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## Exploring the role of Population density and Housing to achieve Sustainable Urban Growth - A Case of Hyderabad, India

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### ABSTRACT

The global phenomenon is characterized by a city population growth and the corresponding urbanization growth. As more people move from rural areas to cities, it becomes very essential to manage the urban development of cities. However, the Nation's unsustainability is lower than that of other major countries. The urban area must be sustained as the city expands globally. The objective of the paper is to explore the role of population density and housing to achieve sustainable urban growth in the study area, of Hyderabad. This paper is likely to investigate the interplay between density and housing and analyze how population density and housing contribute to achieving sustainable urban development. Data is collected from secondary resources. The findings suggest that effective and inclusive planning is essential to address the challenges faced by policymakers, urban planners, urban designers, and stakeholders, and recommend that they adopt a comprehensive and responsible approach to leverage the advantages of city density and housing for a sustainable future of Indian cities.

## 1. INTRODUCTION

(*Sustainability / United Nations*, n. d.). In 1987, the United Nations, Brundtland Commission defined sustainability as "meeting current needs without compromising the ability of the future generations to meet their own needs." Population density is usually connected to faster economic growth, increased productivity, and better infrastructure services. It was highlighted that overcrowding

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is often linked with urbanization, which puts pressure on environmental issues. After food, Housing is a basic human need because it provides a person with a place to live and meets bodily, social, and emotional needs. Housing affordability is also one of the most acute challenges facing developing countries. (ABANYAM & DANKANO, 2019). according to the state “*Of all the problems confronting the urban poor, none is more severe than finding quality housing*”. where the demand for housing supply is high in urban areas.

Hyderabad is an example of the challenges faced by a city in terms of sustainable growth. The past few decades have seen rapid urbanization, a sudden occurrence since 1990. The fourth most populous city in India has undergone tremendous changes in the economy, which has affected all social, cultural, and social structures of the people. Population growth, inadequate housing, and strained resources have been the results. In a city like Hyderabad, population, and housing are crucial to pursuing sustainable urban development because the expansion of the city has created a growth of slums and a shortage of affordable housing.

The intention of this paper on ‘Exploring the role of population density and housing to achieve sustainable urban growth is likely to investigate the interplay between density and housing and analyze how population density and housing contribute to achieving sustainable urban development. The paper attempts to highlight the population and housing as key parameters in pursuit of sustainable development. Based on the secondary data and the observed changes, expansion, and transformation of the city.

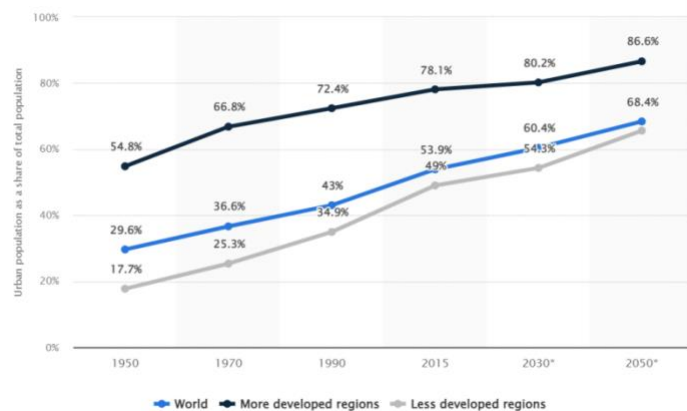
### 1.1 *Determinants of Urbanization*

“People move to the urban region from rural areas because they are pushed by economic conditions or they may be pulled by urban lives. Five major factors stand out as determinants of city growth stand and determinants of city are the Agricultural revolution, technological revolution, commercial revolution, transportation, and demographical revolution. (Hussain & Imitiyaz, 2018).

### 1.2 *Urbanization Trends*

#### 1.2.1 *Global Scenario*

“According to UNDESA, in 1950 more than 70% (two-thirds) of the world’s population lived in rural areas and less than 30% (the remaining one-third) in cities. In 2014, it was 54% and according to the projections to 2050, 66% will live in urban areas and only 34% in rural areas. It has been observed that developing nations tend to possess higher urbanization rates than compared to developed nations”. “The U.K. needs 4.3 million homes to release the backlog of people living in public housing”. 2018 Revision of (World Urbanization Prospects \_ United Nations. n.d.)



**Graph. 1.** Source World Urbanization Prospects 2018

### 1.2.2 Indian scenario

At present, world's population out of 56%, 4.4 billion inhabitants, live in cities. By 2050, nearly 7 out of 10 people will live in cities, with the urban population more than doubling its current size.



**Graph. 2.** shows the India urban populations, 1961-2050 (Source: [www.globaldata.com](http://www.globaldata.com))

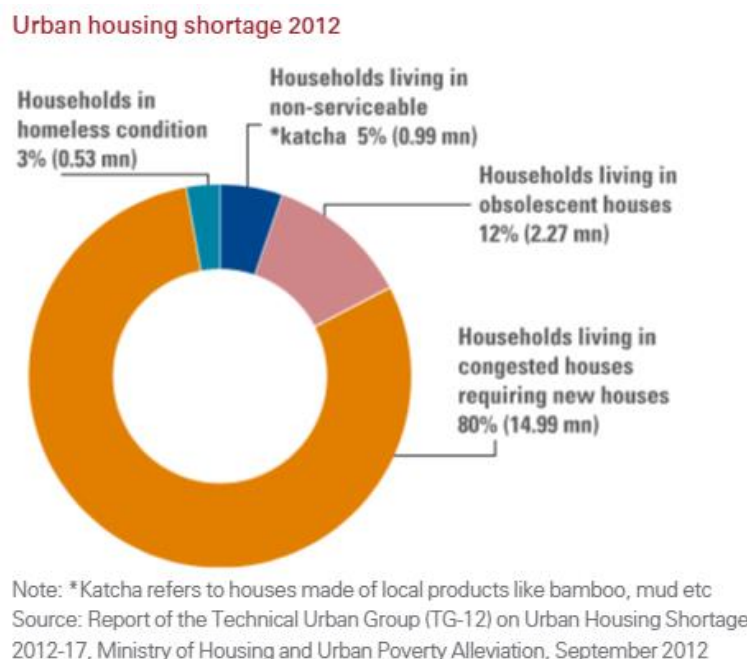
### 1.3. Housing in the Indian Context

The housing stock in India stood at 50.95 million for 55.8 million city households in the twenty-first century. (Keskar et al., 2018). Housing stock was changed into characterized by congestion and obsolescence. (Keskar et al., 2018). Congestion is particularly chronic in inner-city slums and peripheral slums. (*Ministry of Housing & Urban P.* 2007). According to the 2011 Census, 65 million people lived in slum areas. (Keskar et al., 2018).

#### 1.3.1 Housing shortage in India

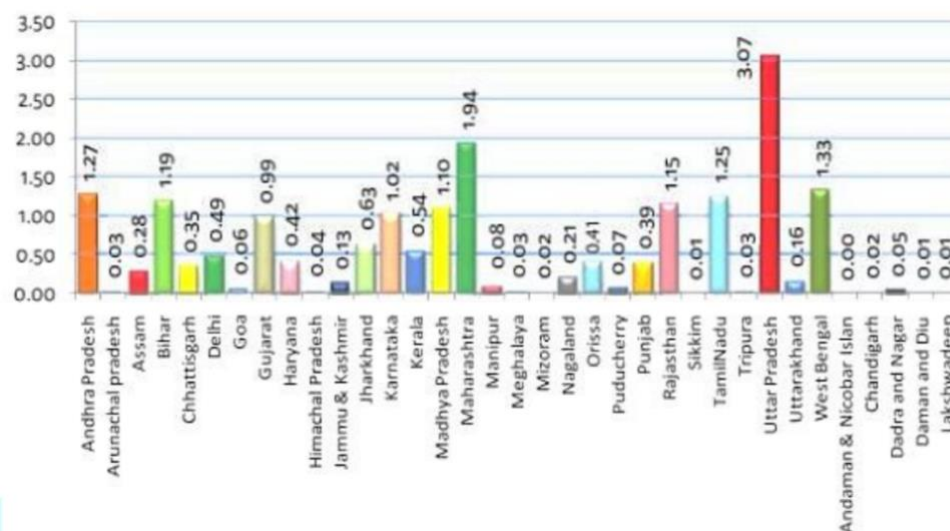
“Rapid increase in population combined with economic disparities has led to increasing problems of housing, overcrowding in small rooms, growth of slums and unplanned settlements and severe deleterious effects on civic services in urban areas”. Handbook of Urban Statistics 2019. [30]. The growing attention of human beings in city regions has resulted in a boom in the wide variety of human beings dwelling in slums and squatter settlements. High prices of land in urban areas have

induced the poor and the economically weaker sections of society to occupy the marginal lands typified by poor housing stock, congestion, and obsolescence. (Jha, 2020).



**Graph. 3.** Source Urban housing shortages

Housing shortage in various states of India (in Million)



**Graph .4.** (Singh A 2021) Housing situation and housing affordability in India.

#### 1.4 Literature Review

The literature is to provide easy access to researchers on a specific topic. Selection of relevant, analytical, and summarized quality information or studies. Research is conducted in a new area by being forced to summarize, measure, and compare original research in that particular area. Many researchers, scholars, and academicians have studied urbanization. Sustainable urban development, population density, and housing. A few studies were discussed in this paper by

(Cheshmehzangi and Butters 2016). Authors argue about the re-evaluation of the compact city, model suggesting density option for ecological benefits, argue that low density and high density and life cycle analysis should applied to urban form, not to individual buildings for a better understanding of sustainability they pinpoint the transport is crucial for energy and reduction and they advocate for the walkable cities which reduce reliance on car and pollution. (Lin *et al.* 2018). regional disparities in housing markets and he suggested targeted policies to manage housing supply. (Singh, S. 2019). Singh's works discuss the economic paradigm and the transformation of the contemporary era. (Bala Kishan *et al.* 2019). Impact of the JNNURM projects on Hyderabad's infrastructure and the socioeconomic situation of the slum dwellers. (Raghavendran, R., *et.al* 2020). Education, employment, and infrastructure improvements are proposed in Telangana to address migration patterns effectively and promote sustainable urbanization in the Hyderabad metropolitan area. (Ibrahim .2020) advocates for the integration and sustainability measures in housing projects. (Garha and Azevedo.2021) impact on demographic changes, the housing market, and demographic changes nothing that the supply of housing does not meet the needs of the population. They suggested that the renovation and development of affordable housing are necessary. The authors recommend rent control taxing, vacant properties, and regulating short-term rentals. (Angel, S. *et.al.*, 2021). Education, employment, and infrastructure improvements are proposed in Telangana to address migration patterns effectively and promote sustainable urbanization in the Hyderabad metropolitan area. explained that urban growth is not feasible but also imperative for sustainable development. (Ramakrishnaiah *et al.*, 2020). The authors aim to highlight rural-urban migration, inadequate urban planning, and the impact of globalization, and address the challenges of effective strategies to improve slum conditions. Discuss the community engagement, and network partnership between the government and NGO The paper advocates a comprehensive approach to slum upgradation, infrastructure development, finance mechanisms and understanding to create solutions for slum dwellers. (Vijayan, V .2024). she pinpoints how the location and lifestyle preference influence the choice of location. Housing preferences in the twin cities of Secunderabad and Hyderabad offer important new perspectives on how urban life is evolving. Provided guided neighbourhood planners, policymakers, and property developers in creating communities that meet the needs of the population.

Some of the parameters studied by the authors are mentioned in the below table,

**Table 1**

<b>Title of paper</b>	<b>Year</b>	<b>Author</b>	<b>Parameters</b>
A Study on Housing Preferences of People in Twin Cities of Hyderabad	2024	Varsha Vijayan	Affordability, location, lifestyle choices, gender, income.
Sustainable Urban Development in India: Assessing Policies, Challenges and Opportunities for Achieving Sustainable Urbanization (2001-2023)	2023	Sandhya Pathania, Ankit	Environmental, social, and economic indicators Inclusive development, governance, and education are essential parameters for sustainability.
Challenges of Urbanization towards Sustainable Development	2022	R.A. Chesika Kanchana	Urbanization, sustainable development, economic growth, social transformation, challenges.
Population and Housing (Mis)match in Lisbon, 1981–2018. A Challenge for an Aging Society	2021	N.S. Garha and A.B. Azevedo.	Demographic factors, size, age, sex, civil status, housing characteristics
Urban sprawl and its impact on sustainable urban development: a combination of remote sensing and social media data	2021	Shao et al. (2020)	Population size, socio-economic development  Kernel density function
The effects of population and housing density in urban areas on income in the United States	2020	Daniel Hummel	Urban density influences income density and residential quality
The Impact of Population Migration on Urban Housing Prices: Evidence from China's Major Cities	2018	Yingchao Lin Zhili Ma Ke Zhao Weiyang Hu Jing Wei	Population inflow rate impacts urban housing prices, real estate investment, and income levels

Density and Housing: Comparative Evaluation towards a Residential Quality Index. The Case of Collective Dwellings in Cordoba—Argentina	2017	María Cecilia Marengo	Small residential area per inhabitant, no parking space Low value of open spaces per inhabitant Mobility and accessibility indicators with middle values
Housing Concept And Analysis Of Housing Classification	2016	Inita Henilane	Housing size, amenities, location, population group, ownership rights, construction period.
Sustainable Living and Urban Density: The Choices are Wide Open	2016	Ali Cheshmehzangi Chris Butters	Environment, economics, social aspects, urban microclimate, low carbon footprint, social cohesion
Perceived Effect Of Intangible Elements Of Location And Residential Segregation On Property Values	2015	Aliyu Ahmad Aliyu, Haruna Adamu and Ibrahim Musa Singhry	Socioeconomic characteristics, property size, and changes over time are parameters.
The relation between Urban form and density	2007	Meta Berghauser Pont and Per Haupt,	FSI, GSI, and Network density

Parameters from the above table illustrate the complex nature of housing and urban development showing how financial factors like affordability and income, demographic aspects such as lifestyle preference and population characteristics, and environmental and social considerations all come together to shape residential quality and sustainability. Highlights the location, urban density infrastructure, and social and economic conditions that influence the housing market. These parameters offer a view of how these elements impact the design, accessibility, and sustainability.

## 2. METHODS

### 2.1 Research Approach

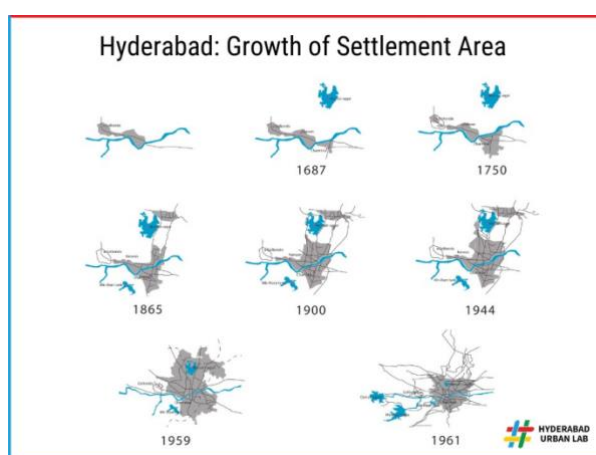
The paper begins with the study of urbanization, urban-rural migration, demographic data, urban sprawl and land use changes, and housing challenges, of sustainable urban development. Secondary data from various secondary sources, research articles, census data used for demographic profiles, and housing policies after independence. housing schemes of Hyderabad. and HMDA and the Ministry of Housing and Urban Affairs were studied to use the trends and patterns of the population and housing.

### 2.2 Case Study of Hyderabad

Hyderabad has experienced fast urbanization in the past decades. According to the 2011 census population of Hyderabad was 4.3 million in 1990, and its area was 650 km<sup>2</sup>. All social, cultural, and social structures of the people have been affected by the changes in the economy of the City. The present area is 1005 Km<sup>2</sup>.

### 2.3 Chronological Growth of Hyderabad City From 1591-1961

The development of Hyderabad-Secunderabad is characterized by eight stages. Between 1591-1687. In this stage, the city's concentration was mainly in the western direction. The transitional phase was 1688 - 1725. The growth of Hyderabad slowed down during this time. The Asaf Jahi period from 1725 to 1799. During this period, the main central area of Hyderabad city developed into business centers. The second twin city stage, 1799-1874. The Residency areas evolved into business hubs during this phase. From 1875 to 1908, the railway stage. The expansion of Hyderabad on the northern side in the industrial development of the two cities, and the growth of Secunderabad. From 1908 to 1955, the Metropolitan Stage. The modern era of the city and its metropolitan growth was ushered in the wake of a catastrophic flood that seriously disrupted the establishment pattern of life in the city of Hyderabad Reorganization of the State: 1956. The flood of 1908 was subsequently followed by events of considerable economic and political significance which changed the social, cultural, political, and economic structure of the city. here the below figures show the growth of Hyderabad city. The below figure shows the eight stages of the growth of the Hyderabad city.

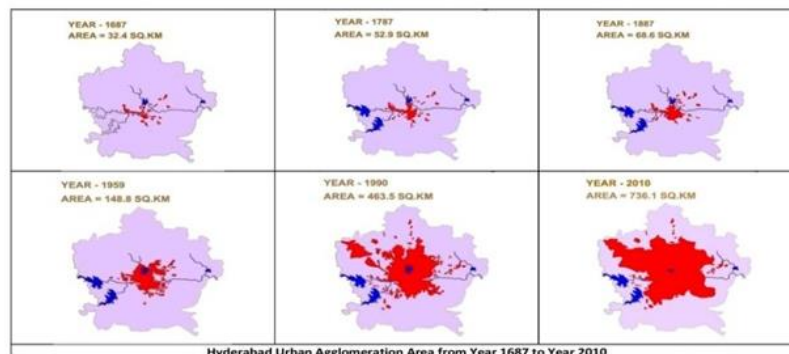


**Fig: 1.** Hyderabad: Growth of Settlement Area, 1687-1960, source: <https://hydlab.co.in/maps/>

### 2.4 Urban Sprawl and Urban Agglomeration:

"Urban sprawl" refers the expansion of metropolitan regions into the surrounding rural areas. These places are frequently marked by low-density development, the conversion of agriculture into concrete jungles, and an increased reliance on vehicles. Urban sprawl has become a significant problem in Hyderabad as the consequence of the city's fast population growth, economic expansion, and poor urban planning. As the city population increases the boundaries of the urban area expand to change the growth, this expansion is considered as sprawl. (Monprapussorn *et al.*, 2020) Seven adjoining towns which were agglomerated into Hyderabad in 1971. Four municipalities in 1981 left behind outgrowth 21 towns were agglomerated in 1991 leaving behind 13 outgrowth. the highest 31 towns were agglomerated to Hyderabad city in 2011, leaving behind the 24 outgrowth. Below figure 2 shows how the urban areas expanded from 1687 to 2010. showcasing the area of 32.4 Km<sup>2</sup> in 1687. It gradually expanded to 168.7 Km<sup>2</sup> by 1887 and the city area reached 148.9 Km<sup>2</sup> in 1959. Hyderabad expanded to 463.5 Km<sup>2</sup>, by 2010 the city further sprawled to 736,1 Km<sup>2</sup> reflecting the substantial increase in population, infra, and economic activities.



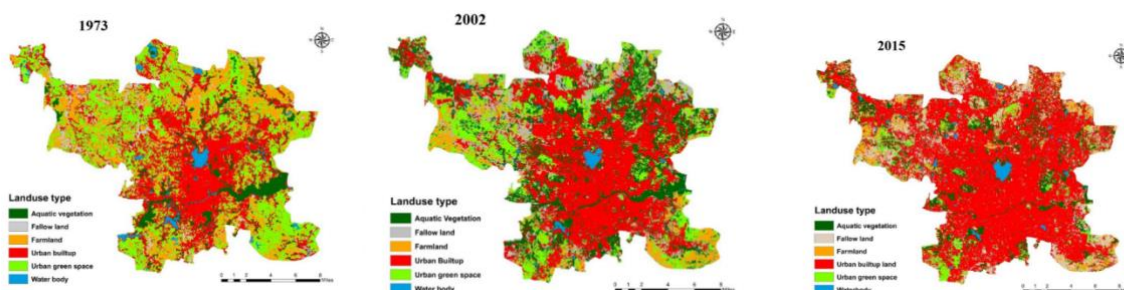


**Fig.2.** Hyderabad Urban Agglomeration from 1687 to year 2010

*Source:* <https://www.ijirset.com/index.php/>

## 2.5 Land use

Land use is being shaken up by urban sprawl. The once lush green areas are now concrete jungles. Water bodies are shrinking, croplands and fallow lands are being used for infrastructure and other developments, and water bodies are shrinking. Those water bodies become dumping grounds for construction and other solid waste. The development of infrastructure continues to alter the terrain, particularly along major transportation routes. Hyderabad's built-up land area, comprising housing and other structures, has more than doubled between 2005 and 2016 from 38,863 to 80,111 hectares. The pressure of urbanization on land can also be understood from the land-man ratio that has been falling. The density of the city population 363 per km<sup>2</sup> in 1869 was increased to 7347 in 2001. The overall density of city population increased further to 18,430 per km<sup>2</sup> in 2011, indicative of the pressure of urbanization on land and more so in core cities. The land use pattern has changed from green fields and agricultural fields that have been converted to built- areas to house the growing population. The below land use maps are shown figure 3 from 1973 to 2015 highlighting the effects of rapid urbanization. In 1973 the landscape was primarily dominated by farmland and green spaces with limited built-up area, whereas in 2002 there was a significant increase in urbanization, with the red zone representing urban areas expanding and encroaching on farmland and green spaces. In 2015 the urban built-up area had become a predominant land and natural vegetation.



**Fig.3.** Land use land cover change dynamics in Hyderabad city during 1973–2015

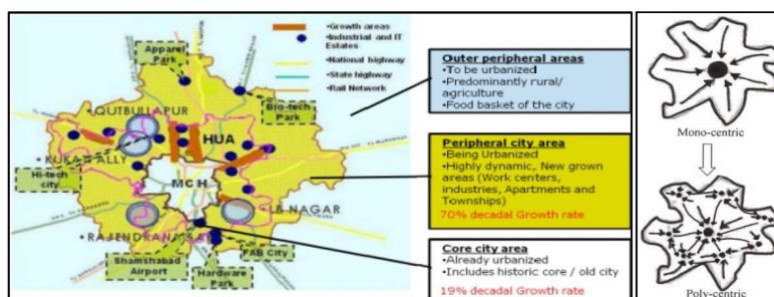
### 3. Results and Discussions

#### 3.1 Formation of the City After the 1990s

The formation of the city after the 1990s was something different in expansion way. The city expansion mostly happens in the northern part of the outskirts. Singh, S. 2019. [20]. The large vacant areas are transformed into new big buildings transforming the city's economy, morphology, and social composition.

#### 3.2 Growth Pattern of the City

The growth pattern has transformed from a mono-centric to a poly-centric pattern with the development of new economic growth centers. the below figure 4 illustrates the urban growth pattern of a city .highlighting three key areas. the core city area is already urbanized 19% decadal growth rate and includes the historic core, peripheral city area which is rapidly urbanizing the new development like work centers, and townships. Showing a 70% decadal growth rate and the outer peripheral area is primarily rural and agricultural yet to be urbanized.



**Fig.4.** Changing Design Appearance of the City

#### 3.3 Changing Design Appearance of the City

The city has a major influence on the Asaf Jah dynasty over its architectural style. Various buildings like Salarjung Palace, and various government institutional buildings are fine examples of that era with Indo- scenic architectural style. During the past years Hyderabad city has come into contact with various other countries and their culture due to the effect of globalization and the architectural style has now shifted towards contemporary style. “These iconic and huge buildings with all modern amenities and services house various IT and pharmaceutical companies”. (Nayak & Keskar, 2014).

Hyderabad's housing development has seen sudden changes since the late 1990s when it began to achieve global importance as a result of the IT sector. The city appears from the indo sarcenic style to the contemporary style. And housing typology also takes so many dimensions from single-unit houses to apartment buildings.



Fig .5. City appearance from indo- sarcenic architectural style to contemporary style

### 3.4 Housing in Hyderabad

#### 3.4.1 Trends in growing city population

The city has witnessed a growing population, in recent years with the effect that Telangana has become one of the fastest-urbanizing states in the Country. The trend suggests that part of Hyderabad. (United Hyderabad and Ranga Reddy districts) Populations steadily increasing indicative of significant growth. However, major changes are still going on unabated. Given the rapid pace of industrial and commercial activities. he population of the city increased to 1.25 million in 1961. In 1970 the population of Hyderabad was 1.7 million and the area was 298.5 Km<sup>2</sup>, 1980 population was 2.5 million, 1990 population was 4.2 million means the population increased by 1.7 million while the area remained the same, year population was 5.7 and the area remains the same in the year 2000 and 2010 area was 650Km<sup>2</sup> and population was 7.5 million, present area is 1005 Km<sup>2</sup> and present population is 11.1 million, expected population till 2035 is 14.5 million. Hyderabad is one of India's fastest-growing cities, situated in the southern part of the Telangana and southeastern part of India, located in the northern part of the Deccan plateau on the banks of the Musi River, a tributary of the Krishna River this region covers 65,000 hectares of the Deccan plateau. The present population of Hyderabad city is 11,069,000 2.48% increase from 2023. Below figure 6, data shows the population of the Hyderabad city from 1950 to 2037.

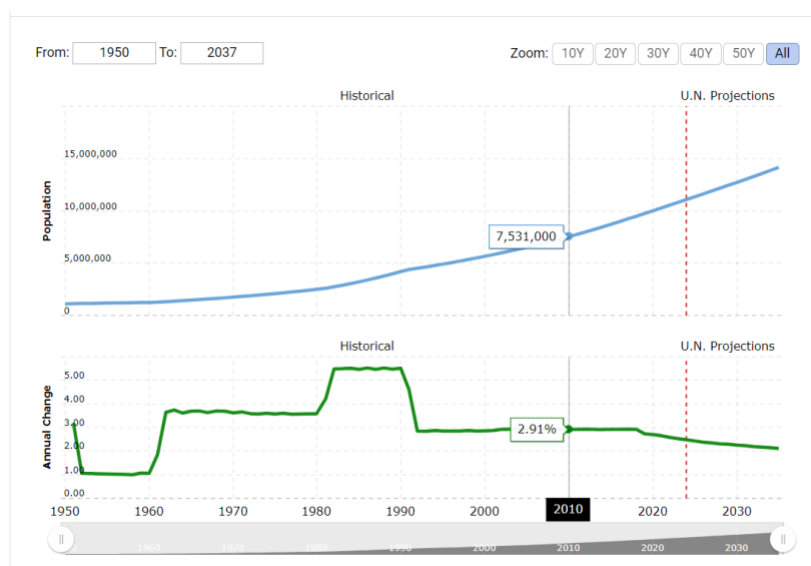


Fig.5. Data Source: United Nations - World Population Prospects

**Table.2**

S.No.	Component	Area	Population in Lakhs						Density of Population Sq. km.		
			1981	1991	2001	2005	2011	2021	2001-05	2011	2021
1	MCH	172	21.0	30.5	36.3	39.1	43.3	51.7	21048	25116	29977
2	Surrounding Municipalities	419	3.8	9.9	17.0	21.8	28.9	50.9	4102	6926	12151
3	Others	187	2.3	3.2	4.0	4.4	5.0	6.3	2147	2692	3391
4	HUA	778	27.1	43.6	57.5	65.4	77.2	108.9	7393	9923	13997
5	HUDA	1905	29.9	48.7	63.8	74.5	90.5	136.4	3351	4753	7162

*Density of the population from 1981 to 2021*

The above table 2. Presents a detailed analysis of population growth and density changes in various components of a specific region related to Hyderabad over 40 40-year period from 1981 to 2021. It breaks down the data into 5 components, municipal corporation, surrounding municipalities, others, HUA, and HUDA the data shows a significant increase in population growth in all components with MCH 21.0 lakhs in 1981 to 51.7 lakhs in 2021. Surrounding municipalities' growth rate is 3.8 lakhs to 50.9 lakhs from 1981 to 2021, population density figures, where MCH is 21,048 persons/ Km<sup>2</sup> in 2001-05 to 29,977048 persons/ Km<sup>2</sup> in 2021. HUA covering a large mix of urban and rural had a density of 3351/ persons/ Km<sup>2</sup>. 2001-05 to 7162 in 2021.

*3.4.2 Impact of urban population density on housing*

(Mulder, C. H. 2006). Population and housing are two-sided. population effect leads to a changing condition for housing. The population density and housing availability of cities are critical in understanding sustainable urban growth. Higher population densities in urban areas have led to pressure on land resources. resulting in the conversion of farmland into a housing development. The high density of population in Hyderabad's urban agglomeration region is making available residential space scarce in the city. Housing remains one of the most pressing challenges for the Hyderabad urban population due to economic opportunities and its major IT sector and this resulted in a substantial demand for housing with the current supply struggle to meet. This gap has resulted in overcrowding population residues in informal settlements this lack of affordable options forced low and middle-income families into precarious living conditions.

*3.4.3 Environmental impact*

The rapid urbanization depicted in the Fig.3 from 1973 to 2015 suggests several environmental impacts resulting from the expansion of urban areas, farmland, and green spaces. This shift has contributed to a decline in biodiversity as natural habitats have been destroyed to make way for urban development. the replacement of vegetation with concrete has also exacerbated the urban island effects, the surface has led to challenges in water management, and decreased groundwater. The city's waste management system is a hassle with many difficulties. There are more lakes and other bodies of water in the inner city, along with open space and green areas that have been overlooked for the last two to three decades.

The land is the primary source of all human settlements, there will always be an organic relationship between man and the land, and changes in human behavior will typically have an impact on both the land and others too.

#### *3.4.4 Growth of Slums*

Another pressure on land is seen in the ever-growing slums in the city. The core areas of a city are generally congested due to the concentration of commercial activities. According to the United Nations, approximately 50 percent of the global urban population can be classified as slum dwellers individuals who suffer from inadequate access to safe water, sanitation, infrastructure; poor structural quality of housing; overcrowding. (Vaid & Evans, 2016). About 1.7 million people constituting 1/4th of the city population, live in slums. This indicates the inaccessibility of land to the poor who are mostly from the migrant population. There are about 1476 identified slums in Hyderabad city and 2/3 of them are located in the Core city itself. The rapid urbanization of Hyderabad from 1975 to 2015 has contributed to the significant growth of the slums. As the urban area expanded fueled by population growth and migration, the supply-demand. Where many of the low-income residents, are unable to afford formal housing. The reduction of farmland and green spaces, replaced by high-density development often overlooked the needs of the economically weaker section. As a result, slums emerged in areas with inadequate infrastructure, and limited access to basic services. The growth of slums is not just a housing issue but also reflects social and economic disparities.

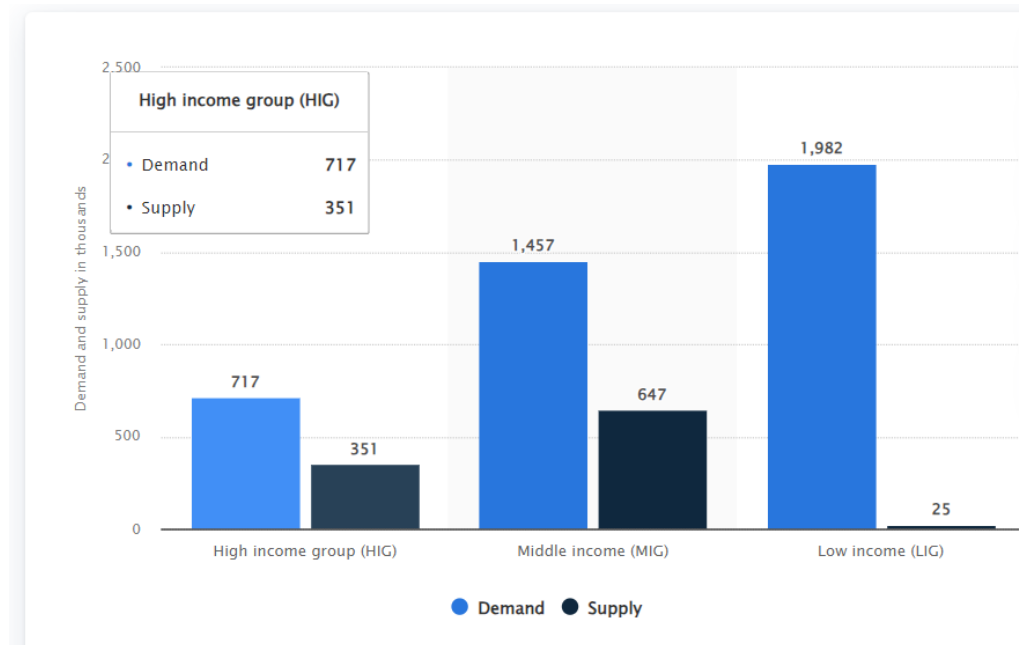
#### *3.4.5 High housing cost*

In the last 3 decades, there was an increase in the Hyderabad city population which led to the demand for housing, and seen sudden rise in housing costs, including property prices and rents. It is difficult to afford a house in the core city. This can surpass income and put housing out of the range of many, especially for the low and middle-income, more expensive areas in Hyderabad like Banjara Hills and the Jubilee Hills area can create barriers for this group population. Housing supply is limited for them and the Hyderabad housing is financialization with the speculative demand and housing is treated as financial assets.

#### *3.4.6 Housing supply and demand*

From 2016 to 2020, the demand for residential housing among the low-income group of the 8 biggest cities of India was 1.98 million housing units, supply was only 25,000 units. A significant gap between demand and supply in this income group can be seen. The gap is much smaller in the middle and very lower in high-income groups. Many cities in India face housing problems as an issue of increasing urbanization, population growth, and economic inequity. It is difficult to fulfill the demand and supply of the growing population in the cities, which results in the overcrowding of the population in the congested areas creating slums and improper housing conditions In Hyderabad, there is a demand for 518, thousands housing units (five hundred and eighteen thousand) and a supply of 75 thousands units. As the population increases demand for housing increases to fulfill the increasing demand for housing stock proactive measures are to be taken to meet the needs of the urban population.





<https://www.statista.com/statistics/1211868/india-housing-demand-and-supply-in-major-cities/>

### 3.4.7 Inadequate housing supply

The imbalance between demand and supply is greatly attributed to the large gap between high housing costs and low purchasing power for urban residents. The increase in housing costs and the land value or property value relative to wages and incomes in Hyderabad city has made urban housing unaffordable, which is leading to homelessness, growth of the informal sectors, and rental demand. And this has become a burden to the Middle-income group and low-income group. The inadequate housing supply of affordable housing in Hyderabad has resulted in rising property prices, rental rates, and housing costs, many low and middle-income households struggle to find housing within their budget forcing them to live in substandard conditions with access to basic services, lack of housing problem pushes them towards informal settlements.

### 3.4.8 Housing policies and zoning rules

Housing policies in India and zoning rules in Hyderabad over the past decade have led to an extended lack of housing supply. The government of India had formulated many housing policies for the below-poverty people, like *housing for all by 2022*, *in 2015* and *slum-free city in 2009*, the housing policies after independence there was only one policy that talked about sustainable development and gave a better standard of living i.e. in 1970, the policy was *Housing and Urban Development Corporation*. Most housing policies focus on subsidies for home buyers in economically weaker sections and low-income group categories.

### 3.4.9 Ineffective policies implemented by the government

The government of Telangana has implemented many schemes for below-poverty line (BPL) people one of the schemes is” (*HOUSING FOR THE POOR*, known as “*dignity housing*” *DOUBLE BEDROOM HOUSE*) for the poor was introduced in the year 2015, to address the need for economically disadvantaged for segments of the population, and identified different locations outskirts of the city and in the rural areas where beneficiary are not ready to move because of their livelihood and the employment. So, many of the projects are unsuccessful. Slums are opportunities, not problems,

and relocating people to new places from their communities is a big mistake. They are disconnected from social and economic networks. Instead of relocating, improvement or redevelopment of these settlements can be connected to social and economic networks.

#### *4.0 Sustainable Urban Planning Strategies*

**Compact urban planning:** Encouraging high-density developments in cities, helps control urban sprawl, promote efficient land-use, maintain green spaces, and utilize less land., reduce long commutes encourage walking and cycling. Promote mixed-use development projects that incorporate, commercial, residential, and recreational spaces

**Transportation:** Develop efficient use of public transportation networks, that can connect to various parts of the city. Makeover safe and accessible infrastructure for walking and cycling, bike lanes, pedestrian pathways, and green corridors. promoting the NMT (Non-Motorised Transportation) can reduce traffic congestion and improve accessibility and connectivity in urban areas.

**Transit-Oriented Development:** Design a neighborhood in such a way that prioritizes access to the amenities, reducing the need for the local communities. Promote transit by reducing the dependence on public vehicles cantering the housing near the public transportation center.

**Affordable Housing Initiatives:** Addressing the affordable housing needs especially for the low and the middle-income group. Implement policies that require a percentage of new housing development.

**Green infrastructure:** Includes parks, green roofs and community gardens in urban areas to improve quality of life. Promote environmentally friendly construction methods that have less negative environmental impacts.

**Adaptive building reuse:** Promoting the reuse of under-utilized or vacant land contributes to meeting housing needs without expanding the urban areas.

**Climate-friendly design:** Develop strategies to address the impacts of climate change, such as floods, heat waves, and weather effects, to improve the city's resilience to natural calamities, integrating them into city planning as a remedy against such risks.

**Community engagement:** Involving community people in planning can lead to more effective and sustainable housing solutions. Planners can better understand the v issues facing various communities by including people in decision-making.

**Community land trust:** Establish a collective land trust to manage and purchase affordable dwellings. Preventing the speculations and long-term affordability.

**Revitalizing the informal settlements and existing urban areas:** Focus on upgrading the existing informal settlements rather than relocating this can involve improving infrastructure, access to basic services, and housing quality. Which will enhance living conditions while preserving communities and social networks. Most of the existing urban spaces often go unnoticed by municipal authorities.

**Sustainable land use policies:** Urban green spaces that are protected by law should be used and the urban environment kept sustainably. This will maintain environmental quality and guarantee the long-term sustainability of metropolitan areas.

**Sustainable practice in urban planning:** To reduce environmental effects and improve the overall quality of life, sustainable urban planning techniques include energy-efficient architecture, sustainable transportation, and green building techniques among others.

**Technology integration:** leverage the technology to enhance urban management.

**Monitoring and evaluating:** Regularly monitoring and evaluating the framework for housing policies can help assess their effectiveness and make necessary changes based on real-time data and community feedback to adopt policies.

### *5.0 Future Recommendations*

**Conducting the longitudinal study:** Conducting the longitudinal study that looks at the population growth, housing conditions, land-use environmental changes, and the policies over time.

**Fulfilling housing needs:** develop policies and initiatives to increase the availability of affordable housing units.

**Streamline policies and regulations:** Revising housing policies, land use regulations, and zoning guidelines, to facilitate better urban planning.

**Community:** involving community members in the planning and decision-making and incorporating feedback from residents to develop housing solutions.

**Revitalizing informal settlements:** focusing on the redevelopment of the informal sector rather than the relocating residents. implement programs to enhance access to basic services, improving the quality of life.

**Promote sustainable urban planning:** encourage and adapt sustainable urban Strategies including compact city planning, green infrastructure, climate climate-responsive practices. Policies that support and reduce environmental effects.

**Evaluate population density and environmental sustainability:** research to evaluate the population density and environmental factors such as green spaces, and pollution levels and use data to inform sustainable urban planning.

**Invest in infrastructure improvement:** Investing in infrastructure improvements such as skywalks, subways, and, public transportation network focus on improving the connectivity between residential areas and other urban amenities.

**Integrated public spaces:** such as green spaces, public spaces, and vacant land, community into new housing development housing. ensure amenities and accessible to all residents and contribute to the well-being of society.

## **4. Conclusion**

Population density and housing play an important role in determining urban development influencing the livability of the city. Cities like Hyderabad and many other urban in India face the same challenges of overcrowding population and demands for housing. An increase in population density not only impacts housing and infrastructure but also affects the environmental sustainability leading to the high pressure on land resources. Demand for housing leads to change in land use where farmland is converted into housing development, and green spaces into the built-up areas. To justify the population density and housing it is necessary to implement sustainable urban strategies measures. In cities like Hyderabad, housing plays an important obstacle to achieving sustainable urban growth. Rapid urbanization in Hyderabad experiences a housing crisis leading to a growth of slums and informal sectors where the informal population is facing, demand for housing is more for the below-poverty people, low and middle-income group but the supply is less, where the demand is less and supply is more for the high -income group therefore the imbalance between the demand and supply is a key issue by addressing the high cost of housing related to the low purchasing power. Affordable housing has become a pressing concern with rental rates, land value, and the high housing cost making it affordable for middle to low-income groups. Government policies and zoning regulations play an important role in addressing housing challenges. After independence, many of the housing policies implemented those policies focused on subsidies for home buyers in lower-income populations however effectiveness of the housing shortage promotes sustainable urban development. Ineffective government schemes such as targeting the below-poverty people have not fulfilled in providing adequate housing solutions that meet the needs of the urban residents. The study highlights the role of population growth, and housing, to achieve sustainable development in Hyderabad city by analyzing the city pattern, growth, economic indications, land changes, and land cover, the study gives



importance to inclusive planning and responsible decision-making to ensure a sustainable and equitable urban environment. The findings highlight that effective and inclusive planning is necessary to address the challenges faced by policymakers, urban planners, urban designers, and stakeholders, and recommend that they adopt a comprehensive and responsible approach to leverage the advantages of city density and housing for the sustainable future of Indian cities. Sustainable urban planning strategies can be implemented to promote sustainable urban development in a city like Hyderabad by focusing on the redevelopment of existing government vacant land for new use, promoting green infrastructure, green building practices, and transportation connectivity. Sustainable urban planning requires long-term sustainable urban strategies. Revise government policies related to housing and infrastructure services. Focusing on compact city planning, by applying urban sustainable measures cities like Hyderabad can achieve sustainable urban development that benefits the residents and the environmental factors.

*There are solutions possible and there's is no reason why we shouldn't tackle all three of our most pressing problems at the same time."*

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