



Decadal Demographic Changes and Population Growth in Visakhapatnam City and District: Recent Trends and Status (1901 – 2011 Census Data)

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Introduction:

The study of demographic changes and population growth over the decades is a vital aspect of understanding the dynamic nature of urban centres. Visakhapatnam, a bustling city on the eastern coast of India, has undergone significant transformations in its demographic landscape from the early 20th century to the beginning of the 21st century. This research aims to delve into the decadal demographic shifts and population dynamics of Visakhapatnam City, utilizing comprehensive data spanning from the 1901 census to the 2011 census.

Visakhapatnam's journey from a modest coastal settlement to a thriving urban centre is closely intertwined with its demographic evolution. Over the years, various factors such as industrialization, economic development, urbanization, and migration have played pivotal roles in shaping the city's population profile. Understanding these changes not only provides insights into the city's historical development but also informs policymakers, urban planners, and researchers about the current demographic status and future prospects.

The analysis of census data allows us to explore patterns of population growth, distribution, age structure, and other demographic indicators that reflect the socio-economic dynamics of Visakhapatnam. By examining the shifts in population composition over the decades, this study aims to identify key trends, challenges, and opportunities that have influenced the city's demographic landscape.

As we embark on this exploration, it is essential to acknowledge the interconnected nature of demographic changes with broader societal, economic, and environmental factors. The findings of this research not only contribute to the academic understanding of Visakhapatnam's demographic history but also hold practical implications for policymakers and city planners striving to create sustainable and inclusive urban environments.

In the subsequent sections, we will delve into the historical context of Visakhapatnam, highlight significant milestones in its demographic evolution, and employ census data to analyse the city's population growth, distribution, and demographic structure. Through this comprehensive examination, we aim to provide a nuanced understanding of the recent trends and current status of decadal demographic changes in Visakhapatnam City.

Objective:

- To find out the role of socio-economic variables in the demographic change.
- Overview the trend of population growth in Visakhapatnam City.
- Examine Population Trends Over Decades
- Identify Key Demographic Indicators
- Examine Socio-Economic Implications
- Projection of Future Population in the city

DATA AND METHODOLOGY:

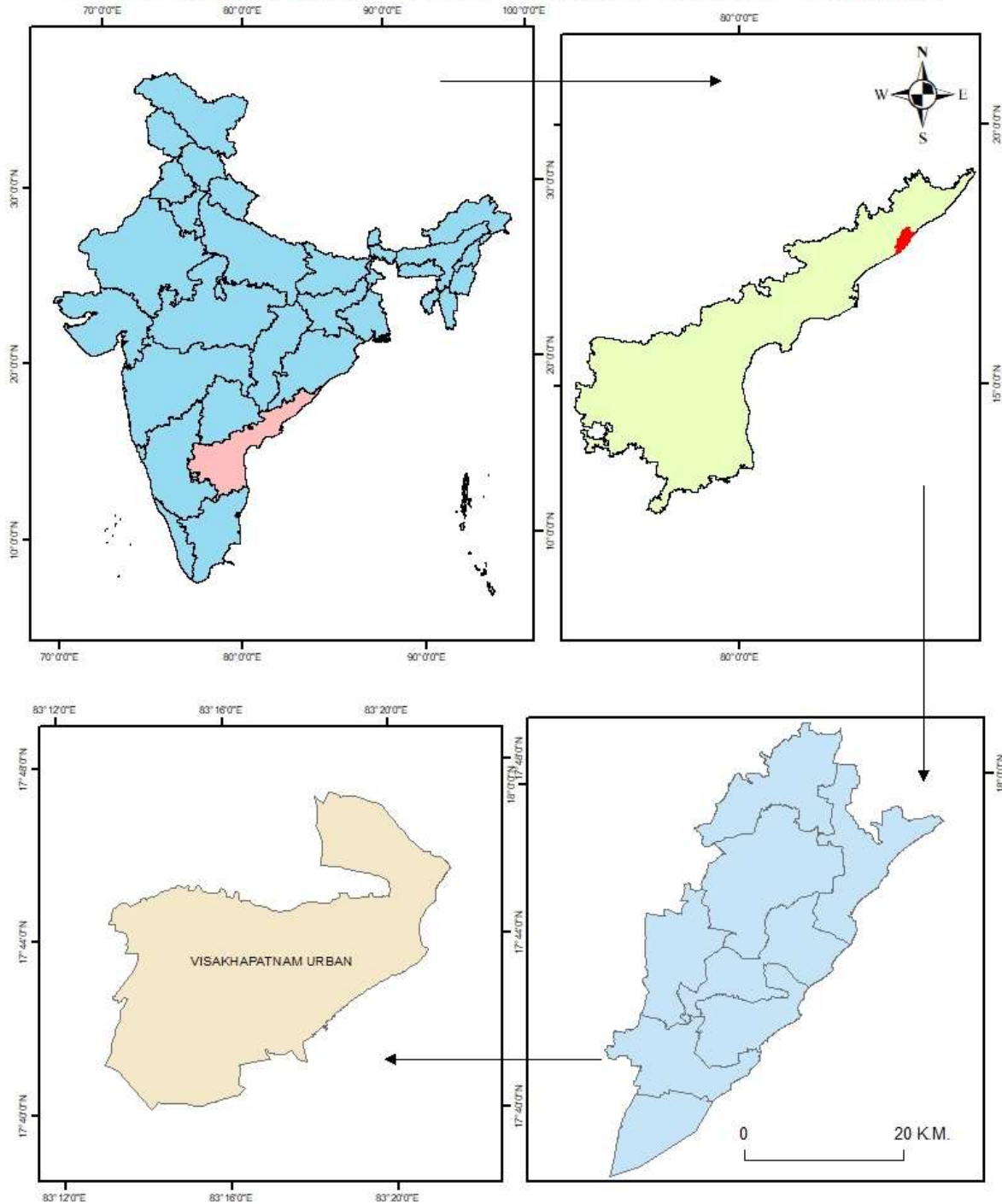
Various secondary data are used along with the census report of 1901, 1901, 1921, 1931, 1941, 1951, 1961, 1971, 1981, 1991, 2001, 2011 pertaining to Visakhapatnam is a primary source of data collection in this article. In some cases, economic survey of Govt. of India, Govt. of Adhara Pradesh, District Hand book and Statistical Diary of Planning Department, GVMC data is also used. For this study selected demographic and economic variables for analysis is used and it has been done at City level and selected variables are given below:

- a) Population decadal growth rate
- b) Population density
- c) Sex ratio
- d) Literacy rate
- e) Scheduled caste population decadal growth rate
- f) Workers in total population
- g) Visakhapatnam Slum Population
- h) Future Population 2024-2031

Study area

Visakhapatnam district stands in 44th place in the country and 5th in Andhra Pradesh state in terms of populations and a geographical area of 11.24 lakhs hectares with long sea coast line. Visakhapatnam the north coastal district of Andhra Pradesh is located between 17°15' and 18°32' North latitude and 83°30' and 83°30' east longitude. It is bounded in the north, partly by Orissa and Vizianagaram district, in the south of East Godavari district, in the west of Orissa and in the east of the Bay of Bengal. According to the 2011 India census, population of Visakhapatnam is 37,89,820 with an area covering about 11,161 square kilometres. The coastal regions are pleasantly humid and comfortable, further inland the air gets warmer while in hill areas, it is noticeably cooler on account of elevation and vegetation with little variation in temperature through the year. May is the hottest month with average temperatures around 32°C (90°F), while January is the coolest month with average temperatures near 23°C (73°F). The humidity remains high throughout the year. The total annual rainfall is around 945mm (38inches), the bulk of which is received during the south-west monsoon. October is the wettest month with around 204mm (8 inches) of rainfall. Visakhapatnam district has 43 mandals for effective administration and 86 primary health centres for effective medical services to the public.

LOCATION MAP VISAKHAPATNAM DISTRICT



Map of India depicting location of VISAKHAPATNAM City, also show the map is showing the newly constructed Visakhapatnam district boundary

Demographic Structure of Visakhapatnam City:

As of 2011 census of India, Visakhapatnam had a population of 1,728,128, of which males were 873,599 and females were 854,529 – a sex ratio of 978 females per 1000 males. The population density was 18,480/km² (47,900/sq. mi). There were 164,129 children in the age group of 0–6 years, with 84,298 boys and 79,831 girls – a sex ratio was 947 girls per 1000 boys. The average literacy rate stood at 81.79% with a total of 1,279,137 literates, of which 688,678 were males and 590,459 were females. It is ranked 122 in the

list of fastest-growing cities in the world. The total slum population covers 44.61% of the total population which implies 770,971 people reside in slums.

The current estimate population of Visakhapatnam city in 2024 is 2,453,000

Population Growth Rate:

Visakhapatnam is the 25 most populous city in the country Table 1 shows the population growth rate of Visakhapatnam city and Andhra Pradesh since 1901 to 2011. As per details from census 2011 Visakhapatnam has a population of 1728128 and increase from the figure of 40892 in 1901 census. The total population growth in this decade was 65.78% while in previous decade it was 22.4%. The population of city forms 2.04% of Andhra Pradesh in 2011 and in 2001 the figure was 1.36%. Further Table 1 shows that there was a many steps of population growth since 1901, during 1901 to 2011 population of city is increased from 40.89 thousand to 17.28 lakh. This result shows that population growth rate is lesser in 1911, 1921, 1931, 1941, 2001 and other decades population growth rate is higher is 1951, 1961, 1971, 1981, 1991, 2011. In 1961 Growth rate is peak (95.5%) also 1971 and 2011 population growth rate are too high. When we analyse the decadal growth rate, result shows that during 1901 to 1911 the growth rate is 6.2% from 2001 to 2011 population growth rate show the decline and is 65.78% but still it is in higher side. Higher rates of population growth are a serious problem and will be more dangerous for future concerns. When we compare city population growth rate with state level, we found that from census year 1901 to 2011, the growth rate of population of Visakhapatnam City have been higher as compared to state's population growth rate.

Table: 1 Population Growth Rate of Andhra Pradesh and Visakhapatnam 1901-2011

Year	Visakhapatnam City Population	Share of Visakhapatnam population in State	Adhara Pradesh State Population	Decadal Growth Rate of Visakhapatnam	Decadal Growth Rate of Andhra Pradesh
1901	40892	0.214477	19065921	0	0
1911	43413	0.202671	21420448	6.2	12.3494
1921	44711	0.208468	21447412	3	0.12588
1931	57303	0.236754	24203573	28.2	12.85079
1941	70243	0.257401	27289340	22.6	12.74922
1951	108042	0.347232	31115259	53.8	14.01983
1961	211190	0.586909	35983447	95.5	15.64566
1971	360926	0.829663	43502708	70.9	20.89644
1981	584785	1.092015	53551026	62	23.09814

1991	851756	1.280682	66508008	45.7	24.19558
2001	1042388	1.367784	76210007	22.4	14.58772
2011	1728128	2.043169	84580777	65.78	10.98382

Source: Census of India www.censusindia.gov.in

Table: 2 Population Density in Andhra Pradesh and Visakhapatnam 1901-2011

Year	Visakhapatnam City Population	Andhra Pradesh State Population	Visakhapatnam City Population Density	Andhra Pradesh Population Density	Variation of City	Variation of State
1901	40892	19065921	63.89375	119.0095	0	0
1911	43413	21420448	67.83281	133.7065	6.16502	10.99196
1921	44711	21447412	69.86094	133.8748	2.989888	0.125721
1931	57303	24203573	89.53594	151.0788	28.16309	11.38741
1941	70243	27289340	109.7547	170.3401	22.58171	11.30759
1951	108042	31115259	168.8156	194.2215	53.81177	12.29596
1961	211190	35983447	329.9844	224.6088	95.47028	13.52897
1971	360926	43502708	563.9469	271.544	70.90108	17.28458
1981	584785	53551026	913.7266	334.2656	62.02352	18.76401
1991	851756	66508008	1330.869	415.1431	45.65285	19.48184
2001	1042388	76210007	1628.731	475.703	22.38106	12.73061
2011	1728128	84580777	2700.2	527.9534	65.78548	9.896776

Source: Census of India www.censusindia.gov.in

Population Density:

Population density is known as numbers of persons per square kilometre, a pivot index of population which shows concentration of persons in an area. (R C Chandna, 2014) As we can see in the given table the population density of Andhra Pradesh increased from 119 person per square kilometre in 1901 to 527 person per square kilometre in 2011 census in other words on an average 408 more people inhabited in ever square kilometre. In every decade we see increasing density of population as the absolute population is increasing every year. In the initial decade from 1901 to 1911 the increase in the density was 6.1% and in 2001-2011 the increase was of 65.78% in Andhra Pradesh. And the other side in Visakhapatnam City population density increased by 10.99% in 1901 and 9.89% in 2011 census.

Sex Ratio:

Sex Ratio is an important social indicator to measure the population equality and inequality between males and females. Sex ratio is known as the number of females on per thousand males. (Chandna, 2014) In census 2011 we can see the sex ratio was 992 of Andhra Pradesh as compared to 978 in 2001 census and in

1991 census it was recorded 972 on the other side sex ratio of Visakhapatnam city was 1003 in 2011 as compared to 985 in 2001 census and was recorded 975 in 1991 census. It is clearly visible that Visakhapatnam has a higher sex ratio in comparison with sex ratio of Uttar Pradesh in every decade. An increase of 0.61% was recorded in Andhra Pradesh sex ratio in 2001 and an increase of 1.41% in 2011 census. And in Visakhapatnam an increase of 1.01% of sex ratio is measured in 2001 but decrease of 1.79% was recorded in 2011 in this case some possible factors can be preferring male child and increasing female foeticides.

Table: 3 Sex Ratio of Andhra Pradesh and Visakhapatnam 1901- 2011

Year	Sex Ratio of Andhra Pradesh	Variation	Sex Ratio of Visakhapatnam city	Variation
1901	985	0	1045	0
1911	992	0.705645	1064	1.785714
1921	993	0.100705	1079	1.390176
1931	987	-0.6079	1057	-2.08136
1941	980	-0.71429	1037	-1.92864
1951	986	0.608519	1023	-1.36852
1961	981	-0.50968	1000	-2.3
1971	977	-0.40942	992	-0.80645
1981	975	-0.20513	981	-1.1213
1991	972	-0.30864	975	-0.61538
2001	978	0.613497	985	1.015228
2011	992	1.41129	1003	1.794616

Source: Census of India www.censusindia.gov.in

Literacy Rate:

Literacy rate is defined as total number of literate persons in a given age group (according to Census of India persons above 7 years age), expressed as a percentage of the total population in that age group, here the adult literacy rate measures literacy among persons aged 15 years and older, and the youth literacy rate measures literacy among persons aged 15 to 24 years. Literacy is a major indicator of social and cultural development of a given region, it helps the group to attain social status. Literacy is a major factor which provides path to the development of a state also. According to census 2011 the literacy rate of Andhra Pradesh district was 67.66% as compared to 60.47% in 2001 but in 1991 census it was only 41.3% of total population. In 2001 it increased 46.41% as compared to 1991 census and in 2011 it was increased by

11.89% which shows a decreasing literacy rate among population as compared to previous decade. In 1991 census the literacy rate among male population was recorded 41.3% and an increase of 46.41% was found and in 2001 it was recorded 50.43% and 59.74% in 2011 with 18.46% increase, which shows high increasing rate of literacy in male population. On the other hand, female literacy rate in 1991 was recorded 53% and an increase of 24.63% was found in 2001 and literacy rate was 70.32% and in 2011 with an increasing rate of 6.93% literacy rate among female population was 75.56%. Highest literacy rate in 2011 is due to Sarva Siksha Abhiyan, more access to educational institutions, educational awareness, technological advancement such as internet and mobile phones. Also, full details literacy rate of Visakhapatnam district from 1961.

Table: 4 Literacy Rate of Visakhapatnam District (in %) 1961-2011

Year	Total Person (in %)	Variation	Female (in %)	Variation	Male (in %)	Variation
1961	21.2	0	12	0	30.2	0
1971	24.6	16.03774	15.8	31.66667	33.2	9.036145
1981	29.9	21.54472	20.4	29.11392	39.3	15.52163
1991	41.3	38.12709	29.2	43.13725	53	25.84906
2001	60.47	46.41646	50.43	72.70548	70.32	24.63026
2011	67.66	11.89019	59.74	18.46123	75.56	6.934886

Source: Census of India www.censusindia.gov.in

Scheduled Caste Population Decadal Growth Rate:

According to constitution parts of or groups within castes, races or tribes which shall for the purposes of this Constitution are deemed to be Scheduled Castes & Scheduled Tribes relation to that State or Union Territory, as the case may be. Andhra Pradesh have significant number of Scheduled Caste & Scheduled Tribes population. According to census 2011 the scheduled caste population in Visakhapatnam District was 1.38 core as compared to 1.23 in 2001 and was 1.05 persons in 1991 census. In Table 5 we can see that an increase of 16.4% was recorded in 2001 and 12.47% increase in 2011 census. There was absolute increase in population but the rate was less in the 2001-2011 decade as compared to 1991-2001. Male population in scheduled caste was recorded 105 lakhs in 1991 whereas 123.39 lakh persons were recorded in 2001 with an increase of 16.49% and maximum in 2011 census an increase of 14.15% only. Whereas the schedule tribe's population in 1991 is 41.99, 2001 was 50.24 and 2011 census ST population is 59 lakhs. This shows a consistent and absolute increase in the total population of scheduled caste schedule Tribes Population in Visakhapatnam District from 1961-2011, but the rate of SC and ST Population growth rate from 1981 to 2011 was decrease.

Year	Total SC	Variation	Total ST	Variation
1961	49.74	0	13.24	0
1971	57.75	16.10374	16.58	25.22659
1981	79.62	37.87013	31.76	91.55609
1991	105.92	33.0319	41.99	32.21033
2001	123.39	16.49358	50.24	19.64754
2011	138.78	12.47265	59	17.43631

Source: Census of India www.censusindia.gov.in

Table: 5 Population and Decadal Growth of Scheduled Caste & schedule Tribes Population in Visakhapatnam District 1961-2011

Year	Andhra Pradesh					All India					% in Andhra Pradesh		
	Population (in M)			% in TP		Population (in M)			% in TP				
	SC	ST	All	SC	ST	SC	ST	All	SC	ST	SC	ST	All
1961	4.9	1.3	35.9	13.8	3.7	64.4	29.9	439.2	14.7	6.9	7.7	4.4	8.2
1971	5.8	1.6	43.5	13.3	3.8	80	38	548.2	14.6	6.9	7.2	4.4	7.9
1981	7.9	3.1	53.5	14.9	5.9	104.8	51.6	683.3	15.8	7.8	7.6	6.2	7.8
1991	10.6	4.2	66.5	15.9	6.3	138.2	67.8	846	16.5	8.1	7.7	6.2	7.9
2001	12.3	5	76.2	16.2	6.6	166.6	84.3	1028.6	16.2	8.2	7.4	6	7.4
2011	13.9	5.9	84.5	16.4	7	201.4	104.3	1210.2	16.6	8.6	6.9	5.7	7

Table: 6 Population and Decadal Growth of Scheduled Caste & schedule Tribes Population in Andhra Pradesh and India 1961-2011

Source: Census of India www.censusindia.gov.in

Year	Total Worker In (lakh)	Males Worker (Lakh)	Females Worker (Lakh)
1961	186.63	128.23	58.4
1971	180.6	126.3	53.83
1981	245.06	157.33	87.73
1991	299.64	195.16	104.48
2001	348.94	216.92	132.02
2011	845.8	424.42	421.38

Table: 7 Workers in total Population of Visakhapatnam District 1961-2011

Source: Census of India www.censusindia.gov.in

Workers in Total Population:

Working population refers to the population employed in a specified occupation or to the total population of a country who are employed and looking for employment. (Census, 1981) The term on a country level usually covers all people between 15- and 65-years population. Work involves not only actual work but also includes effective management and direction of work and all persons engaged in 'work' as defined are workers. The main point should be noted that the activity should be economically productive. According to census 1961 total population was 359.9 lakh in which 186.63 lakh persons were engaged in any type of working activity in Visakhapatnam district, in which 128.23 lakh were male workers, 58.4 lakh were female workers. Likewise in census 2011 the total population was 845.8 lakh in which 424.42 lakh maleworker population, in which 421.38 lakh female worker population were engaged in any work.

Census Year	Population	No. of Persons	Percentage	Density of Person (Per sq. km.)
1901	1,90,65,921	0	0	69
1911	2,14,47,412	2381491	12.49	78
1921	2,14,20,448	-26964	-0.13	77
1931	2,42,03,573	2783125	12.99	88

1941	2,72,89,340	3085767	12.75	99
1951	3,11,15,259	3825919	14.02	113
1961	3,59,83,447	4868188	15.65	131
1971	4,35,02,708	7519261	20.9	157
1981	5,35,49,673	10046965	23.1	195
1991	6,65,08,008	12958335	24.2	242
2001	7,62,10,007	9701999	14.59	277
2011	(P) 8,46,65,533	8455526	11.1	308

P: Provisional

Source: Provisional Population Totals 2011, Directorate of Census Operations, Andhra Pradesh, Hyderabad.

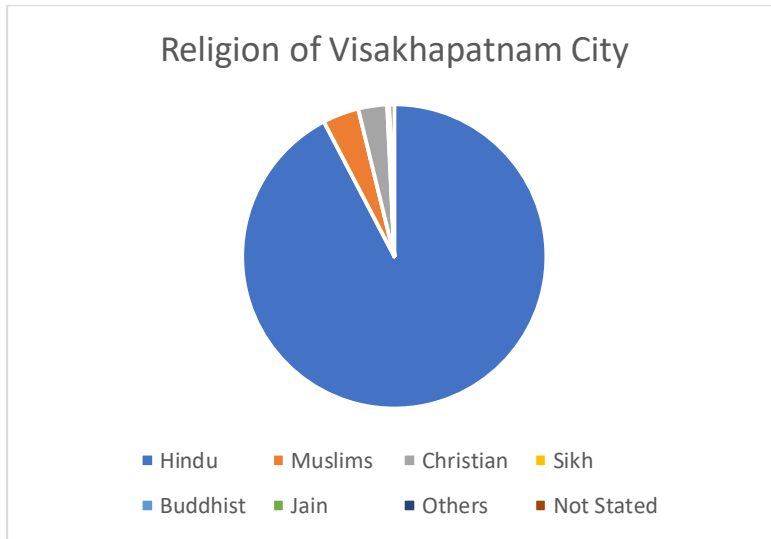
Visakhapatnam Slum Population

Total no. of Slums in Visakhapatnam city numbers 194,959 in which population of 770,971 resides. This is around 44.61% of total population of Visakhapatnam city.

Visakhapatnam Religion

Hinduism is majority religion in Visakhapatnam city with 92.32 % followers. Islam is second most popular religion in city of Visakhapatnam with approximately 3.85 % following it. In Visakhapatnam city, Christianity is followed by 3.07 %, Jainism by 0.11 %, Sikhism by 0.10 % and Buddhism by 0.03 %. Around 0.01 % stated 'Other Religion', approximately 0.50 % stated 'No Particular Religion'.

Religion	Percentage	Total
Hindu	92.32%	1,595,460
Muslims	3.85%	66,501
Christian	3.07%	53,101
Sikh	0.10%	1,741
Buddhist	0.03%	597
Jain	0.11%	1,964
Others	0.01%	192
Not Stated	0.50%	8,572

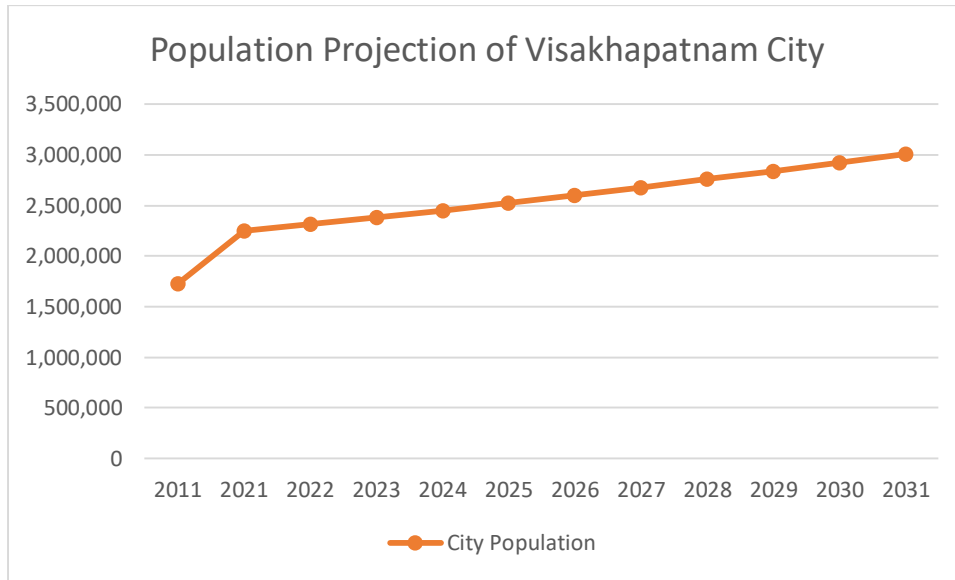


Future Population Projection of Visakhapatnam City (2024 to 2031)

Source: Census of India www.censusindia.gov.in

Year	City Population
2011	1,728,128
2021	2,246,000
2022	2,313,000
2023	2,382,000
2024	2,453,000
2025	2,526,000
2026	2,601,000
2027	2,679,000
2028	2,759,000
2029	2,841,000
2030	2,926,000
2031	3,013,000

Source: Estimated



Population projection is estimated by given formula

$$Pt = P0 \times (1+100r)^t$$

Where:

- Pt is the projected population at time t ,
- $P0$ is the initial population,
- r is the intrinsic growth rate,
- t is the number of years into the future.

Decadal Variation of State Population 1901 to 2011 census

Census Year	Persons	Variation since the preceding census		Males	Females
		Absolute	Percentage		
1921	21,420,448	-26,964	-0.13	10,749,220	10,671,228
1931	24,203,573	+2,783,125	+12.99	12,183,673	12,019,900
1941	27,289,340	+3,085,767	+12.75	13,782,365	13,506,975
1951	31,115,259	+3,825,919	+14.02	15,670,565	15,444,694
1961	35,983,447	+4,868,188	+15.65	18,161,671	17,821,776
1971	43,502,708	+7,519,261	+20.90	22,008,663	21,494,045
1981	53,551,026	+10,048,318	+23.10	27,109,616	26,441,410
1991	66,508,008	+12,956,982	+24.20	33,724,581	32,783,427
2001	76,210,007	+9,701,999	+14.59	38,527,413	37,682,594
2011	84,580,777	+8,370,770	+10.98	42,442,146	42,138,631

Source: Census of India www.censusindia.gov.in

Conclusion:

The examination of decadal demographic changes and population growth in Visakhapatnam City spanning from 1901 to 2011 has revealed significant trends and shifts. Throughout the studied period, the city has undergone dynamic transformations in its population composition, size, and distribution. Several key observations can be drawn from the analysis:

- 1. Population Dynamics:** The population of Visakhapatnam City has exhibited noteworthy fluctuations over the decades. Understanding the factors driving these changes is crucial for policymakers and urban planners to address issues related to infrastructure, housing, and public services.
- 2. Urbanization Trends:** The study has shed light on the urbanization process in Visakhapatnam, with a notable increase in the urban population. This shift is indicative of broader socio-economic changes and the city's role as an economic hub, necessitating strategic planning for sustainable urban development.
- 3. Demographic Structure:** Analysis of age distribution, gender ratios, and other demographic indicators has provided insights into the evolving social fabric of the city. Understanding these dynamics is essential for formulating targeted policies in areas such as healthcare, education, and social welfare.
- 4. Migration Patterns:** Migration has played a significant role in shaping Visakhapatnam's population. Identifying the patterns and reasons behind migration is crucial for addressing challenges related to housing, employment, and social integration.
- 5. Implications for the Future:** As we move forward, the findings from this study have implications for future demographic trends and urban planning. Anticipating population growth, understanding demographic shifts, and addressing the associated challenges will be vital for ensuring sustainable development in Visakhapatnam City.

In conclusion, this research provides a comprehensive overview of the decadal demographic changes in Visakhapatnam City. The insights gained from this study can serve as a valuable foundation for evidence-based policymaking, urban planning, and addressing the evolving needs of the city's diverse population.

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