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A Sustainable Model of Urbanization for Indian Cities, A Case Study of New Delhi

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Abstract **- Today Urbanization is the most echoing word for all the cities around the globe but in simple terms Urbanization has been described as a consequence of population shift from less utilitarian areas to high utilitarian areas. The process of urbanization is directly proportional to other trends e.g., modernization, industrialization, technological advancement, infrastructure, sociological transformations, economy, planning policies and public health etc. Urbanization impacts climate, Land use pattern and transportation on a larger scale, however the debates of decades are yet to summarize the pros and cons of it. Urbanization is not just a modern threshold, but it is a phenomenon of transferring and redefining the social, cultural and historical roots of human on a universal scale. Whereas the rural tradition is the most effected aspect influenced by urban culture, the sustainable growth of urban cities is only possible when the planner would start working on synchronized policies for both the rural and urban transformations. In India many rural habitants migrate for employment and better lifestyle but the glint of urbanization fades on factual ground where a city fails to provide even the basic necessities to a human e.g. food, shelter, education and employment. The haphazard and unplanned growth of metropolitan cities has resulted in urban sprawl and over- densification. The intermural city stresses and migration from outside of the city are the two main factors that determine the positive or negative impacts of urbanization. The urbanization story of Indian cities also comes with its share of complex issues related to housing, Pollution, climate change along with inadequate provision for social and physical infrastructure. The emerging cities are located in developing countries that are experiencing rapid economic growth. In India, they are referred to as Tier II (1–4 million people) or Tier III (0.5–1 million) cities. India's urban areas currently house about 377 million people and will have to accommodate close to 200 million more by 2030 as the country's economic emphasis shifts from agriculture to manufacturing and services. Much of India's growth is currently taking place on the fringes of cities. It is unplanned and without sufficient infrastructure and services. In 2010, urban pollution caused more than 620,000 premature deaths (a more than six-fold increase in a decade). Environmental degradation is costing India about US$80 billion annually – 5.7% of GDP. While these are enormous challenges, India's emerging cities are critical to the country's economy, being expected to contribute up to 75% of national GDP by 2020. It is estimated that urbanization will generate 6 billion urban dwellers by 2050. Cities are set to be subjected to climate change.**

Cities worldwide are increasing enormously plans to transform to the impact of urbanization. Policymakers and urban planners have increasingly become interested in understanding the concepts of urban resilience, vulnerability, and adaptation. These plans will have significant implications for urban dwellers as they are prone to restructure and reconfigure urban infrastructure, services and decision-making processes. This paper aims to focus on such urban issues followed by solutions which complement the principles of Green Urbanization and sustainable development. The paper emphasizes on Urban Housing, as the shelter is the most basic but still neglected aspect of metropolitan cities, where a home becomes a dream and flyovers becomes the new normal of a home, acquiring a large part migrating population. The shortage of affordable housing entwined with rapid urbanization has resulted in informal settlements e.g. slum dwellings, unauthorized colonies and squatters etc. The working population also struggles to find accommodation in proximity to their place of employment and hence mass public transport systems are being stretched to the peripheral areas of the cities as they expand. As Indian metropolitan cities embark on the next phase of development driven by urbanization, we need to adopt more sustainable urban development practices that meet the demands and aspirations of urban lifestyle. The key focus of this paper is to develop a sustainable model of urbanization for Indian cities in general by contemplating city New Delhi as a benchmark for urban development, policies and strategies.

Keywords -Urbanization; Developing World; Indian Cities Green Urbanism; Sustainability; Shelter; Modern Housing

1. INTRODUCTION

India has recognized gigantic industrialization, motorization, and urbanization at once in a very short span of time, largely navigated by globalization, technological advancement, and increased world economic cooperation that has made cities thrive in multi-dimensional ways.

As per the records from the last one-decade India has the world's secondlargest urban system, after China. It is the world's largest Democracy along with the very fastest-growing nations. This makes the Indian metropolitan cities, urban centres and developing urban infrastructures more exposed and highly vulnerable to aggressive urbanization which play the twin roles of both the advantage and adversity at certain point of time.

According to the report of McKinsey Global Institute. (2010) & UN DESA 2014:

- The expected growth in urban population is from **410 million in 2014 to 814 million by 2050.**
- As per the census report, 2011, **31% population resides in urban areas and urban centers.**
- The projections for 2025 predicts that 46% of Indian population will reside in cities with more than 1 million population and large densities.

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- By the year 2030, the number of cities will grow in numbers from 42 to 68, which will have the population more than 1 million (stated by McKinsey, 2010)

According to World Bank some facts for Urbanization in India are:

Figure 1(Source: World Bank, 2011)

The reports further specify that the following measurements are required for India to achieve and survive along with the futuristic urban growth and requirements;

- **A capital investment of US 1.2$ trillion**
- **roads to be paved (Approx. 2.5 billion square meters)**
- 700-900 million square meters of **commercial and residential space** to be provided.
- 7,400 kilometers of **subways and transportation** to be constructed.
- Development of integrated development plans by state and center authorities.

As population or density grows in an area or a community, the city's boundaries expand (in terms of space, services and infrastructure) to accommodate the growth and facilitate the living conditions; this expansion is called sprawling, a very natural yet alarming phenomenon in terms of planning and framing policies. Nowadays we live in a built environment that tends to suffer from the spatial adverse effects of hurriedly administered technical overdose. These technological innovations and large-scale migration of people from rural areas to urban areas, which further results in degradation of the urban environment and degeneration of their mother(rural) environment. The enormous amount of land seized by urban sprawl, sometimes on the name of land acquisition and sometimes on the name of…….., which are nothing but distinct processes of environmental degradation. A region's structure of land use / land cover is the product of natural and socio-economic aspects and its usage over a period of time and as per the indigenous character of the space, when these spaces are exploited to cater a chunk of population and capitalistic benefits, degeneration phase gets initiated by certain anthropogenic activities. Activities in land use are a big issue and challenge for city/county planners, policy makers and for ecologist in planning an environmentally friendly, sustainable and growth in economicy. Delhi is one of the many megacities struggling with rapid urbanization and colossal levels of industrial, residential and transportation challenges along with other challenges e.g., pollution, infrastructure and environment etc.

As in line with the statements from numerous cabinets of the United Nations, Delhi is predicted to end up the primary and maximum populous town in the global round 2028, and via 2050 India is anticipated to add 416 million city citizens allotted in improved numbers of urban towns.

Delhi's projected population size in 2028 is roughly 37.2 million, surpassing 36.8 million populations in Tokyo.

The important thing reason for this upward thrust within the Delhi population is due to the migration of people from rural areas looking for employment for improved living standards and inter-town tensions. Since the Delhi Government has no strategies to accommodate these people, this leads to a haphazard urbanization of capital that nullifies the sustainability principles.
This paper aims to focus on such issues within Urban India (mostly faced by Indian metropolitan cities) and propose solutions that align with the principles and concepts of Green Urbanism. The emphasis is given on urban housing, because access to an affordable home is one of the biggest challenges facing the migrant population coming to Indian cities. The shortage of affordable housing coupled with rapid urbanization has resulted in the Indian cities creating slums and unauthorized informal settlements. The working population is also struggling to find accommodation near their place of work, and as they expand, they are stretching mass public transport systems to the peripheral areas of the cities. Cities play an essential role in bringing about economic growth and prosperity, in total a house of one's own is still a dream for many migrant and non-migrant citizens. The sustainability of cities depends on large part on their physical, social and institutional infrastructure and development plans and processes adopted.

A very transcendentalist and reforming minister, Theodore Parker once stated that Cities acts as fireplaces of ancient civilization, Radiating light into a total dark".

As Indian cities embark on the next stage of urbanization-driven growth, we need to follow more sustainable urban development practices that meet our society's demands and expectations, contributing to a better quality of life but without any compromise and forsaken futuristic needs.

2. URBANIZATION IN INDIA

2.1. *Physical development in urban areas*

Urbanization or city float is the bodily development in urban regions due to worldwide exchange or the increasing percentage of the full populace in cities. Urbanization can describe a selected nation at a given time, i.e. The percentage of the overall populace or region in towns, or the time period may describe the growth of that percentage in time and the word urbanization can represent

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the urban stage as compared to the populace as a whole, or it could represent the price at which the urban share is growing in a rustic. The urban population of India currently comprises around 30% of its total population. In line with the mc Kinsey international institute file, India's city population will boom to 590 million through 2030 which is sort of double the size of the entire population in the USA. With the aid of the use of the identical 12 months., India will even have sixty-eight towns with greater than 1 million human beings in each, 13 towns with more than four million and 6 megacities with a population that exceed 10 million inhabitants. Furthermore, the cities are the drivers of the increase of the Indian economic system that is expected to be five instances huge in 2030. This creates growth in hard work-energy with 270 million human beings, with 70% coming from urban employment.

Urbanization in India is taking place at a speedier rate. In keeping with the 1901 census, the populace dwelling in city areas in India turned into 11.4%. In step with the 2001 census, this figure expanded to 28. 53% and crossed 30% as in keeping with the 2011 census, at 31.16%. As in keeping with a world populace record of 2007 through a UN kingdom, through 2030, 41% of the United States of America's populace is expected to be living in city towns with predominant challenges for survival. As according to the World Bank's prediction, India, alongside other nations e.g., china, Indonesia, Nigeria, and the us, will lead the world's essential city populace efflux through 2050.

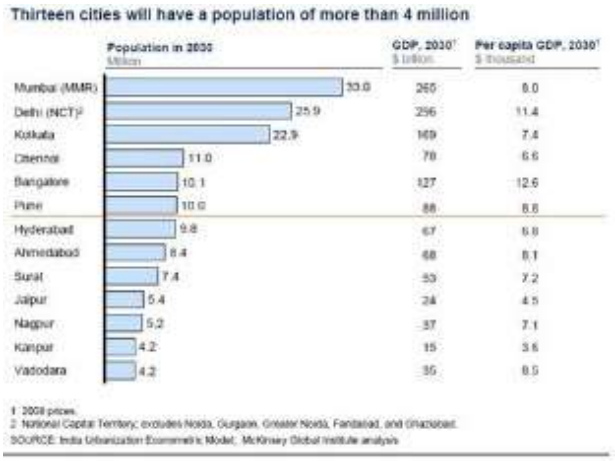

Figure 2: Source: Statista (Statistics Portal)

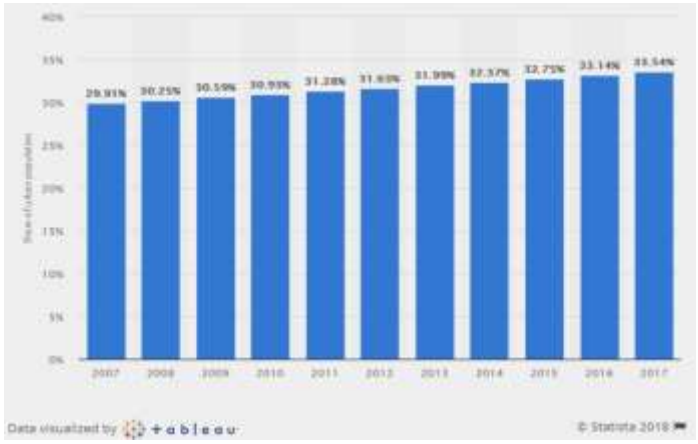

Figure 3:Mckinsey Report on Urban India 2030

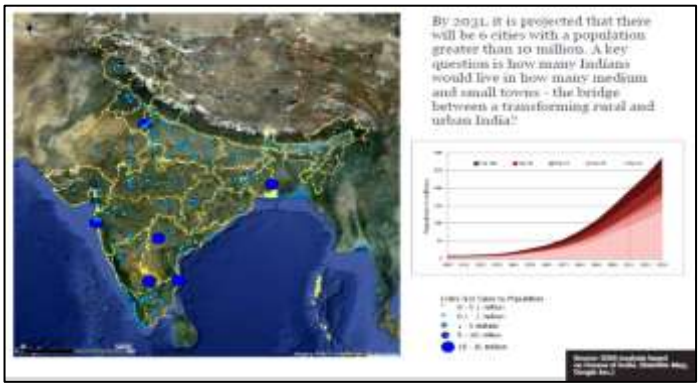

Figure 4: Urban India 1951 (Source: IIHS, Analysis of Census Data 1951, Satellite Map, Google Inc.,)

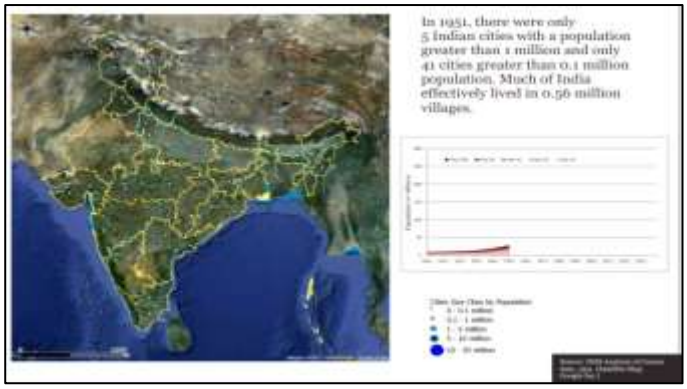

Figure 5 : Urban India 2031 (Source: IIHS, Analysis based on census of India, Satellite Map, Google Inc.)

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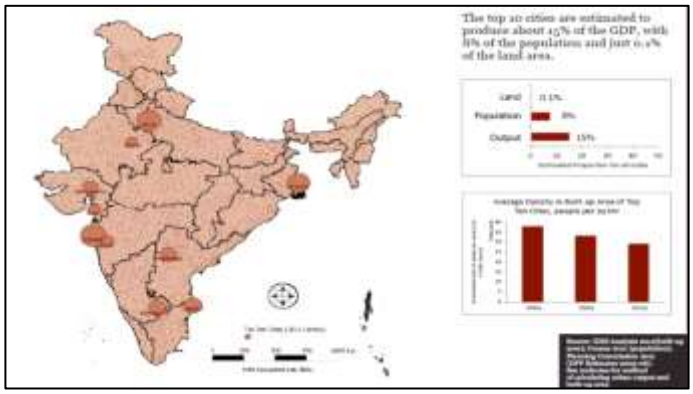

Figure 6: Ten Largest Cities (Source: IIHS, Analysis of Census 2011 (Built Up Area), Census 2011 (Population), Planning Commission 2011 (DPP Estimates 2005-2006)

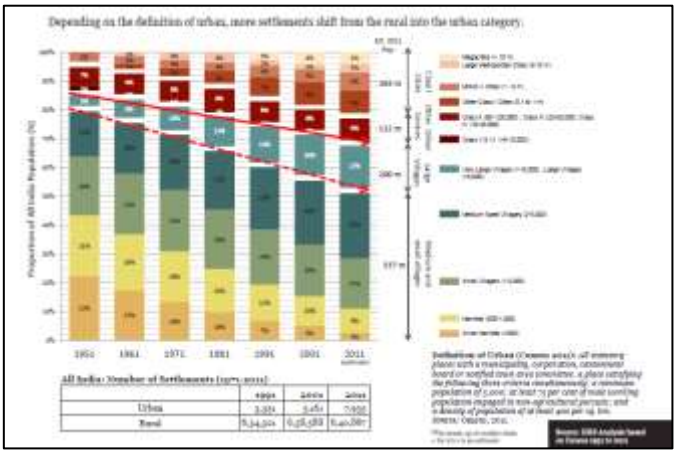

Figure 7: Distribution of India's Population by settlement size (Urban and Rural):1951-2011(Source: IIHS Analysis based on Census 1951-2011)

2.2 Urbanization Issues and Challenges for Indian

The unplanned urbanization due to migration, coins toss various issues and problems before India as a developing country. Some of these urban sprawls, housing, squatter settlements, building greenhouse gases (e.g., Carbon dioxide, methane) climate change, pollution, infrastructure, mobility, water etc. The main considerable challenge of today in front of the visionaries is as how the planners and technical development team can incorporate various concepts of Green Urbanism to make sustainable urbanization possible.

2.2.1 Urban Sprawl

In 1958, a Canadian economist, William Whyte coined an alien term as 'Urban sprawl", a term that has been used intensely by later city planners and visionaries. City sprawl is defined because the deliberate/unplanned growth of a metropolitan region. The tendencies in urban sprawl are of miscellaneous sorts e.g., Land use in remote places on/across the urban fringe, gradual filling-in of the intervening spaces with similar uses, and seizing of land in step with the suitable location and availability of resources. Rapid urbanization is resulting in disorganized and unplanned towns and cities, lacking proper maintenance and strategic plans. Urban Sprawl may take various tangible/intangible forms and may boost up residential projects of high-income people seeking larger housing sites along with business activities such as manufacturing, offices, less planned downtown areas and 'pop up houses.

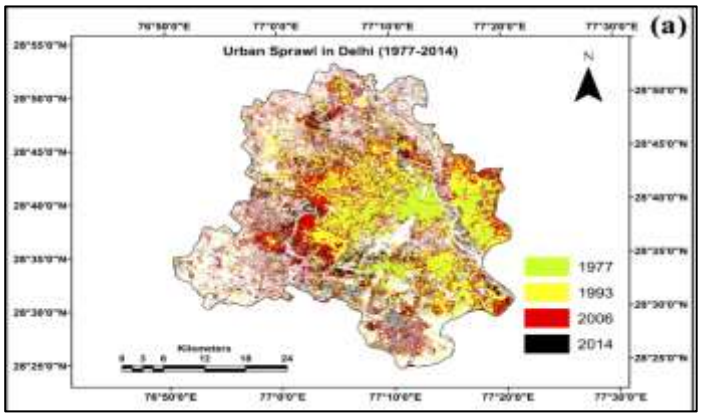

Figure 8: Urban Sprawl in Delhi over last 38 years (Source: Earth Interactions 2016)

The pressure of an ever-developing population will become a burden at the constrained civic amenities which might be certainly collapsing with time and becomes a burden on the limited civic amenities which are virtually collapsing with time and public utilization, Hence the urban sprawl can be one of the reasons for shifting central business districts (CBDs) from one corner to another impacting the social and economic neighbourhood of a city. The expertise of growth dynamics of urban agglomerations is crucial to strategize the sustainable city developmental making plans for futuristic cities.

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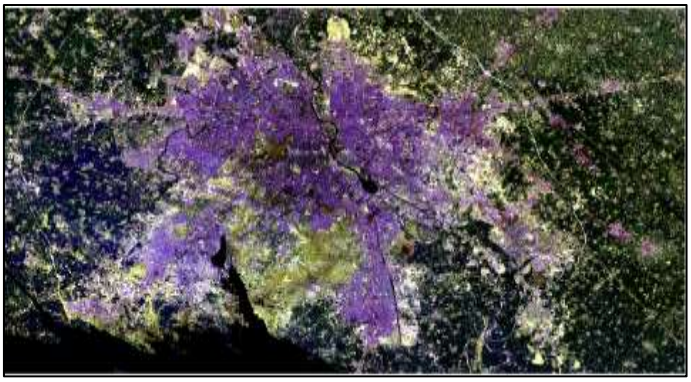

Figure 9: NCR and Outgrowths in 2018, Senital S2A Mosaic, Captured 14 Feb 2018 (Source: Shrobona Karkun,Temple University

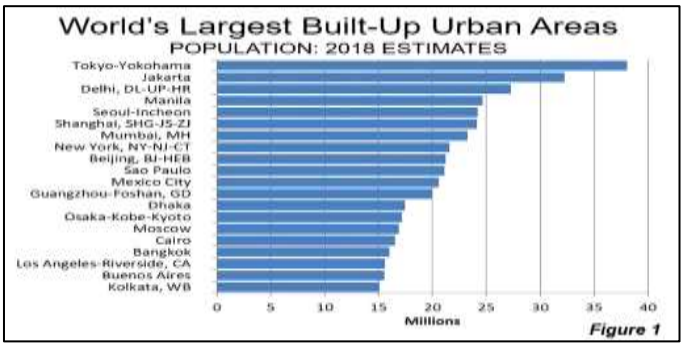

Figure 10: World's Largest Built-Up Urban Areas (Source: new geography)

2.2.2 Housing

In Indian context, the major challenge for the government is to provide housing for current Urban Population and provide provisions for the projected urban population along with other basic necessities. In India we have many metro cities as well as tier two cities which are growing very rapidly because of endogenous and exogenous tensions of a city e.g., migration from surrounding areas, population shift, employment and infrastructure etc. Urbanization has many effects on the city structure both in tangible and intangible aspects. The urban escalating population has to be properly accommodated in the city

NCR and Outgrowths in 2018,Senital S2A Mosaic,Captured 14 Feb 2018 (Source: ShrobonaKarkun,Temple University)

1)(e) read squatters, unauthorized construction and haphazard development of fringe areas will be rectified in most of the Indian cities. The land value and cost of houses has made it nearly impossible for urban middle class to afford a shelter under their budget. Majority of lower earnings businesses are residing in chook cage sized congested residences, transit shelters, ren-baseras (night time shelters), and even the juggis under flyovers and on footpaths. Those forms of shelters are without proper power, ventilation, lighting fixtures, water supply, sewage system, and many others.

For a case, in Delhi, the modern-day predicted scarcity is of 25 million residing devices in the coming a long time. The efficient ways should be channelized by the authorities to fulfil the future requirements without neglecting with environmental factors and resources.

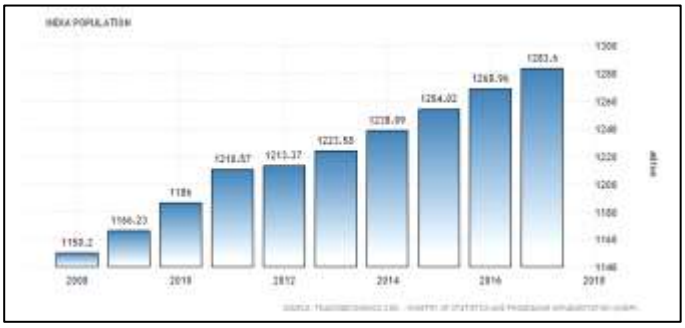

Figure 11: India's Population till 2018(Source: Trading Economics)

2.2.3 Squatter Settlements

A squatter settlement is defined as a residential area in an urban locality inhabited by a very poor population with no access to tenured land of their own, and hence "squat" on a vacant land without any proper registration of land and ownership, either private or public, The population residing in squatter settlement is consider as the most exploited citizens, used as voter banks without provisions of any extended facilities and with least liveability index, these people lacks the basic provisions for electricity, drainage, education and employment etc. .

The Squatter settlements are an inevitable phenomenon in an urban city. It is further stated that by 2019, the expected slum population in India would be 105 billion, if the current situation is neglected and no required actions are taken by the government and other planning authorities. In a latest report by "National Sample Survey Office (NSSO)", the scarcity of houses can be easily identified where the government fails to cater the demand of the population. Census 2011 found that there are 40,309 identified major slum zones in India, constituting 37% of the total population. Countrywide strategies to squatter settlements have normally converted from terrible views (together with involuntary resettlement, forced eviction, benign forget about, and so forth.) to extra superb perspectives (which include, permitting and rights-based regulations, self-assist and in situ upgrading,). *"urban slums are growing at faster rate than ever expected", stated by "The Challenge of Slums, a Global Report on Human Settlement (UN-Habitat), 2003. One billion people are living out their days in the squalor of a slum, which is one out of every three city dwellers and a sixth of the world's population.* The statement reveals that the numbers can be doubled within 30 years if radical changes are not adopted inclusively by the planners. The predicted addition counts around 300 million new urban residents by 2050 ('World cities Report 2016&EmergingFutures 'report by UN Habitat). According to Census 2011, Delhi has 22 slum towns with total population of around 17, 85, 390.

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Slum Population in India by States

State	2011	2018 (Projected)
Maharashtra	1.81	2.05
Uttar Pradesh	1.1	1.2
Andhra Pradesh	0.81	0.86
Madhya Pradesh	0.64	0.71
Gujarat	0.46	0.52
Delhi	0.31	0.37

Source: Census of India 2011
All figures in crores

Figure 12

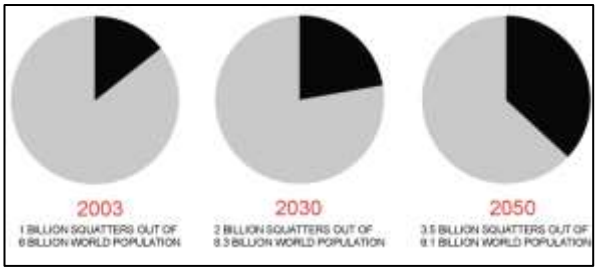

Figure 13: Source: The graph shows the expected increase of the world's squatter population by 2050 (Source: UNCHS HABITAT)

2.2.4 Environmental Concern

Urbanization in India is greater or much less developing negative impact on surroundings due to which issues like land lack of confidence, worsening water excellent, excessive air pollutants, noise, and disposal of waste are happening. One hassle is to combine land- and water use planning to offer meals and water security within the destiny (UNEP 1999). Due to the poor impact at the environment and weather trade problems like the creation of urban warmness island, modifications in air excellent index (AQI) and styles of precipitation have been taking place very often. As a result of impact of urbanisation, land resources problems like soil erosion, water table contamination and vegetative quality decrement etc. has been taking place. Also, we are facing problems of scarcity of water resources for domestic purpose and have been consistently compromising with the quality of water.

United States	CO_2	Non-CO_2	CH_4	N_2O	F-gas
Total sectors (Mt CO_2 eq)	2534	1113	818	264	31
Energy	2342	142	115	27	0
Industrial processes	164	32	0	1	31
Agriculture	13	716	513	203	0
Waste	0	202	188	14	0
Indirect and other	14	21	1	19	0

Figure 14: Emissions of CO2 and other greenhouse gases in India in 2016 (Source Netherlands Environmental Assessment Agency)

One of the major environmental concern for the environmentalist is the emission of various harmful/reactive gases with inclusion of CO2.An ecologist and geographer anastasiasvirejeva-hopkinset al. (2004) has concluded in a research that approximately more than 90% carbon emissions are produced in urban cities due to anthropogenic interventions. In case of India, the transportation sector is contributing immensely in to the green houses emission because of diesel consumption. It is further increasing due to rise in population, traffic and excessive modes for mobility. A dynamic shift from slow moving vehicles to fast moving vehicles has impacted drastically on the urban environment. Apart from it Industrial sector and waste sector also contributes in CO2 emission.

A case of Delhi: The urbanization of Delhi is observed from the beginning of the 20th Century. In 1901, 53% of the total population of Delhi was considered to urban category. The current alarm is about the country of human health within the swiftly growing metropolis of Delhi in addition to its deteriorating surroundings. Whilst the city's population has grown from 1.74 million (1951) to 16.75 million (2011) at the imply place of 1,483 sq. Km of land, it counts the density of 11,297 men and women consistent with square km. In response to the desires, there are large vehicularisation and land use alterations. Delhi ridge woodland cowl has done not meet discount targets for greenhouse gases emission in the Delhi city because of constant concrete jungle sprawl over the periods and discount in the inexperienced cover.

MASTER PLAN REFERENCE	INCORPORATION INTO CDP (THROUGH RELEVANT STRATEGY)
i)Management of Natural Resources and the related environment infrastructure and services in a manner that would lead to optimization of use of natural resources, reduction/abatement of pollution ii) Conservation and Development of the natural features with a view to enhancing their environmental value iii) Protection of the Ridge	**A Outreach and Capacity Building** i) Create awareness for water conservation and the techniques, training programmes for the RWAs, display & promotional material & schools, hospitals, change institutions. **B, Forest & Green Cover** ii) Detailed study of the biodiversity and ecology of the city. To include a complete inventorisation of all the species of flora and fauna (iii) Protection of Delhi ridge iv) GIS based Database of natural resources of the city
iii) Development and preservation of open spaces, greens and landscape/recreational areas	**B. Forest & Green Cover** i) South Delhi Greenway Project

Figure 15

Air i) Issue of air pollution	**C. Mitigtion of Air, Water and Noise Pollution** i) Installation of 9 web linked continuous air quality monitoring stations
River Yamuna Cleaning/ rejuvenation of River Yamuna	**C. Mitigtion of Air, Water and Noise Pollution** i) Action projects of the Master Plan for Dhobighats Sudhar Yojna under the YAP II. ii) Upgradation of the crematoria in the city to make them environmentally better (air pollution treatment equipment). Master plans under the YAP II to be implemented iii) River Front Development including walkways, recreation facilities, kiosks, water sports etc
Ground water i) quality 2) recharge through rain water harvesting	**C. Mitigtion of Air, Water and Noise Pollution** i) Installation of 2 water quality stations for monitoring and gauging. ii) rain water harvesting already a part of the building regulatory framework so not considered in CDP

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Figure 16

2.2.5 Transport

The traffic structure of metropolitan cities of India (e.g., Delhi, Mumbai, Kolkata, Chennai, Bangalore and Hyderabad) illustrates a substantial shift from the share of slow-moving vehicles to fast moving vehicles and public transport to private transport. The vehicle manufacturing and export-import rate has been increasing by 15-20 per cent each year. As per a recent media report (T.O.I.), Delhi is adding 965 vehicles omits transportation network every day while Bangalore is adding 500vehicles. Synchronously, more than 40 other metropolitan cities (with human population more than1million) are accounted for 35% of the vehicular population of the country. Further, 25% of the total energy (of which 98 percent comes from oil) is consumed by road/Transportation sector. Vehicles in mega-cities are estimated 70% responsible for CO2 emission. The extracted pollutants from automobile sectors are largely responsible forair born respiratory diseases and other air related diseases including lung cancer, asthma, etc.

2.2.5 Water

The water crisis in India is often ascribed to the urbanization, industrialization, and human waste flowing into water sources and polluting groundwater, in addition to corruption at exclusive tiers that postpone diverse tactics and responsibilities. Water shortage in India is predicted to irritate as the general populace is anticipated to boom to at least 1.6 billion by using the year 2050. As per reports, India only possesses 4% of the world's total fresh water. "If the modern-day rate of water demand keeps, about sector of the destiny call for water could be backordered by 2030", stated with the aid of the committee on restructuring the significant water fee (cwc) and the crucial ground water board (cgwb) in 2016. Water tables are depriving in most parts of India. The contamination content of water includes various minerals e.g., arsenic, fluoride, mercury and uranium in varying content ratios, causing diseases borne by contaminated water etc.

Climate trade poses more excessive demanding situations e.g., Rates of rainfall and evapotranspiration accentuate the effects of floods and droughts. 80% of India's drinking water, nearly -thirds of irrigation desires, and 11% of the agricultural water deliver relies upon on groundwater. Meanwhile 60% of India's districts face groundwater over-exploitation. The sector bank spotlight the predicaments that the united states are going through from the past 5 many years:

- 163 Million Indians lacks access to safe and drinkable water.
- 210 Million Indians lacks access to improved sanitation.
- 21% of communicable diseases are due to unsafe water.
- Each day in India, 500 children under the age of five die from diarrhea.

River Pollution

The rivers in India are noticeably polluted and taken into consideration risky by technical and medical requirements. As a carrier and main source of water in northern India Yamuna, Ganga, and Sabarmati is a lethal blend of pollution each risky, toxic, and natural. A research paper from IIT, Delhi, has develop a research project on a bacterium that the river Yamuna has harbored known as "antibiotic-resistant" or "priority pathogens". These multidrug-resistant bacteria pose greatest threat to human health. Apart from water pollution the government policies should also be focused on water availability in each region and village. Several projects are in progress with an aim to provide water in the most needed areas in India. But this long-term commitment is slow. Common experience practices and training competencies will help in compensating the harm done to groundwater resources. As per the news, many skilled farmers are updating to modern technologies e.g. Irrigation techniques, drip irrigation, rainwater harvesting, Effective steps in stemming the lack of freshwater resources and so on. The collective practices and inclusive planning in the mild of inexperienced urbanism will cause frame present-day sanitation rules a good way to assist in both preserving and wisely make use of water assets.

2.2.6 Trash Disposal

Urbanization results in superior municipal stable waste (msw) era. Unscientific and non-organic managing of msw deteriorates the city environment and causes fitness hazards to other living organisms. As in step with the authority reports, 12 million tons of inert wastes are generated in India yearly. The generation of municipal solid waste (MSW)shows a graph directly proportional to the economic condition, urbanization, and rapid growth of population. The problem is in addition aggravated by the lack of policy controls; monetary aids in addition to human sources, educated in solid waste control practices within the sphere of series, transportation, processing, and very last disposal. While aspects like recycling, reuse, and restoration of the solid waste are grossly demanded however disorganized in most cases. Terrible sewage collection and absence of connectivity between drains and sewage treatment vegetation have worsened the state of affairs," noted the paper published in the Journal of Environmental Chemical Engineering.

The principal issue of trash disposal is exacerbating in urban areas due to the rapid populace boom, coupled with economic growth that encourages the intake of goods and waste technology. In keeping with the brand new cpcb document, in 2016, India produced a few fifty-two million heaps of waste each yr, or more or less 0.144 million heaps in step with day, of which roughly 23 percentage is processed and brought to landfills or disposed of the

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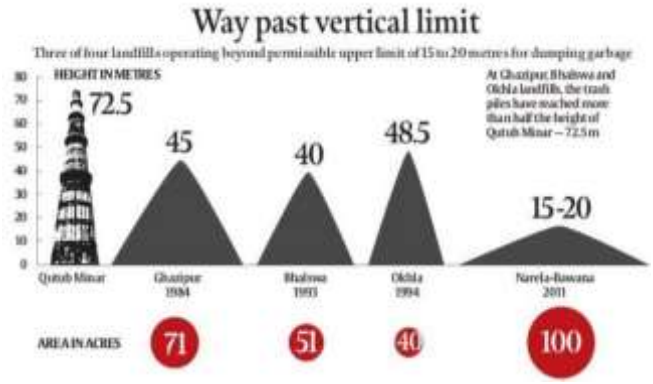
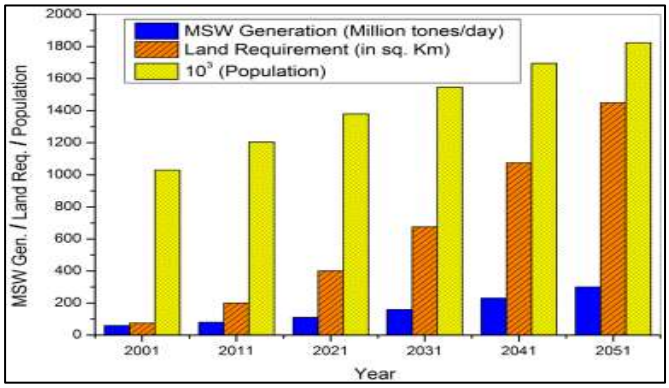
use of authentic biological techniques and technologies.





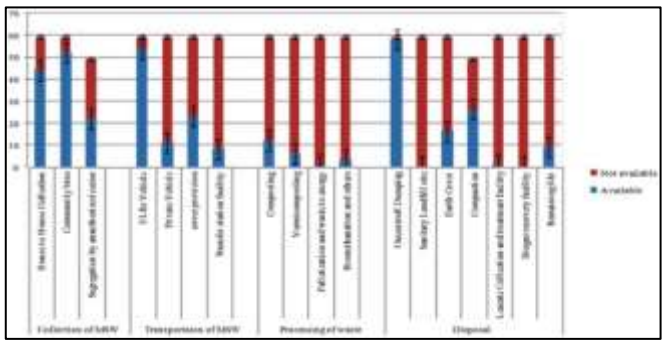


Figure 18: MSWM practices in selected Indian cities (Kumaret al., 2009).

Figure 19: Prediction Plot for MSW generation, land requirement, and population from 2001 to 2051. (Source: Cogent Environmental Science)

The contemporary schooling device emphasizes minimizing the stable waste era by using adopting the policy of 4r's. That is refuse, reuse, recycle, and reduce. The modern-day guidelines of MSWM are very uncompromising, ensuring a proper MSWM gadget. However lamentably, there may be a large hole on the ground between policy and implementation.
Consequently, there is a pressing want to bridge up these gaps. The authorities need to also emphasize the involvement of humans and public session together with the personal region via NGOs and PPP (Public Private Partnership) projects, House to house collection should also be promoted. These types of steps would help to improve the efficiency of MSWM, working structures of different authorities, Public Awareness and public participation.

3. SOLUTIONS THAT ALIGN WITH PRINCIPLES OF GREEN URBANISM TO OVERCOME URBAN ISSUES AND CHALLENGES

Futuristic cities and urban dynamics frames perceptions about bringing new infrastructure, facilities and life style with social cohesion and economic sustenance, coping up with all urban demands and dilemmas but cities of tomorrow do not reside in other zolo from cities of today, the basis for futuristic urban cities will only form by the strategies picked to tackle today's challenges. The major challenge is that concerns exists but in isolation just like the strategies. Today's need is not just to make a comprehensive strategic plan but an interlinked / integrated plan, to cater all the levels of pyramid.

Green Urbanism is an interdisciplinary term, it requires the collaboration of various social and professional threads e.g., Panorama architects, engineers, urban planners, ecologists, transport planners, physicists, psychologists, sociologists, economists, and other experts contributing to building a country, further to architects and concrete designers.
Green urbanism minimizes each mode to utilize strength, water, and different resources at each level, along with the embodied electricity within the extraction and transportation of constructing substances, their fabrication, incorporating the material into the constructing and, in the end, the benefit and price of their recycling whilst a character building's existence is over. These days, the urban and architectural design also has to take into consideration whilst intervening energy-green strategies into building production, preservation, and modifications in its use inclusive of the number one energy use for its operation, along with lighting fixtures, heating, and cooling, and so forth.

The major principles of green urbanism include striple-zero frameworks (triple-bottom line) of:

- "zero" fossil-fuel energy
- "zero" waste
- "zero" gas emissions (aiming for low-to-no-carbon emissions).

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Figure 20

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