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## NEW URBANISM: THE DEFINITION OF BEING SMART

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*"The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city."*

*-words by David Harvey*

**Abstract:** Remarkable changes have been witnessed since 1991 in the spirit and outline of urban growth in India. Our cities are in the middle of restructuring, in terms of both practice and physical form. This paper addresses various issues associated with the present pattern of urban development through review of urban development of some metropolitan cities of India, which have experienced the impacts of Liberalization, Privatization and Globalization. Spatial trends, prevailing zoning aspects, building bye laws (Floor Area Ratio and density) and development control regulations, urban housing and transport are considered to be the impactful factors in context of current phenomenon of urban sprawl and for the initiation of smart city concept witnessed in India. The implications of such growth patterns in Indian cities are predicted. In conclusion, the need for a sustainable urban development pattern is outlined for future metropolitan cities of India.

**Index Terms - Liberalization, Privatization, Globalization, Sustainable, Smart City.**

### I. INTRODUCTION

There are many important years and incidents associated with the history of India, but as far as the history of urban growth is concerned, the era of 90's has definitely to be marked as a "milestone".

The economic reforms of the 1990s included, significant industrial and trade liberalization, financial deregulation, improvements in supervisory and regulatory systems and policies more conducive to privatization and Foreign Direct Investment (FDI).

The emergence of the sincere involvement of computer technology and software and service outsourcing industry in India is one of the most noticeable outcomes of globalization, stimulated by the spread of modern Information Communication and Entertainment Technologies (ICETs) and the restructuring of global capitalism since the 1980s. consequential to these reforms phenomenon, key cities in India are in the midst of restructuring space, in terms of both use and form.

The Liberalization, Privatization and Globalization (LPG) policies of the government of India and upraising of FDI in real estate sector have introduced a new spark to the growth of large level classified townships diversely known as Integrated townships, NRI housings or High-Tech townships.

These kinds of townships are coming up on the peripheral areas of large cities like Delhi, Mumbai, Pune, Gurgaon, Chennai, Lucknow and Bangalore occupying areas of 100 acres and beyond.

As an evidence of fast urban growth, the numbers of million plus cities have got increased from 23 nos. in year 1991 to 35nos. in year 2001 and, thus have led the country towards the problems of unregulated development, inadequate urban infrastructure, decayed quality of livability in urban areas and uncontrolled ribbon settlements.

The lack of planning that characterizes most suburban growth has resulted in higher transportation costs with the involvement of money, time and inconvenience for suburban residents, in higher public sector costs, in undesirable land use patterns and in the inadequate supply of open spaces, recreational facilities and other amenities. Overall, the unplanned and uncontrolled rapid growth has resulted in serious negative effects on the urban dwellers and their environment.

## II. FACTORS RESULTING RAPID URBAN GROWTH

### A. CHANGING EMPLOYMENT SCENARIO:

Indian Cities are in the process of adapting new economic realities. City-level economic development is slowly shifting away from industrial activities to more sophisticated knowledge base systems. The total labor force in urban areas increased from 57.15 million in 1983 to 80.6 million in 1993–1994 and to 92.95 million in 1999–2000. The ratio of urban to rural labor productivity increased from 2.32 in 1980–1981 to 2.34 in 1993–1994 and to 2.83 in 1999–2000.

In addition, the annual growth of urban labor shows a remarkable increase from 2.26% during 1993–1994 to 8.38% during 1999–2000.

The post-1991 period is marked by a significantly slower growth of 'organized' sector employment. Compared to an average annual growth of 2.04% in the 1983–1993 periods, the employment growth since 1993 has been around 1% annually.

These statistical data show that one major factor behind increment in population of the urban agglomeration is the migration of the rural youth in the search of newer and brighter employment opportunities.

### B. DEMOGRAPHIC CHANGES:

India's total population has increased from 238.4 million in 1901 to 1028 million in 2001 whereas urban population has increased from 25.8 million in 1901 to 286.1 million in 2001 (nearly 30% of total population).

The percentage of urban population living in Class I cities (more than 100,000 populations) has increased from 65% in 1991 to 69% in 2001 (Ministry of Housing, 2007).

Strong urbanization effects are augmenting the growth potential arising from India's young, expanding population.

According to Planning Commission forecasts, the urban population is expected to rise more than 40% by 2020 (PREI, 2006). As per the survey of census, household formation is growing due to population growth and the shift from joint families to nuclear families. The average number in each household has fallen from 5.8 in 1990 to 5.3 in 2005 (PREI, 2006). A large middle class has emerged, half of whom are under 25 years.

The change in demography impacts the growth of any urban agglomeration to a greater extent. In a country like India, the diverse demands of various classes in the urban setup decide its pace of growth.

### C. URBAN REAL ESTATE GROWTH:

Globalization and consequently urbanization in India have put a remarkable impact on the growth patterns of the cities in context to their sizes, regions and sectors. The significant features of globalization and urbanization can be sensed by seeing higher growth rates and larger concentration of urban population particularly in metropolitan areas. The key urban sectors like Housing, Transport, Commercial and Information Technology Enabled Services/Business Process Outsourcing (ITES/BPO) segment are also facing the positive impact of globalization. The involvement of 100% FDI in real estate has proved to be a big boom to the industry and also attracted the private players from international platforms as well, to invest in Indian industries, in joint venture with local partners.

According to the records of Planning Commission (2007) during the period 1994–1995 to 1999–2000 the real estate services, housing and construction sector grew by 4.6%. In this, housing sector grew by 2.8% only while the construction sector grew by 6.4%.

In Lucknow, several new townships consisting of 500–1000 residential dwelling units with quality infrastructure and back-up services and office space have been developed and many more are there in pipeline, to accommodate the offices of multinationals and financial institutions. Similarly in Delhi and Bangalore, at many of such townships having more than 100's of acres has been established during the post 90's period. Specialized parks for software and technology have come up in Mumbai, Bangalore, Hyderabad, Chennai and Pune in a plenty.

### D. ECO-CITY INITIATIVES:

The idea of Eco-cities have been conceptualized to attain sustainable societies by taking into consideration, the principles of ecology as the central deriving factor for the new development as well as retrofitting of the same into existing ones.

As per the views of World Bank (2010), as Eco-city builds on the synergy and interdependence of ecological and economical sustainability, and their fundamental ability to reinforce each other in the urban context. Establishment of an ecologically sound urban ecosystem is the main aim of an Eco-city so that to minimize the negative impact of development on the natural environment.

Eco-city helps in the reduction of ecological footprint of development and achieving environmental sustainability through reduced greenhouse gas emissions, utilization of renewable energy and green transportation. In India discussions on Eco cities started in the year 2000 and by the start of year 2001, six medium and small Eco-cities were planned by the Ministry of Environment and Forest (MoEF) in association with Central Pollution Control Board (CPCB). The focus of the project is pollution control, improvement of environmental quality, protection of environmental resources like rivers and lakes, improving sanitary conditions, improving the needed infrastructure and creating aesthetic environs in the chosen towns.

### E. URBAN DEVELOPMENT POLICIES AND PROGRAMMES:

During Post-Economic reforms period, India recognized the need and importance of infrastructure facilities for better living, economic growth, and for making cities competitive in attracting national and global business and investment. Several national level programmes for urban development have been implemented in the recent past, viz., Jawaharlal Nehru National Urban Renewal Mission (JNURM), and Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT). The programmes cover all size class of cities and towns in India, and recognize that urban problems are national problems. These programmes make a beginning for a national policy for urban development for the globalizing urban India.

### F. LOSS OF AGRICULTURE LAND FOR URBAN DEVELOPMENT:

The per capita availability of arable land in India has decreased from 0.5 ha in 1950–1951 to 0.15 ha in 1999–2000 owing to population escalation and it is further expected to come down to 0.09 ha by 2031. Total cultivable land has declined to 182.57 million hectares in 2005–2006 from 185.09 million hectares in 1980–1981. The land for non-agricultural uses mainly housing,

industry and others (in short, for human settlements) has increased from 9.36 million hectares in 1951 to 22.97 million hectares in 2001, an increase of 2.5 times. It is a paradoxical situation that on the one hand more production is required from the scarce soil resources for meeting the demand of ever-expanding population and on the other hand vast areas are either going out of cultivation or showing reduction in productivity due to land degradation at an alarming rate. This factor is also paying a measurable impact on rapid urban growth.

### III. INSTIGATION OF SMART-CITY CONCEPT:

The smart city concept can be looked upon as a framework for implementing a vision of advanced and modern urbanization. This vision envisages achievement of three goals: social equitability, economic viability, and environmental sustainability.

In the recent past, India has seen a natural progression in its development story, with its villages turning into towns, and towns transforming into cities. Urbanizations challenges are propelling several cities across the globe as well as in India to explore smarter ways of management. The time has arrived for India to transform its cities into smart cities and achieve its vision of smart urbanization.

The inclination to adopt the smart city model is driven by the need to surpass the challenges posed by traditional cities. Overcoming these critical challenges in a systematic manner is crucial for cities, exploring a shift towards sustainable city development measures among all stakeholders: citizens businesses and the government. The quality of delivery from the foundational elements of traditional cities is enhanced by leveraging technology. However, merely investing in improving a city's infrastructure is not sufficient. Projects that primarily focus on expanding capacity are not necessarily the most effective way of serving community needs, and neither are they sustainable in the long-term.

For urbanization to be successful, three goals need to be achieved where the benefits have to be the following:

- Socially equitable
- Economically viable
- Environmentally sustainable

Smart cities have an integrated system for collecting, measuring, collating, broadcasting city data and making it easily accessible to stakeholders for efficient, effective development, governance and management. This model will maximize services to citizens as well as businesses for social, economic and environmental benefits. In addition, migration from rural regions will also be an impactful aspect which is not to be overlooked as it will lead to increment of population load.

### IV. SMART CITY COMPONENTS:

Smart city components can be well analyzed by categorizing it into:

#### A. Urban Components:

This component includes:

##### A.1 Smart spaces:

- Building automation
- Micro infrastructure such as sensor networks
- Urban heating and cooling systems
- Advanced HVAC and lighting equipment

##### A.2 Smart environment:

- Green buildings
- Green data centers, green by IT and green of IT
- Pollution control systems, monitoring toxic gas levels
- Meteorological station network
- Forest fire detection
- Earthquake early detection
- Noise urban maps

##### A.3 Smart Communication:

- Optical fiber connectivity
- City-wide Wi-Fi connectivity

#### B. Social Components:

This component includes:

##### B.1 Smart surveillance:

- Surveillance cameras and command centers analytics
- Situational awareness and analysis
- Simulation modeling and crime prevention
- Smart policing
- Home security systems
- Traffic violations

## B.2 Smart healthcare:

- Smart hospitals
- Improved clinical workflows
- Telemedicine
- Enhanced patient interactions
- Certified smart card readers for patient data security
- Updated healthcare information systems
- M-healthcare

## V. INITIATIVES FOR A SMART URBAN SETTING:

### A. Smart utilities:

- Objectives:

Energy management, better consumption of electricity, proper billing and revenue realization systems; energy conservation

- Benefits:

Effective usage of electricity leading energy savings, enhanced billing and revenue realization for utility departments, pollution free environment, awareness among people to save energy, energy management-transferring surplus energy to grid, etc.

### B. Smart mobility:

- Objectives:

To reduce traffic at hotspots, avoid accidents, saving time finding parking, reducing traffic for the emergencies like ambulances, etc.

- Benefits:

Effective traffic management, green city with fuel conservation and subsequent cost savings, lesser accident-prone areas.

### C. Smart Surveillance systems:

- Objectives:

Overall security of the city and protecting the city from crime and taking the appropriate proactive/ reactive action on notification

- Benefits:

Secure and safe areas, achieving zero/ less crimes, 24x7 surveillance, safe environments for city inhabitants

### D. E-governance, citizen services:

- Objectives:

Open government data available to public, city services to be delivered to be online through portals

- Benefits:

Citizen engagement and opinions on government issues, policies, etc. Delivering services to citizens online such as licensing, passports among others

### E. Smart communication:

- Objectives:

Seamless connectivity of Amsterdam through Wi-Fi and optic fiber, and then developing applications using the same

- Benefits:

Access to charge free Wi-Fi in most parts of the city, continuous networking, and data from smart sensors is also made available through Wi-Fi, municipality operations automated through Wi-Fi and optic fiber

### F. Smart spaces:

- Objectives:

Smart homes with automated controls of temperature, parking system, security, safety and house devices. Establishment of regulatory body for sustainable energy use and water utilization and conservation

- Benefits:

People living in smart and safe houses, saving energy and its proper utilization, electric energy has been transferred to grid rather than being wasted, pollution free environment

## VI. CONCLUSION:

Great progress has been made in developing the framework for reform linked investment in urban infrastructure. As per population projection in 2026, level of urbanization will be different in various states. India's future urban strategy should recognize these differences and plan accordingly. To improve urban governance and delivery of services there should be constitutional amendments as well administrative actions. Most importantly, inter-government transfers should have built-in incentives to improve performance and capacity building should be an important component of the future urban program. In addition the impact of the smart strategies should be observed carefully and particular amendments are necessary time by time to run the system in agreement to growth.

An alternative sustainable urban development pattern for future metropolitan cities of India need to be developed by combining and suitably modifying the underlying principles of various concepts of sustainable urban developments which could be summed up as given below:

- **Traditional neighborhood design** that provides more livable and walkable neighborhoods' in a more pedestrian friendly environment.
- A **mixed-use community** that encourages people to live near transit services in sufficient density to make public transport viable and attractive to decrease their dependence on driving.
- Adoption of **appropriate, innovative planning and development strategies**, and urban design techniques to make cities conserving and efficient in resource use.
- Create **economic opportunities** particularly for the people of EWS and LIG strata by facilitating and integrating informal sector activities at sector and city levels –**"Inclusive Design" or "Universal Design"**.
- Decentralize infrastructural development and maintenance functions of the city making the best possible use of resources and technology options available and involving community participation – **"Eco-Development"**.
- Design streets to accommodate variety of transport modes and activity patterns and sustainable transport management. Use of **"Traffic Calming and Sustainable Transport Management"**.
- Integrate urban and rural lifestyles into a symbiotic, inter-dependent and holistic system through "Synergic Development".

Based on the projections worked out on different attributes for a sustainable urban development outlined above, a set of detailed planning and development guidelines for new urban extensions of existing cities and new cities establishments could be evolved to make future urban development sustainable in all aspects of environment, society and economics.

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