Redevelopment** will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens. Two examples of the redevelopment model are the Saifee Burhani Upliftment Project in Mumbai (also called the Bhendi Bazaar Project) and the redevelopment of East Kidwai Nagar in New Delhi being undertaken by the National Building Construction Corporation.
- **Greenfield** development will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation with provision for affordable housing, especially for the poor. Greenfield developments are required around cities in order to address the needs of the expanding population. One well known example is the GIFT City in Gujarat.
- **Pan-city** development envisages application of selected Smart Solutions to the existing city-wide infrastructure. Application of Smart Solutions will involve the use of technology, information and data to make infrastructure and services better. For example, applying Smart Solutions in the transport sector (intelligent traffic management system) and reducing average commute time or cost of citizens will have positive effects on productivity and quality of life of citizens. Another example can be waste water recycling and smart metering which can make a huge contribution to better water management in the city.

FEATURES

Some typical features of comprehensive development in Smart Cities are described below:

- Promoting mixed land use in area based developments – planning for ‘unplanned areas’ containing a range of compatible activities and land uses close to one another in order to make land use more efficient.
- Expand Housing opportunities for all.
- Creating walkable localities – reduce congestion, air pollution and resource depletion.
- Promoting a variety of transport options
- Making governance citizen friendly and cost effective
- Applying smart solutions to infrastructure and services in area based development in order to make them better.

THE INDIAN GOVERNMENT'S 100 SMART CITIES MISSION

The Smart Cities Mission is an innovative and new initiative by the Government of India to drive economic growth and improve the quality of life of people by enabling local development and harnessing technology as a means to create smart outcomes for citizens.

Indian government biggest mission is to roll out 100 smart cities across the country. These smart cities will leverage innovation and technology for e-governance, Digital India initiative, employment generation, as well as improving the quality of life.



Figure 3: Smart City Mission

ROAD MAP OF SELECTION



FINANCING OF SMART CITIES

The Smart City Mission will be operated as a Centrally Sponsored Scheme (CSS) and the Central Government proposes to give financial support to the Mission to the extent of Rs. 48,000 crores over five years i.e. on an average Rs. 100 crore per city per year. An equal amount, on a matching basis, will have to be contributed by the State/ULB; therefore, nearly Rupees one lakh crore of Government/ULB funds will be available for Smart Cities development.

CHALLENGES TO BE FACED

- This is the first time, a MoUD programme is using the 'Challenge' or competition method to select cities for funding and using a strategy of area-based development. This captures the spirit of 'competitive and cooperative federalism'.
- States and ULBs will play a key supportive role in the development of Smart Cities. Smart leadership and vision at this level and ability to act decisively will be important factors determining the success of the Mission.
- Understanding the concepts of retrofitting, redevelopment and green field development by the policy makers, implementers and other stakeholders at different levels will require capacity assistance.
- Major investments in time and resources will have to be made during the planning phase prior to participation in the Challenge. This is different from the conventional DPR-driven approach.
- The Smart Cities Mission requires smart people who actively participate in governance and reforms. Citizen involvement is much more than a ceremonial participation in governance. The participation of smart people will be enabled by the Special Purpose Vehicle (SPV) through increasing use of mobile-based tools.

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