

Perspective on Emerging Trend: The Role of Professionals in Building Urban Environment

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Abstract: *The paper addresses the trend of urban issues and reasons behind it. It also concludes with the discussion of role of professional in building the physical and natural environment of cities. The population explosion has boosted the development in urban areas. As per 2011 census projection, around 50% of the population is estimated to be living in the cities. Humans have three basic needs, out of which architects and planners contribute their service in building shelters and providing better living environment. Today the cities have become jungle of concrete and are growing around its fringe areas expeditiously. Buildings are reaching out the sky. It has become difficult to find shelter under the tree while walking on road. The moving vehicles are suffocating our breaths and making us deaf. All these efforts are to accommodate the enlarging population. We have forgotten to live healthy life in search of wealth. In order to overcome this issue, professionals like planners and architects should design futuristic living environment in the cities which can include resource management and provision of green infrastructure. Present technology to save the future of the earth.*

Keywords: Urban issues, Population, Professionals, Futuristic living environment.

Urban challenges

Population explosion: The world's urban population will become 6 billion from 3.5 billion by 2050 impacting environment. Urbanization, a global phenomenon, has direct and indirect impact on biodiversity and ecosystem which needs broader policy level responses at national and international platform. (Elmqvist, Ziperer, & Guneralp, 2016). The emerging issues of global warming and climate change, by-product of rapid urbanization, will become uncontrolled situation in the future unless necessary actions are taken.

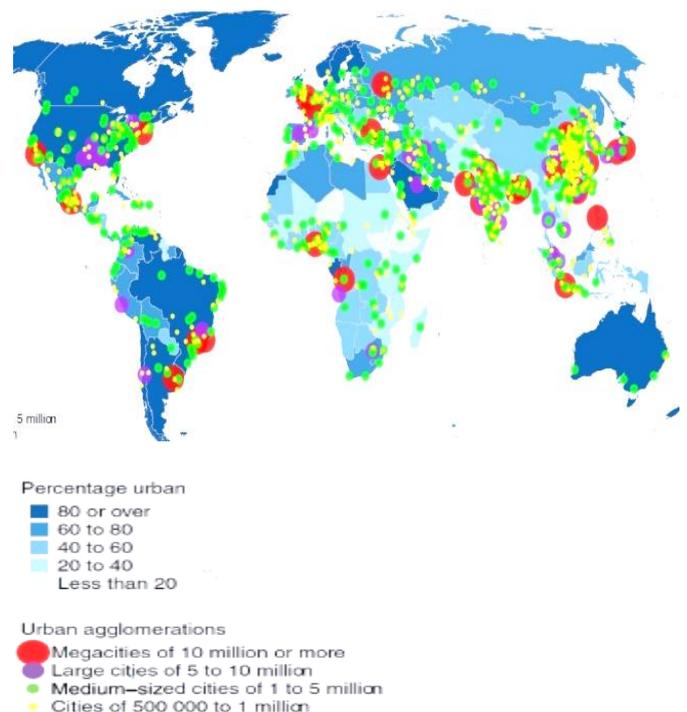
Biodiversity: People are living in settlements for over thousands of years by encroaching forests and destroying the natural habitat of many endangered species. Harmful chemicals of industrial waste are changing the genetic character of many species. For example, mosquitoes and bugs have become pesticide resistant. The evolution of species is being affected by humans. The animals are still evolving and cities are affecting their evolution. Human evolution is slower than animals as they can evolve quickly by reproducing several times a year. Urban areas are reshaping nature. Some animals in cities are getting isolated and are losing genetic diversity. Lesser diversity makes animals more vulnerable to extinction. The entire population can be wiped out in single epidemic. Our cities need to become animal friendly.

Climate change: Climate change affects world economy. Scientists estimated that, temperature will rise by 5.4 degree

Fahrenheit after a century, which will rise sea levels, food shortage and wars for resources. Many industries that depend upon global temperature staying put, like the agriculture and food sectors. Plants absorb CO₂ from atmosphere and keeps the temperature in balance. Rise in temperature has weakened the growth and development of crops leading to millions of losses, drop in animal production. Ocean acidification from CO₂ emissions has put the marine life in danger, which affects the sea production. In this entire scenario, the most vulnerable are animals, plants, and urban poor.

Economy: Same is true for coastal real estate, which is getting soggy as climate change causes sea levels to rise. Billions of dollars of property in coastal region could be in danger due to rise in sea level, which cause ripple in economy as coastal businesses can relocate, taking jobs with them. A report published in 2015 by Citigroup estimated that climate change would cost the global economy between \$2 trillion and \$72 trillion from 2015 to 2060 (Citigroup, 2015).

Figure 0.1 Percentage urban and location of urban agglomerations with at least 500,000 inhabitants, 2014.

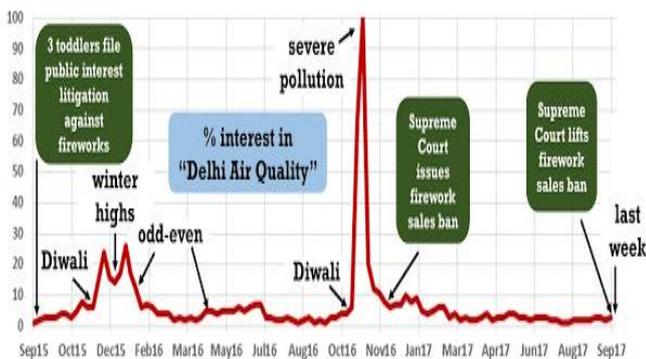


Source: UN, World Urbanization Prospects: The 2014 Revision, Highlights

Cultural influence: India hosts 3 out of 10 megacities in the world (Fig 0.1). India has rich cultural history since ages influencing the shape of urban ecosystems.

According to WHO report of 2017, Delhi has recorded the worst air quality amongst top megacities. Government of Delhi realized the problem and initiated the Odd/Even rule which resulted in positive impact in air quality (Fig 0.2). The four major gases associated with air pollution are ammonia, formic acid, methanol, and ozone. Urban transportation and industrial development are its main sources which can lead to negative impact on health (Kornei, 2017). Ex. During diwali, the air quality reaches to severe level (Saldanha, Madhavapaddi, & Indiaspend, 2016).

Figure 0.2 Pollution level in Delhi air during Diwali Week



Source: Urban Emissions 2017

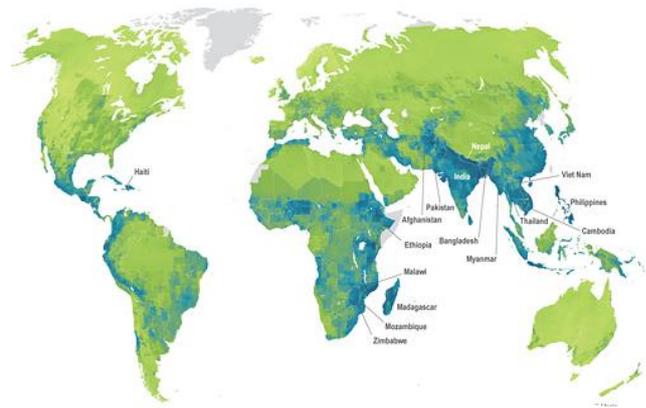
Health hazards: India ranks 2nd after China for the death of people due to air pollution (Jyoti, 2017). Government of India needs to find solution at policy level to retrieve these problems. Integrated transport system can mitigate the environmental problems if implemented effectively.

The Maplecroft, a global risk consultancy, has estimated the Climate change vulnerability index for 2011 of 170 states over the 30 years. Asian countries and African countries are extremely vulnerable in terms of climate related disasters and countries government's adaptive capacity (Fig 0.3).

Urbanization has many challenges and has opportunity for many problems. For instance, use of LPG and CNG instead of wood fuels has increased nationwide. Cities can serve as nodes for ecosystem recovery. For examples, recovery of mangrove forest in New Mumbai, restoration of lakes in Bangalore by collaborative movement of Municipal government and local communities. Cities are spreading and promoting the awareness about sustainable development. The sustainable and climate resilient planning must be incorporated in urban policy and planning.

We need to find strong and practical solution to mitigate the adverse effect of climate change and environmental degradation mostly triggered by urban sector. With inclusiveness of professionals, we can find the potential solutions for betterment of people and global environment, to promote ecological and sustainable development through various means.

Figure 0.3 Climate Change Vulnerability Index 2011



Legend	Rank	Country	Rating	Rank	Country	Rating
Extreme risk	1	Bangladesh	Extreme	6	Philippines	Extreme
High risk	2	India	Extreme	7	Haiti	Extreme
Medium risk	3	Madagascar	Extreme	8	Afghanistan	Extreme
Low risk	4	Nepal	Extreme	9	Zimbabwe	Extreme
No Data	5	Mozambique	Extreme	10	Myanmar	Extreme

Source: Maplecroft 2011 report of vulnerability Index

Role of Professionals

A professional can be a member of a body of people in a learned occupation or a person working in an occupation required specialized education in a field (CIC, 2012). A wide range of professionals involves architects, urban designers, town planners, environmentalist, engineers, advocates, consultants, medical practitioners, etc. For all serious urban challenges, involvement of professionals is very essential as they can quickly respond to imminent risk and administer efficient solution. Governmental reforms and policies are strongest mean to relieve the problems at national level, but role of professionals is influential at microscopic level in benefit of public interest. Every professional should be sensitive towards protection of environment. We need professionals with diversely skilled in addressing current and future urban challenges with holistic view. At the same time, we should refine and update our skills on an ongoing basis and evolving urban environment.

Role of an Architect

Architect is known as "The first builder" in built environment and mainly responsible for conceptual design of structure, technical plan and material specification. Architectural projects consume large amount of materials and energy, produce tons of waste. That is why Architect plays an important role in the field of sustainable development which minimizes the negative impact on environment. The actions and decisions taken today should not influence future generation. The technological advancement should not have negative impact on environment. Majority of the development progressing towards socio-economic growth with less priority to environmental protection, control and management which can involve less consumption of energy and reduction of waste through strategic design and energy efficient built environment (Dassah, E. T. & Nimlyat, P. S., 2010). Maximizing the reuse and recycling of waste in construction activities will help in conserving the resources. Architects, builders also need to take efforts to educate client about necessity and importance of sustainability for better future.

Responsible design approach includes integrated, inclusive, energy conscious, adaptable a quality designs. An architectural profession needs to acknowledge responsive design approach in creating better urban environment starting with short term deliverables (Zammit, 2014).

Role of an Urban Planner/ Town Planner

Planners are skilled professionals in built and natural environment and they promote sustainable development. Sustainable development is integration of economic, social and environmental sustainability (Frederiksen, 2016). To control and manage the rapid growing urban population, planning is the most effective tool for long term deliverable. The major responsibilities of planners carry forward through land management, zoning, preparing of development plan, providing strategies and policies, creating employment and supporting economic growth, improvement of infrastructure services, being able to adapt climate change. Planners should be able to respond and quickly adapt to all urban challenges and commitments will depend on designing and delivering better places and advancement (CBO, 2012).

In order to achieve sustainable development the following principles can be integrated in building the urban environment: Compact spatial planning in order to reduce travel distance , Encouraging the mixed use zoning, maximizing plantation in open spaces, integration of green spaces and landscape element in developments, utilization of land, maintaining the sense of local distinctiveness, managing of urban waste and conserving natural resources, segregation of industrial activities coherently, enhancing the quality of life by creating employment opportunity and many more with the use of advanced technology (Dassah, E. T. & Nimlyat, P. S., 2010).

Practical approaches

Strong governance and decision of professionals in design stage will move the agenda of sustainable development from mere theoretical to practical implementation.

Sustainable development: In order to mitigate the urban risk, nature based solutions to be provided for urban challenges.

Community participation: Community awareness with their active participation in decision making.

Inclusive approach: Inclusivity of all living creature on earth which plays key role in keeping environmental balance.

Education and awareness of urban issues: Education is effective way to spread awareness of imminent hazard in various social classes with possible solution to reduce the risk.

Technological advancement: To save the future of earth with innovative, economic and effective solutions.

Energy conservation: We need to promote and encourage optimal use of solar energy as alternative resource.

Scheme conversions: The government has amended various schemes for improvement of socio-economic status of population and betterment of country. It's our responsibility to deliver all services to the people through these schemes.

Smart city: It is an opportunity for all professionals to participate and propose innovative methods for betterment of cities.

Here are some examples of professional efforts towards sustainability across the world.

Vertical forest

The emerging concept of vertical forest or green building can be a solution for climate change and housing shortage. The project of 'Milan's Bosco Vertical Forest' by Italian architect Stefano Boeri in one of the most polluted city in Europe, is innovative step towards reducing urban climate effect. Project has planted around 25,000 plants on towers of residential buildings which is equivalent to nearly 3.5 acres of greenery spread out on land. The idea behind this project was to reintroduce nature inside the city. It has also generated occupation for arborists (tree surgeon). As per Ar. Boeri, there is a need of realization of real forest cities in future (Science, 2017).

Urban ecolink

A group of environmentalist and local community came together to protect the dense tree line avenue of Tipuana trees in the heart of city of Rua Gonçalo de Carvalho in Porto Algre Brazil, which was threaten by development around it. ((ICTA), 2013)

Green Transportation

Australia has launched world's first 100% solar power train in Byron Bay. It is an affordable public transportation for a local and visitors with 100 passenger capacity. India has also initiated its first most green transportation in most polluted city, Delhi. The approach of Government of India has become environmental friendly by introducing other measures like use of bio-toilets, bio-fuels and wind energy. Introducing Solar Transportation is expected to save 5547 Gallons of diesel every year (Cooke, Inhabitat, 2017).

Conclusion

As every action has equal and opposite reaction, scientifically proven by Newton, every decision made by professional will affect the future. It is time to keep every next step carefully while developing for cities as it can save or destroy our future. There are many severe issues in urban areas, and if we want to deal with it, we have to think seriously about how we can contribute. The lack of futuristic and responsive approach till now had dragged the urban environment towards terminal condition. Eco-friendly and sustainable approach for designing cities can only be solution for bringing environment back to normal.

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