



Demographic Projections for India: Past, Present and Future

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Abstract

The growth or development of a country mainly depends on the present and future population scenario. Population projections help in the growth of the nation in various directions. Predicting the human fertility and mortality is very difficult, particularly when we are concentrating farther time. Various National, International and some individual demographers made projections for the entire nation and some parts of the country. The estimates of the population projections changes as and when new information added to the existing values. The perspective population growth and its impact were discussed by Visaria and Visaria, 1996 and noticed that population projections vary based on the parameters considered in their models.

In our present work, by considering the 2001 India's Census data, Registrar General (1996)[14], a new population projection of the country are estimated by allowing the age arrangement of the population. The mortality estimates of the whole country made by considering the impact of HIV / AIDS. Cohort component method was used for the projections from 2001 to 2051. Using the Sample Registration System (SRS) figures of 2001 census, state level figures are generated. Only two variants namely, average and high are used for making the population projections.

Keywords: Population projections, Census, cohort Component method; Exponential Growth Method; Logistic Growth Method.

1. Introduction and Methodology

Population projections may be of long term or short term depending on the need of the projection. The long term population projections are made by availability of mortality and fertility data from the Civil Registration System, the Sample Registration System and fertility surveys on a stand-alone basis and for an external validation with a view to complement the other efforts. The assumptions made for each of these projections, particularly on the base population and correction factor used. The projections made earlier were not considered the influence of HIV/AIDS on many of demographic parameters. It is also noticed that micro level projections are not carried out by most of the researchers. Some authors like Natarajan and Jayachandran [6] made at district level, used the base year data prior to 2001.

Using the least square regression technique estimated the projections, if the TFR of any particular state reaches to 1.6; we assume that it cannot be below that level. These figures are also compared with the actual estimates available with SRS; suitable adjustments can be made if the figures differ significantly. 99% confidence interval for TFR is considered for the upper limits for the case of high variant population projection. Projections for the whole country and for some major states the same methodology was adopted, where as to the effect of HIV/AIDS is not studied at state level.

The main focus of this study includes to find the

- Estimating the values of life expectancy through observing the impact of HIV/AIDS.
- Calculating the population predictions with and without HIV by high variant.

- Expected values of life expectancy in India and major states in between 2006 – 2051.
- Fertility rates in India 2006-2051.
- Projected estimates of Total Fertility Rate by Low and high variant from 2001 to 2050.
- Population projections of major states in India with average variant from 2006 to 2051.
- Population projections from 2006 to 2051 district wise in major states of India.

Methodology:

Several methods are available for estimating Population projections. The methods mentioned below can be used for our study. (a) Cohort component method and (b) Mathematical methods.

(a) Cohort Component Method of population projection

This method has ability to give the age sex breakup of the population projections. This method takes in to account of future migration, fertility and mortality distinctly. In this method the current figures are compared with immediate past. To apply this method we require the data as stated below.

1. Population counted in two censuses by age and gender
2. Age Specific fertility rates for women aged 15 to 49 (in 5 year age groups) assumed to represent the level and age structure of fertility during the intercensal period
3. Life table survival ratios for males and females assumed to be repetitive of mortality conditions during the intercensal period
4. An estimate of sex ratio at birth

5. Estimates of the level and age pattern of net international migration during the intercensal period of the level of net migration is substantial.

If the reliable data is not available on the above aspects, reasonable estimates may be replaced on certain assumptions. A fundamental assumption considered is that the population growth tracks a smooth curve over time and from one age to another.

2. Mathematical Models

Here we consider the two popular methods named as Exponential and Logistic for finding the population projections. These two methods are briefly described below.

Exponential Growth Method: This method is generally used when the complete information is unavailable; data is available without age and sex breakup and only broad estimates are required. The projections are statistically estimated using the past trends. This method involves in finding a mathematical curve or fitting a regression curve of population using time series data. The future figures can be determined by using the extrapolation technique.

Logistic Growth Method:

Exponential models will be used for a short period of time (about a maximum of 40 years) whereas the logistic functions have in-built characteristic so that a longer period of projections can be made. It is also a proven advantage of logistic models that they can alleviate the population obtained at higher boundary.

Several studies have been done in population projections in Indian by various national and international bodies, also different researchers made their conclusions using various methods. Some of those studies include [[1],[2],[3],[5][7] and [8]]. In these studies scholars considers assumptions to migration, mortality and fertility. Fertility assumptions are more sensitive than other two. Generally component method is used in most of the studies. In some estimates they used high variant (1581 million), some others are used low variant (1345.9 million) and their estimated figures are not considered the effect of HIV/AIDS, Dyson and Hanchate considered these effects and the reduction of life expectancy (e0)is also noticed. The models that we are chosen will matches the mortality patters of Indian region. Also, since the effect of migration is marginal the factor migration is neglected in finding population projections.

India Population Projections 2001 – 2051: In this present work we considered the effect of HIV/AIDS and derived the population projections on mortality. The estimated figures are taken for quinquennial periods from 2001 to 2051. Also the estimated figures are obtained by the Census statistics of India and its connected age construction. Due to AIDS the lifespan expectancy is coming down every year in an uniform level over 20 years. These projections are presented in Table 1.

It is observed from population projections of 2017 that the population is likely increasing to an approximate figure of 8.6 billion, by 2030 reaches to 9.8 billion and by 2050 it reaches to 11.2 billion by 2050. We have estimated the life expectancy projections based figures of Natrajan and Jayachandra [7]. It is also noticed that there is a decline of 1.7 years over a span of 25 years for male life expectancy, the same trend is observed in female also. These values are mentioned in Table3.

Table 1 Projected values of life expectancy after incorporating the effect of HIV/AIDS

	Year	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
Male	e0	62.9	62.9	66.5	66.5	68.9	68.9	70.7	70.7	72.3	72.3	73.5
	Reduction due HIV to	0.34	0.68	1.02	1.36	1.70	2.00	2.30	2.60	2.90	3.20	3.50
	e0 HIV with	62.56	62.22	65.48	65.14	67.20	66.90	68.40	68.10	69.4	69.1	70.00
Female	e0	64.9	64.9	69.7	69.7	73.5	73.5	76.3	76.3	78.5	78.5	80.4
	Reduction due HIV to	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75
	e0 HIV with	64.65	64.40	68.95	68.7	72.25	72.0	74.55	74.0	76.25	76.0	77.65

e0: means expectancy of life

Projections of Fertility:

Observing the past projections on Total Fertility Rate and discussions of the several authors, Natrajan and Jayachandran [6] find a linear regression model between TFR and Time and projected the values of TFR to the year 2050. As per the estimates of [6] TFR for 2050 is 1.8, whereas it is 3.0 in 2001. Since the fertility estimates are sensitive and the fitted values for regression are mean values there is a necessity to go for substitute.

We considered the estimates of regression fit to TFR as the average of higher variant of the estimates and are produced from upper limits of 99% confidence intervals at each case. The TFR values with average and High are listed for 2001 to 2051 in Table 2.

Table 2: Estimated values of TFR by Low and high variant, 2001-2050

Year	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
TFR(average)	3.0	2.7	2.5	2.4	2.2	2.1	2.0	2.0	2.0	1.9	1.8
(High)	3.17	2.9	2.7	2.6	2.4	2.3	2.2	2.2	2.2	2.1	2.1

India’s population projections: 2001 -2050:

Cohort component method is used for population projection using the gender and age distribution to the parameters of fertility with two variants and mortality with and without HIV/AIDS. These estimates are measured from 2001 to 2051 and are presented in the tables below.

Table 3: Population Projections with and without HIV

Year	With HIV	Without HIV	Difference	% Difference
2001	1,028,600	1,028,600	0	0
2006	1,106,008	1,106,652	644	0.058
2011	1,177,693	1,179,662	1959	0.167
2016	1,258,887	1,262,724	3837	0.304
2021	1,337,469	1,344,029	6560	0.408
2026	1,405,370	1,415,278	9908	0.7
2031	1,456,834	1,470,976	14142	0.961
2036	1,501,831	1,520,732	18901	1.243
2041	1,541,046	1,566,101	25055	1.6
2046	1,573,836	1,605,119	31283	1.949
2051	1,588,899	1,626,993	38094	2.341

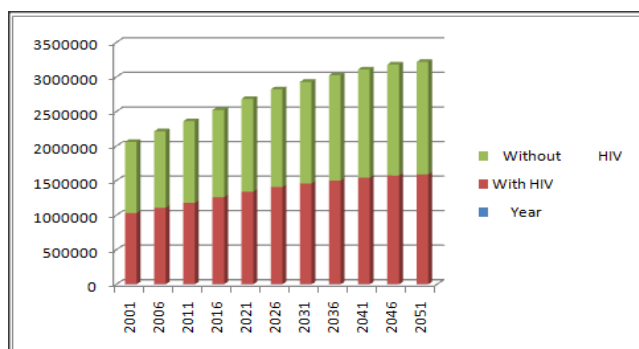


Figure 1: Bar Diagram of Population Projections with and without HIV

The population projection using average variant for 2051 is 1589 million, which is very near to [8], 1581 million. The high variant projections of UN for 2002 are very close to our values for the same 1771 million. It is also important to make the estimates by considering the effect of HIV/AIDS on mortality, [3] discussed about these projections. Clearly the precious life is decreasing over the years due to HIV/AIDS. It is noticed that low variant of our estimate is about 38 million people are losing their lives due to these disease by 2051, which accounts to 2.31 % of the total population. The same estimate with high variant is almost double to this figure.

State wise Population Projections 2006 – 2051

Mortality: The mortality projections at state level of India for 2001 are found to be similar with that of SRS figures and the figures significantly differ with varying intensity. The state level figures for longevity of life for each state are given in Appendix I.

Fertility: The state level projections for fertility are also same as that of mortality and figures are adjusted in the case of discrepancy. Even this procedure is not much affected, some improvements are noticed. The SRS values were found to be high in some states and noticed less than estimated figures in some states. The estimated values after modifications are presented in Appendix II. Appendix III and Appendix IV indicates the population projections in two variants for major states are given. The line graphs are drawn to highlight the variations in the population projections and are presented at the end.

District wise Population projection:

Since the data on any of the parameters is not available pin pointedly, the growth of population of a state during one decade is proportionately distributed among the districts. None of the methods say, component, mathematical ect., are not appropriate. The district level estimates is on the proportion basis that the population growth over a span is distributed to every district in the proportion of their share during growth of population from 1999 to 2001. For each district these estimated figures are given in appendix below.

Table 4: Population Projections (in thousands) by High Variant

Year	With HIV	Without HIV	Difference	%Difference
2001	1,028,600	1,028,600	0	
2006	1,112,057	1,112,714	657	0.059
2011	1,191,169	1,193,207	2,038	0.171
2016	1,280,865	1284810	3945	0.307
2021	1,368,920	1375742	6822	0.496
2026	1448307	1458624	10317	0.707
2031	1513509	1528231	14722	0.963
2036	1574523	1594231	19708	1.236
2041	1631509	1657805	25296	1.586
2046	1689443	1722555	33112	1.922
2051	1706209	1771241	65032	3.672

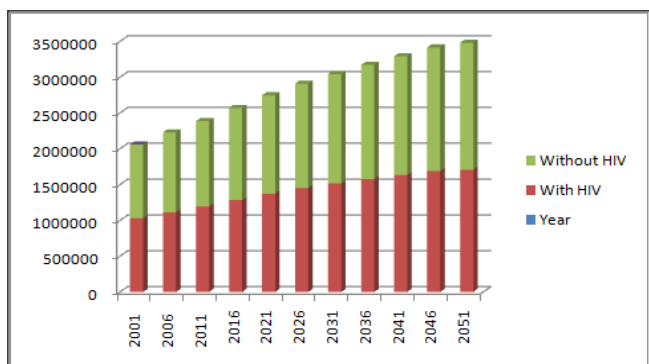


Figure 2: Bar diagram Population Projections High Variant 2001-2051

3. Conclusion

At the end of this study, making use of several assumptions population projections for different parameters like fertility, mortality, migration, with and without HIV/AIDS and at different variants are calculated. These values are also projected measured for state wise and for some states district wise results are also presented. Most of the cases Component method is used, because it is universally accepted method. All the projected figures are given in different tables and in Appendices. Some those findings of our study are presented below.

Observations:

It has been observed that India's population is being increased 36 percent over a period of 25 years at a rate of 1.2% annually from 1029 million to 1400 million during 2001-2016-2051.

Due to the falling level of total fertility, there is a decline in CBR (Crude Birth Rate) from 23.2 to 16.0 from 2001-2005 to 2021 - 2025.

The population of older persons will be increased about more than double due to decline in fertility and increase in life expectancy.

There is decline in fertility; the population aged under 15 years is projected to decline from 35.4 % to 23.4% .

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Appendix -I: Estimated figures of Life Expectancy 2006-2051: India and the major States

State		2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
Andhra Pradesh	M	62	63	64.1	65.2	66.2	67.3	68.3	69.3	70.4	71.4	72.5
	F	64.6	65.9	67.1	68.4	69.7	70.9	72.2	73.3	74.8	76	77.3
Assam	M	57.7	57.7	62.7	62.7	66.7	66.7	68.7	68.7	70.7	70.7	72.7
	F	38.1	38.1	61.1	61.1	65	66	69.2	69.2	71.7	73.6	73.6
Bihar	M	61.4	63.4	65.4	66.3	68.4	68.9	70.4	71.2	71.9	72.7	73.3
	F	29.2	62.5	62.6	67.8	71.9	71.7	73.3	74.2	75	76.4	77.8
Gujarat	M	62.4	64.4	65.4	67.9	69.4	70.4	71.4	72.6	73.7	74.3	75
	F	64.4	66.8	69.2	71	72	74	75.2	76.3	77.4	78.2	79
Haryana	M	64.7	66.8	68.8	69.9	71.1	71.9	72.7	73.3	74	75	76
	F	65.4	67.1	68.8	70.2	71.5	72.4	73.2	75.4	77.7	77.1	77.1
Karnataka	M	62.8	64.3	65.8	67.3	68.8	69.2	69.5	70.3	71	71.8	72.5
	F	66.2	67.7	69.2	67.3	68.8	69.2	69.5	70.3	71	71.8	72.5
Kerala	M	70.8	71.8	72.8	73.7	74.5	75.3	75.9	76.6	77	77.7	78.2
	F	75.9	76	78	78.9	79.8	80.4	81.1	81.7	82.2	82.2	82.2
Maharashtra	M	65	66.6	68.1	69.4	70.5	71.5	73.5	73.4	74.4	75	75.8
	F	65	66.7	68.4	69.7	70.9	71.9	72.9	73.8	74.7	75.3	75.8
Madhya Pradesh	M	57	59	61	63	65	66.5	68	69	70.1	71.6	71.6
	F	56.7	59.3	61.8	63.3	64.8	66.6	68.3	69	70.9	71.9	73
Orissa	M	58.4	59.9	61.4	63.7	65	67.1	68.1	69.1	70	70.6	71.1
	F	58.4	59.9	61.4	63.7	65	66.8	68.1	69.1	70	70.6	71.1
Punjab	M	67.4	68.2	69	69.8	70.5	71.1	71.6	71.9	72.2	72.9	73.6
	F	69.5	70.7	71.8	72.8	73.8	74.6	75.4	76.1	76.8	77.3	77.8
Rajasthan	M	60.5	62.2	64.7	66	67.9	69	70.4	71.4	72.4	73.1	74.2
	F	61.6	64.1	65.6	68.7	70.8	72.3	73.7	74.9	76.1	77.1	78.1
Tamil Nadu	M	64.2	65.8	67.3	68.2	69	70	71	71.9	72.8	73.7	74.6
	F	66.3	68.4	70.6	72	73.4	74.7	75.9	76.9	77.9	78.7	79.7
Uttar Pradesh	M	59.5	61.3	63.5	65.3	68.5	69.9	71	72.1	72.4	72.9	73.8
	F	58.4	61.3	63.5	65.3	68.5	69.9	71	72.1	72.4	72.9	73.8
West Bengal	M	63.3	64.8	65.4	67.4	68.4	69.2	70	70.8	71.5	71.9	72.4
	F	64.8	67	69.3	70.1	72.5	73	75.1	76	77.2	78	79

Appendix -II: Projected Total Fertility Rates 2006-2051

STATE	2001	2005	2011	2016	2021	2026	2031	2036	2041	2046	2051
Andhra Pradesh	2.3	1.95	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Assam	3	2.65	2.3	1.95	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Bihar	4.4	3.84	3.28	2.72	2.16	1.6	1.6	1.6	1.6	1.6	1.6
Gujarat	2.9	2.47	2.03	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Haryana	3.1	2.6	2.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Karnataka	2.4	2.2	2	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Kerala	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Maharashtra	2.4	2.2	2	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Madhya Pradesh	3.9	3.57	3.24	2.91	2.59	1.6	1.6	1.6	1.6	1.6	1.6
Orissa	2.7	2.42	2.15	1.88	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Punjab	2.4	2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Rajasthan	4	3.76	3.52	3.28	3.04	2.8	2.56	2.32	2.08	1.84	1.6
Tamil Nadu	2	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Uttar Pradesh	4.56	4.38	4.16	3.93	3.71	3.94	3.27	3.04	2.82	2.6	2.6
West Bengal	2.4	2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6

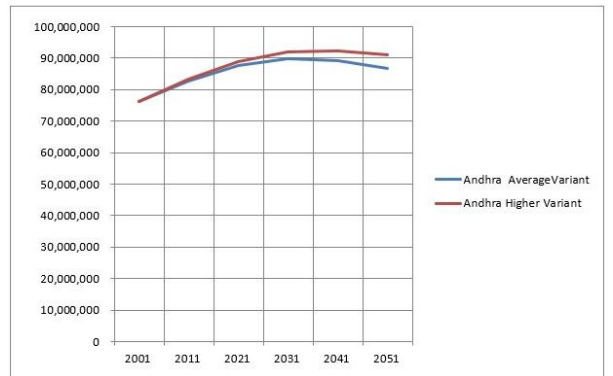
Appendix -III: Population Projection of major states of India 2006-2051- Average Variant

State	2001	2011	2021	2031	2041	2051
Andhra	76,209,000	82,737,600	87,845,896	89,700,104	89,153,800	86,659,896
Assam	26,655,000	29,943,400	32,616,000	34,159,800	34,776,600	34,403,300
Bihar	82,999,000	99,473,800	115,984,000	125,760,000	133,386,000	137,740,000
Chhattisgarh	20,834,000	25,300,200	29,068,700	31,200,400	32,942,102	33,740,000
Gujrat	50,596,992	57,241,500	61,244,900	64,116,800	65,138,000	64,064,000
Haryana	21,145,000	24,105,300	26,136,200	27,597,300	28,298,200	27,993,500
Jharkhand	26,946,000	31,890,100	34,897,700	37,422,000	38,829,900	39,012,300
Karnataka	52,851,000	58,766,700	63,319,100	65,491,300	65,989,704	64,324,500
Kerala	31,842,000	34,534,800	36,348,400	37,284,000	37,078,800	35,747,000
Maharashtra	96,879,000	106,638,000	114,336,000	118,404,000	119,423,000	116,786,000
MP	80,348,000	70,850,600	82,203,400	90,738,704	95,479,504	98,350,600
Orissa	36,805,000	40,437,300	43,207,900	44,513,800	44,744,700	43,579,800
Punjab	24,359,000	26,617,100	28,221,400	29,056,300	28,945,000	27,973,500
Rajasthan	56,507,000	66,788,500	80,096,104	94,075,000	106,136,000	114,619,000
Tamilnadu	62,406,000	67,117,400	69,934,104	70,762,296	70,901,400	67,458,200
UP	166,198,000	205,184,992	255,864,000	310,872,000	368,574,016	424,812,000
Uttanchal	8,489,000	10,698,600	13,222,700	15,947,600	18,971,900	21,880,200
WB	80,176,000	88,136,848	94,565,584	97,759,616	96,342,960	95,154,536

Appendix -IV: Population Projection of major states of India 2006-2051 Higher Variant

State	2001	2011	2021	2031	2041	2051
Andhra	76,209,000	83,381,300	88,861,200	91,911,600	92,385,800	90,990,896
Assam	26,655,000	30,315,692	33,457,188	35,585,324	36,916,004	37,318,556
Bihar	82,999,000	100,764,848	119,038,408	131,444,408	142,443,800	150,618,016
Chhattisgarh	20,834,000	25,551,640	29,638,514	32,243,500	34,601,172	36,067,468
Gujarat	50,675,000	57,604,140	62,542,564	65,961,648	67,812,744	67,621,648
Haryana	21,145,000	24,347,200	26,626,700	28,341,700	29,312,300	29,228,800
Jharkhand	26,946,000	32,710,262	37,945,776	40,919,108	43,354,968	44,567,964
Karnataka	52,851,000	58,810,880	63,414,208	65,646,460	66,219,136	64,832,272
Kerala	31,842,000	34,383,532	36,404,484	37,374,024	37,210,136	35,920,696
Maharashtra	96,879,000	107,265,424	116,341,336	121,709,232	124,352,416	123,437,376
MP	80,348,000	71,269,416	83,168,080	92,512,144	98,289,360	102,352,304
Orissa	36,805,000	40,784,972	43,966,512	45,768,072	46,611,448	46,088,096
Punjab	24,359,000	26,831,400	28,725,800	29,871,900	30,150,200	29,390,300
Rajasthan	56,507,000	67,556,152	81,877,408	97,572,912	112,046,720	123,422,696
Tamilnadu	62,406,000	67,661,698	71,014,936	72,696,192	72,632,968	70,837,152
UP	166,198,000	205,433,184	256,413,504	311,939,552	370,433,280	427,699,296
WB	80,176,000	88,958,904	96,362,848	100,684,176	101,944,528	100,947,384
Uttanchal	8,489,000	10,712,463	13,252,588	16,004,695	19,070,500	22,033,028

Andhra Pradesh Population Projection 2001-2051 graph given below



STATE	DISTRICT	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
Telangana	ADILABAD	2,479,347	2,660,881	2,781,105	2,888,579	2,985,520	3,050,868	3,080,816	3,080,045	3,057,300	3,014,445	2,949,940
	HYDERABAD	3,686,460	3,943,703	4,097,444	4,243,820	4,375,827	4,464,833	4,505,641	4,504,591	4,473,612	4,415,242	4,327,400
Telangana	NIZAMABAD	2,341,803	2,482,390	2,574,848	2,657,493	2,732,024	2,782,289	2,805,518	2,804,726	2,787,235	2,754,279	2,704,682
	RANGAREDDY	3,506,670	3,943,367	4,232,378	4,491,117	4,724,275	4,881,520	4,953,561	4,953,707	4,896,690	4,793,894	4,638,741
Telangana	WARANGAL	3,231,174	3,449,786	3,544,698	3,656,362	3,757,064	3,824,979	3,856,094	3,855,294	3,831,661	3,787,133	3,720,122
	MAHABUBNAGAR	3,506,876	3,703,485	3,833,694	3,950,093	4,055,065	4,125,860	4,158,294	4,157,459	4,132,825	4,085,409	4,016,556
Telangana	MEDAK	2,662,296	2,841,830	2,960,730	3,067,020	3,162,875	3,227,521	3,257,139	3,256,377	3,233,882	3,191,497	3,127,711
	KARIMNAGAR	3,477,079	3,678,156	3,811,323	3,930,367	4,037,725	4,110,128	4,143,299	4,142,446	4,117,252	4,069,780	3,9

STATE	DISTRICT	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
MP	BALASORE	1,444,761	1,481,237	1,528,061	1,574,885	1,621,709	1,668,533	1,715,357	1,762,181	1,809,005	1,855,829	1,902,653
MP	BETUL	1,926,431	1,952,283	1,978,135	2,003,987	2,029,839	2,055,691	2,081,543	2,107,395	2,133,247	2,159,099	2,184,951
MP	BHIND	1,426,931	1,555,236	1,642,442	1,733,291	1,826,543	1,940,763	2,007,364	2,053,008	2,099,010	2,145,392	2,191,874
MP	BHOJAL	1,838,784	2,058,470	2,401,385	2,988,389	2,839,342	3,033,992	3,191,221	3,350,512	3,492,254	3,637,730	3,752,289
MP	CHRITAMPUR	1,476,651	1,658,436	1,803,124	1,971,416	2,128,366	2,256,593	2,358,177	2,431,271	2,497,702	2,548,980	2,576,671
MP	CHHANNARA	1,848,885	1,964,765	2,130,635	2,388,537	2,437,687	2,441,160	2,630,804	2,662,170	2,734,336	2,768,001	2,821,389
MP	DAMOH	1,081,909	1,177,601	1,272,622	1,370,227	1,468,756	1,568,099	1,584,869	1,633,634	1,673,874	1,704,481	1,724,721
MP	DATTA	62,811	74,535	86,847	99,132	1,106,000	1,109,518	1,219,981	1,331,341	1,375,968	1,411,053	1,435,449
MP	DEWAS	1,306,617	1,446,662	1,589,712	1,734,744	1,870,106	1,980,683	2,068,028	2,134,490	2,188,322	2,230,770	2,254,538
MP	DHAIL	1,748,571	1,854,873	1,972,611	2,126,161	2,211,413	2,265,606	2,321,119	2,373,000	2,406,352	2,436,683	2,462,088
MP	EASTNAGPUR	1,708,173	1,825,141	1,955,033	2,142,102	2,199,789	2,291,273	2,479,953	2,541,274	2,601,806	2,644,850	2,673,781
MP	GUNA	1,667,303	1,834,499	2,034,680	2,222,908	2,399,237	2,543,109	2,658,884	2,741,306	2,813,416	2,868,707	2,900,022
MP	GWALIOR	1,676,881	1,741,099	1,855,144	1,970,811	2,078,736	2,166,721	2,248,667	2,304,791	2,340,011	2,403,983	2,458,719
MP	HOSHANGABAD	1,958,185	1,711,208	1,862,167	2,011,389	2,163,334	2,280,604	2,374,115	2,441,292	2,502,805	2,548,786	2,573,642
MP	INDORE	2,582,321	2,975,518	3,262,880	3,761,383	4,133,467	4,485,979	4,676,991	4,833,200	5,007,259	5,123,938	5,190,248
MP	JABALPUR	2,531,135	2,535,772	2,634,266	2,445,248	2,431,811	2,467,197	2,833,337	2,904,882	3,000,504	3,099,978	3,254,491
MP	JABALPUR	1,980,671	1,955,518	1,922,488	1,914,540	1,906,730	2,054,391	2,198,070	2,281,718	2,375,923	2,469,681	2,533,632
MP	MANDLA	1,471,230	1,571,960	1,662,037	1,758,771	1,849,112	1,933,803	1,981,081	2,031,393	2,061,260	2,089,603	2,106,672
MP	MANDLAUJE	1,900,826	2,029,946	2,152,716	2,285,770	2,439,341	2,581,237	2,893,811	2,961,291	3,033,671	3,106,718	3,133,888
MP	MORONA	2,640,978	2,724,384	2,809,857	2,891,847	3,048,018	3,195,264	3,361,001	3,431,313	3,551,931	3,675,515	3,666,347
MP	NARSINGPUR	95,396	1,046,985	1,135,783	1,227,172	1,312,222	1,382,143	1,437,198	1,473,064	1,512,966	1,538,726	1,553,830
MP	PANNA	852,237	940,813	1,026,394	1,115,196	1,197,762	1,265,110	1,318,368	1,353,866	1,391,662	1,417,548	1,451,447
MP	PARGUNA	1,980,755	1,927,046	1,873,045	1,820,000	1,820,500	1,824,000	1,800,000	1,825,000	1,850,000	1,845,000	1,865,000
MP	RAJAHMUNDRAM	1,352,246	1,388,873	1,423,548	1,467,032	1,509,538	1,566,654	1,580,378	1,643,716	1,651,662	1,653,617	1,660,069
MP	RATLAM	1,214,536	1,340,877	1,466,332	1,595,531	1,715,805	1,814,079	1,891,792	1,953,887	1,991,662	2,026,514	2,059,272
MP	REWA	1,873,333	2,189,654	2,402,413	2,627,388	2,844,409	3,003,236	3,177,189	3,238,800	3,359,662	3,484,000	3,422,231
MP	SAGAR	1,021,783	2,216,540	2,409,832	2,608,787	2,794,201	2,845,591	2,885,787	2,931,411	2,951,662	2,983,770	3,023,642
MP	SATNA	1,866,644	2,078,671	2,287,115	2,501,503	2,701,723	2,865,046	2,984,200	3,092,411	3,191,662	3,234,718	3,274,542
MP	SEHORE	1,072,769	1,165,823	1,258,877	1,351,931	1,444,985	1,538,039	1,631,093	1,724,147	1,817,201	1,880,255	1,902,279
MP	SEONI	1,165,892	1,251,837	1,337,778	1,424,930	1,506,880	1,573,334	1,636,990	1,685,786	1,731,662	1,755,046	1,749,528
MP	SHAJDOL	2,088,599	2,268,091	2,446,326	2,625,592	2,800,733	2,940,369	3,050,776	3,134,781	3,201,662	3,256,383	3,288,711
MP	SHAJDOL	1,296,230	1,424,034	1,556,800	1,693,530	1,831,111	1,925,190	2,007,084	2,073,079	2,131,662	2,160,763	2,188,868
MP	SHIVNADI	1,444,666	1,600,873	1,759,933	1,923,932	2,076,930	2,200,914	2,299,478	2,371,991	2,439,662	2,485,972	2,511,833
MP	SINDH	1,836,555	2,066,543	2,304,906	2,547,923	2,774,984	2,960,618	3,106,420	3,217,747	3,301,662	3,370,058	3,413,434
MP	TIKARGARH	1,202,166	1,339,749	1,475,281	1,614,844	1,745,092	1,851,236	1,935,533	1,999,241	2,051,662	2,091,813	2,116,420
MP	UJJAIN	1,920,885	1,860,041	1,849,003	1,829,941	1,834,599	2,015,151	2,050,011	2,073,662	2,091,662	2,105,923	2,114,798
MP	VIDHISA	1,214,758	1,341,997	1,468,243	1,598,235	1,719,388	1,818,259	1,896,824	1,953,338	1,991,662	2,042,574	2,065,494
MP	WESTNAGPUR	2,611,891	2,914,467	3,115,815	3,325,671	3,515,039	4,011,133	4,241,783	4,379,730	4,591,662	4,585,409	4,640,077

STATE	DISTRICT	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
Maharashtra	Ahmednagar	4,688,077	4,291,035	4,484,918	4,639,577	4,793,954	4,890,657	4,957,224	4,995,763	4,998,159	4,984,178	4,892,283
Maharashtra	Amravati	2,606,063	2,722,423	2,831,360	2,930,519	3,006,798	3,061,699	3,099,507	3,120,246	3,122,730	3,103,420	3,062,633
Maharashtra	Aurangabad	2,920,548	3,123,106	3,312,741	3,483,356	3,618,140	3,713,112	3,779,528	3,815,630	3,819,955	3,786,392	3,713,538
Maharashtra	Bhandara	2,335,986	2,401,433	2,462,704	2,518,476	2,561,378	2,592,237	2,613,522	2,625,187	2,626,584	2,615,740	2,592,783
Maharashtra	Bid	2,159,841	2,226,645	2,247,272	2,429,766	2,499,224	2,528,899	2,570,253	2,587,806	2,589,673	2,573,633	2,539,676
Maharashtra	Buldhana	1,444,666	1,600,873	1,759,933	1,923,932	2,076,930	2,200,914	2,299,478	2,371,991	2,439,662	2,485,972	2,511,833
Maharashtra	Ch. Bhandara	1,194,139	1,244,299	1,301,784	1,353,496	1,387,087	1,414,978	1,433,155	1,443,728	1,444,895	1,435,485	1,410,554
Maharashtra	Hajone	3,679,936	3,821,029	3,955,119	4,073,355	4,165,846	4,232,416	4,278,261	4,303,408	4,306,420	4,283,642	4,233,549
Maharashtra	Jalna	1,612,337	1,683,414	1,749,937	1,810,490	1,857,070	1,890,596	1,913,684	1,926,349	1,927,866	1,916,092	1,891,167
Maharashtra	Kolhapur	3,511,413	3,666,136	3,807,243	3,933,686	4,034,491	4,105,605	4,154,739	4,181,443	4,184,661	4,159,688	4,106,813
Maharashtra	Latur	1,072,769	1,165,823	1,258,877	1,351,931	1,444,985	1,538,039	1,631,093	1,724,147	1,817,201	1,880,255	1,902,279
Maharashtra	Nagpur	4,051,444	4,270,492	4,475,584	4,662,232	4,805,825	4,908,177	4,980,522	5,019,393	5,024,669	4,987,714	4,910,938
Maharashtra	Nanded	2,868,158	3,022,286	3,166,580	3,297,923	3,396,940	3,471,680	3,521,760	3,549,231	3,552,521	3,526,983	3,472,818
Maharashtra	Nashik	4,987,923	5,313,661	5,618,617	5,896,204	6,109,377	6,263,427	6,369,269	6,427,325	6,434,279	6,380,306	6,366,043
Maharashtra	Osmanabad	1,472,226	1,528,409	1,580,979	1,633,851	1,685,641	1,692,125	1,710,281	1,720,389	1,721,288	1,712,283	1,692,588
Maharashtra	Palghat	2,226,233	2,323,778	2,415,013	2,498,059	2,561,942	2,607,922	2,639,386	2,658,655	2,659,036	2,642,888	2,608,704
Maharashtra	Pune	7,234,224	7,509,059	7,816,261	8,156,135	8,493,951	9,122,707	9,280,243	9,366,655	9,377,005	9,366,617	9,136,600
Maharashtra	Raigadh	2,205,972	2,315,120	2,417,479	2,510,570	2,582,179	2,633,720	2,669,215	2,688,684	2,691,016	2,672,916	2,644,597
Maharashtra	Ratnagiri	1,696,482	1,740,167	1,781,064	1,818,291	1,846,928	1,867,539	1,881,734	1,889,520	1,890,422	1,883,214	1,867,890
Maharashtra	Sangli	2,311,835	2,488,349	2,788,454	2,879,393	2,949,348	2,999,697	3,034,272	3,053,391	3,055,669	3,031,797	3,000,524
Maharashtra	Satara	2,796,908	2,893,953	2,982,646	3,073,037	3,157,954	3,184,778	3,216,855	3,234,585	3,236,619	3,220,210	3,185,773
Maharashtra	Solapur	3,611,672	3,701,152	3,783,053	3,853,363	3,900,809	3,944,800	3,975,549	3,999,077	3,999,238	3,973,386	3,944,668
Maharashtra	Solapur	3,855,383	4,034,313	4,201,828	4,354,308	4,471,603	4,556,026	4,614,165	4,646,056	4,649,876	4,620,228	4,557,463
Maharashtra	Thane	8,128,833	8,954,150	9,726,811	10,430,126	10,971,150	11,360,522	11,628,720	11,775,817	11,793,436	11,656,685	11,367,180
Maharashtra	Wardha	1,230,640	1,277,457	1,321,247	1,361,126	1,391,803	1,413,883	1,429,088	1,437,429	1,438,428	1,430,674	1,414,258
Maharashtra	Yavatmal	2,460,482	2,570,346	2,675,200	2,766							