

# Urban Design Inclusive: A Comprehensive Notion on Indian Cities

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**Abstract**— 2018 is the year in which we see widespread and large-scale investments in future city technology infrastructures that enable sustainable, equitably distributed economic and social growth. The truth is that we are still in the very early stages of that process. The concept of Smart Cities is currently gaining high popularity among academicians, researchers of various disciplines. City authorities around the world, attracting leading companies to collaborate with government bodies as it is now moving from pilot projects and towards creating high business value. There are already several attempts to develop a Smart City Model, which can ensure the optimum utilization of existing resources in cities of all size.

First of all, through the existing literature, it has to be defined what is meant by the term smart city and if it is so easy to talk globally about this phenomena. There is a huge difference between European, American and cities in developing countries.

We are all aware that the government of India envisioned the concept of building 100 smart new cities in the country. The idea is to create those smart cities that will have better facilities, better connected and better environment. The smart city concept includes power energy, transport, technology, green building, and network and communication technologies. The aim of this research is to understand how the smart city model can be implemented in the Indian urban scenario. India's population is increasing rapidly and more and more people are immigrating to cities because of better job opportunities etc.

Are smart cities for smart people? What about the poorest unlettered? Too much technology will cut working spaces for the lower castes of society. The idea is to investigate the smart city phenomena and see if it is a good solution for the Indian urban scenario.

**Index Terms**— Smart, Technologies, Competitiveness, Capital, Sustainability, Infrastructures, Developing countries;

## 1 INTRODUCTION: THE PRESENT INDIAN URBAN SCENARIO

Urbanization is always related to economic development. Countries are moving from primarily agrarian economies to industrial and service sectors and in the consequences, they urbanize. People basically migrate to cities because of better employment offers and a higher quality of life. 90% of the world's urban population growth will take place in developing countries and India, in fact, is one of them playing an enormous and significant role.

It is a fact that India will need about 500 new cities to accommodate the rapidly increasing population into the cities. It is suggested to read the special articles written by Atul Kohli where he explains in detail the politics of Economic growth in India from the beginning of 1980's to 2005. These articles' gives everyone who might be not so familiar with the phenomena of the Indian economic boom and in consequences to the movement from rural areas to metropolitan cities like

Mumbai, Kolkata, and New Delhi etc. in the last quarter of a century. Urban areas contribute a higher share of the GDP and the share of it has been growing from 1970's to 2015 from 37.7 to approximately 70%. That's the reason that cities are referred to as the "engines of economic growth".

At the moment India has an urban population of 31% of the total population of India. The country seems to be at a point of transition where the pace of urbanization will speed up. Very interesting is the statement of one journalist Amitabh Kant (in Mail Online India, 2013):

*"The future of India's growth process lies in its cities. Recent studies have projected that India will face an unprecedented scale of urbanization - 350 million Indians will move to cities by 2030. This number is likely to double to 700 million by 2050 which is 2.5 times the size of the USA's*

*present population and will be the largest urban movement in the world. This implies that every minute during the next 20 years, 30 Indians will leave rural India to settle in urban areas."*

That is the reason that India needs to plan their urban areas very well and as soon as possible implementing urbanization strategies by taking advantage of the latest developments and technologies. We also know that India is also famous for their high IT capacities all around the country so it is possible to think that cities can develop very fast implementing IT technologies.

The Indian Government has decided on this occasion to develop the idea of the "100 smart cities" in the country. The Finance Minister stated in his budget speech of July 2014:

*"As the fruits of development reach an increasingly large number of people, the pace of migration from the rural areas to the cities is increasing. A neo middle class is emerging which has the aspiration of better living standards. Unless, new cities would soon accommodate the burgeoning number of people, the existing cities would soon become unliveable. **The Prime Minister has a vision of developing 'one hundred Smart Cities', as satellite towns of larger cities and by modernizing the existing mid-sized cities.**"*

India can still choose the path and it should be in the direction of environmental sustainability and green city concept with energy saving components. Wikipedia. (2011)

The present situation of Indian cities is the traffic congestion, the very critical stage of bad air quality due to environmental pollution, increasing incidence of road accidents and rapidly increasing energy bills. Cycling and walking on Indian roads is still a life risk and public transport is inadequate. There are many attempts to change those problems in the Indian cities and they are studying several strategies and better solutions which are already practicing. Many cities in India have already shown improvement in public transport by introducing Metro Rail, BRT, Monorail and Trams etc.

There are visible improvements in infrastructure like ring roads, bypasses, underpasses, elevated roads, and existing road ways overall in India. The water and electricity supply has to be improved and they are very necessary for a developed city. Indian streets are full of garbage; nobody cares about the general appearance of the city that it has to be pleasing and clean. Bhagwat, Bhalla, Prakash, Bhalla. (2014)

## 2 DEFINITION OF SMART CITY

First of all there is to understand that if we talk about smart cities there is not only one definition, and it has to be always related to the context which means that obviously there is a difference in between the urban stage and development all over the world. This following list has been taken from different resources and presented here to get an overview of the smart city phenomena and his complexity.

### 2.1 Inventory Definitions of Smart Cities:

- 1) The UK Department for Business, Innovation and Skills considers smart cities a process rather than as a static outcome, in which increased citizen engagement, hard infrastructure, social capital and digital technologies make cities more livable, resilient and better able to respond to challenges. Government UK. (2013)
- 2) The British Standards Institute defines it as "the effective integration of physical, digital and human systems in the built environment to deliver sustainable, prosperous and inclusive future of its citizens". BSI. (2014)
- 3) Wikipedia defines a city as a Smart city when investments in human and social capital and traditional (Transport) and Modern (ICT) communications infrastructure, fuel sustainable economic development and a high quality of life with a wise management of natural resources through participatory action and engagement. Caragliu, A.; Del Bo, C.; Nijkamp, P. (2009).
- 4) IBM defines a smart city as "one that makes optimal use of all the interconnected information available today to better understand and control its operations and optimize the use of limited resources". IBM. (2015)
- 5) CISCO defines a smart city as those who adopt scalable solutions that take advantage of information and communications technology (ICT) its increase efficiencies, reduce costs and enhance the quality of life". CISCO. (2014)
- 6) Smart City designates a city in which systematic information and used communication

technologies and resource-saving technologies in order to follow the path towards a post-fossil fuel society, to reduce consumption of resources, the quality of life of citizens and to increase the competitiveness of the economy permanently – thus to improve the sustainability of the city. In this case, at least the energy, mobility, urban planning, and governance considered. The principal characteristics of Smart City are the integration and networking of these areas, the so- recoverable environmental and social improvement to realize. Essential factors are a comprehensive integration of social aspects of urban society and a participatory access. TU BERLIN. (2013)

history that different settlements and cities were founded all over the globe in a certain period related to a particular civilization with climatic and geographical differences and social and political differences. Cities in deed are very complex and in reality, it might be easy to talk to design New Towns or Smart Cities but in reality, the idea is to improve existing towns and cities and make them more livable. So if we talk about smart cities we have to differentiate from European, North American or Asian/Pacific Cities (China, Australia, New Zealand etc.), because there is a huge difference of development.

When we talk about smart cities in Europe, we will immediately relate to Vienna, Stockholm, Barcelona, Amsterdam, and Copenhagen. There is a recent upcoming research on smart cities started by TU Berlin, which should be absolutely considered and well studied to get closer o the chosen topic.

In North America, on a ranking list of 2012, we can find Seattle, Boston, San Francisco, D. C., New York, Toronto, Montreal, Portland, Oregon, Chicago etc.

China's cities are growing at an unprecedented pace stressing their infrastructure and creating significant congestion and air contamination challenges. This has led the national government to support the creation of dozens of new purpose-built smart cities, 100 of which will have over 1 million people in a decade or so, the same phenomena we can see happening similarly in a future India. Seoul, Perth, Melbourne, Sydney, Auckland, Tokyo, Hong Kong, Osaka, Kobe are examples of the Asian/Pacific smart cities. All of these cities are placed in different continents rooted with different societies and needs, but all of them have something in common, and this is what we have to find out to find our personal definition of a smart city. It is a very theoretical approach which is not really practical and applicable in the real urban sprawl and the present scenario of every urban context over the globe.

#### 4.0 How the Smart city model can be implemented into the Indian Urban Scenario.

The fundamentals of a smart city are basically composed by the Institutional Infrastructure, Physical Infrastructure, Social and Economic Infrastructure. The most important focus of attention in a city are the citi-



Figure1.0, Smart cities scheme by Boyd Cohen

### 3.0 The Origin of a smart city

The concept of smart cities originated at the time when the entire world was facing one of the worst economic crises. In 2008, IBM began work on a 'smarter cities' concept as part of its Smarter Planet initiative. By the beginning of 2009, the concept had captivated the imagination of various nations across the globe.

### 3.1 Smart Cities World Wide

The phenomena of town planning have thought us in

zens and like everywhere in the world the current Indian governance structures do not have adequate people participation. People do not get much power in deciding what is happening to their city. A smart city should ensure the best possible service to the entire people, regardless of social status, age, income levels, gender, etc. What basically needs to be improved into a city is, for example, to have the municipal office fully automated so that the daily affairs and important services can be delivered in a short time and for this IT based facility can be used. Another very important aspect is the residential areas. The most liveable conditions should be created for everyone, including affordable housing, cost efficient physical infrastructure like water, sanitation and electric supply. A city should provide pollution free air, a high level of education and health care, security, entertainment, sports, robust and high-speed connectivity, very fast and good transportation. Proposed smart cities in India are located in the Delhi-Mumbai Industrial Corridor (DMIC). The upcoming project is of seven cities around that corridor comprising six Indian states using Japanese help. The very first example is Dholera, 110 km distanced from Ahmadabad in Gujarat. Other examples are the Smart City Kochi (SCK), Haldia project in West Bengal, the Gujarat International Finance Tech City etc. AGENTsChAP NL Ministerie van economische Zaken. (2014).

Raising questions are what are the challenges in planning new smart cities in India? What are the challenges in converting present urban areas/ satellite towns to new smart cities in India? What should be the model of planning and execution of new smart cities and converting urban areas to smart cities in India?

Indian consultants, urban planner, and developers are busy with gaining inputs to know how these futuristic Indian smart cities can be like. As usual, India is taking help from other nations, this is positive until they only take a vision to create their own base. All will obviously depend on the Indian government and the people of the country. The aim is to design smarter cities and it is absolutely a political issue to get India higher and to put it into a level of economic competition. In the Indian urban context, we should start to find solutions to plan and convert present urban areas and not to stick too much to the term "smart". One important challenge will be to start programs to brief

citizens how to improve their attitude towards their life, health, and intellectual status and how they should treat their city. This is not a new phenomenon; it has been already introduced in India with the planning of New towns or Satellite Towns in India. The planning process is always a challenge whether it is a new city we are planning or we are converting present urban areas etc.

Interesting is that the upcoming city projects are not government sponsored but privately owned. We can notice that the ownership structure of these new "charter cities", defined by Stanford, are already a great challenge of a definition of a city, and a public sector. One of the major challenges is the land acquisition issue, Indian villagers might not be agreed or want to benefit directly from it. Being aware that the planning sector in India is a very fragile field and analyzing many different attempts to advance the challenges should be dealt with the holistic way and absolutely in the direction of sustainability and should be solved by who can manage and promote them. Another major challenge is that it will be an interdisciplinary research and working field, where India definitely can gain a lot. The Execution of new smart cities and converting urban areas to smart cities in India is a bigger headache which has to be structured properly. Governance smart cells, consisting of an interdisciplinary team have to be set up to coordinate the upcoming projects.

## 5.0 Conclusion:

Many of these cities will include special investment regions or special economic zones with modified regulations and tax structures to make it attractive for foreign investment. This is essential because much of the funding for these projects will have to come from private developers and from abroad. The aim is basically to modernize cities and make them internationally competitive, that's why the Indian government has proposed the development of 100 smart cities in India. This is wonderful and nothing can be criticized about that. The problem in India is that first of all we are talking about creating satellite cities that will be created close to the already existing cities. With the over flux of people moving to the bigger cities we will not have enough space to host the huge amount of people moving to the cities.



Firstly, there are already many satellite cities in the Indian urban context; usually, they are located in a very far circle difference around the mother city. For example, around Chandigarh, we have Mohali and Panchkula. Are these satellite towns considered smart cities? If not, why not? It is not clear at all what should be practiced talking a definition of an Indian smart city. Secondly, is a smart city designed to improve the quality of life for every citizen or is it to create more and more disorder in between the Indian society and his cities? Are we blind and have we seriously forgotten that India is suffering from a high poverty- and a low literacy rate of people in the country. The caste system is still very dominating in the daily life. The lower class people have still less education and they are doing less qualified jobs. If we create a total automatically organized city with all IT facilities and high take don't we risk destroying lives and the employments of people from lower castes and income groups. If we analyze European examples of smart cities we talk about cities with their historical origins and natural growth, etc. Only in the last decade, they started to improve those cities according to their needs. It is not to forget that India has a strong identity and this should be considered in designing new smarter cities. India is a very multi cultural and ethnic sub continent with differences within regions and cities. It is developing very fast. Positive vibes and challenges are there in the great cities and government and his citizens are trying to improve their image day by day. But in my opinion, we should solve first of all the problems of the existing cities and create satellite towns for everyone. There is a huge risk to design ghost cities like in China or to design only for the middle upper and higher class of India. The concept to have a green and pollution free city should be the aim of the entire world. People should be able to use bicycles, walkways or public transportation. They will keep physically fit, etc. Free internet connection 24 hours to 7 is very important and indispensable today. Working places should be not too far from residences or at least well connected. Municipal services and timings should be improved for every citizen. Water and electricity supply 24 hours will be a great achievement in the Indian households. But what about the garbage on the streets do we invent robots to collect it? The rising population of India and the lack of organization of the government institutions are the obstacles to the

improvement of the cities. One major focus is to make the governance structure smarter. And if the argument is that Indians are brilliant IT geniuses all known over the globe I agree with it, they can perfectly study how to make a city smarter using the new technologies, etc. But we should not forget the "Indian Identity" in all these future cities. Without any doubt, the 21st century will be known as the century of the cities. Cities are made of his citizens and there should be a difference in between Europeans, Americans, and Asians etc. Globalization is great but also risky. This is a small attempt to understand the actual Indian urban context, to define the term smart city and define it within the Indian phenomena of future cities. This point of view is a result of years of studies on the field. Visiting, observing and analyzing critically European and Indian cities.

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