



# **A Spatiotemporal Analysis of Level, Causes and Consequences of Urbanization in Moradabad City.**

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## **ABSTRACT**

This research paper explores the trend, level, causes, and consequences of urbanization in Moradabad, one of the most populous cities in western Uttar Pradesh. Its analysis the contemporary pattern of urban growth, demographic changes, and the impact of urbanization on social, economic, and environmental dimensions. Moradabad, the 10<sup>th</sup> most populated city of Uttar Pradesh, is an important urban centre of the Western part of the state. Moradabad city is the administrative headquarter of Moradabad district, the second most populated district of Uttar Pradesh. It is just about 150 kilometres from the National capital of New Delhi and is well connected by road and railways. Urbanization is a dynamic and multifaceted process that includes a complex set of social, economic, demographic, cultural, and environmental factors and results in an increase in the proportion of the population involved in other than primary activities and living in towns and cities; it also increases in the concentration of population in the larger settlements with high population density. Urbanization is a process through which people's economic activities shift from agricultural to non-rural industrial and service occupations. Urbanization is also a process of changes in people's thinking patterns, lifestyles, behaviour models, values, and culture. This study is entirely based on secondary sources of data obtained from the census of India and municipal corporations. Various statistical and analytical methods and techniques are used to analyse data.

**Keywords:** Urbanization, Uttar Pradesh, Moradabad, Urban Agglomeration, India.

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## **1. Introduction**

Urbanization is a dynamic and multifaceted process that includes a complex set of social, economic, demographic, cultural, and environmental factors and results in an increase in the proportion of the population involved in other than primary activities and living in towns and cities; it also increases in the concentration of population in the larger settlements with high population density. Urbanization is a process through which people's economic activities shift from agricultural to non-rural industrial and service occupations. Urbanization is also a process of changes in people's thinking patterns, lifestyles, behaviour models, values, and culture.

The world population has shown significant growth, and the dependency of our economy has increased on the industrial sector over the past few hundred years; as a result, more and more people have moved into cities; this process of population movement is known as urbanization. However, in the early period of the 20<sup>th</sup> century, this movement was very slow, although the latter half of the 20<sup>th</sup> century and 21<sup>st</sup> century witnessed a rapid shift of population from rural to urban areas in most countries of the world and the same trend also has been shown by India, Uttar Pradesh, and Moradabad city. Cities are not only home to more than half of the world's population but also a driving force in the socioeconomic development of a nation.

In recent times, Moradabad city has experienced a large-scale rural-urban migration from the nearby areas, surrounding districts and other parts of the country (especially from Bihar and Jharkhand), and the population is increasing rapidly; this rapidly growing population leads to high demand for housing, infrastructural facilities, and other facilities has forced the city to expand beyond the limits.

### ***1.1 Objective of the Study***

There are following two main objectives of this study:

- 1- To analyse the level and trend of Urbanization in the study area
- 2- To assess the causes and consequences of Urbanization.

### ***1.2 Database and Methodology***

This study is entirely based on secondary sources of data obtained from the census of India and municipal corporations. Various research methods and statistical techniques have been adopted for the purpose of achieving the objective of the study. Some cartographic techniques, such as pie diagrams and

Choropleth maps are used to represent the data more meaningfully, and various statistical methods, such as Mean, Standard deviation, are used to represent and analyse data. For the purpose of map making, ArcGIS 10.8.2 software is used.

### 1.3-Review of Literature

(Lanrewaju, 2012)discussed urbanization, housing quality and environmental degradation in Nigerian cities. This study clarified that urbanization degrades the environmental quality of Nigerian cities.

(Uttara et al., 2012) analysed the causes of disturbance of the environment by uncontrolled urbanization in India. They considered that uncontrolled urbanization is responsible for environmental degradation caused by various types of pollution. Rapid and haphazard urbanization is responsible for many other problems such as overcrowding, degrading water quality due to lack of proper sanitation facilities and waste disposal, lack of proper infrastructure facilities, creation of slums, flooding and so on. It is true that urbanization is the root of many problems, but on the other hand, it is an indicator of an area's socioeconomic and cultural development. It is a common phenomenon, so it is impossible to restrict urbanization, but it should not be with compromise with the sustainable development of an area, and it should be ensured that urbanization takes place on the right path to overcome its impact on the environment.

Sabyasachi Tripathi (2013) analyses the trend and pattern of urbanization with growth and equity in India. This study reveals that high rate of urbanization leads to high rate of growth. Growth plays a vital role in poverty reduction and overcome social as well as economic inequality. This study also reviews the various policies of urban development, which was formed in various planning periods by Government of India.

(Zhang, 2016)examined the trend, pace, and different characteristics of urbanization in developing countries of the world. Rapid urbanization is responsible for many serious problems and challenges such as urban poverty, higher urban unemployment, higher urban cost, issues of housing affordability, urban sprawl, problem of sanitation and proper water supply, weak urban financial and governance capacities, rising inequalities, various types of pollution and so on. (Momoh et al., 2022) discussed sustainable urbanization and cities. The focus of urbanization policies should be on promoting sustainable development and reducing the harmful impacts of urbanization. This study reveals that rapid and uncontrolled growth of the urban population in developing countries creates several problems, such as the destruction of arable land, pollution, formation of slums and shanty towns.

(Neelakshi et al., 2022) Discussed better urban planning to overcome the disaster risks in Uttarakhand, a mountainous state in North India. Like other megatrends, urbanization also has significant implications for economic, social, and environmental sustainability. But sometimes, urbanization is also associated with pollution, sprawl, and environmental degradation. Rapid and unplanned urbanization in the region creates various disaster risks, so better urban planning is needed. This study also reveals that the active participation of universities and various NGOs is necessary to provide knowledge and capacities to address the risk of urbanization at a local level.

### 1.4-Study Area

Moradabad city has been selected as the study area for the present research article. One of the biggest urban centres of Ganga Doab, Moradabad, is situated on the Middle Eastern edge of the Doab on the bank of river Ramganga and developed as a node for many routes, roads, railways, and water. Moradabad city extends from 28°49' to 28°53' North latitudes to 78°45' to 78°48' East longitudes. Moradabad is a city, a municipal corporation, as well as a commissioner in the Moradabad district of Uttar Pradesh in India. It is also the head-quarter of Moradabad district.

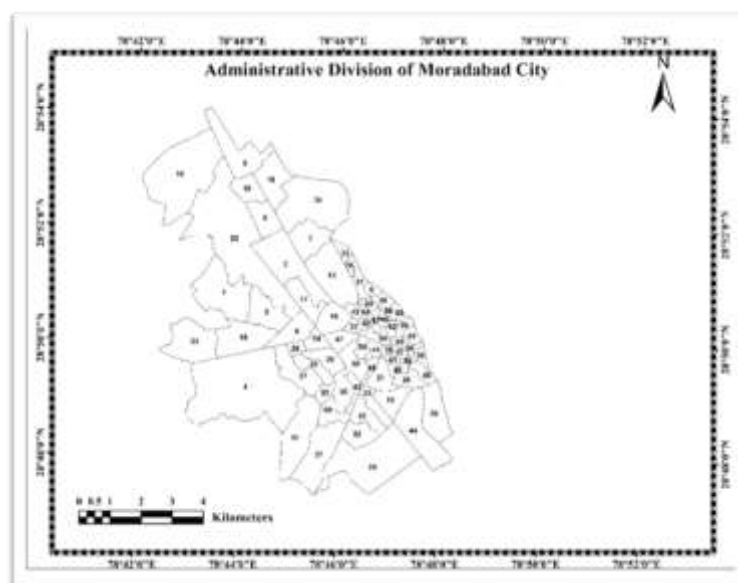


Fig 1: Administrative Division of Moradabad City.

The entire city is divided into 70 different wards that are categorized into four zones North, South, East, and West. The city is also further divided into 340 *mohallas*. The total area of Moradabad city is about 79 sq. kilometres (*Nagar Nigam Moradabad*, 2011). Moradabad is one of the most populated cities of Uttar Pradesh, with a population of 887871. The Census of 1901 revealed that the total population of Moradabad city was 75082 persons. It was recorded as 81,118 according to the 1911 census, with a population growth of about 8.04 per cent. In 2011, the sex ratio of the city was recorded at 911; it was positive in comparison to previous decades; however, it was less than the state and national level sex ratio of 912 and 943, respectively. The literacy rate of Moradabad city in 2011 was recorded at 68.75 per cent.

## 2-Result and Discussion

Moradabad, the 10<sup>th</sup> most populated city of Uttar Pradesh, is an important urban centre of the Western part of the state. Moradabad city is the administrative headquarter of Moradabad district, the second most populated district of Uttar Pradesh. It is just about 150 kilometres from the National capital of New Delhi and is well connected by road and railways. It has helped the city emerge as one of the fastest-growing cities in North India. The city is in the fertile plain of Ganga Yamuna Doab. With the presence of various industries, especially the brass industry, the city has shown rapid urbanization during the last few decades. Moradabad city is well connected by railways and roadways with several important urban centres of the country. The Ambala-Moradabad railway line connects Moradabad city with various industrial centres such as Ghaziabad and Ambala via New Delhi. Moradabad city is also well connected with Kanpur, Agra, and Kolkata. National Highway-9 (Malout to Rudrapur) and Ambala- Moradabad Railway line has helped the city to emerge as one of the fastest growing urban centres in the state. Due to industrial development, especially brass and agro-based industries, and better educational facilities (Teerthanker Mahaveer University, Moradabad Institute of Technology), the city has shown a rapid increase in the urban population in the last few decades.

### 2.1-The Trend of Urbanization in Moradabad City- 1901 to 2011.

The assessment of population growth and the trend is essential for assessing the current as well as future scenarios of the population-resource ratio. The rapidly increasing population of Moradabad city is changing land use and resource utilization.

Table: Decadal Population Growth in Moradabad City- 1901 to 2011

Sr. No.	Year	Population	Decadal Change (in Persons)	Growth Rate (in Per cent)
1	1901	75082	-	-
2	1911	81118	6036	8.04
3	1921	82671	1553	1.91
4	1931	110562	27891	33.74
5	1941	142414	31852	28.81
6	1951	154018	11604	8.15
7	1961	180100	26082	16.93
8	1971	258590	78490	43.58
9	1981	330051	71461	27.63
10	1991	429214	99163	30.04
11	2001	641583	212369	49.48
12	2011	887871	246288	38.39

Source: Census of India- 1901 to 2011.

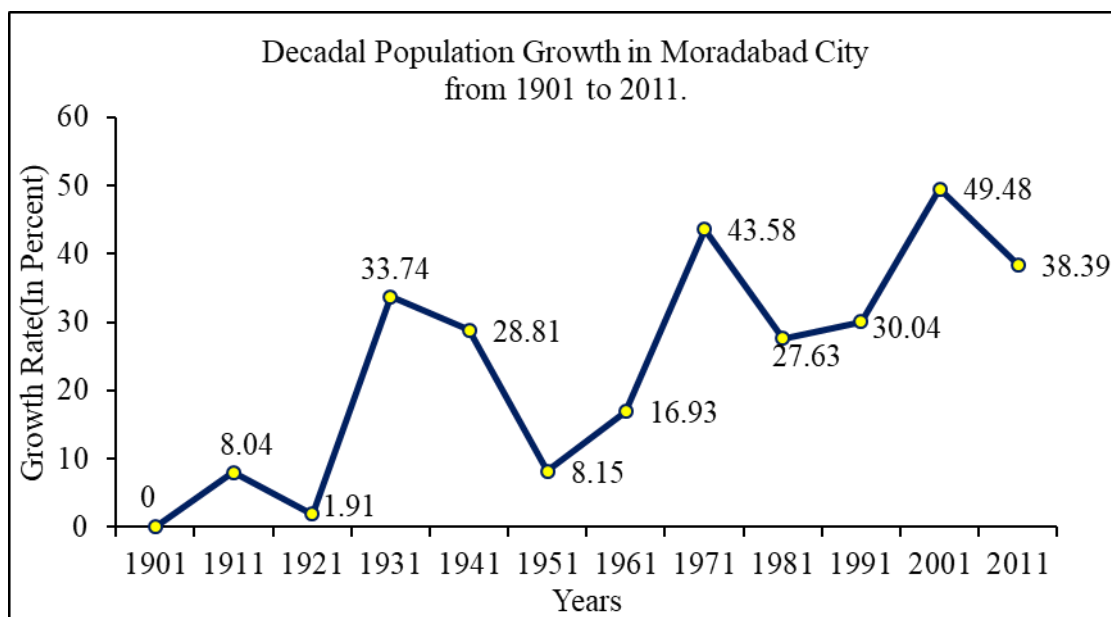


Fig: Decadal Population Growth in Moradabad City- 1901 to 2011.

## 2.2-Average Growth Rate of Moradabad City-1901 to 2011.

The average growth of Moradabad city is recorded 2.6 per cent annually from 1901 to 2011, whereas decadal growth rate was recorded 26.06 between 1901 to 2011. The highest decadal growth rate was recorded between the decade of 1991 to 2001, with a decadal growth rate of 49.48 per cent. The lowest decadal population growth rate was recorded between the decades of 1911 to 1921, with a decadal growth rate of only 1.91, the main cause the lowest decadal growth rate during this period was decrease in the overall population of India, first time in the history of Indian census.

Further, the trend of population growth of Moradabad city has been divided into three different phases as period of slow, medium, and high growth rate:

### Period of Slow Growth Rate- (1901 to 1921)-

During the early period of 20<sup>th</sup> century (1901 to 1921), the population growth in Moradabad city was fluctuated. In 1901, only 75082 persons were living in the city and in 1911, this numbers increased up to 81118 persons, with a decadal growth rate of about 8 percent. From 1911 to 1921, the decadal growth rate of Moradabad city recorded only 1.91 percent, ever lowest in the history of census of Moradabad city. In 1921, the total population of the city was recorded 82671 persons.

### Period of Medium Growth Rate – (1931 to 1961)-

After 1921, the four decades (1931, 1941, 1951 and 1961) show a moderate level of urban growth rate in Moradabad city. In 1931, the total population of the city was recorded 110562 persons, first time more than one lakh, and in 1941 the total population of the city was 142414 persons, during this two decades the annual growth rate of population was recorded about 2.88 per cent, whereas decadal growth rate was recorded 28.81 per cent. Between the decade of 1941 to 1951, the increased in total number of people was recorded only 11604 persons, with a decadal growth rate of 8.15 per cent, in 1941 the total population of the Moradabad city was recorded 142414 persons and it reached to 154018 persons in 1951. The decadal growth rate between 1951 and 1961 was recorded almost double as compared to previous decade, with a decadal growth rate of 16.93, there was an increase of 26082 persons in 1961, over the census year of 1951.

The main causes of moderate growth rate of urban population in Moradabad city during the period of 1931 to 1961, were rural to urban migration in search of better opportunities of employment and resettlement of migratory population of others parts of the country due to the divided of India and Pakistan.

### Period of High Growth Rate- (1971-2011)

The period of last forty years from 1971 to 2011, experienced a high growth in urban population in Moradabad city. In the year 1971 the total population of the Moradabad city recorded 258590 persons, and it was recorded 330051 persons in 1981, with a decadal growth rate of 27.63, during this period 71461 inhabitants were added in the city. During the period from 1981 to 1991, the growth rate was recorded 30.04 per cent, during this period (1981 to 1991), 99163 persons were added in the total population of the city. from 1991 to 2001, the annual growth rate population in Moradabad city was recorded 4.94 per cent, with a decadal growth rate of 49.48 per cent, this was the ever highest decadal growth in Moradabad city, during this period 212369 persons were added in the total population of Moradabad city from 1991 to 2001. The last decade of census i.e., 2001 to 2011, also shows a significant growth rate in the population of the city, with a growth rate of 38.39, during the period of 2001 to 2011, about 2.46lakh people were added in the city.

During this period (1971 to 2011), the population growth rate shows a remarkable rise due to better health care and educational facilities and industrial development, that lead to the migration, especially from nearby rural areas toward Moradabad city.

### 2.3-Spatial Pattern of Population in Moradabad City

#### 2.3.1-Ward-wise Population Distribution in the City-2011

Population distribution or concentration of any region depends upon various physical, socioeconomic, and political factors of that region. Transportation facilities, industrial development, education and health facilities and various employment opportunities accelerate the overall urban growth of a region.

Based on the population concentration, Moradabad city can be divided in three zones

- A- Zone of High Population concentration
- B- Zone of Medium Population concentration
- C- Zone of Low Population concentration

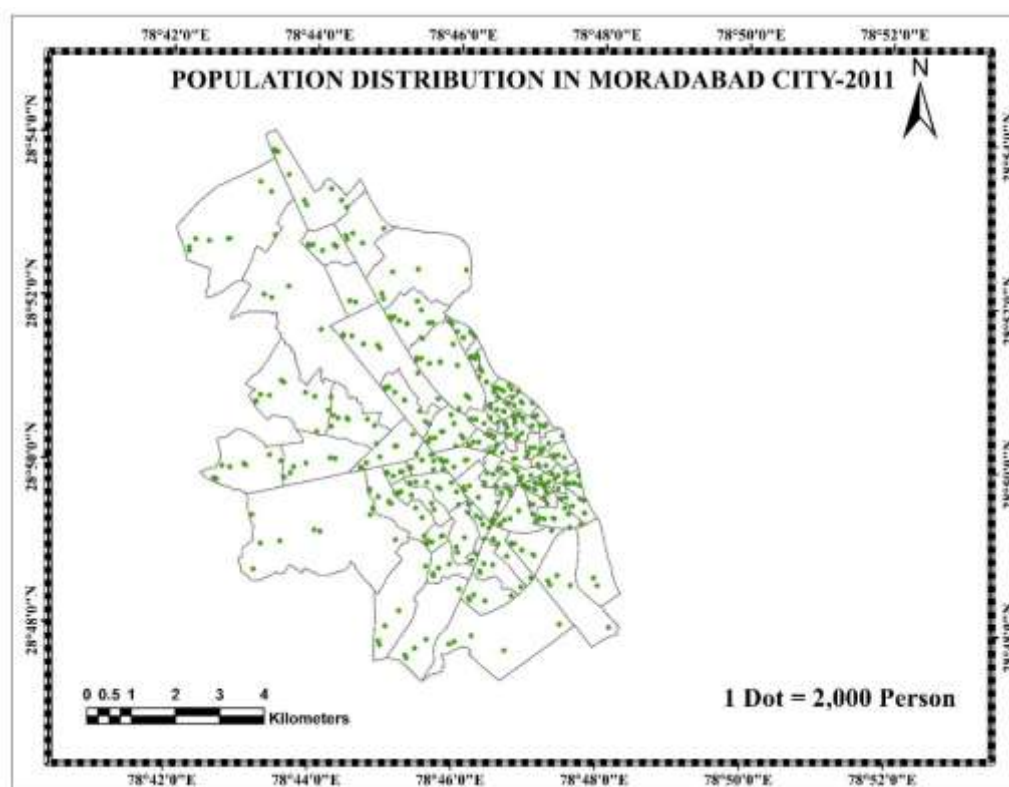


Fig: Population Distribution in Moradabad City-2011.

- A- **Zone of High Population Concentration (Above 18000 person)**- Most of the wards in which high concentration of population is recorded are situated in the eastern part of the city. Most of the wards are situated in old area and central area of the city.
- B- **Zone of Medium Population concentration (Between 18,000 to 9000)**- In 39 wards medium concentration of population is recorded in Moradabad city. Most of the wards in which medium concentration of population is recorded are situated in central and peripheral areas of the city.
- C- **Zone of Low Population concentration (Less than 9000 person)**- The wards in which population concentration is less than nine thousand come under the zone of low population concentration. Most of the wards of this category either in inner area of the city, where area of ward is very less as compare to others zone, or lies in the periphery of the city. It is clear from the abovementioned discussion that the high concentration of population in Moradabad city is registered in inner part of the city as compare to peripheral area. Eastern part of the city has high concentration of population as compare to western and Northern part, the main causes of high concentration in eastern part of the city are better health care facilities and transport facilities.

### 2.3.2-Ward-wise Population Density in Moradabad City

The density of population refers to number of persons per unit of area, and gives an idea of degree of population concentration, hence, population density provides a clear idea of man-land ratio. In India population density is expressed as the number of persons per square kilometre of land area. Population density of any region is also controlled by various physiological, socioeconomic, and political factors. High population density indicates high pressure on land, water, and resources of the region, whereas, low density reveals a low pressure on the resources of the region. According to the census of 2011, population density of Moradabad city was recorded 11838 persons per square kilometre. Lowest population density was recorded in ward number 20 with population density of 1431 persons per square kilometre, whereas highest population density was recorded in ward number 61 with a population density of 1,23,113 persons per square kilometre.

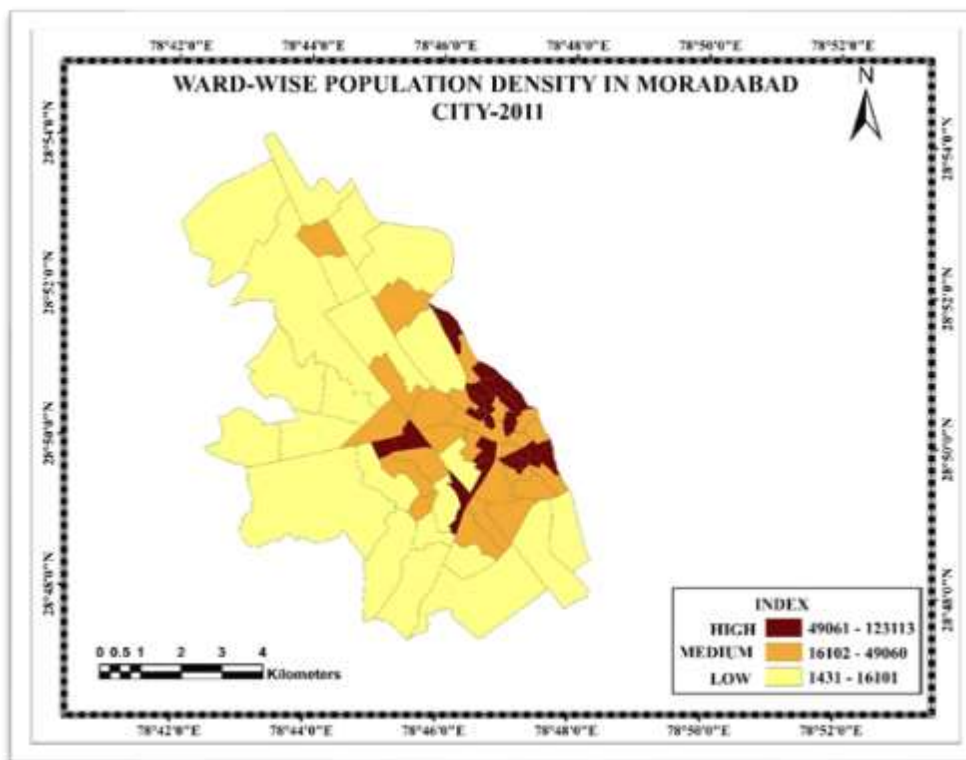


Fig: Ward-wise Population Density in Moradabad City-2011.

Based on the population density, Moradabad city can be divided into three regions as;

#### A- Area of High Population Density-

The wards in which population density ranges from 49061 to 1,23,113 persons per square kilometres, considered as the area of high population density. Most of the where high population density is recorded are in eastern part of the city, which is old area of the city. High population concentration and low area of the wards is one of the most significant causes of high population density in this area.

#### B- Area of Medium Population Density-

In the wards of medium population density, the value of population density ranges between 16102 to 49060 persons per square kilometres. Most of the wards in which medium population is recorded lies in the central and south-eastern part of the city.

#### C- Area of Low Population Density-

Low level of population density is recorded in the peripheral area of the city, all the wards that are situated on the northern, western, and southern boundary of the city have low level of population density. In these wards the value of population density ranges from 1431 to 16101 persons per square kilometres. Most of the of low population density cover large area as compare to inner wards of the city, where high population density is recorded.

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### **3- Causes and Consequences of Urbanization in Moradabad city**

#### ***3.1- Causes of Urbanization in Moradabad city***

Generally, the urbanization process is supposed to result from economic growth. However, it found that many bases are responsible for urbanization, and there is spatial and temporal variation in the basis of urbanization. In recent times, industrial growth and economic progress have been found predominantly responsible for urbanization. Still, in a historical context, some socio-cultural and political forces have played a significant role in urbanization. According to Anderson, urbanization involves not only the movement of people to cities but also a change in the 'attitudes, beliefs, values, and behaviour patterns of migrants.

##### ***3.1.1- Industrialization and Urbanization***

Industrialization is a period of socio-economic transformation of human society, and in this process, a society transforms from an agrarian to an industrial one. It is a reorganization of an economy for manufacturing. This shift represents a transition from the traditional agriculture economy toward an industrial economy called industrialization, resulting in a modernized society. Because of industrialisation, more people migrate towards industrial urban areas from rural areas in search of better employment opportunities.

Industrial development in Moradabad city, especially the brassware industry, provided better employment opportunities; therefore, many people migrated to the town and paced the urbanization process. The development of a Special Economic Zone (SEZ) in Moradabad city boosted the industrial development of the area and various industries developed in Moradabad city and the surrounding area. Some notable industries of the city are C.L. Gupta export limited, Jyoti Metal Industry, Dynamic export, and Global export are famous.

As the industrial development in Moradabad city took place, people migrated in search of better employment opportunities and living standards as they started living permanently in the city; this process played a significant role in the urbanization of Moradabad city.

##### ***3.1.2- Economic Growth and Urbanization***

Economic growth and urbanization are positively correlated. Urbanization is considered an indicator of the overall development of a nation. From a historical perspective, urbanization has been closely linked to economic development. In the same way, the economic development of Moradabad city plays a significant role in urban growth.

##### ***3.1.3- Provision of Better Facilities***

Better health care and educational facilities also play a significant role in the urbanization of areas. In Moradabad city, better educational and health care facilities attract people from surrounding areas.

##### ***3.1.4- Diversification of the Economy***

Diversification of the economy is necessary for a well-established and sustainable economy. Diversification of the economy refers to the transformation of an economy from a single sector to multiple sectors of income in a country or region. The economy of Moradabad city is diversifying rapidly. One of the most striking features of a diversified economy is the rapid rate of urbanization.

##### ***3.1.5- Others Factors***

Historically, urbanization has gone hand in hand with economic growth. However, in modern times, some other factors are also playing a significant role in the urbanization process of Moradabad city.

These factors include commercialization, culture, and glamour of cities. Urban facilities like better communication and transport facilities, recreational facilities etc., attract people from rural areas. Most people desire to become "urbanized" to think and feel like urban people, contributing to the study area's urbanization process.

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### **4. Consequences of Urbanization in Moradabad City-**

There are various consequences of urbanization in Moradabad city; some are positive, whereas some are adverse impacts of urbanization. Positive effects include better employment opportunities, advancement of technology and infrastructural development, a better quality of life, improved transport communication facilities etc. Besides these positive consequences, there are several impacts of urbanization in Moradabad city which are impacting the living standard of people. In Moradabad city, adverse effects of urbanization are overcrowding, traffic congestion, problems with solid waste management and water supply, and poor sanitation facilities; along with these problems, several problems arise due to rapid and unplanned urbanization in Moradabad city.

## 5- Conclusion

The process of urbanization improves the economic and social life of people by providing better employment opportunities, a better standard of life, higher life expectancy, and access to better health care and educational facilities in urban areas than in rural areas. Moradabad city represents a high level of urban growth in Uttar Pradesh. The decade of 2011 registered 12.11 per cent growth in the total urban population in India, while Moradabad city registered 36.16 per cent urban population growth, almost three times higher than the national level. With various positive consequences urbanization also caused various problems such as lack of housing, infrastructure, communicable diseases, issues of sanitation, the problem with drinking water and water supply, unemployment, crime, poor health, lack of better access to health care facilities, improper educational facilities, and exposure to violence and so on. It is important for policymaker to address these challenges and work towards sustainable urban development of Moradabad city.

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