

New Urbanism and Architecture in Indian Context

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Abstract: *Urbanization is closely linked to modernization, industrialization, and the sociological process of rationalization. Urbanization is not merely a modern phenomenon, but a rapid and historic transformation of human social roots on a global scale, whereby predominantly rural culture is being rapidly replaced by predominantly urban culture. Urbanization occurs as individual, commercial, and governmental efforts reduce time and expense in commuting and improve opportunities for jobs, education, housing, and transportation. Many rural inhabitants come to the city for reasons of seeking fortunes and social mobility. But the picture of urbanization is not so much glorious as it apparently seems. Modern cities have grown in a haphazard and unplanned manner due to fast industrialization. Cities in developing countries become over-populated and over-crowded partly as a result of the increase in population over the decades and partly as a result of migration. Methodology: This study is descriptive research. The data is gathered through secondary sources like Government Records, books, articles, web-based journals. The Records of Urban Population as sourced from Census Reports have been tabulated for description of its trend. This paper seeks to review the effects of fast growing urbanization in Indian society through analysis of its multi-dimensional impact.*

Keywords: Urbanization, Push and Pull Factors, Industrialization, Civic amenities, Marginalization

1. Introduction

New urbanism is an American urban design movement that arose in the early 1980s. Its goal is to reform many aspects of real estate development and urban planning, from urban retrofits to suburban infill. New urbanism neighborhoods are designed to contain a diverse range of housing and jobs, and to be walkable. It is a reaction to sprawl, based on planning and architectural principles working together to create human-scale, walkable communities. It is rooted in the work of architects, planners, and theorists who believed that conventional planning thought was failing. [1]

New Urbanism is urban development model, which reflects the features of planning of *Traditional Indian city* that made city physically and socially livable. It is also considered as a philosophy for revitalizing or reinstating traditional architecture and the quality of life in old core of the cities. Cities are much complex things which we humans make. For the past fifteen years the congress for New Urbanism has been aiding public and private sectors by employing or introducing following design principles for improving the quality of life in the cities, especially in older areas of the city, which initially inherited these principles [2]:

- 1) **Pedestrianisation of streets:** segregation of traffic corridors and pedestrian areas. The streets are relatively narrow and shaded by rows of trees. This slows traffic, creating an environment suitable for pedestrians and bicycles. Streets within the neighborhood form a connected network, which disperses traffic by providing a variety of pedestrian and vehicular routes to any destination.
- 2) **Mixed Land Uses:** For vibrant city life at all times of the day neighborhoods should be planned to accommodate diverse land uses in such a way that they are occupied round the clock. Eating, shopping, working, socializing and recreation merged with residential areas are mutually reinforcing and flourish in each other's presence. The key concept is to stop building single use zones such as *'Nariman Point'*, *'BandraKurla Complex'* which are predominantly commercial and *'Gated Communities'* which are treated as Residential enclaves; which is

currently the trend or passion in *'Builders and Government Organization'*. These places lack security aspect due to lack of vibrant social activity.

- 3) **Planned Demarcation or Allocation of parking lots:** In urbanized areas there is nothing more boring than walking past a parking lot whether they are open air or six storied tall. These must be banished along any residential or pedestrian's street. Planned parking lots, properly screened off visually with comfortable accessibility must be demarcated in city development plan. Easy accessibility and visual screening is the main aim of this demarcation.
- 4) **Small is beautiful:** People are small when compared to automobiles and most world class walkable cities acknowledge this fact with small blocks, small streets, small buildings and small increments of investment. Traditional Indian cities like Peth areas of Pune, Residential core of Jaisalmer, Walled City of Jaipur and so on reflect fine grain and fine texture creating incredible porous networks of streets. Pedestrians like crisscross movement through urban fabric, intelligently looking for shortest routes between the two points. Unfortunately government planners propose development roads that create obscenely large blocks that make the city impenetrable. Tall buildings place undue stress on small plots of land, where population gets concentrated at a single point within the city, pressurizing all the systems including accessibility, parking, garbage removal, water and utility supply. Current Real estate developments in majority of Indian metropolitan cities are not considering this issue in land development.
- 5) **Building Affordable Housing:** Affordable housing remains crisis in majority of Indian cities and the solution is not to build housing in suburbs, which taxes the poor residents with longest commute. There are a variety of dwelling types — usually houses, row houses, and apartments — so that younger and older people, singles, and families, the poor, and the wealthy may find places to live. Mixed-use streetscapes with corner shops, front porches, and a diversity of well-crafted housing. The neighborhood is organized to be self-governing. A formal association debates and decides matters of maintenance,

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security, and physical change. Taxation is the responsibility of the larger community.

Consistent Check on development control pattern & their policies, rules & codes. Social philosopher and historian Lewis Mumford criticized the "anti-urban" development of post-war America. The Death and Life of Great American Cities, written by Jane Jacobs[3] in the early 1960s, called for planners to reconsider the single- use housing projects, large car-dependent thoroughfares, and segregated commercial centers that had become the "norm." In the 1970s and 1980s, New Urbanism emerged with the urban visions and theoretical models for the reconstruction of the "European" city proposed by architect Leon Krier, and the "pattern language" theories of Christopher Alexander. These eventually coalesced into a unified group in the 1990s. The New Urbanism includes traditional architects and those with modernist sensibilities. Some work exclusively on infill projects, others focus on transit-oriented development, some attempt to transform the suburbs, and many work in all these categories. All believe in the power and ability of traditional neighborhoods to restore functional, sustainable community.

2. Literature Review

2.1 Indore Case Study

Indore Smart City is emerging as an urban ecosystem that aims to integrate digital technology, knowledge and assets, to become more responsive to citizens, improve city services, and make the city more loveable than it already is. Defining the smart solutions relevant to Indore, involves studying the actual interactions that citizens had with the city, leveraging Indore's natural strengths, and co-creating the smart city vision and roadmap to align all elements. Our try at linking outside businesses, startups, students, and the public at large is also leading to larger variety, volume, and quality of insights, ideas, and feedback.

We believe that Indore is gracefully embracing the changes and developments needed to transform it into a Smart City, which in the process is metamorphosing the character and liveability of the city, at the same time rejuvenating its economy and heritage, while enhancing its resilience and sustainability. Hoping for Indore Smart City to be the smartest, cleanest and happiest city in the nation!

Vision

Promoting mixed land use in area based developments—planning for 'unplanned areas' containing a range of compatible activities and land uses close to one another in order to make land use more efficient. The States will enable some flexibility in land use and building bye-laws to adapt to change.

Housing and inclusiveness – expand housing opportunities for all.

Creating walkable localities –reduce congestion, air pollution and resource depletion, boost local economy, promote interactions and ensure security. The road network is created or refurbished not only for vehicles and public transport, but also for pedestrians and cyclists, and necessary

administrative services are offered within walking or cycling distance.

Preserving and developing open spaces – parks, playgrounds, and recreational spaces in order to enhance the quality of life of citizens, reduce the urban heat effects in Areas and generally promote eco-balance.

Redevelopment

Redevelopment will affect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens. Redevelopment projects of 55-acre land are proposed under smart city proposal.

Redevelopment of public land: compact-high-density-mixed-use, walkable community with slum-housing, affordable housing, shared public open spaces (both neighborhood & sector level), shared parking, 85% built-up to be green buildings, rooftop solar power plants generating 25% of energy demand, rainwater harvesting & its re-use. 164.45 acres of land evenly distributed across entire ABD in 16 govt land parcels is proposed to be redeveloped on Transit Oriented Development (TOD) principles due to their proximity to proposed metro-stations & PT corridors. The redevelopment area comprises of slum land (101.36 acres) & non-slum land (63.09 acres).

The slum redevelopment will be carried out as per PMAY Guidelines & surplus land including the non-slum land will be utilized for provision of smart city features including essential features under the following listed activities:

- 1) Transit oriented walkable communities – 50% of the area under redevelopment will be developed as mixed-use, high density (3.0 FAR, residential density of 375 DUs/Ha, employment density of 1500 employees per Ha) and walkable communities;
- 2) Public open spaces – 20% of the area under redevelopment to be developed as multi-use shared neighborhood/local area and zone/sector level public open spaces to be evenly spread across the entire area which will improve share of green cover in the ABD area of Indore Smart City.
- 3) Creation of quality commercial spaces – 20% of the Redevelopment built-up area (with employment density of 1500 per Ha) to be utilized for organized economic activity in a mixed use, high density, walkable, TOD communities. Such employment space may be used by start-ups developed in Incubation Centres. This will encourage walk-to-work, work-from-home and office moonlighting concepts supporting women, young entrepreneurs and start-ups.
- 4) Increase in affordable housing stock – 45% units in redevelopment area to be affordable housing including slum rehabilitation. This will create an inclusive social ecosystem.
- 5) Development of compact, high-density, mixed-use, mixed-income development on TOD principles within walkable/ accessible distance from transit corridors & stations.
- 6) More shared public open spaces with innovative use (35

neighborhood level open spaces of 34.07 acres for redevelopment area, 7 zone/sector level open spaces

Sr. No.	Redevelopment Projects for Area Based Development (ABD)	1760.98	Output
1	Jinsi Area	15.59	Redevelopment of vendor Market , Skill Development Centre , Commercial and Residential
2	Old SP Office & Urdu School	9.26	Parking And Communication Centre
3	Sanskrit College, Subhash Marg	15.43	Commercial And Residential Rehabilitation Of Sanskrit College
4	Nandlalpura Subji Mandi	5.00	Fruits And Vegetable Market vendor Market , Shopping Centre, Underground Parking And garden .
5	Vir Sawarkar Market & Baxi Gali School	0.00	Parking (MLP) Kabutar Khana,
6	Kabutar Khana	37.35	Residential And Commercial Development .
7	MOG Barracks	311.00	Mixed-used High-Rise Development
8	MOG-E (Khayali Ram Ved)	267.47	Mixed-used High-Rise Development
9	Kukkut Palan Kendra	283.23	Mixed-used High-Rise Development
10	Deaf & Dumb School Site	38.00	Mixed-used High-Rise Development
11	Samajwad Nagar	155.7	Residential And Commercial
12	Balda Colony	166.78	Residential And Commercial
13	Lodha Colony	74.00	Residential And Commercial
14	Gopal Mandir	0.00	Heritage Construction , Auditorium

Figure 1: The Table Content Show the Development in Indore

3. Basic Features of Urbanization in India

The pattern of urbanization in India is characterized by continuous concentration of population and activities in large cities. Kingsley Davis used the term "over-urbanization" where in urban misery and rural poverty exists side-by-side (Kingsley Davis and Golden, 1954). Another scholar named Breese depicts urbanization in India as pseudo-urbanization wherein people arrive at cities not due to urban pull but due to rural push factors (Breese, 1969). Rezaan Kundu talked of dysfunctional urbanization and urban accretion which results in a concentration of population in a few large cities without a corresponding increase in their economic base. Urbanization process is not mainly "migration led" but a product of demographic explosion due to natural growth. Besides, rural out-migration is directed towards class I cities (Premi, 1991). The big cities attained inordinately large population size leading to virtual collapse in the urban services and quality of life. Large cities are structurally weak and formal instead of being functional entities because of inadequate economic base. The urban population in India has gone up gradually from about 11 percent in 1901 to 17 percent in 1951 and then to 28 percent in 2001. The urban growth rate during 1941–51 was fairly high at 3.5 per cent per annum, but then reduced to per cent in the following decade. It has been pointed out that the figure for the 1940s was on the high side, since the definition of urban centre could not be standardized in the first Census conducted after Independence and also because massive rural–urban migration occurred due to partition of the country. The highest rate of urban growth (3.8 per cent) was recorded during the 1970s, but has subsequently reduced to 3.1 per cent in the 1980s and 2.7 per cent in the 1990s. It has certain unique features which are as follows:-

- 1) Lopsided urbanization induces growth of class-I cities.
- 2) Urbanization occurs without industrialization and strong

economic base.

- 3) Urbanization is mainly a product of demographic explosion and poverty induced rural-urban migration.
- 4) Rapid urbanization leads to massive growth of slum followed by misery, poverty, unemployment, exploitation, inequalities, degradation in the quality of urban life.
- 5) Urbanization occurs not due to urban pull but due to rural push factors.
- 6) Poor quality of rural-urban migration leads to poor quality of Urbanization (Bhagat, 1992). Distress migration initiates urban decay.

4. Effects of Urbanization

With changes in the land-use pattern when the city grows in size, it expands both horizontally and vertically. The horizontal expansion engulfed the nearby fringe villages and converted the agricultural lands, so that there is decrease in water level. So, there are chances of contamination of drinking water because of leakage of pipes. Another thing worth consideration is land value which is appreciated because of scarcity of land in the growing urban centres. Therefore, there is mushrooming growth of apartments and in busy centres, the apartments are given permission without checking the way of sewage facilities. The effects of urbanization may be seen on various lines in the following components:-

a) Slums and associated problems

The acute shortage of housing facilities is one of the most serious problems plaguing the Indian cities, whether it is a metropolitan city or a small town. The reason for this is that the availability and development of housing facility has not expanded fast enough to meet growing demand for rapid urbanization process. The acute shortage of housing facilities

compels the poor to live in slums. Slums have developed in almost all the Indian cities. Slums are called by the names of *Bustees* in Calcutta, *Jhuggis* in Delhi, *Chawl* in Mumbai and *Cheri* in Chennai. The slums or Bustees have been defined by the government of India under Slum Area (Improvement and clearance) Act of 1954 as predominantly a residential area, where dwellings by reason of dilapidation, overcrowding, faulty arrangement and lack of ventilation, light or sanitary facilities or any combination of these factors detrimental to safety, health and morals. It is estimated that 40 per cent of people in mega-cities like Calcutta, Mumbai and Delhi live in slums. These slums have extremely unhygienic conditions. They have impoverished lavatories made by digging a shallow pit in-between three to four huts and with sackcloth "curtain" hanging in front. The children, of course, are used to defecate anywhere around the huts. All such areas have several cesspools and puddles. These are invariably dug in the middle of a state dirty pool. People wash their clothes and utensils under the hand pumps. This causes diseases like blood dysentery, diarrhea, malaria, typhoid, jaundice and conjunctivitis, which stalk them all the year around. Children with bloated bellies or famished skeletons suffer from polio and common sight.

Human development is also adversely affected by the environmental degrading. Access to safe drinking water and separation are closely linked with life expectancy and infant mortality which are very important indicators of Human Development. So, the poor take fertility decisions to compensate for these factors and to avoid risks. Larger population leads to more poverty and worsens the environment creating a vicious circle.

b) Transport system

There are 300 million cars, trucks and buses all over the world. During peak hours, there will be huge traffic jams in the main junctions. Because of traffic jams more petroleum products are wasted which results in fuel problem. During peak seasons the vehicles are parked and overloaded and there are more chances of occurring accidents. If the State which provides good transport system. The combustion of petroleum products, diesel leads to increase of carbon dioxide which helps in increasing Global Warming, air pollution and noise pollution, besides carbon dioxide, carbon monoxide which is released by automobile. The noise pollution affects both auditory and non-auditory organs. The auditory effects are fatigue and deafness in human beings. The non-auditory effects are interference in speed, communication, annoyance, loss of working efficiency and psycho-physiological disorders. The transportation picture in all Indian cities is critical while Mumbai is still having the best city transport system and Chennai, Ahmedabad and Pune being reasonably well-served by the city buses. One reason why we are in this mess is that, whilst planning city expansion, we are still tender to follow the western concept of commuting time and distance being the determinants of the location of activities. This has resulted in compartmentalized zoning of cities, which necessitates extensive travel. At the same time, the level of incomes and affordability being low, our citizens are unable to pay an economic fare for the use of a public transport system. Therefore, all city bus services sustain such heavy annual losses that they cannot really expand or maintain a fleet

adequacy to meet city needs.

c) Problem of garbage

Urban solid waste consists of building materials, plastic containers, hospital wastes, kitchen waste etc. The building materials and household solid wastes are dumped on the public places. The hospital wastes do not have covers while transporting. The stringent smell contaminates the air. The Urban sewage does not have proper let-out facility. As Indian society prospers, it trash mainly hazardous plastics, metals and packing is growing exponentially. In the last decade, garbage was produced at nearly twice the rate of population growth. Only eight out of 3,119 towns and cities in India have full wastewater collection and treatment facilities. A third of India's population has no access to sanitation services. It becomes worse in smaller cities and provincial towns.

d) Sewerage problems

The urban areas in India are plagued with inefficient and insufficient civic amenities. Not a single city in India is fully seweraged. The reason for this is that the unauthorized constructions in and around the city lie outside the purview of the main systems. It has been estimated that only 38 per cent of the urban population have a sewerage system. Mumbai's crumbling sewer network is a century old, put in place by the British planners when city was no more than a series of fishing villages. Today, it breaks down frequently with waste about eight million more people than it was designed for. The sewer lines lead to drains, which take the sewage – 93 percent of it untreated – directly into the sea, killing virtually all marine life along Mumbai's coast. Delhi's Yamuna has turned into a giant sewer, chiefly from raw sewage, 40 per cent of Delhi's sewage is untreated.

e) Water supply

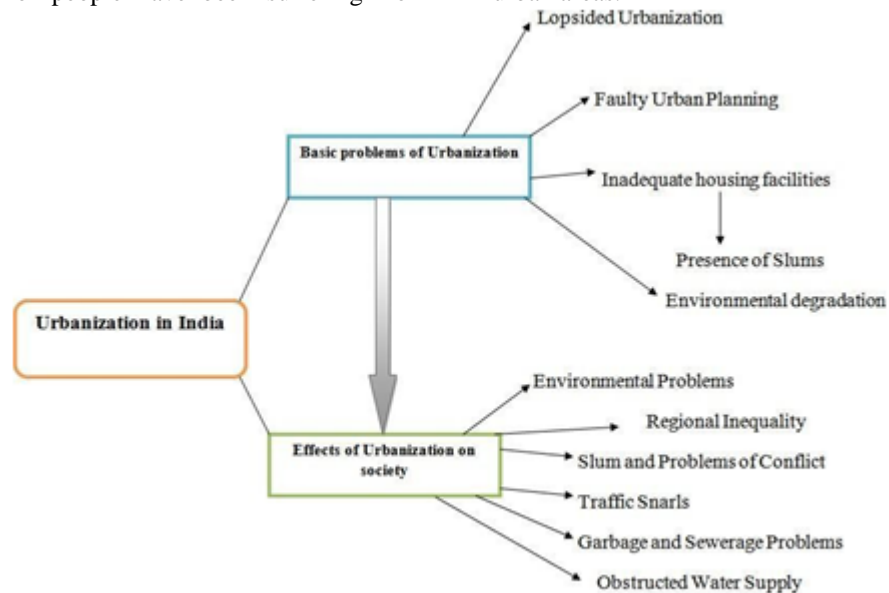
India has reached a stage where no city has water supply round the clock. Intermittent supply results in a vacuum being created in empty water lines which often suck in pollutions through leaking joints. Chennai, Hyderabad, Rajkot and Wadhwan get water from municipal sources for less than half an hour every alternative day. Many small towns have no main water supply and depend on such sources as individual wells, household open wells or even the rivers which have some storage water in pools during summer. Within the city, the drainage system hardly exists and the annual flooding of large areas, even in Delhi, it is now a regular phenomenon in many urban centres. Mumbai is located in a keel-line depression, which also happens to be the main railway artery. With every monsoon showers, it gets flooded choking the communication. The problem is particularly acute in the cities of Indo-Gangetic plain. This is the case with Varanasi and Patna. The situation is worse in the eastern part of Patna, which remains water logged throughout the monsoon period. The terminal case is that of Katihar (Bihar) where, because of the peculiar bowl-like configuration of the city and the non-existence of a drainage system. Large pools of stagnant water can be seen even in the month of May and June. In Srinagar, whole colonies have become sewage to be forced back by hydraulic pressure into the sub-soil, rendering the whole land unfit for human habitation. The drains, which are open, serve as depositories for road sweepings and also human wastes. In rainy season,

water over flows and spreads into streets presenting a dingy view, promoting unhygienic conditions and causing outbreak of numerous diseases.

f) Environmental problems

Environmental pollution is causing concern and affecting human health today than yester decades. It has been reported by the World Bank that 40,000 persons die in India every year because of air pollution. Recent studies also revealed that a large number of people have been suffering from

respiratory diseases, allergies and cough. It has been doubled since 1990s. Further, it has been noticed that 23 Indian Cities have crossed the dangerous limits because of auto-exhausts and industrial emission. Therefore, it is not the task of Central Pollution Control Board that has to take control but it is the duty of the institutions, individuals to initiate possible care and measures to prevent the polluting works. Hence, it should initiate in the form of a social movement. This, indeed, prevents problems arising out of pollution especially in urban areas.



(Source: Author)

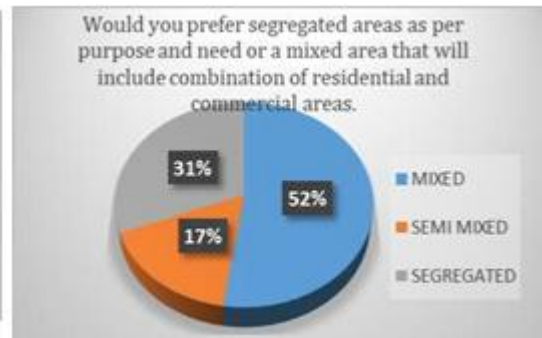
Figure 2: Detail Chart about Effect of Urbanization on Society

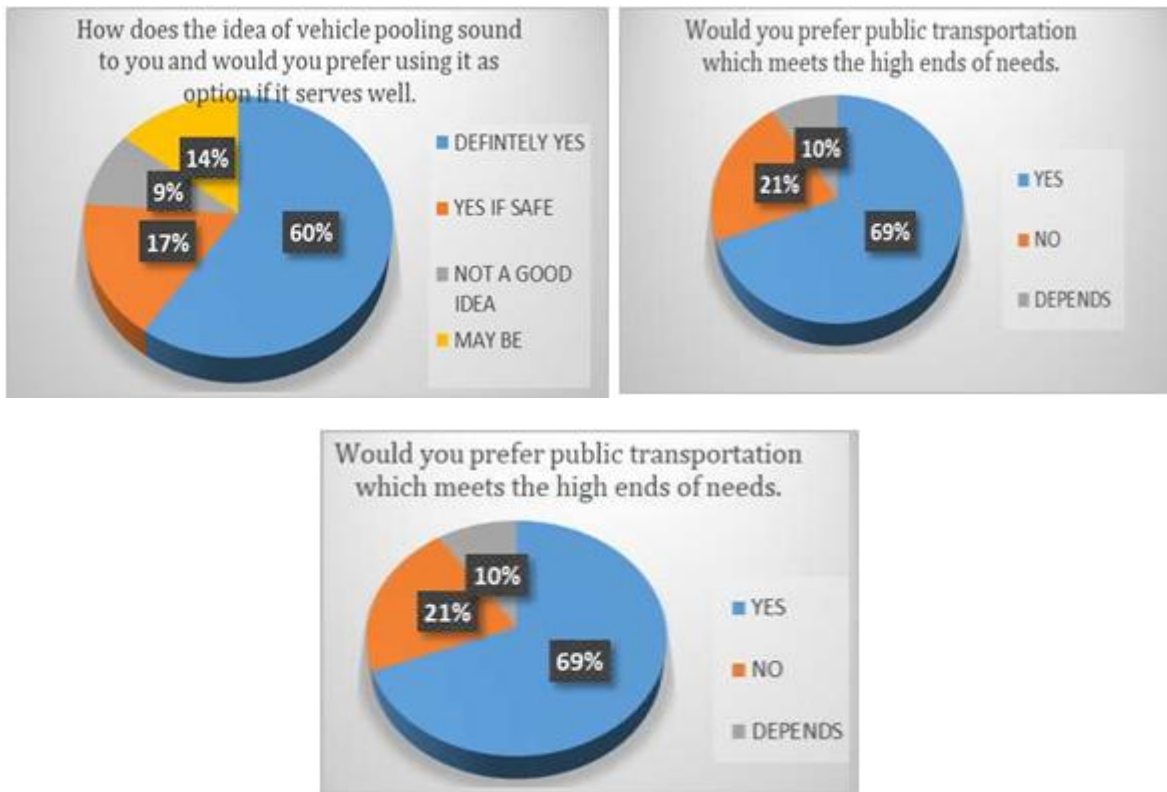
5. Understanding Opinions and Needs

A study was conducted to analyze the need of New Urbanism in today’s Indian context. It was conducted through google forms to study the perspectives of society so that better conclusions as per need could be drawn. People were asked about what they lack in their society and what things are they expecting in the coming future. The answers were very varied and up to the mark like use of public bicycle and bike for transportation should be improvised and more use of public transport system needs to be implemented. Vehicle pooling should be promoted for better traffic conditions and reducing the wastage of resources. Better control over traffic and management of traffic should be taken care of so as to make places easy to access and that too with time management. With the growing population at such a rapid rate, parking is a major problem therefore more public parking spaces should be designed and the construction that

is taking place should cater its need of the parking according to the norms and regulations. Roads should be properly planed for better connectivity and should be broad enough so that the traffic congestion do not takes place. Walkover bridges and zebra crossing should be made so that there is no problem for the pedestrians. Proper care should be taken care to maintain the quality of life.

Garden areas should be designed as interactive spaces where people can know about each other and revive the neighborhood culture. Since the world is turning smart it has now become a necessity that with the IOT technology a lot of things can be monitored for security purpose therefore, Wi-Fi access is a must in new urbanism. A good city is which is well managed in all the aspects, one of the major aspects is sanitation and hygiene therefore public toilets and dustbins are a must to maintain the same.





6. The Future: New Challenges and New Urbanism

From its earliest stage, New Urbanism was conceived and promoted as an anti-sprawl movement that emphasized compact, higher-density, mixed-use development that is less land consumptive, less auto-dependent, and generally more sustainable than is low-density development. Over time, New Urbanism evolved as a new paradigm in the fields of planning and urban design. The circumstances of development in the United States also have changed considerably in the four decades since its inception, however. These circumstances of development are characterized by interrelated trends that have important implications for the future of New Urbanism even though the specific ways in which we might expect to see changes in the design of New Urbanist projects are not that clear at this time.

However, cases of COVID-19 infection and death have increased considerably, in Los Angeles and its suburbs, within weeks since the publication of the column. Indeed, recent research indicates that the pandemic is spreading in low-density communities across the nation (Payton, 2020; The New York Times, 2020). It is also noteworthy that many European cities with relatively higher-density built environment and extensive public transportation network have considerably lower infection rates than cities in the United States (World Health Organization, n.d.). The spread of COVID-19 has made people apprehensive of higher-density built environments and public transit; however, recent research focusing on COVID-19 infection and mortality rates suggests that crowding, not residential density (housing units per acre), is associated with the spread of the virus (Hamidi, Sabouri, & Ewing, 2020).

Further, recent demographic changes pose new challenges as

well as opportunities for development and have considerable implications for the future of New Urbanism. Urban and suburban development patterns are shaped, in part, by the demographic trends of the time. Duany (personal communication, 1999) noted that "it is the Baby Boomers' ethos that will be the dominant ethos until 2030 because the nation is going to be dominated by the Baby Boomers." Indeed, the broader theme of New Urbanism was conceived to address the values of Baby Boomers, with particular attention to where they preferred to live, work, shop, and play. Much has changed, however, in the last three decades. Millennials have now replaced Baby Boomers as the largest living adult generation in the nation, which is contributing to current patterns of urban growth (Fry, 2020; Myers, 2016).

7. Conclusion

It is clear that there are some fundamental shifts under way that are related to the nation's changing demographics, climate change, technological advances and remote work, as well as e-commerce and rapid growth of the digital economy, some of which have been intensified by the COVID-19 pandemic. However, the ways There is ample evidence that critical research on New Urbanism has continued, albeit without the label, as the debate has shifted from New Urbanist ideas and ideals to its various and differentiated forms. Recent research has highlighted the need to evaluate the relationship between New Urbanist design and environmental outcomes (Turner, 2019); pointed out the need to promote racial diversity and inclusion through New Urbanist projects (Jackson, 2019); emphasized the need to examine the relationship between retail revitalization in cities and gentrification (Kickert, 2019); explored theoretical foundations of New Urbanism (Ellis, 2019); studied the diffusion of New Urbanist design concepts in development regulations (Garde & Kim, 2017); noted the need to measure

social, economic, and transportation benefits of walkable suburbs; and emphasized the need for future research on New Urbanism (Talen, 2019). It will be important to address these needs in future New Urbanist projects.

Overall, the trajectory of New Urbanism from its inception to date, which is reflected in its resilience and expansion in the face of development trends of the 1990s, and later in its impact on development projects, policies, and regulations, suggests that the paradigm will continue to evolve and influence development practices in the United States with or without the label. While the founding members of New Urbanism continue to be prominent practitioners and protagonists of the movement, professionals in early years of their career have been organizing themselves as the 'Next Generation of New Urbanists' to address current and future challenges of development (Wright, 2003). Further research is needed, however, on the benefits of New Urbanism in the context of contemporary circumstances of development especially in the post-COVID-19 world.

References

- [1] Jason Pomeroy, 2014, *The Skycourt and Skygarden: Greening the Urban Habitat*, Routledge
- [2] Vicente Gualart, 2005, *Sociopolis: Project for a city of future*, ACTAR
- [3] Kevin Lynch, 1960, *Image of the City*, MIT Press
- [4] Deependra Prasad, 2007, *New Architecture and Urbanism: Development of Indian Traditions*, Cambridge Scholars Publishing

- [1] <https://www.cultura.lindia.net/indian-architecture/index>.
- [2] https://www.researchgate.net/publication/264383323_Urbanization_in_India_An_Impact_Assessment
- [3] <http://www.dpz.com/initiatives/about>
- [4] <http://planning.org/divisions/newurbanism>

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