
ENVIRONMENTAL IMPACTS OF UNPLANNED URBANIZATION IN INDIA

Krishnakumar A K, School of Law, M S Ramaiah University of Applied Sciences.

ABSTRACT

India is a densely populated country. Urbanization has a very bad impact on the environment. The study reveal that rapid urbanization has significant negative impacts on the environment. Many cities are polluted in the country due to what we put into the environment like harmful chemicals from power plants, industries, cars and other activities. The country is suffering from the environmental issues from a long time, but this time the urbanization has been added. Rapid urbanization, characterized by high levels of individual energy consumption and dense population concentrations, is leading to unplanned development in the certain areas, making it the primary drivers of the environmental degradation. Urbanization will always continue as an unavoidable process but we must check our progress to ensure we move forward correctly. The government needs to establish protective measures and regulations which will benefit all citizens to achieve sustainable urban development that protects the environment. This study highlights the need for integrated approaches combining technological innovation, community involvement, and policy reforms Sustainable urban planning, including proper waste management, green infrastructure, and regulatory enforcement, is essential to ensure environmental protection and social equity in India's cities.

Keywords: Urbanization, Environment, Population, Environmental Degradation, Policy Reforms.

Introduction

The process of a civilization shifting from a largely rural to a predominantly urban population is known as urbanization. People move to cities to find better job opportunities and access superior medical services and educational programs and enhanced personal growth options. Unplanned urbanization creates unplanned city development which occurs through uncontrolled building activities that happen without proper zoning rules and without coordinated infrastructure development. The urbanization in India occurs because of rural-to-urban migration and population growth.¹ The assessment of ecological effects from unplanned urban development now serves as an essential requirement for achieving sustainable development. The Indian government requires spatial planning assessment to identify its adverse effects which create environmental damage while it pursues its economic goals and climate change adaptation objectives. According to Census 2011, about 377 million Indians comprising 31.14% of the country's population lived in urban areas.² The urban population is projected to grow to about 600 million (40%) by 2031 and 850 million (50%) by 2051.³ Indian controlled urbanization has caused rapid environmental decline which creates multiple problems that include housing shortages and water contamination and excessive air pollution and noise and dust and heat and waste disposal difficulties and other health hazards. The human impact on artificial environments should be studied because India will have approximately 600 million urban residents by the year 2030. The Indian situation shows a gap between advanced urban strategies which include the Smart Cities Mission and the actual state of environmental degradation. Urban areas also generate considerable amounts of garbage, most of the time it will be managed and disposed poorly and becomes hazardous to the people and also amounts to environmental degradation and causes various pollution in the environment. It is a common problem in the cities, it caused due to transportation and production patterns. This study adopts qualitative research methodology based on secondary data analysis. Data has been collected from government reports, academic journals, census data, and environmental studies related to urbanization in India. The research focuses on analyzing the environmental impacts of unplanned urbanization, including pollution, waste management issues, water scarcity, and climate change linkages. This study also evaluates existing policies and sustainable urban

¹ India's urbanization and rural-to-urban movement are major factors in demographic change. <https://evs.institute/urban-environment/urbanization-trends-india-global-perspective/>

² Census 2011 figures show 31.14% urban population in India. <https://share.google/AYeLLcGVvb9nXvlnJ>

³ Ministry of Housing and Urban Affairs, Government of India, Handbook of Urban Statistics 3 (2016) <https://mohua.gov.in/pdf/5853c4c9864675832b25ba492dhandbook%20of%20urban%20statistics.pdf>

development strategies.

Urbanization in India

Urbanization in India evolved after the independence from the colonial rule, due to country's adoption of a mixed economy, which gave rise to the development of the private sector and it is taking place at a faster rate in India. In 1687-88, the first municipal corporation in India was set up at Madras. In 1726, the emergence of Municipal Corporation in Bombay and Calcutta. These developments led the way to urbanization in post independence. The unplanned urban growth in India has become a complex crisis because socioeconomic factors and governmental management failures work together to create this problem. The ongoing movement of people from rural areas to cities combined with increasing population numbers exceeds the capacity of cities to manage because millions of people move to cities for job opportunities.

People who live in urban areas experience their most visible health disparities because these differences exist between different streets within their neighborhoods. The most impoverished and environmentally degraded neighborhoods which house migrants and other disadvantaged groups show their worst mobility and employment and educational opportunities together with most restricted health care access and below normal health outcomes. The population growth exceeds available housing resources because people need to find shelter after the formal market fails to offer affordable housing options. Unplanned urbanization changes the temperature of the land surface and directly affects the climate and environment, especially in the cities. The absence of regulations permits informal settlements and urban expansion to take place because "slumification" and low-density development into peri-urban areas become the standard growth pattern.

The existing conditions operate without regard for nature since they transform natural water flow systems and vegetation areas into an unorganized concrete development that lacks essential environmental protection systems including proper waste management and drinking water distribution. The concentration of population in a particular region, which is due to process of movement and change of residence. The impact of urbanization on the environment has become essential for developing successful urban planning methods.

Pollution caused by Urbanization which was not planned out

The uncontrolled urban expansion which occurs in India has become a major driver of environmental destruction while creating severe ecological problems and public health issues. Cities grow at an accelerated pace because their infrastructure systems do not meet the needs of their expanding population which results in multiple problems including housing shortages and declining water quality and excessive air and noise pollution and dust accumulation and urban heat stress and inefficient waste disposal. The environmental pressure exists at its highest level in slums and unauthorized settlements because these areas lack proper drainage and sanitation and waste management systems. Urban areas which have high population density together with resource-demanding lifestyle patterns cause environmental damage to natural ecosystems while creating obstacles to sustainable development.

Urban Air and Noise Pollution

The unplanned expansion of cities creates air pollution problems, Indian cities consistently have high levels of air pollution.⁴ The rapid growth of private vehicle ownership leads to increased vehicular emissions while continuous construction work produces dust and industrial facilities release pollutants which together destroy urban air quality.⁵ Several Indian cities consistently rank among the most polluted in the world, with particulate matter levels exceeding WHO standards. The atmospheric contamination worsens because of poor traffic control and constant vehicle congestion and diesel generators and waste disposal by open burning. The industrial zones which are situated near residential areas expose local residents to dangerous gases and tiny particulate matter. The pollutants in the air create respiratory problems and heart diseases and eye problems while they increase the health dangers which children and elderly people face.

The combination of traffic congestion with construction activities and industrial operations produces high noise levels which affect urban areas. There is an excessive honking in traffic, which is disturbing the peaceful environmental surroundings. Continuous exposure to loud noises results in hearing loss and mental health problems which include sleep disorders

⁴ Urban pollution in Indian cities frequently exceeds WHO health guidelines. <https://polsci.institute/public-policy-administration-india/economic-growth-urbanisation-impact-india-environment/>

⁵ Sources of urban air pollution include vehicles, industry and construction activities. <https://urbanstudies.institute/urban-planning-development-challenges/rapid-urban-growth-india-unplanned-cities/>

and stress. The unrestricted noise pollution will disturb the day-to-day activities of the human. The combination of noise barriers along highways together with controlled construction schedules and residential and industrial area zoning regulations and tree plantations beside roads creates an effective system for reducing highway noise.

Water and Waste Pollution

The practice of dumping untreated sewage combined with the use of deficient drainage systems and improper waste disposal methods has resulted in increasing water pollution. Any harmful substance like chemicals or microorganisms contaminate the water bodies, degrading the water quality.⁶ The existence of concrete surfaces causes complete blockage of groundwater flow while creating conditions which lead to contaminated water runoff entering rivers and lakes. The discharge of sewage together with industrial wastewater pollutes freshwater bodies which results in damages to aquatic habitats and decreases the availability of drinking water. The transformation of wetlands into building developments causes disruptions to natural water drainage systems while diminishing the ability of land to recharge underground water supplies. The continual extraction of groundwater resources results in decreased water levels which subsequently causes water shortages in urban areas while increasing costs for water treatment facilities.

The practice of incorrect solid waste disposal leads to increased pollution problems which affect both land areas and water bodies. Cities produce vast amounts of waste which includes municipal waste and industrial waste and plastic waste and hazardous materials. The contents of these overfilled landfills produce unpleasant smells while emitting dangerous gases and creating poisonous leachate which pollutes both soil and groundwater.

Flooding and Drainage Issues

The cities which do not possess essential drainage systems and necessary infrastructure face severe challenges which result from urbanization. Construction activities in flood-prone areas together with the destruction of natural drainage systems and the insufficient storm water management system create increased flooding hazards. The accumulation of plastic waste and

⁶ Only about 30% of India's wastewater is treated before discharge into water bodies.
<https://polsci.institute/public-policy-administration-india/economic-growth-urbanisation-impact-india-environment>

debris blocks drains which results in water-logging during heavy rainfall events.⁷ Unexpected flooding directly and indirectly affects living beings. Sudden urban floods force people to lose their homes and struggle to obtain food and other essential necessities. Flooding can disrupt daily life for more than a week. Poor drainage systems create dangerous problems which result in both health risks and environmental destruction.

Water Scarcity and Degradation

Unplanned urban expansion leads to over-extraction of groundwater which results in wetland destruction and natural water body degradation. The domestic and industrial sectors increased their water consumption rates which created a higher demand for freshwater resources that already faced limitations. The natural recharge areas experienced destruction which resulted in a significant decrease of groundwater levels throughout the region. The sudden change in the population on the specific area will lead to the water scarcity and water degradation.

Solid Waste Management Crisis

According to central pollution control board (CPCB), Indian cities generate more than 62 million tonnes of municipal solid waste annually, a large proportion of which remains untreated. The fast growth of the population brings more waste than municipal systems can handle which results in landfills exceeding their capacity while recycling efforts fail to meet demands. The increasing demand from consumers leads to the need for special disposal methods which handle plastic waste and electronic waste and biomedical waste and dangerous industrial waste materials. Manufacturers must manage waste through Extended Producer Responsibility (EPR) which requires them to take responsibility for their products. Plastic waste regulations promote reduction and recycling. Cities generate millions of tons of solid waste yearly, much of it poorly managed.⁸ The combination of community recycling programs and decentralized composting and better waste collection systems helps to decrease landfill usage.

⁷ Loss of wetlands and floodplain encroachment increases urban flooding risk. <https://www.drishtias.com/daily-updates/daily-news-editorials/perils-of-unplanned-urbanisation>

⁸ India generates around 62 million tons of urban solid waste annually. <https://www.drishtias.com/daily-updates/daily-news-editorials/addressing-urbanization-challenges-for-a-sustainable-future>

Loss of Green Cover, Biodiversity and Urban Heat Island Effects

Urban expansion leads to deforestation because it requires building infrastructure for housing developments and highway construction and industrial growth. The practice decreases carbon dioxide absorption capacity while it creates disturbances in ecological systems and forces animals to leave their natural habitats. Human activities which invade protected environmental areas create threats to wildlife species and cause ecological disturbances. The combination of dense concrete buildings and asphalt roads with decreased vegetation creates urban environments that absorb heat which leads to higher city temperatures. Rapid urbanization has led to significant loss of wetlands in cities like Delhi.⁹ The situation causes higher energy requirements and stronger heatwaves and health threats to the population.

Climate Change Linkages

Weather changes daily, whereas climate change occurs over a long period. Unplanned cities produce high levels of greenhouse gas emissions because they rely on fossil fuels for energy and their transportation systems emit pollution while their green spaces are disappearing. If large amounts of greenhouse gases enter the earth's atmosphere it will increase the temperature of the globe. Carbon dioxide and methane are called as green house gases. The reduced carbon absorption capacity of ecosystems leads to faster global temperature increase. The climate change is closely linked with global warming and it will create the intense droughts, water scarcity, severe wild fires, rising of sea levels, floods, heavy rainfall, intensified cyclones, melting of polar ice caps, decline of bio diversity. The consequences of climate changes are deeply linked with each other's. Urban areas often have higher temperatures and altered rainfall patterns due to urban heat island and climate interaction.¹⁰

Public Health and Environmental Justice

Pollution impacts show an uneven pattern of distribution because economically disadvantaged groups experience higher levels of exposure to contaminated water and toxic air and unsanitary conditions. People who live in overcrowded homes without proper ventilation

⁹ Studies show significant wetland loss in Delhi due to urban expansion.
<https://timesofindia.indiatimes.com/city/delhi/south-delhi-lost-close-to-97-of-wetlands-in-30-years-study/articleshow/124914212.cms>

¹⁰ Urbanization contributes to heat island effects and changes in local climate behavior.
<https://time.com/7300435/india-urbanization-climate-impacts-heat-monsoons>

and sewage systems and access to safe drinking water face multiple health risks which include respiratory diseases and infectious diseases. Inclusive sanitation infrastructure, community health monitoring, environmental awareness programme, and equitable urban planning are essential to reduce health disparities and promote sustainable urban living.

Sustainable Urban Development and Contemporary Environmental Solutions

The current solutions focus on developing eco-friendly transportation systems while implementing more rigorous control measures. The metro system and urban public transport network expansion efforts will decrease private vehicle usage which will result in lower emissions. The proposed solutions involve the restoration work of natural drainage corridors and the removal process of illegal structures and the implementation of Sustainable Urban Drainage Systems (SuDS) which will enhance water absorption together with scientific storm water management planning.

The sustainable solutions require implementation of rainwater harvesting systems to enhance groundwater recharge the protection of aquifer recharge zones through urban zoning laws and wetland and lake conservation policies which preserve ecological balance and ensure water resources for future generations. The proposed solutions include city-level climate action plans together with the promotion of green building standards and the development of energy-efficient infrastructure and the implementation of renewable energy systems and urban carbon accounting systems.

Urban governance establishes how various government bodies and local communities will work together to create urban planning frameworks and financial systems and operational procedures for managing cities. Sustainable urban governance system serves as the base which enables cities to achieve their environmental goals and drive their economic development while improving life quality for their residents. In India the central government and state governments share responsibility for developing urban policy and creating development programs which results in a complex governance system that controls urban management processes.

Sustainable urban development in non-metropolitan cities experiences severe negative impacts because governance systems of this framework do not operate effectively. Environmental injustice develops through socioeconomic pressures which harm vulnerable groups more than other populations according to research. In Aligarh the evidence shows that

people in the Old City and low-income peri-urban areas experience higher pollution levels and poor waste management and frequent water logging problems which demonstrate how governance breakdown connects with social and spatial inequities.

Recommendations:

The urbanization will have a positive impact in infrastructural development and economic benefits to the country. But at the same time rapid and unplanned urbanization can have many negative social and environmental health impacts, which hit the weaker section of society the most. Modern methods use scientific research for managing wastewater and waste materials. Low-income groups are more exposed to pollution and lack basic services.¹¹ The establishment of Sewage Treatment Plants (STPs) ensures treatment of wastewater before discharge. Decentralized wastewater treatment systems help areas lacking sewer networks. Waste segregation at source into biodegradable, recyclable, and hazardous categories improves recycling efficiency. Waste-to-energy plants enable power generation while they decrease the volume of waste that ends up in landfills. The initiatives dedicated to river conservation together with urban water restoration work to restore polluted water bodies while safeguarding freshwater ecosystems.

Conclusion:

The combination of overcrowding and insufficient public services results in people being exposed to pollution which leads to sanitary diseases and respiratory disorders and a decrease in their overall health. The Global South region of the world faces environmental problems which include groundwater depletion and industrial pollution and waste accumulation and flooding that become worse through unplanned urban expansion. The expansion of farms and the development of residential areas has led to a significant decrease in tree population across the land. The natural waterways have been changed, all ponds have lost their water, and erosion problems have grown worse. The environmental modifications have decreased both bird and animal populations in the region. The natural environment requires immediate protection from additional destruction that is currently happening. This process will require collaboration with landowners and civil society members and service

¹¹ Environmental degradation and unequal access to services disproportionately affect disadvantaged urban residents. <https://socio.health/urbanization-and-urban-development-challenges/urbanization-trends-patterns-india-challenges>

delivery organizations. The demand for land resources will keep growing in upcoming years, so a system needs to be established that will help manage land resource use in order to achieve equilibrium among different land requirements.

References:

1. Urban Studies Institute. (n.d.). The downside of rapid urban growth in India: Unplanned cities and social impacts. Retrieved from <https://urbanstudies.institute/urban-planning-development-challenges/rapid-urban-growth-india-unplanned-cities/>
2. Yadav, M. (2020). Effects of urbanization on environment in India. Ph.D. Research Scholar, Department of Geography, Baba Mastnath University (Asthal Bohar), Rohtak (Haryana).
3. Joshi, S. (n.d.). The impact of urbanization on the environment: Evidence from state level empirical analysis in India. [Unpublished manuscript/Research paper].
4. JanSankalp. (n.d.). Urbanization and its impact on the environment in India: Challenges and sustainable solutions. Retrieved from <https://jansankalp.org/urbanization-and-its-impact-on-the-environment-in-india-challenges-and-sustainable-solutions/>
5. SMS Envocare. (2019). Impact of urbanization on environment in India. Retrieved from <https://smsenvocare.co.in/wp-content/uploads/2019/10/Impacts-of-Urbanization-on-Environment-in-India.pdf>