DECIPHERING THE ROLE OF URBAN REGENERATION IN FABRICATING SMART INDIAN CITIES

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Abstract : As per the World Bank data for year 2015, 33% of Indian population lives in urban areas. Surprisingly, only 63% of this urban population has accessibility to improved sanitation facilities. By 2050, it is projected that, India will have the largest urban population in the world, of 1.6 Billion, followed by china with a population of 1.4 Billion. The adoption of mixed economy post independence resulting in development of public sector undertakings and private sector businesses played a major role in urbanization in India leading to rural urban migration. Hence to strategically accommodate and serve this increasing urban population there is a need of intelligent planning mechanism at both national and regional level which will require equal participation from all the stakeholders. An ideal city is one which has a tight knit urban structure with high density and medium rise buildings with immediate accessibility to key services to its residents via a well adopted public mobility system. The cities need to be adaptive to the changing environment quickly and intelligently and allow its built fabric to be more accommodating and flexible. The concept of smart cities first emerged during the last decade as a fusion of ideas about how information and communication technologies might improve the functioning of cities , enhancing their efficiency, improving their competitiveness and providing new ways in which problems of poverty , social deprivation and poor environment might be addressed. This paper will be discussing in detail how urban regeneration tools like Brownfield development, Infill development, and conservation of urban heritage, up- gradation and modernization of social and physical infrastructure through use of technology can help in making smart cities, with improved energy efficiency and decreasing ecological footprint.

Keywords: Urbanization ,Smart Cities, Urban Regeneration

Introduction: As per the World Bank data for year 2015, 33% of Indian population lives in urban areas and 14% in urban agglomerations of more than 1 million. Surprisingly, only 63% of this urban population has accessibility to improved sanitation facilities though 97% of the urban population has accessibility to improved water sources. By 2050, it is projected that, India will have the largest urban population in the world, of 1.6 Billion, followed by China with a population of 1.4 Billion. The adoption of mixed economy post independence resulting in development of public sector undertakings and private sector businesses played a major role in urbanization in India leading to rural urban migration. Early 90's mark the beginning of the process of globalization in India that led to the irreversible changes in the development of cities and their management. Access to television grew from 20% of urban population (1991) to 77% of the urban population in year 2011(Census 2011).As per the world bank data for 2014, 74 out of 100 people have mobile subscription and 18 out of 100 people are internet users in India. At national as well as regional level there is a need of intelligent planning mechanism which can strategically accommodate and serve this increasing urban population and such planning will require equal participation from all the stakeholders. The ideal city is one which has a tight knit urban structure with high density and medium rise buildings with key services immediately accessible to all its residents via well adopted public mobility system. This may be a single development or in case of megacities, a collection of micro cities interconnected to one another by public transportation and digital technologies Cities need to be adaptive to the changing environment quickly and intelligently and allow its built fabric to be more accommodating and flexible. It was only during the last decade that the concept of smart cities first emerged as a result of the fusion of ideas about how the functioning of cities could be improved by information and communication technologies (ICT) as well as enhancing their efficiency, improving their competitiveness and providing new ways in which problems of poverty, social deprivation and poor environment might be addressed. The 1997 World forum on smart cities suggested that around 50,000 cities and towns around the world would develop smart initiatives over the next decade. The concept of smart cities has a variety of nomenclatures, meanings, and context across the globe. There is a considerable overlap of the smart city concept with other city concepts like *intelligent city, knowledge city, sustainable city, talented city, wired city, digital city and eco –city.*

There exists a plethora of definitions of Smart cities, some focus on information and communication technology as a technology driver and enabler, while broader definition include socio-economic, governance and multi stake holder aspects such as

the use of social participation to enhance sustainability , quality of life and urban welfare. As such there is no single standardized definition of smart cities. However, irrespective of particular usage of the term, a smart city can be understood as a process or a series of steps which makes cities more livable or resilient, making them adaptive to new challenges. As per Giffinger *et al (2007),* a smart city can be defined as*, a city well performing in a forward looking way in economy, people, governance, mobility, environment and living, built on a smart combination of endowments and activities of self decisive, independent and aware citizens.* Or in the words of Natural Resource Defense Council, it can be defined as, *a city striving to make itself smarter (more efficient, sustainable, equitable and live able).*Acity connecting the physical infrastructure , the information and technology infrastructure and the social infrastructure to leverage the collective intelligence of the city can be said to be a smart city (Harrison et al , 2010) or the use of smart computing technologies to make the critical infrastructure components and services of a city – which include city administration , education , healthcare , public safety , real estate , transportation and utilities more intelligent interconnected and efficient (Washburn et al , 2010) or a smart city is characterized by vibrant economy where business wants to locate and expand (City of Edmonton , Canada, 2006).In total , it can be inferred that smart cities have been defined along six axes-

- Smart economy
- Smart mobility
- Smart environment
- Smart people
- Smart living
- Smart governance

Smart city proposal by Government of India: The idea of smart cities in India has been introduced recently in 2015, by the Government of India and there have been proposals to make 100 smart cities. As per the reference note for members of Parliament, India, **smart cities are those that are able to attract investments. Good infrastructure , simple and transparent online processes that make it easy to establish an enterprise and run it efficiently ,are important features of an investor friendly city**. By smart city the government means to enhance the use of municipal utilities and public services. It depends on computerized data and digitization allows for an efficient allocation of resources and a more equitable distribution to the city consumers. The four models as proposed by Ministry of Urban Development, Government of India for development of smart cities are (i) retrofitting (for areas more than 500 acres)to introduce planning in existing built up area to achieve smart city objectives along with increased efficiency and livability of the area (ii) redevelopment (for area of more than 50 acres) of existing built up environment and enabling co creation of new layout with enhanced infrastructure using mixed land use and redensification (iii) green field development (for vacant areas of more than 250 acres) and introduction of smart solutions in these areas , using innovative planning , plan financing and plan implementation tools (eg. Land pooling, land reconstitution) with provision of affordable housing for poor and (iv) pan city development where smart solutions to be applied on the city wide infrastructure. It emphasizes on improvement of infrastructure and service by application of technology, information and data (Smart city-Mission statement and guideline, 2015).

Most of these strategies have been borrowed from European Union's concepts and strategies for smart cities (Mapping of smart cities in the EU, 2014). Even though, the European Union strategies are successful, but they lose applicability in Indian context. The divergent history of European and Indian cities is quite remarkable and noticeable. It can be mentioned that post world war , most of the European cities went through three phases of regeneration processes i.e first, between 1950 -1970, the central parts of existing cities were completely rebuilt and remodeled after destruction during world war. Also, suburbs came into being to rehabilitate displaced inhabitants of derelict slums, near city centers. Secondly, between 1970-1990, physical regeneration of cities was undertaken to address environmental and built structure degradation post industrialization. Later on during mid 1990's it was realized, that an integrated policy was needed, focusing on physical, social and economic goals simultaneously (Christiane Droste et al , 2008).

On the contrary, prior to British invasion, most of the Indian cities were confined to walled cities or historic cores.Centres of religious activities, trade and commerce had a major impact on city organization developing a variety of morphogenesis. Later on, with British control over India, numerous internal structures of habitat zones and community areas were introduced in Indian cities, followed by an era of modernization. Post independence, new industrial centre and urban landscapes came into being, leading India towards growth and development(A.K. Dutt, 2007). Even though most of the Indian cities are turning cosmopolitan, they are very much attached and dependent on the historic cores; they cannot be detached or divorced from them.

The medieval cities in Europe evolved inevitably into industrial and post industrial cities, which symbolizes their civilization: urban, capitalistic and technology dependent, whereas Indian cities roots with local

culture with indigenous patterns of urban development. (AG Krishna Menon, 1999).

Moreover, there is vast economical difference in Indian and European societies. In European Union 16.4% of the total population is considered to be poor whereas in India 21.92% of the total population lives below poverty line. Which means almost 35% of the urban population in India is deprived of basic human necessities (Urban socio economic and caste census, 2011).

In this paper, the definition proposed by Government of India for smart cities is discussed and its shortcomings with respect to Indian society and its functioning has been tried to be identified. In the present scenario "The urban migrant, seeking city employment is marginalized in ways that go much beyond just needing improved transport, roads or utilities, without any cultural affinity to the place; he is a rudderless atom with a little or no attachment"(Gautam Bhatia,The Hindu,2015) .As stated by Kevin Lynch (Good city form,1981)the degree of good city performance is determined by its ability of providing biological , psychological , social and cultural requirements to its inhabitants.

A smart city in India should aim to involve majority of the population catering to their daily needs and activities. Smart cities must start with people and human capital side of the equation, rather than blindly believing that information and technology (IT) itself can automatically transform and improve cities(Hollands,2008). The concept of smart cities should indeed consider the human and social aspect of the city. Spiro Kostof has rightly articulated the condition of a city as a place that allowed energized crowding , innovation and specialization and is characterized by a boundary (physical or non-physical) leadership and bureaucracy of some sort .Lewis Mumford in his book" What is a city" defines city as a theatre of social action and everything else – arts , politics , education, commerce- only serves to make the social drama more richly significant, as a stage set , well designed , intensifies and underlines the gestures of the actors and the actions of the play. Louis Wirth defined cities as a relatively large, dense and permanent settlement of socially heterogeneous individuals.***A smart city is livable, sustainable and resilient, designed as a collaborative work of government and people, for the people and catering the needs of society, where technology acts as a catalyst*.**

Role of Urban Regeneration: Citizens have an emotional, physical and even economic attachment to urban heritage. Preservation of historic buildings, monuments, conservation areas and other heritage sites is important for preserving traditional and cultural value of the society. Most of the times, ignorant urban development's and lack of conservation strategies are the main threats to historic buildings and sites. It is important to educate and engage important stakeholders in the regeneration process. Various tools of regeneration can be implemented for making smart sustainable Indian cities.

Conservative surgery means amending and improving an urban quarter by minimizing the destruction of existing building, let alone the demolition of whole areas, for the sake of new houses and structures. Conservative surgery is concerned with maintaining the historic urban quarters. Geddes states that this approach is less expensive than the standard solution (Volker m. Welter et al, 2002). Also, this method prevents social upheaval along with taking genius loci into account .As per Patrick Geddes, for Indian cities this genius loci comprises of ties of antiquity, family, faith, caste and occupation along with the tradition of collective action among the inhabitants of a distinct urban quarter."Geddes emphasizes on the use of historic buildings to keep them alive and to guarantee the city's functioning as the organ for transmitting the cultural and social heritage. For individual historic building, he suggests a pragmatic approach i.e. after conducting diagnostic survey of the issues of an area, whatever is possible to keep should be kept and whatever obstructs the regeneration process or is a threat to its surrounding should be removed. Despite the age, style or period, each old building has a potential historic value that makes it worthy of consideration. This method can be applied to the historic cores of most of the Indian cities, as unplanned growth and over load on social and physical infrastructure is leading to dilapidation of these areas.

Another significant model i.e. the *triple helix model* for smart cities has been proposed by Mark Deakin in his book on smart cities. This model studies networks of university-industry –government relation and offers a neo evolutionary model of a knowledge based economy. It proposes the three vital functions that shape the environment of a knowledge based economy.(i) Organized knowledge production (ii) Intellectual capital of economic wealth creation and (iii)reflexive control. The triple helix model , though was initiated in 1990 by Etzkowitz , however a significant body of triple helix theoretical and empirical research has grown significantly over last two decades that provides a general framework for exploring complex innovation dynamics for informing national, regional and international innovation and development policy making. In Indian context , it is important to channelize the knowledge production in universities to industries and government so as to achieve a holistic development of Indian cities.

The contribution of every urban area on regional level and its potential, needs to be identified so as to improve the quality of life and activity of its residents. These potential can be in terms of physical, economic or human resource (Peter Roberts and Hugh Skyes,2000).

Further *Adaptive reuse*, as defined by Jeffrey Morgan ,which is much more than saving a particular building as an artifact or a set piece. It is about celebrating cultural heritage and creating the environment for a successful and vibrant neighborhood economy .Urban recycling, which involves all possible physical, spiritual and cultural or other transformation aimed at improving the global level of urban culture. It can be employed for regeneration of desired city areas for a proper coordination with other parts of the city.

Also *brown field development*, conservation of urban heritage, up gradation and modernization of social and physical infrastructures using technology can help in developing smart cities with improved energy efficiency and decreased ecological foot print.

Cities can be made smart not only in terms of automated routine functions serving individuals persons, buildings, traffic system but in ways which enable us to monitor, understand, analyze and plan the city to improve the efficiency, equity and quality of life for its citizens. For any successful community, enterprise or venture, the critical factor determining its success is its people and their interaction with each other. The most important thing about information technology is its ability to make communication a part of social, environment and cultural development. Deployment of these technologies empowers and educate and allow people to become member of society capable of engaging in debate about environment.

India is a land of diversity, with diverse language, culture, cuisine and social structure. Every region has its own culture and tradition. This variety and diversity is clearly visible in historic and organic cities. Even though most of the new cities are being planned on modernist urban planning concepts, the social and cultural structure of Indian societies is always evident in places of religious and social importance. Religion, culture and tradition play an important part in defining the city's structure. Every city has its specific needs and demands considering the social and economic condition of its people.

Conclusion: Urbanization is an inevitable process, and its pace of growth need to be in consortium with increase in physical and social infrastructure. The backlogs are the reason generating imbalances in the city. Moreover, urban sprawls need to be checked by implementing stringent rules and regulations at policy level. Participation and collaboration of government and people's group are important for success of any project. A city that responds to the needs of its people sustainably and resiliently and vice versa is important components of a smart city. Information and communication technology plays an important role in achieving this goal. Every city has its own needs, for some economic regeneration is needed for others physical and environmental regeneration is required or social and community regeneration is needed, depending on the social, environmental and economic condition of the city. It is not possible to generalize the solutions for a smart city in India, every city needs individual solution for its issues.

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