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From Numbers to Narratives: Examining Assam's Population Growth and Its Far-Reaching Effects

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Abstract
Population growth, while an intrinsic phenomenon, presents considerable challenges, particularly in densely populated regions like Assam. Its strategic geographical location attracts significant numbers of migrants from neighbouring states, thereby complicating its demographic landscape. For carrying out this study the analytical method was used to make the study relevant. Secondary data sources basically Census of India reports for the year 2001 and 2011 were used for the study. The data were analysed and represented in the form of graphs and tables. The census reports from the last decades depicts a clear picture that the state has witnessed an alarming growth of population with an overall decadal growth rate of 17.07% underscoring the critical need for proactive measures to address this issue. Distribution of population in the state reveals that there exhibits a significant spatial variation across the districts depending on its physiography and socio- economic reasons. The district wise density distribution shows clearly that Kamrup metro has highest density of population for both the years. Population growth in the districts of Assam can be attributed to both natural increase and also due to the influx of population from both within and outside the country. Therefore, it is imperative to implement effective strategies to manage and mitigate the impacts of this rapid demographic expansion.

Keywords: Population growth, decadal growth rate, distribution, density.

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Introduction

Assam is situated in the eastern most part of the Indian subcontinent and is the largest north-eastern state in terms of population. It occupies a unique position in relation to its geology and physiography. According to the census report 2011, the state constitutes 2.39 percent area of the country and its population percentage is 2.58 percent. The state has witnessed an alarming growth of population throughout the last century. On comparing the average growth rate of the country with Assam it was found out that the state has higher population growth almost throughout the twentieth century (Kar, 2022). The percentage share of population to the country's total increased from 1.30% in 1901 to 2.58% in 2011. As far as the population is concerned Assam may be called as the epitome of India because it has almost all the ethnolinguistically major groups of people found in the country. (Taher and Ahmed et al., 2005). The state had a population of 2,66,55,528 persons for the year 2001 and its population increased to 3,12,05,576 persons for the year 2011 in which males were 15,939,443 while females were 15,266,133. The overall decadal growth rate for Assam from 2001 to 2011 was 17.07%. The state has 85.9% of rural population which was higher than the national average of 69%. Its density is 398 people per sq.km and sex ratio was 962, which decline from 975 in 1991 and 967 in 2001 (Census 2011). Distribution of population in the state reveals that there exhibits a significant spatial variation across the districts depending on its physiography and socio- economic reasons. The plain areas of the state have higher population in comparison to the hills and plateaus which constitute 20% of the region. According to 2001 and 2011 census Nagaon is the most densely populated district of Assam followed by Dhubri and Kamrup. This paper is thus an attempt to study the decadal trend of population growth of Assam from 2001 to 2011 and also it will highlight the causes and impact of the population change. An attempt has been made to understand the spatial distribution of population in the state. Such study will provide an insight for understanding demographic trends and help in solving various issues like migration, cross-border impacts and others.

Study Area

Assam is situated in the north-east corner of the country covering an area of 78,438 sq.km and it is the second largest state in terms of area. The state extends from $24^0 3$' N latitude and $27^0 58$' N latitude and $89^0 5$'E longitude and $96^0 1$'E longitude. The river Brahmaputra flows through the heart of the state and it is responsible for the formation of its floodplain. The state is bordered by Bhutan and Arunachal Pradesh in the north; Arunachal Pradesh, Nagaland and Manipur in the east; Meghalaya, Tripura, Mizoram and Bangladesh to the south; and west Bengal to the west. The region contains three distinct physiographic regions. They are the plateaus region (Karbi Plateau), the hills (N.C Hills) and the alluvial plains (Brahmaputra and Barak valley). According to 2011 census the state has 27 districts with Karbi Anglong being the largest district in terms of area followed by Sonitpur. Majuli was carved out of the northern parts of Jorhat is the first river island district of India. The region experiences tropical monsoon climate with very high relative humidity and heavy rainfall. It is rich in natural resources and abundant forest resource. Assam serves as a connecting link among India and North East India and acts as a gateway for trade and commerce among South East Asian countries.

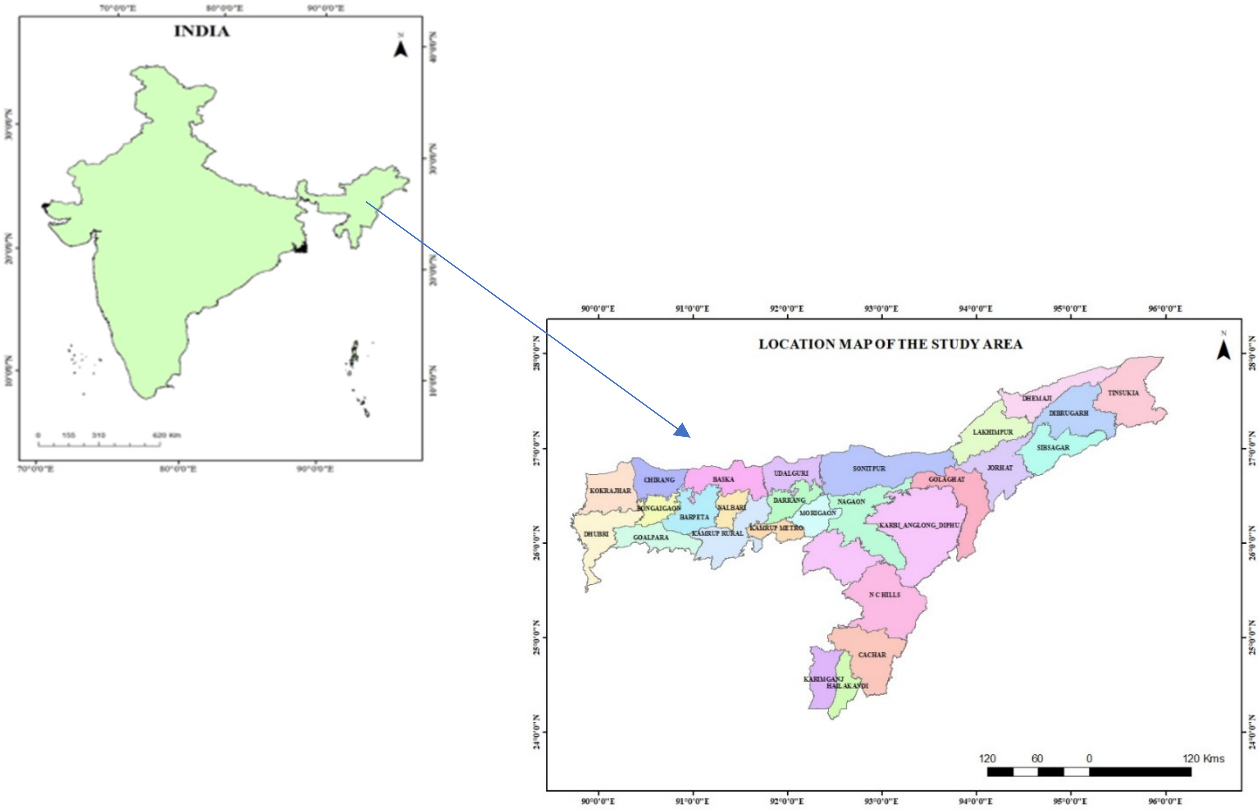

Figure 1: Location map of the study area

Objectives

The main objectives of the study area are mentioned below:

1. To study the trend of growth, distribution and density of population in Assam
2. To examine the causes and impact of population growth.

Methodology and Database

In order to comprehend the population growth pattern in Assam, secondary data sources were examined. Essentially, information from India's 2001 and 2011 census was used. Data and facts from a variety of textbooks, journals, and articles were also cited. Once the data was gathered, it was tabulated and analysed using a line diagram and bars.

Results and Discussion

Trend of population growth of Assam

The overall population of Assam for the year 2001 was 26,655,528 and it increased to 31,205,576 for the year 2011, reflecting a state level decadal growth rate of 17.07%. The individual districts show variations in the growth rate of population. For the year 2001, the district having more than ten lakhs population were Nagaon, Sonitpur, Dhubri, Cachar, Barpeta Kamrup, Dibrugarh, Tinsukia, Kamrup Metro, Sivasagar and Karimganj. Nagaon district recorded highest population with 2314629 persons for the year 2001 and 2823768 persons for the year 2011. While for the year 2011 Jorhat, Golaghat, Lakhimpur and Goalpara has been added to the list of those districts whose population increased to more than ten lakhs. These increase in the population can be attributed to the improvement of infrastructure, health facilities, availability of educational institution and employment opportunities. Lowest population distribution was recorded in Dima Hasao and Chirang district for both the years while there had been relatively slow population growth in these two districts. Other districts have shown moderate population growth throughout the decade. Thus, from the data we can infer that there has been an overall increase in the population of almost all the districts of Assam from 2001 to 2011.

In terms of growth rate districts like Dhubri (24.44%), Morigaon (23.34%), Goalpara (22.64%), Nagaon (22.00%), and Darrang (22.19%), exhibit exceptionally high growth rates. These regions may have experienced natural population increases due to higher fertility rates and significant in-migration, potentially driven by better employment opportunities, agricultural productivity, or migration from flood-affected areas. Dhubri, for instance, being close to the Bangladesh border, might have experienced cross-border migration. Nagaon, one of the most populous districts, could have seen growth from its agricultural activities, contributing to both population retention and an influx of workers from other parts of Assam.

Districts like Barpeta (21.43%), Karimganj (21.90%), and Hailakandi (21.45%) experienced significant growth, potentially driven by their proximity to agricultural or commercial zones, as well as cross-border migration from Bangladesh, particularly in Karimganj and Hailakandi. Such districts could also be benefiting from infrastructure developments, improving living conditions and attracting people from less developed regions.

Conversely, districts like Sivasagar (9.44%), Jorhat (9.31%), and Udalguri (9.61%) experienced relatively slow population growth. These areas, especially Sivasagar and Jorhat, are known for their tea plantations, and while they offer employment, the mechanization of agricultural practices and a general shift toward urbanization may have limited further population expansion. Additionally, these districts could be experiencing outward migration to urban centres for better job prospects, reducing local growth rates.

Urban districts such as Kamrup Metro (18.34%) and Cachar (20.19%) also showed higher-than-average growth, which could be attributed to the increasing pace of urbanization, better healthcare, education, and employment opportunities, attracting people from rural areas. Kamrup Metro includes Guwahati, the largest city in Assam, which serves as a hub for commerce, education, and industry.

In contrast, districts like Kokrajhar (5.21%) and Baksa (10.74%) exhibited slower growth rates, potentially due to political instability or ethnic conflicts in the region, such as those involving the Bodo community. Such conflicts could have led to out-migration and slower natural population growth.

Some districts, like Tinsukia (15.45%) and Sonitpur (15.55%), showed moderate growth, likely influenced by a balance between rural agricultural activity and the presence of industrial zones. These districts might not be attracting large numbers of migrants but maintain a steady population increase due to local economic stability.

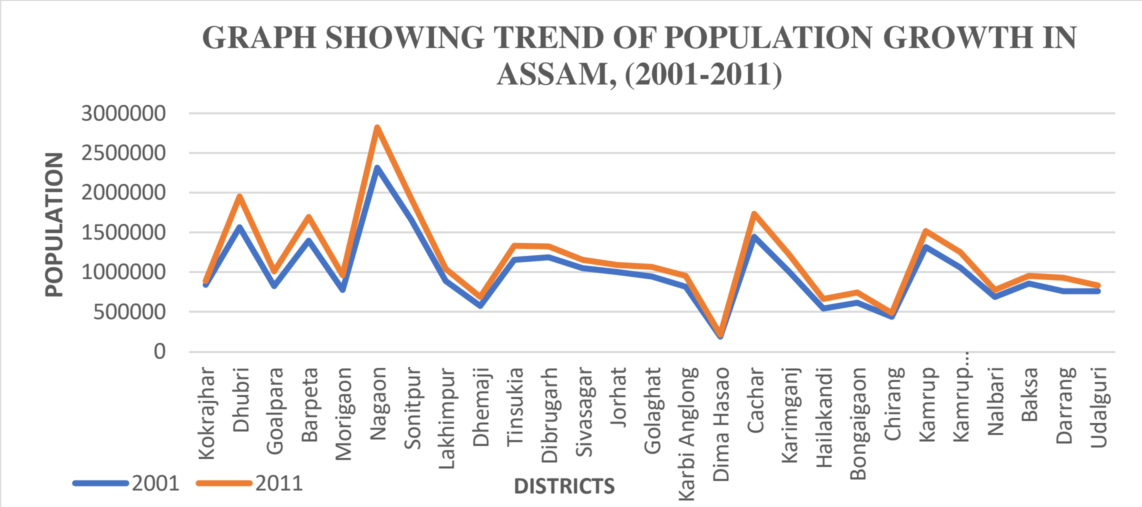

Figure2: Graph showing trend of population growth in Assam, 2001-2011

The above graph depicts a clear picture of the demographic dynamics in Assam for the year 2001- 2011. The overall trend line clearly depicts that there has been consistent increase in the population across all the districts of Assam with some experiencing more pronounced increases than others over the decade.

Table 1 below shows the overall demographic changes across Assam during this period (2001- 2011). It can be inferred that these changes were influenced by a combination of factors, including migration patterns (both internal and cross-border), the growth of urban centres, agricultural and industrial employment, and regional conflicts. These factors created a varied landscape of population growth, with some districts booming while others grew at a more subdued pace.

Table 1: Table showing district wise population data of Assam for the year 2001- 2011

Sl. No	Districts	2001	2011
1	Kokrajhar	3.16	2.84
2	Dhubri	5.87	6.24
3	Goalpara	3.08	3.23
4	Barpeta	5.23	5.42
5	Morigaon	2.91	3.06
6	Nagaon	8.68	9.04
7	Sonitpur	6.24	6.16
8	Lakhimpur	3.33	3.33
9	Dhemaji	2.14	2.19
10	Tinsukia	4.31	4.25
11	Dibrugarh	4.44	4.25
12	Sivasagar	3.94	3.68
13	Jorhat	3.74	3.50
14	Golaghat	3.55	3.41
15	Karbi Anglong	3.05	3.06
16	Dima Hasao	0.70	0.68
17	Cachar	5.42	5.56

18	Karimganj	3.78	3.93
19	Hailakandi	2.03	2.11
20	Bongaigaon	2.29	2.36
21	Chirang	1.62	1.54
22	Kamrup	4.92	4.86
23	Kamrup Metro	3.97	4.01
24	Nalbari	2.58	2.47
25	Baksa	3.21	3.04
26	Darrang	2.85	2.97
27	Udalguri	2.84	2.66

Source: Census of India, 201

1 Table 2: Table showing district wise percentage (%) in the population of Assam, 2001-2011

Sl. No	Districts	2001	2011	Decadal Growth Rate (%)
1	Kokrajhar	843243	887142	5.21
2	Dhubri	1566396	1949258	24.44
3	Goalpara	822035	1008183	22.64
4	Barpeta	1394755	1693622	21.43
5	Morigaon	776256	957423	23.34
6	Nagaon	2314629	2823768	22.00
7	Sonitpur	1665125	1924110	15.55
8	Lakhimpur	889010	1042137	17.22
9	Dhemaji	571944	686133	19.97
10	Tinsukia	1150062	1327929	15.47
11	Dibrugarh	1185072	1326335	11.92
12	Sivasagar	1051736	1151050	9.44
13	Jorhat	999221	1092256	9.31
14	Golaghat	946279	1066888	12.75
15	Karbi Anglong	813311	956313	17.58
16	Dima Hasao	188079	214102	13.84
17	Cachar	1444921	1736617	20.19
18	Karimganj	1007976	1228686	21.90
19	Hailakandi	542872	659296	21.45
20	Bongaigaon	612665	738804	20.59
21	Chirang	433061	482162	11.34
22	Kamrup	1311698	1517542	15.69
23	Kamrup Metro	1059578	1253938	18.34
24	Nalbari	689053	771639	11.99
25	Baksa	857947	950075	10.74
26	Darrang	759858	928500	22.19
27	Udalguri	758746	831668	9.61
	Assam	**26655528**	**31205576**	**17.07**

Source: Census of India, 2011

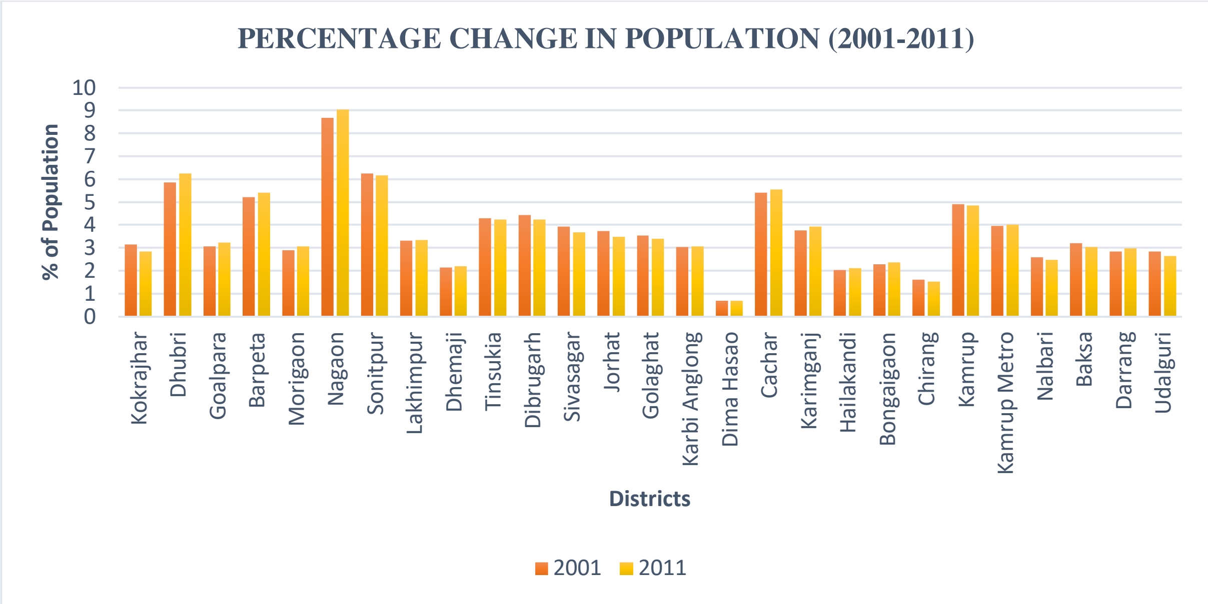

Figure 3: Graph showing district wise percentage (%) in the population of Assam, 2001-2011

The above table and the graph depict district wise percentage change in the population of Assam for the year 2001 and 2011. From the data it can be inferred that there has been an increase in the percentage of population in the districts of Dhubri, Goalpara, Barpeta, Morigaon, Nagaon, Dhemaji, Karbi Anglong, Cachar, Karimganj Hailakandi, Bongaigaon, Kamrup Metro and Darrang when compared with 2001 and 2011 data. The table, thus highlights both growth and decline in the population shares across districts in Assam over the decade, reflecting demographic shifts and regional population dynamics. Those districts with positive change are highlighted for better visualisation. The same dataset has been represented graphically to provide a clear representation of the same in the form of bar diagram in figure 3.

Distribution and density of population in Assam

Throughout the twentieth century population growth rates has been significantly higher in the Brahmaputra and Barak valley. The Brahmaputra valley covers an area of 56,194 sq.km and it has a total population of 26,410,562 persons. Further population is higher in the lower Brahmaputra valley which has the plain districts of Kamrup, Kamrup metro, Nalbari, Barpeta, Morigaon, Goalpara, Dhubri Bongaigaon where population concentration is higher. Middle and Upper Brahmaputra valley has near about seven lakhs population and the districts which falls under this region are Nagaon, Golaghat, Jorhat, sivasagar, Dhemaji, Dibrugarh, Tinsukia, sonitpur, Biswanath, Darrang etc. Barak valley covers an area of 6,922 sq.km and Cachar, Karimganj and Hailakandi districts fall under this region. Karbi Anglong and Dima Hasao are the hill districts of Assam covering an area of 15,322 sq. km and it has a total population of 1,170,415 person. As per the census report the high density of population in the plain regions of the lower Brahmaputra valley can be attributed to the rapid growth of population in Guwahati because of development of the region. Various pull factors such as availability of educational institutes, medical facilities, employment opportunities etc attract students and people from all over the state. Nagaon on the other hand is the largest district in terms of population due to its locational significance and its connectivity with other districts. Karimganj and Dhubri has a large influx of refugee's population from Bangladesh which can be cited as a reason for higher density of population in the region. Nalbari, Morigaon has higher density of population as it is near to Guwahati city which can also be cited as the reason for high density of people.

Table 3: Table showing district wise density of population of Assam for the year 2001 and 2011

Sl. No	Districts	Density, 2001	Density, 2011
1	Kokrajhar	294	269
2	Dhubri	584	896
3	Goalpara	451	553
4	Barpeta	506	742
5	Morigaon	455	617
6	Nagaon	604	711
7	Sonitpur	315	370
8	Lakhimpur	391	458
9	Dhemaji	176	212
10	Tinsukia	303	350
11	Dibrugarh	347	392
12	Sivasagar	395	431
13	Jorhat	354	383
14	Golaghat	270	305
15	Karbi Anglong	78	92
16	Dima Hasao	38	44
17	Cachar	381	459
18	Karimganj	555	679
19	Hailakandi	409	497
20	Bongaigaon	361	676
21	Chirang	219	251
22	Kamrup	579	489
23	Kamrup Metro	1689	1313
24	Nalbari	504	733
25	Baksa	427	387
26	Darrang	432	586
27	Udalguri	453	413
	Assam	**340**	**398**

Whereas least density of population can be seen in the hill districts of Karbi- Anglong and N.C hills and also Dhemaji is the only plain district where the density of population is relatively low because the district is ravaged by changing river channels and frequent floods. Hill districts have sparse population because of their hilly topography with limited cultivable land and poor transport and communication system.
According to the census of India, Assam has a total density of 340 persons per sq.km for the year 2001 and it increases to 398 persons per sq.km for the year 2011. It shows that the state has faster growth of population during the last decade (Amin, 2022). The district wise density distribution shows a clearly that Kamrup metro has highest density of population for both the years 1689 persons/ sq.km (2001) and 1313 persons/sq.km (2011). It can also be seen that the density of population in Nagaon for the year 2001 was 604 which increased to 711 for the year 2011. This increase can be due to increase in population in the district in the last decade due to various pull factors. Density of population has also increased in various other districts such as Dhubri, Karimganj, Bongaigaon, Barpeta, Kamrup, Nalbari in the last decades due to various factors such as fast development activities and other socio- cultural factors.

Causes and Impact of population growth

- Population growth in the districts of Assam can be attributed to both natural increase and also due to the influx of population from both within and outside the country (Kar, 1995 and 2002).
- 86% of population in Assam live in rural areas as a result these areas due to limited access to education, the people are not aware about family planning. early marriage is still prevalent in these regions and various socio-cultural factors have also contributed to higher fertility rates.
- Better health care facilities in the urban areas have led to lower infant mortality rates and increased life expectancy which naturally increases population growth in the region.

- Urban population in Assam has increased from 12.9% in 2001 to 14% in 2011. Increase in urbanisation and developmental activities have resulted to the influx of large number of people from rural areas to the urban area in search of better living standards and other facilities. Guwahati city can be cited as the best example for this situation.
- Influx of migrants in Dhubri, Karimganj and Cachar from neighbouring states and countries like Bangladesh both legally and illegally, has contributed significantly to the growth of population in Assam.

Population growth can have wide ranging impacts on various sectors of societies. Some of the key effects of population growth are pressure on resources such as land, water, energy. Such problems are recently faced in the Kamrup Metro now-a-days. Rapid population growth often leads to environmental degradation leading to deforestation, overuse of natural resources, pollution, soil erosion, disrupting the ecological balance, encroachment on wildlife habitat etc. Large population also means more competition for limited jobs contributing to unemployment among youth, poverty etc. In place with significant immigration, there can be cultural and political conflicts between native and migrants. Pressure on agriculture can also cause various impacts on the soils fertility by reducing productivity in the long term. Overall, unchecked population can pose serious challenge.

Conclusion

The overall population of Assam for the year 2001 was 26,655,528 and it increased to 31,205,576 for the year 2011 showing that the state has experienced pronounced increase in its population over the decade. The state level decadal growth rate of population was 17.07% with Nagaon being the district with highest population for both the years. For the year 2001, eleven districts (Nagaon, Sonitpur, Dhubri, Cachar, Barpeta Kamrup, Dibrugarh, Tinsukia, Kamrup Metro, Sivasagar and Karimganj) had population more than ten lakhs which further increased to fifteen for the year 2011. In terms of growth rate districts like Dhubri (24.44%), Morigaon (23.34%), Goalpara (22.64%), Nagaon (22.00%), and Darrang (22.19%), exhibit exceptionally high growth rates. In contrast, districts like Kokrajhar (5.21%) and Baksa (10.74%) exhibited slower growth rates, potentially due to political instability or ethnic conflicts in the region, such as those involving the Bodo community. Throughout the twentieth century population growth rates has been significantly higher in the Brahmaputra and Barak valley. Higher population is concentrated in the plain districts of lower Brahmaputra valley. In terms of density, Assam has a total density of 340 persons per sq.km for the year 2001 and it increases to 398 persons per sq.km for the year 2011. The district wise density distribution shows a clearly that Kamrup metro has highest density of population for both the years. Population growth in the districts of Assam can be attributed to both natural increase and also due to the influx of population from both within and outside the country. Population growth can have wide ranging impacts on various sectors of societies. Overall unchecked population growth poses challenges for sustainable development, quality of life, and environmental conservation, particularly in regions like Assam with limited resources and infrastructure.

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