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Critical Issues and Emerging Challenges of Urbanization: A Case Study in Guwahati City of Assam

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ABSTRACT
Indian society has increasingly become urbanized.There were over 285 million people living in urban areas in India in 2001, spread throughout about 5,200 urban agglomerations. In 2011, it rose to about 380 million. It is projected that by 2030, more than 600 million of the 1.4 billion people on the planet may reside in urban regions. Urbanization is a normal phenomenon linked to population expansion.
The present study tries to investigates the problems and difficulties that Guwahati city's urban residents confront and their satisfaction level living in the Guwahati city. The study is completely based on the primary sources of data and the findings of the study shows that overcrowding is the major challenge faced by the urban people in Guwahati city and waste management is the major and foremost environmental issue pressing in urban areas of Guwahati City. Furthermore, it is imperative that the government prioritizes addressing these issues and challenges to advance Guwahati's development into a smart city.
KEY WORDS: Urbanization, issues, Challenges, Guwahati city, Assam.

I. INTRODUCTION

In India,urbanisation has become a major and enduring phenomena that affects the nation's economic development as well as the reduction of poverty.Large cities are becoming more and more common as a result of urbanization, while India is currently undergoing a shift from a predominately rural to a quasi-urban civilization.
There were over 285 million people living in urban areas in India in 2001, spread throughout about 5,200 urban agglomerations. In 2011, it rose to about 380 million. It is projected that by 2030, more than 600 million of the 1.4 billion people on the planet may reside in urban regions (Senthal, 2015;Venkatesham, 2015). Urbanization is a normal phenomenon linked to population expansion. Without a question, the state of the impoverished in rural India has to continue receiving significant attention; nevertheless, the development of the urban sector should not be seen as undermining or negating this attention in any manner. On the other hand, we have to admit that the progression of urban development from small towns to metropolises and rural wealth are mutually reinforcing.The government needs to tackle spatial development holistically if it is to achieve more inclusive growth (Jahan, 2021; Tiwari& Prakash, 2023).
Indian society has increasingly become urbanized. Cities have grown as a result of the rise of industries. People have begun to migrate into industrial districts in search of work as a result of industrialization. Towns and cities have grown as a result of this. The process of concentrating people in one area is another definition of urbanization. Urbanization, according to Mitchell, is the process of relocating to a city, becoming urban, and switching from agriculture to other activities typical of cities. India's urban population (as a percentage of the total population) was last estimated by the World Bank to be 32.75 in 2015. According to national statistical authorities, the term "urban population" refers to the population that lives in urban areas (Sandeep, 2018; Srikrishna, 2017).
The process of increasing the proportion of a territory's population living in towns and cities through a complex interplay of environmental, technological, social, cultural, demographic, and economic events is known as urbanization (Kanchana, 2022).
Urbanization is a topic that is commonly discussed in countries that are now industrializing and urbanizing, even though it has occurred in all industrialized nations at some point in their history. Furthermore, there is a global increase in urbanization.

ABOUT GUWAHATI CITY

The capital and largest city in the northeastern state of Assam is Guwahati. In addition to being the biggest city in northeastern India, it is also one of the fastest-growing in the nation. Guwahati was formerly known as Pragjyotishpur, or "the city of Eastern light." The two Assamese words "Guwa" (areca nut) and "Hati" (rows of areca nut trees) are the origins of the name Guwahati.

The city Guwahati is situated on the Southern bank of the Brahmaputra River with its cardinal point as $26^0 10^/$ north latitude and $90^0 49^/$ east longitude. The Guwahati city located under the Kamrup District surrounded by in the north side Nalbari district, in the east side Darrang and Morigaon district, in the south side Meghalaya state and in the west side Goalpara and Barpeta district.

As per 2011 Census, the population of Guwahati city was 9,57,352 where 4,95,362 were male population and 4,61,990 were female population. The basic description of Guwahati city is given below –

Table 1
Overview of population of Guwahati city

Guwahati City	Total	Male	Female
City + Out Growths	962,334	498,450	463,884
City Population	957,352	495,362	461,990
Literates	793,360	423,122	370,238
Children (0-6)	90,029	46,401	43,628
Average Literacy (%)	91.47 %	94.24 %	88.50 %
Sexratio	933		
Child Sexratio	940		

Source -https://www.census2011.co.in/census/city/191-guwahati.html

II. LITERATURE REVIEW AND RESEARCH GAP

The current literature reviews in this area are as follows:

Authors	Major Findings
Senthil (2015)	Less than 25% of urban transit in India is provided by public transport, as the researcher pointed out. The main problems in metropolitan areas are the availability of necessities including clean drinking water, sewage, waste management, and sanitation. The study suggests that urban residents may affordably receive these basic services, and that waste water recycling is crucial in both large cities and newly developed townships (Senthil, 2015).
Venkatesham (2015)	Industry, modernisation, and the process of sociological rationalisation are all closely related to urbanisation, which is the physical growth of urban areas as a result of rural-to-urban migration. The researcher observed a number of problems and challenges that cities face as a result of urbanisation, including urban lounges, overcrowding, housing, sanitation, squatter settlements, environmental concerns, poverty, transportation, unemployment, water, trash disposal, urban crimes, etc. (Venkatesham, 2015).
Sadashivam & Tabassu (2016)	Urbanization must be sustainable on two fronts: first, it must benefit every member of society equally, making it socially inclusive; second, it must be environmentally sustainable (Sadashivam & Tabassu, 2016).
G. (2017)	Industrialization, social issues, employment possibilities, modernization, rural-to-urban change, and the expansion of education are the drivers of urbanization. Among the primary problems linked to India's urbanisation are urban sprawl, overpopulation, housing, unemployment, slums and squatter settlements, transportation, water, sewerage, waste management, and urban population difficulties (G, 2017).
Sandeep (2018)	These days, the creation of jobs in megacities and metropolitan areas has reached a saturation point, and slums have come to symbolize urban life.Megacities in India are plagued by issues like air pollution, traffic congestion, solid waste management, water scarcity, and slums (Sandeep, 2018).
Jahan (2021)	Urbanization causes problems with housing, pollution, sanitation, drinking water, and health care facilities.The study found that issues related to urbanization include housing shortages, joblessness, population growth, problems with water and hygiene, slum expansion, traffic jams, the spread of disease and poor health, urban crime, etc (Jahan, 2021).
Ojha (2022)	India is one of the nations with the lowest rates of urbanization in the world, even lower than the global average.Though it could not be the same in every nation, the idea of urbanization offers benefits as well as obstacles. Furthermore, India is ranked second globally, after China. China and India combined make up 30% of the world's urban population in terms of percentage. In India, too, more people are living in cities,

	yet there is a lack of infrastructure (Ojha, 2022).
Punyamurthy & Bheenaveni (2023)	Researchers discovered that cities are expanding quickly all across the world, particularly in Asia and India, as a result of globalisation and the start of industrialisation. Finding a clean water source, reasonably priced housing, easily accessible and secure urban land for agriculture to maintain food security, obtaining fulfilling employment, and enhancing healthcare facilities will remain top priorities for the majority of urban residents, particularly the impoverished (Punyamurthy & Bheenaveni, 2023).
Tiwari & Prakash (2023)	One positive outcome of urbanization is the coexistence of individuals from diverse cultural and economic backgrounds in metropolitan settings throughout numerous major cities. Learning about and exchanging ideas and cultures with one another has a significant impact on urban residents. Hasty, unplanned ideas are the driving force behind the rapid industrialization that has occurred. Other variables include migration, population growth over time, and the overcrowding of cities in developing nations (Tiwari & Prakash, 2023).

Although a number of scholars and researchers have conducted studies on the subject of concerns and problems associated to urbanization, the bulk of these studies have been based on secondary data. The basic sources of data used to analyze the problems and challenges faced by urban inhabitants served as the foundation for the current study project. Another thing to consider is that while numerous research has been conducted in other fields, none have been found in the city of Guwahati. The researcher is conducting the current investigation while keeping in mind the aforementioned research gap.

OBJECTIVES OF THE STUDY

The current study's goals are as follows:

i. To identify the problems and difficulties that Guwahati city's urban residents confront.
ii. To determine the degree of satisfaction among Guwahati city's residents.

HYPOTHESIS OF THE STUDY

H_0 1 = The general level of contentment with urbanisation in Guwahati city does not significantly correlate with gender.

H_0 2 = The general level of contentment with urbanisation in Guwahati city does not significantly correlate with age.

H_0 3 = The general level of contentment with urbanisation in Guwahati city is not significantly correlated with educational qualification.

RESEARCH METHODOLOGY

- **Nature of the study**

The nature of the current study is both descriptive and analytical.

- **Data sources**

All of the study's data sources are primary sources. The researcher created a well-structured questionnaire and gave it to the participants. Following the collection of all respondent replies, analysis was conducted.

- **Universe of the study**

There are 9,57,352 people living in Guwahati city as of the 2011 census. The entire population of Guwahati city serves as the study's universe, and each person who resides in an urban area serves as a sample.

- **Sample size**

The sample size for the current study is 384, determined using Morgan's table with a 95% confidence level and a 5% margin of error (e=0.05).

- **Sampling method**

The non-probability sampling method was employed by the researcher to conduct this investigation.

- **Sampling technique**

The city of Guwahati has been chosen by the researcher as the study location, and 384 respondents were taken as a sample size for the study using the Morgan table. Six zones make up the city of Guwahati: the Central Zone, East Zone, South Zone, West Zone, Dispur Zone, and Lokhra Zone. 64 responders were chosen from each zone. The researcher employed purposive sampling in this investigation.

Here,

Total respondents = (64 respondents × 6 zones)
= 384 respondents.

- **Tools for data collection**

The instruments used to gather the data were structured questionnaires. The purpose of the Questionnaire was carefully thought out and built to align with the study's goal.

- **Statistical tools**

The researcher tests the hypotheses of the current study using non-parametric tests such as the Kruskal Wallis H test and the Mann Whitney U test.

- **Limitations of the study**

The sample size of the respondent is limited and the sample size is covered only the people of Guwahati city.

III. DATA ANALYSIS AND INTERPRETATION

Table 1

Demographic outline of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	**Male**	217	56.5	56.5	56.5
	Female	167	43.5	43.5	100.0
	Total	384	100.0	100.0	
Age	**25 years and below**	147	38.3	38.3	38.3
	26 to 35 years	116	30.2	30.2	68.5
	36 to 45 years	64	16.7	16.7	85.2
	45 years above	57	14.8	14.8	100.0
	Total	384	100.0	100.0	
Educational Qualification	**No formal education**	52	13.5	13.5	13.5
	Up to class X	78	20.3	20.3	33.9
	Class XII	96	25.0	25.0	58.9
	Graduate	121	31.5	31.5	90.4
	Post graduate and above	37	9.6	9.6	100.0
	Total	384	100.0	100.0	

Source –Primary Data/ Analyzed by SPPS

The respondents' demographic profile is displayed in Table 1. The results show that 56.5 percent of respondents are men and 43.5 percent are women.In comparison, 38.3% of all respondents are between the ages of 25 years and under, followed by 30.2 percent for those between the ages of 26 and 35 years, 16.7 percent for those between the ages of 36 and 45 years, and 14.8 percent for those over 45 years.Once more, of all respondents, 13.5 percent have no formal education, 20.3 percent have completed up to class X, 25% have passed class XII, 31.5 have graduated, and 9.6 percent have completed postgraduate studies.

Table 2

Biggest challenges faced by the respondents living in an urban areas of Guwahati City

	N	Mean	SD	Skewness		Kurtosis		Ranking
				Statistic	Std. Error	Statistic	Std. Error	
Housing affordability	384	1.38	.487	.484	.125	-1.775	.248	4th
Traffic congestion	384	1.50	.501	.010	.125	-2.010	.248	2nd
Air pollution	384	1.36	.480	.588	.125	-1.662	.248	5th
Water scarcity	384	1.25	.435	1.143	.125	-.697	.248	7th
Noise pollution	384	1.33	.472	.710	.125	-1.504	.248	6th
Overcrowding	384	1.63	.483	-.542	.125	-1.716	.248	1st
Criminal activity	384	1.45	.498	.200	.125	-1.970	.248	3rd

Source – Primary Data/ Analyzed by SPPS

Table 2 illustrates the problems and difficulties that residents of Guwahati city's urban regions confront.Based on the above table's mean score, overcrowding is got 1st rank or major problem faced by the urban people of Guwahati city followed by traffic congestion, criminal activity, housing affordability, air pollution, noise pollution and water scarcity got 2nd, 3rd, 4th, 5th, 6th and 7th rank respectively.

Table 3
Environmental issues pressing in urban areas of Guwahati City

	N	Mean	SD	Skewness		Kurtosis		Ranking
				Statistic	Std. Error	Statistic	Std. Error	
Air pollution	384	1.34	.474	.685	.125	-1.539	.248	4th
Water pollution	384	1.50	.501	.010	.125	-2.010	.248	3rd
Noise pollution	384	1.33	.471	.722	.125	-1.486	.248	5th
Waste management	384	1.66	.475	-.673	.125	-1.556	.248	1st
Climate change	384	1.61	.489	-.450	.125	-1.807	.248	2nd

Source -Primary Data/ Analyzed by SPPS

Table 3 highlighted about the environmental related issues pressing by the people of urban areas of Guwahati city. Based on the mean score of the above table, waste management is got 1st rank as the primary environmental issues pressing by the urban people of the Guwahati city followed by the climate change, water pollution, air pollution and noise pollution got 2nd, 3rd, 4th and 5th rank respectively.

H_0 1= The general level of contentment with urbanisation in Guwahati city does not significantly correlate with gender.

Table 4
Gender wise difference in satisfactionof the people with urbanization in Guwahati city

	N	Mean	SD	Min	Max	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Public transportation	384	3.20	1.077	1	5	18074.500	41727.500	-.047	.963
Healthcare facilities	384	3.27	.975	2	5	17670.000	31698.000	-.446	.656
Education facilities	384	3.29	1.095	1	5	17983.500	32011.500	-.139	.890
Waste management	384	2.95	.961	2	5	17288.500	40941.500	-.855	.392
Water supply	384	3.24	.977	1	5	17827.500	41480.500	-.299	.765
Electricity supply	384	3.24	1.026	1	5	17743.500	31771.500	-.391	.696
Drainage System	384	2.16	.981	1	4	17392.000	31420.000	-.705	.481
Gender of the respondent	384	1.43	.496	1	2				

Source - Primary Data/ Analyzed by SPPS

In table 4 it is found that for public transportation, healthcare facilities, education facilities, waste management, water supply, electricity supply and drainage system p values are .963, .656, .890, .392, .765, .696 and .481 which are greater that significant value 0.05. Thus, we accept the null hypothesis and reject the alternative hypothesis which implies that the general level of contentment with urbanisation in Guwahati city does not significantly correlate with gender.

H_0 2 = The general level of contentment with urbanisation in Guwahati city does not significantly correlate with age.

Table 5
Age wise difference in satisfactionof the people with urbanization in Guwahati city

Test Statistics [a,b]

	N	Mean	SD	Min	Max	Kruskal-Wallis H	df	Asymp. Sig.
Public transportation	384	3.20	1.077	1	5	2.442	3	.486
Healthcare facilities	384	3.27	.975	2	5	4.537	3	.209
Education facilities	384	3.29	1.095	1	5	1.861	3	.602
Waste management	384	2.95	.961	2	5	6.175	3	.103
Water supply	384	3.24	.977	1	5	6.336	3	.096
Electricity supply	384	3.24	1.026	1	5	3.109	3	.375
Drainage System	384	2.16	.981	1	4	8.599	3	.035
Age of the respondent	384	2.08	1.068	1	4			

Source -Primary Data/ Analyzed by SPPS

a. Kruskal Wallis Test.
b. Grouping Variable: Age of the respondent.

In table 5 it is found that for public transportation, healthcare facilities, education facilities, waste management, water supply and electricity supply p values are .486, .209, .602, .103, .096 and .375 which are greater that significant value 0.05 means age wise there is difference in satisfaction of the respondents for above statement.P values for the statement drainage system are .035 which is less than significant value 0.05 means age wise there is difference in satisfaction of the respondents for drainage system.

H_0 3 =The general level of contentment with urbanisation in Guwahati city is not significantly correlated with educational qualification.

Table 5

Educational qualification wise difference in satisfactionof the people with urbanization in Guwahati city

Test Statistics [a,b]

	N	Mean	SD	Min	Max	Kruskal-Wallis H	Df	Asymp. Sig.
Public transportation	384	3.20	1.077	1	5	3.056	4	.549
Healthcare facilities	384	3.27	.975	2	5	.683	4	.953
Education facilities	384	3.29	1.095	1	5	2.691	4	.611
Waste management	384	2.95	.961	2	5	2.248	4	.690
Water supply	384	3.24	.977	1	5	3.779	4	.437
Electricity supply	384	3.24	1.026	1	5	6.756	4	.149
Drainage System	384	2.16	.981	1	4	8.899	4	.064
Educational level of the respondent	384	3.03	1.203	1	5			

Source -Primary Data/ Analyzed by SPPS

a. Kruskal Wallis Test.
b. Grouping Variable: Educational qualification of the respondent.

In table 6 it is found that for public transportation, healthcare facilities, education facilities, waste management, water supply, electricity supply and drainage system p values are .549, .953, .611, .690, .437, .149 and .064 which are greater that significant value 0.05. Thus, we accept the null hypothesis and reject the alternative hypothesis which implies that the general level of contentment with urbanisation in Guwahati city is not significantly correlated with educational qualification.

IV. CONCLUSION

Urbanisation has become a prominent and long-lasting phenomenon in India, having a substantial impact on the country's attempts to reduce poverty and promote economic progress.This process is contributing to the proliferation of large cities and marks a transitional phase in which India is evolving from a predominantly rural society into a quasi-urban civilization.

Guwahati, the principal city of Assam and the gateway to Northeast India, serves as a significant urban hub with numerous advantages. However, despite these benefits, Guwahati faces several challenges. The study identifies overcrowding as the most pressing issue confronting the city's urban population, followed by traffic congestion, criminal activity, housing affordability, air pollution, noise pollution, and water scarcity. In addition, waste management becomes the most important environmental issue for the people of Guwahati, along with issues with noise pollution, air pollution, water pollution, and climate change. In order to further Guwahati's transformation into a smart city, the administration must give resolving these problems top priority. Targeted interventions and policy changes should be put into place immediately given the city's strategic significance and the seriousness of the issues found.

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