

The need for Indian cities to adopt a more sustainable urban development approach

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I. INTRODUCTION

Urbanization continues to increase steadily across the globe and the numbers and sizes of urban areas and cities are also growing rapidly, especially in developing countries like India. Recent UN reports have indicated that China, India and Nigeria among a few other developing countries will account for the largest growth in urban population over the next few decades. Factors like climate change, globalization and demographic change will also shape the future of cities. The city of Bangalore for instance has seen unprecedented growth and expansion over the past few decades due to some of these factors. While urbanization and development of cities is generally good for a city, the people that inhabit the city and the country by and large from an economic perspective, the uncontrolled and rapid growth in the city of Bangalore seems to be causing the former garden city of India more harm than good from an ecological perspective. India's premier science institute the Indian Institute of Science (IISc) Bangalore conducted an environmental study which has indicated that the city of Bangalore will be uninhabitable in the next few years if it continues to urbanize at the same rate. This seems to be the situation in many of the large metropolitan cities in India as there aren't many new cities being formed and hence the growth has been limited to the existing few key cities of the country.

II. THE CURRENT URBAN SITUATION IN INDIA

Quite recently during the extended monsoon season (mid-August 2018) many districts in the state of Kerala in southern India have borne the brunt of nature's fury through floods caused by incessant rains that has literally left the city in shambles impacting its resources and infrastructure and leaving thousands of people homeless. The district of Kodagu (or Coorg as its popularly known) in another southern Indian state of Karnataka has also faced a similar fate. Experts have pointed out that some of this destruction was man made and could have been avoided if the environmental report and suggestions submitted way back in 2011 by noted scientist and environmentalist Prof. Madhav Gadgil was diligently considered. The Prof. Madhav Gadgil led committee had suggested for the preservation of the Western Ghats as there were several industrial and mining works that were happening around the region in the name of development. The committee had called for the ban of mining and the stoppage of the other developmental work in the area to not cause further damage to the ecosystem. There was also a recommendation by the committee to declare the Western Ghats as ecologically sensitive in nature. The report was not welcomed by any of the states which were impacted. The impact of not adhering to the report can be seen by the devastation that it has subsequently caused. Hopefully it has been a lesson learnt the hard way and there will be action taken in the right direction now.

With the need to improve the quality of life and economic competitiveness, cities must become more resource-efficient and environmentally friendly if they need to effectively support the large population that is pouring into them. Modern cities will be expected to play a vital role in finding new ways to protect the environment while also catering to the growth and developmental needs of the city. Most western cities having gone through this process of urbanization and development have now started becoming more conscious of the need to become more sustainable. Indian cities on the other hand are relatively new and largely in the growth stage. They are therefore not focusing on or not cognizant of the impact of rapid development on the city's natural resources and biodiversity. Moreover, the change in most of the western cities due to urbanization has occurred over a period of more than 200 years, while the change that is occurring in some of the Indian cities has occurred in the last 50 years or lesser which is causing immense stress on the city's infrastructure and natural resources.

While we continue to witness the transformation of Indian cities, some immediate and pertinent questions that come to our mind in this context are:

- How can Indian cities become more livable?
- How do we balance quality of life for the inhabitants with the needs of the city?
- How do we sustain cities to combat climate change?
- How do we ensure economic competitiveness while preserving natural resources?
- Is it possible to ensure environment friendly development?

These very pertinent questions reinforce the importance and relevance of urban sustainability. Urban planners and implementers should make sure they are answering and addressing these questions as they take up urban development projects.

The concept of 'sustainable development' is defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. A sustainable city or an eco-city as it is also referred to, is a city designed with consideration of the environment. An eco-city is said to be inhabited by people who are aware and dedicated to minimization of required inputs of energy, water and food, and waste output of heat, air pollution and water pollution. Now wouldn't that be an ideal city to live in? While that remains an aspiration, let's now examine the key aspects that need to be considered on how cities could become more sustainable and livable and make comparisons to the existing situation in Indian cities today.

2.1 Protecting the environment and the associated biodiversity

The variety of all living organisms, is crucial for reducing climate pollution and dealing as well as adapting to the effects of climate change. One of the effects of not protecting biodiversity is global warming itself. That makes biodiversity an important measure of sustainable development. So how do we do it? Since consumption of resources is said to be the root cause of biodiversity loss, we can consume less and be more mindful about what we consume. We need to leverage our purchasing power to help protect biodiversity by consuming products that do not harm the environment. The other way of protecting biodiversity is by preserving land and ensuring that the urban sprawl and the needs of a growing city is not allowed to gobble up land meant for biodiversity to flourish.

If you now examine the environmental impact in cities in India due to urbanization and growth over the last few decades it is quite disturbing. Taking Bangalore as an example an article by the 'Research Matters' website in September 2017 shared how the built up or paved surfaces have increased by over a 100% in the last 40 years. The green cover which has made way for this has reduced to 25% in 2012 from 68% in 1973. Bangalore which had numerous water bodies is now reduced to an area of 1% from an earlier share of 3.4%. The article was based on a study that was done by IIT Kharagpur and IISc Bangalore. This startling observation points to the fact that if this trend continues Bangalore will be left with only 3% of its green cover. While growth and development is necessary in cities, to meet the growing needs of today's urban cities with large populations, there needs to be additional ways and means of food generation in a sustainable manner. Food needs be raised in the city in areas that could serve as community gardens, apartment rooftops and in solar greenhouses with care of not disturbing the ecology. Apart from a few cases of the use of vertical gardens in an urban setup across a few cities which however is more for decorative purposes, the urban green revolution is yet to find takers in India.

2.2 Ecofriendly transportation

Transportation is an important and necessity aspect of any city. Typically, a sustainable city should have multiple means of ecofriendly transportation allowing people to choose their ideal mode of transport which is convenient for users and environment friendly. It could be walking, cycling or mass transit for most transportation needs. The city infrastructure on the other hand should provide for these various means of transportation by having dedicated walking and cycling tracks, metro and suburban railway lines accessing key parts of the city and an integration of other transportation systems with the main and preferred means of transportation.

Most Indian cities have multiple modes of transport. However, with a growing and aspirational middle class Indian cities are seeing a surge in the number of personal vehicles. While the sale of vehicles and the tax collected through the sale of vehicles may be good for the economy, the additional of such a huge number of vehicles could end up contributing to the noise and pollution apart from crowding city streets which is not doing any good to the environment. Given the needs and wants of the urban population Indian cities started developing

infrastructure to suit personal vehicles and not other sustainable options suitable for non-motorable vehicles and hence you don't see policies or the infrastructure to support sustainable modes of transport. Hopefully we would see that changing with the new smart city initiatives of the current Indian government.

2.3 Waste management

Most global cities have been growing exponentially and over the next 20 years their population is expected to increase more than two-fold. It is estimated that the waste produced by the world will touch 27 billion tonnes per year by 2050. A third of this is expected to come from India and China alone. Ongoing growth means huge challenges and immense stress on the existing waste management infrastructure as most landfills will not be able to manage the colossal waste that a city produces. That makes waste management an important aspect of sustainable cities. What we need is a socially acceptable, financially viable and environmentally sound waste management planning for a city's long term sustainable growth. A city needs to recycle or reuse most of its waste and it needs to have the necessary infrastructure and more importantly the mind set to do it. An important first step in this process is the segregation of the waste into dry and wet waste. Dry waste is a more complicated problem to solve considering we need to be able to sort and recycle them and an appropriate system and setup of recycling units would be necessary. The wet waste which is derived from the urban waste that cities produce can be converted to bio waste that would be a natural and safe fertilizer that does not harm the environment and can be reused in various urban green cover development initiatives.

Many Indian cities, especially the larger metropolitan cities have directed citizens to segregate the waste into dry and wet waste which is a great first step in the process. However, waste collection, storage and transportation for the solid waste portion is a bigger challenge in Indian cities. Since there aren't too many waste recycling plants in Indian cities majority of the waste is dumped in landfills which is not only harmful to the land it is dumped at but it also impacts the surrounding environment which in turn impacts people dwelling near the landfills. From a social, moral and business perspective Indian governments (both central and state) need to address the waste management challenges of cities on priority. Considering the amount of waste that Indian cities produce and the cost that is involved in the collection, storage and transportation of waste (it ranges anywhere from Rs. 500 to Rs. 1000 per tonne) it also serves as an opportunity that is waiting to be cashed in on.

The concept of sustainable or eco-cities has been around for a while now. And there are quite a few good examples of eco-cities all over the world: Waitakere City in New Zealand, Leicester in England, Portland in Oregon, and Chattanooga in Tennessee just to name a few. Talking a little about the city of Chattanooga in the state of Tennessee, it is one of United States of America's most sustainable and livable cities. In the 1950s, Chattanooga was an industrial wasteland with highly polluted air and toxic water. With determination and efforts local officials and citizens combined to transform Chattanooga into a beautiful city with zero-emission industry, zero-emission electric buses, well connected bus services, extensive recycling programs and various tourist attractions.

III. CONCLUSION

It would be premature to speculate on the success or failure of sustainable cities, as most projects across the world are still being planned or being implemented. The development of the necessary infrastructure and expertise, policy support and the availability of affordable technology will also take time. The terms eco-cities and sustainable cities have entered the researchers and policymakers' dictionary at different points in recent times but now they are both firmly embedded in the urban environmental sustainability agenda, more recently in the context of climate change. In India, too we have many governmental and non-governmental agencies now working on the topic of sustainability from an urban perspective. In practice, however the term eco-cities may be used to describe new cities rather than modification of existing cities considering that making radical changes to existing city with a huge living population may be a different problem to deal with.

Finally, the greatest challenge when developing eco-cities and sustainable cities will be public acceptance, as the concepts mandate radical changes in their established views, lifestyles and patterns. Two factors will be integral to assure their popularity and subsequent implementation. First, the advantages of creating eco-cities and making existing cities sustainable will need to be communicated in a clear and convincing manner. Second, and perhaps more critically, policy makers will need to work on encouraging public acceptance and ownership of these ideas. Citizens of cities need to be educated on sustainability and prodded to adopt a more sustainable lifestyle ensuring minimal consumption and waste to help achieve an overall goal of making cities sustainable and preserving our natural resources. This is more relevant and necessary now during the large-scale urbanization of Indian cities to help preserve our natural resources and create a healthy livable environment for the inhabitants. Hopefully sustainable urban development does not

remain as a theoretical reference made in urban planning recommendations in India and sees the light of the day through initiatives, thoughtful planning and meticulous implementation.

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