Chapter -2

POPULATION

2.1 **Introduction**   India, like many other countries, has come a long way from the initial days of evolution under conditions of high mortality due to famines, accidents , illness, infections and war, when relatively high levels of fertility was essential for speccies survival. Over the years , better equipped in dealing with diseases and vagaries of nature, it has witnessed significant increase in life expectancy alongwith steep fall in mortality .Confronted with malthusian growth , changing social mores and spurred by government interventions , the populaion responded by taking steps to reduce fertility, but the continued increase in number of women in reproductive age has ensured high number of births each year. Consequently , in the world of seven billion people, India along with China already occupies a place in the Billionaire club and is likely to overtake China by 2025.
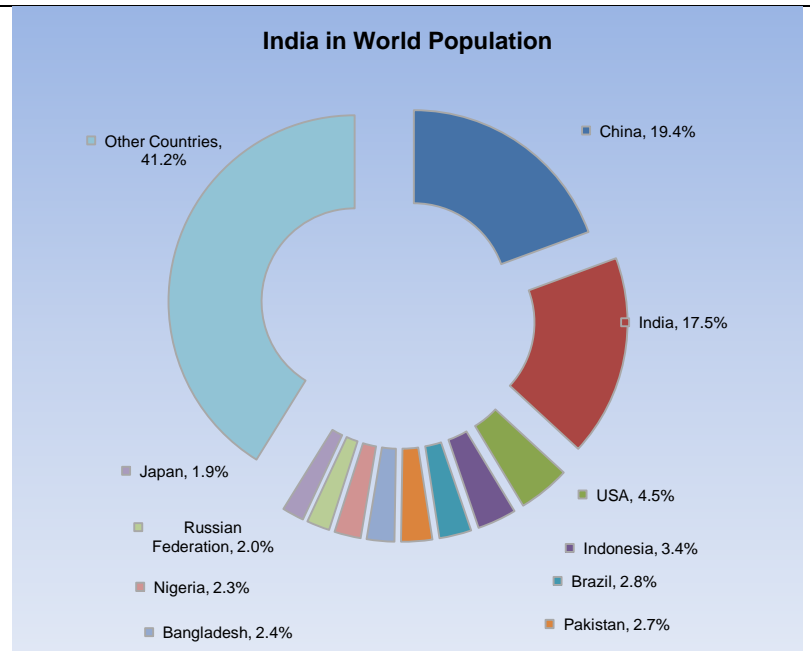
Size , Growth and Structure

2.2   The second most populous country on earth , India accounts for more than 17 per cent of world population mith meagre 2.4 per cent of the world surface area.In contrast, the USA accounts for 7.2 percent of the surface area with only 4.5 percent of the world population
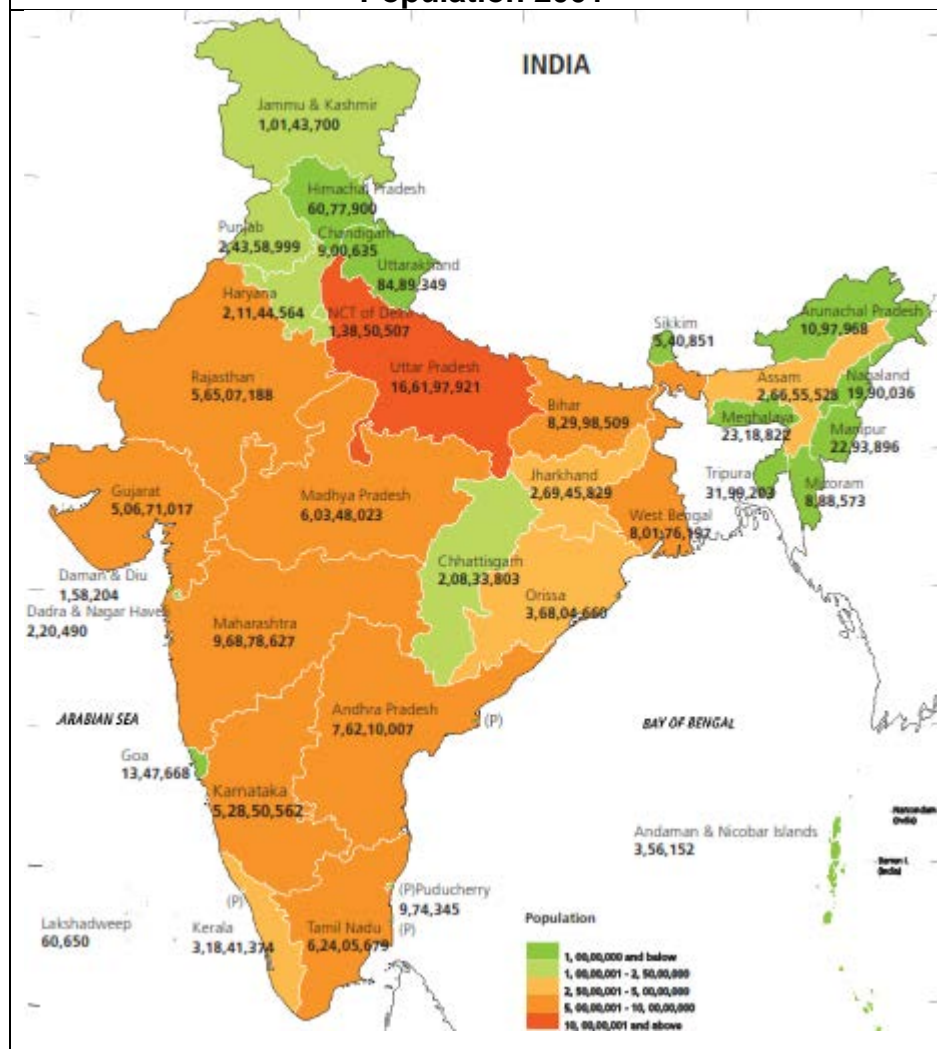
India In World Population

The population of India at 1210.8 Million , is almost equal to combined population of USA, Indonesia, Brazil, Pakistan Bangladesh & Japan put together- the population of these six countries totals1214.3 millions

The population of India has increased by more than 181 million during the decade 2001-11. The absolute addition is slightly lower than the population of Brazil, the fifth most populous country in the world.   .
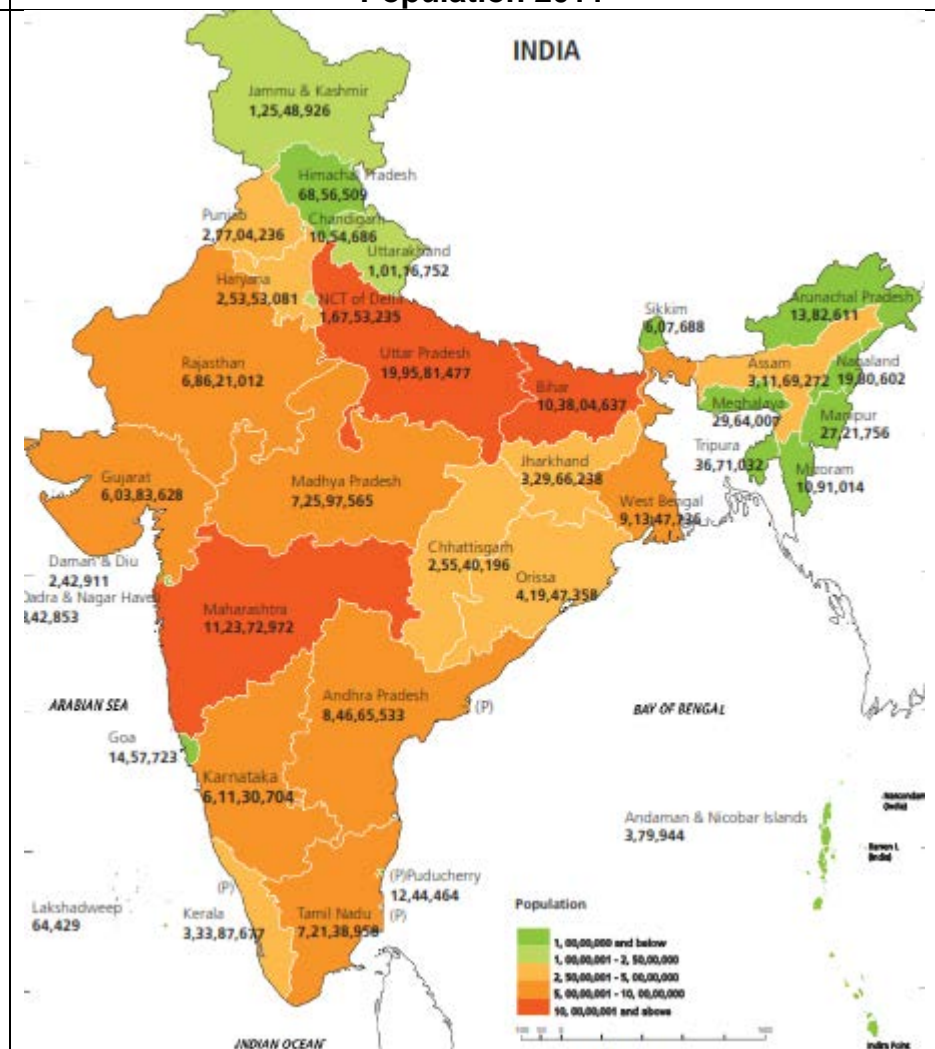

India in World Population

China, 19.4%
India, 17.5%
Other Countries, 41.2%
USA, 4.5%
Japan, 1.9%
Indonesia, 3.4%
Russian Federation, 2.0%
Brazil, 2.8%
Nigeria, 2.3%
Pakistan, 2.7%
Bangladesh, 2.4%

2.3   The statewise population distribution during the two recent census indicates that UP continues to be the most populous state with about 200(16 per cent of total population) million people.States of Maharashtra and Bihar(9 per cent of the total population each) have made the transition to more than 100 million population category.Twenty States and Union Territories now have a population of over ten million. On the other extreme, there are five States and Union Territories in the country that are yet to reach the one million mark. Maps below indicate the population spread based on provisional totals(1210.2 million), which has since been revised to 1210.8 million.
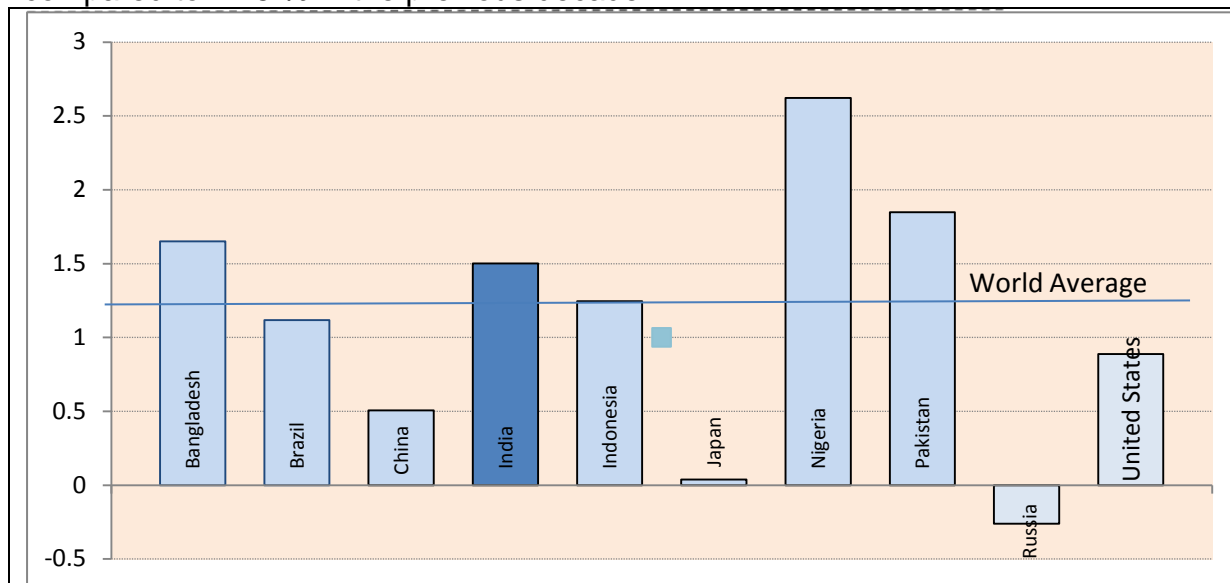
Population 2001

INDIA

Jammu & Kashmir
1,01,43,700

Himachal Pradesh
60,77,900

Punjab
2,43,58,999

Chandigarh
9,00,635

Uttarakhand
84,89,349

Haryana
2,11,44,564

NCT of Delhi
1,38,50,507

Sikkim
5,40,851

Arunachal Pradesh
10,97,968

Rajasthan
5,65,07,188

Uttar Pradesh
16,61,97,921

Bihar
8,29,98,509

Assam
2,66,55,528

Nagaland
19,90,036

Meghalaya
23,18,822

Manipur
22,93,896

Gujarat
5,06,71,017

Madhya Pradesh
6,03,48,023

Jharkhand
2,69,45,829

Tripura
31,99,203

Mizoram
8,88,573

West Bengal
8,01,76,197

Daman & Diu
1,58,204

Dadra & Nagar Haveli
2,20,490

Chhattisgarh
2,08,33,803

Orissa
3,68,04,660

Maharashtra
9,68,78,627

Andhra Pradesh
7,62,10,007

ARABIAN SEA

BAY OF BENGAL

Goa
13,47,668

Karnataka
5,28,50,562

Andaman & Nicobar Islands
3,56,152

Puducherry
9,74,345

Lakshadweep
60,650

Kerala
3,18,41,374

Tamil Nadu
6,24,05,679

Population
- 1,00,00,000 and below
- 1,00,00,001 - 2,50,00,000
- 2,50,00,001 - 5,00,00,000
- 5,00,00,001 - 10,00,00,000
- 10,00,00,001 and above

Population 2011

INDIA

Jammu & Kashmir
1,25,48,926

Himachal Pradesh
68,56,509

Punjab
2,77,04,236

Chandigarh
10,54,686

Uttarakhand
1,01,16,752

Haryana
2,53,53,081

NCT of Delhi
1,67,53,235

Sikkim
6,07,688

Arunachal Pradesh
13,82,611

Rajasthan
6,86,21,012

Uttar Pradesh
19,95,81,477

Bihar
10,38,04,637

Assam
3,11,69,272

Nagaland
19,80,602

Meghalaya
29,64,007

Manipur
27,21,756

Tripura
36,71,032

Gujarat
6,03,83,628

Madhya Pradesh
7,25,97,565

Jharkhand
3,29,66,238

Mizoram
10,91,014

West Bengal
9,13,47,736

Daman & Diu
2,42,911

Dadra & Nagar Haveli
3,42,853

Chhattisgarh
2,55,40,196

Orissa
4,19,47,358

Maharashtra
11,23,72,972

Andhra Pradesh
8,46,65,533

ARABIAN SEA

BAY OF BENGAL

Goa
14,57,723

Karnataka
6,11,30,704

Andaman & Nicobar Islands
3,79,944

Puducherry
12,44,464

Lakshadweep
64,429

Kerala
3,33,87,677

Tamil Nadu
7,21,38,958

INDIAN OCEAN

Population
- 1,00,00,000 and below
- 1,00,00,001 - 2,50,00,000
- 2,50,00,001 - 5,00,00,000
- 5,00,00,001 - 10,00,00,000
- 10,00,00,001 and above

Population Growth

2.4   As per UN estimates World population grew at annual rate of 1.23 per cent during 2000-2010 with developing countries like India registering a higher growth rate . The population of developed countries like Japan & USA grew at a slower pace with Russia even witnessing a decline in population . China registered a much lower growth rate (third lowest in top ten most populous countries behind Russia & Japan, in fact much lower than USA).It is now estimated that India will overtake china as the most populous country by 2025-30despite the fact that the growth rate has slowed down even in case of India.Decadal growth rate in case of India was 17.7 % compared to 21.5 % in the previous decade.

Demographic Transition:

2.5   India , at present, is at stage three of the *four stage model* of demographic transition from stable population with high mortality and fertility to stable population with low mortality and fertility, with some of the states/UT's already into stage four.Percentage decadal growth rate of population in has been deciling since 1971-81 at all india level. However, significant fall in case of **EAG States**(Empowered action group states: UP, Uttarakhand, Bihar, Jharkhand, MP, Chhatisgarh, Rajasthan & Orissa)has been noticed for the first time during 2011 census.
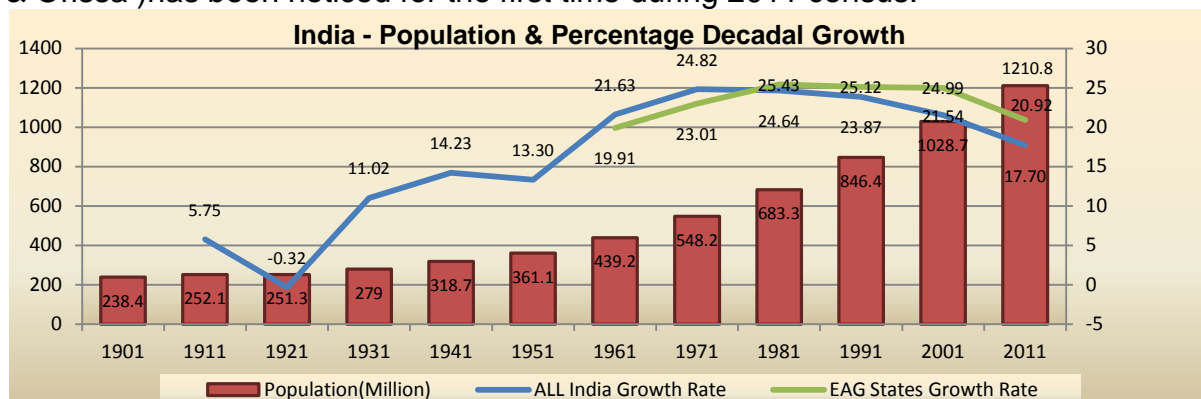

 Stage 1: less developed countries , high birth rate ,high no. of deaths due to preventable causes, stable population
 Stage 2: Death rates fall due to improved public health but high fertility due to limited access to health and contraceptive services , spurt in population
 Stage 3: Birth rate also falls, population continues to grow due to large no. of people in reproductive age group
 Stage 4:Stable population but at a level higher than the initial, low birth & death rates, high social & economic development

2.6   Since both fertility & mortality have fallen significantly(graph below) & the population still continues to grow , though at a slower pace (graph at pre page), India, presently reflects charactertics of stage three countries in the parlance of demographic transition.As per SRS Reports , birth rate in 2013 decreased marginally to 21.4 from 21.6 in the previous year, with decrease observed in both rural (23.1 to 22.9) & urban areas (17.4 to 17.3).Bihar, Madhya Pradesh, Rajasthan & UP (including chaatisgarh & Jharkhand) continue to have birth rates above national average.Death rate on the other hand has remained at 7(2012-13 comparison) leading to marginal decrease in natural growth rate of population (from 14.5 in 2012 to 14.4 in 2013).Infant mortality rate has also declined from 42 to 40 during the period.
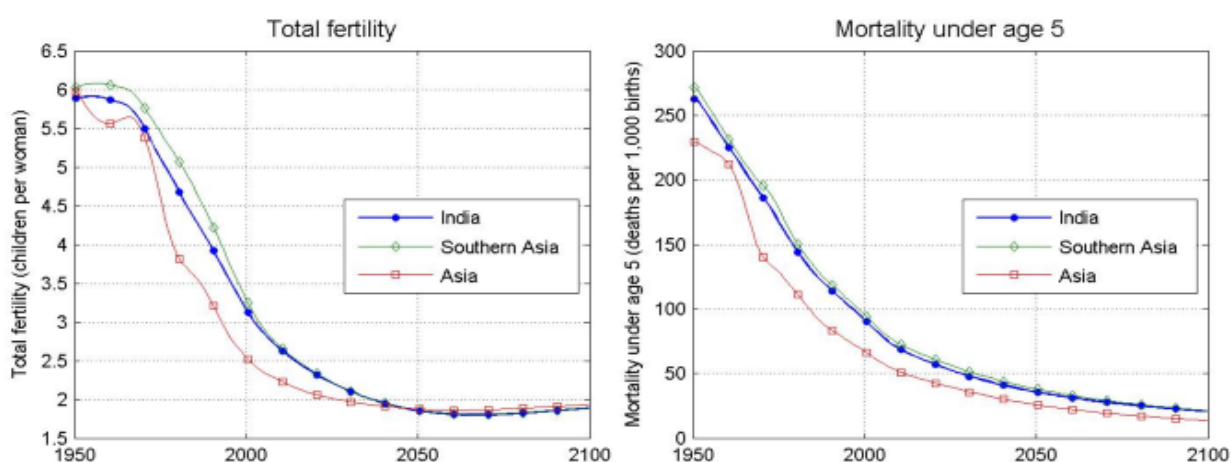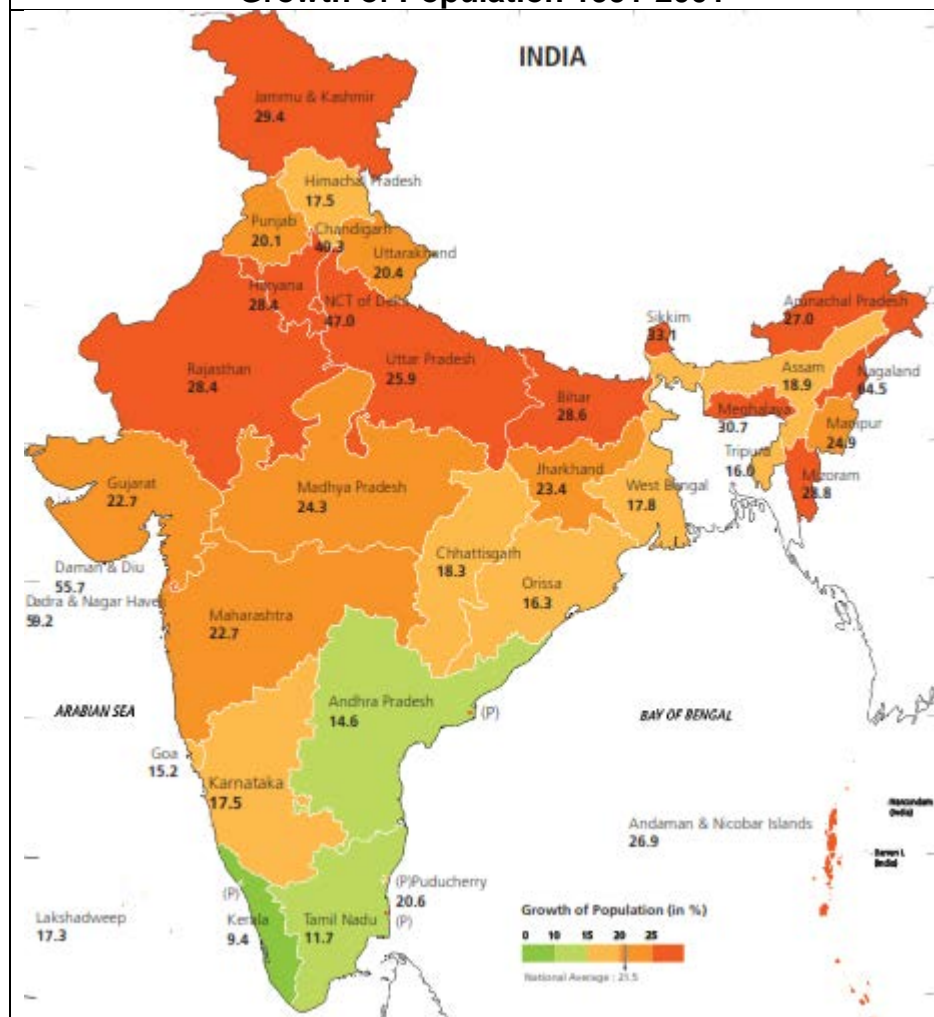

Source :United Nations Department of Economic and Social Affairs/Population Division
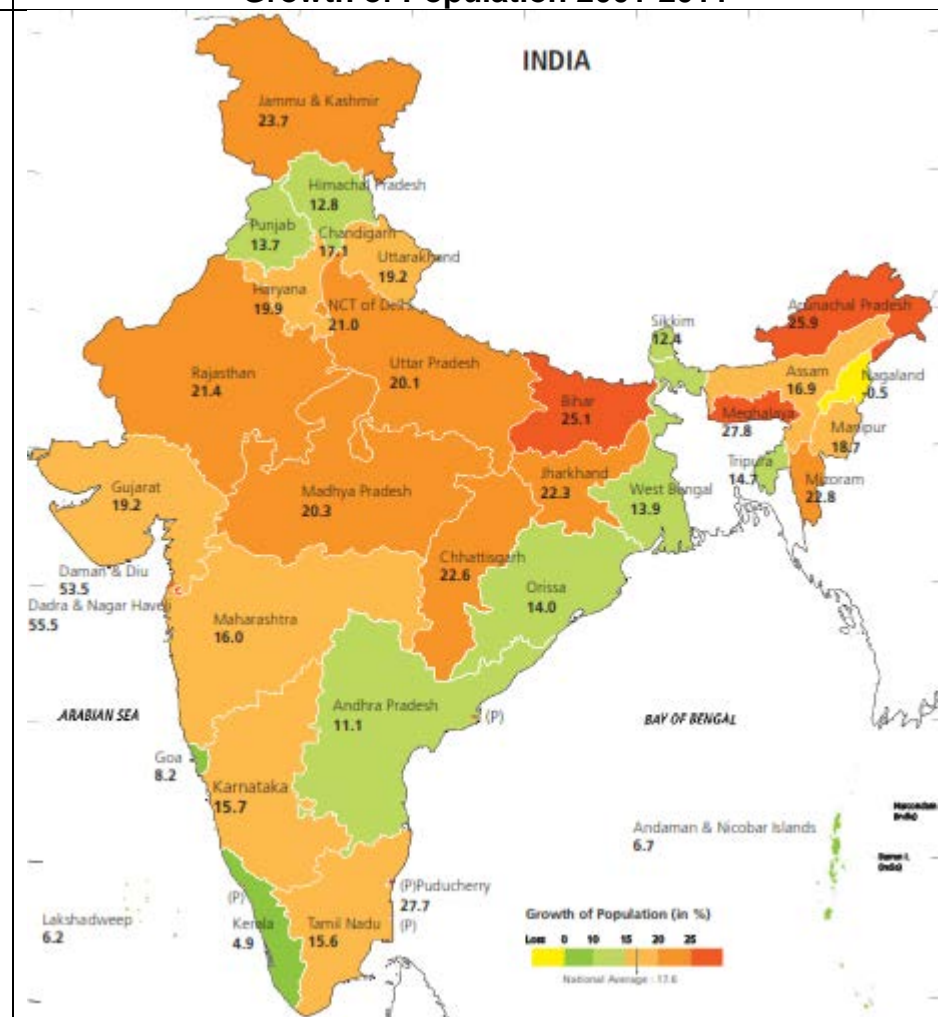
Population Growth- Inter State Comparison :

2.7   The EAG group (UP, Uttarakhand, Bihar, Jharkhand, MP, Chhatisgarh, Rajasthan & Orissa indicative of general trend)accounting for about forty three to forty six percent of India's population since 1951 for the first time, during 2011, saw decline in the growth rate(Graph India- Population & Percentage Decadal Growth) . Amongst EAG states , best performance was seen in case of Orissa followed by Uttarakhand with growth rate in Orissa falling below national level during 2001-11, even though steepest decline was observed in case of Rajsthan followed by UP. Bihar continues to have the highest growth rate.Compared to 1991-2001 , only Chhatisgarh has shown an increase in growth rate in case of EAG states.

2.8   Amongst non EAG states Tamil Nadu &Puducherry have shown increase in growth rate during 2001-11 as compared to previous decade. Amongst non EAG states & even otherwise steepest fall (6.7 percent points) during 2001-11 , compared to previous decade has been observed in case of Maharashtra . Among the more populous Non EAG states, growth rates of Gujarat, Haryana, Delhi& Jammu Kashmir are higher than the current national average.

Growth of Population 1991-2001

INDIA

Jammu & Kashmir
29.4

Himachal Pradesh
17.5

Punjab
20.1

Chandigarh
40.3

Uttarakhand
20.4

Haryana
28.4

NCT of Delhi
47.0

Sikkim
33.1

Arunachal Pradesh
27.0

Rajasthan
28.4

Uttar Pradesh
25.9

Bihar
28.6

Assam
18.9

Nagaland
64.5

Meghalaya
30.7

Manipur
24.9

Tripura
16.0

Mizoram
28.8

Gujarat
22.7

Madhya Pradesh
24.3

Jharkhand
23.4

West Bengal
17.8

Daman & Diu
55.7

Dadra & Nagar Haveli
59.2

Chhattisgarh
18.3

Orissa
16.3

Maharashtra
22.7

Andhra Pradesh
14.6

(P)

ARABIAN SEA

BAY OF BENGAL

Goa
15.2

Karnataka
17.5

Andaman & Nicobar Islands
26.9

Narcondam (India)

Barren I. (India)

Lakshadweep
17.3

Kerala
9.4

Tamil Nadu
11.7

(P)Puducherry
20.6
(P)

(P)

Growth of Population (in %)

0   10   15   20   25

National Average : 21.5

Growth of Population 2001-2011

INDIA

Jammu & Kashmir
23.7

Himachal Pradesh
12.8

Punjab
13.7

Chandigarh
17.1

Uttarakhand
19.2

Haryana
19.9

NCT of Delhi
21.0

Sikkim
12.4

Arunachal Pradesh
25.9

Rajasthan
21.4

Uttar Pradesh
20.1

Bihar
25.1

Assam
16.9

Nagaland
-0.5

Meghalaya
27.8

Manipur
18.7

Tripura
14.7

Mizoram
22.8

Gujarat
19.2

Madhya Pradesh
20.3

Jharkhand
22.3

West Bengal
13.9

Daman & Diu
53.5

Dadra & Nagar Haveli
55.5

Chhattisgarh
22.6

Orissa
14.0

Maharashtra
16.0

Andhra Pradesh
11.1

(P)

ARABIAN SEA

BAY OF BENGAL

Goa
8.2

Karnataka
15.7

Andaman & Nicobar Islands
6.7

Narcondam I. (India)

Barren I. (India)

Lakshadweep
6.2

Kerala
4.9

Tamil Nadu
15.6

(P)Puducherry
27.7
(P)

(P)

Growth of Population (in %)

Loss   0   10   15   20   25

National Average : 17.6

Population Structure :

2.9   Population Pyramidsrepresent complex changes in age structure of the population.
In developed countries the shape is almost cylindrical instead of a pyramid because of the
high life expectancy , low fertility and relatively low population in reproductive age group.
In these countries, advantages of stable population are challenged by higher dependency
ratio since the working age population is less.

2.10. In contrast to the above , population of most of the devloping countries including
(India) consists of large proportions of childern and persons in reproductive age group. For
now and thenear future , population projections for India augur well since it will have a
large segment of population in the working age group   , with considerably decreased
dependency ration putting it in a position to reap **demographic dividend.**
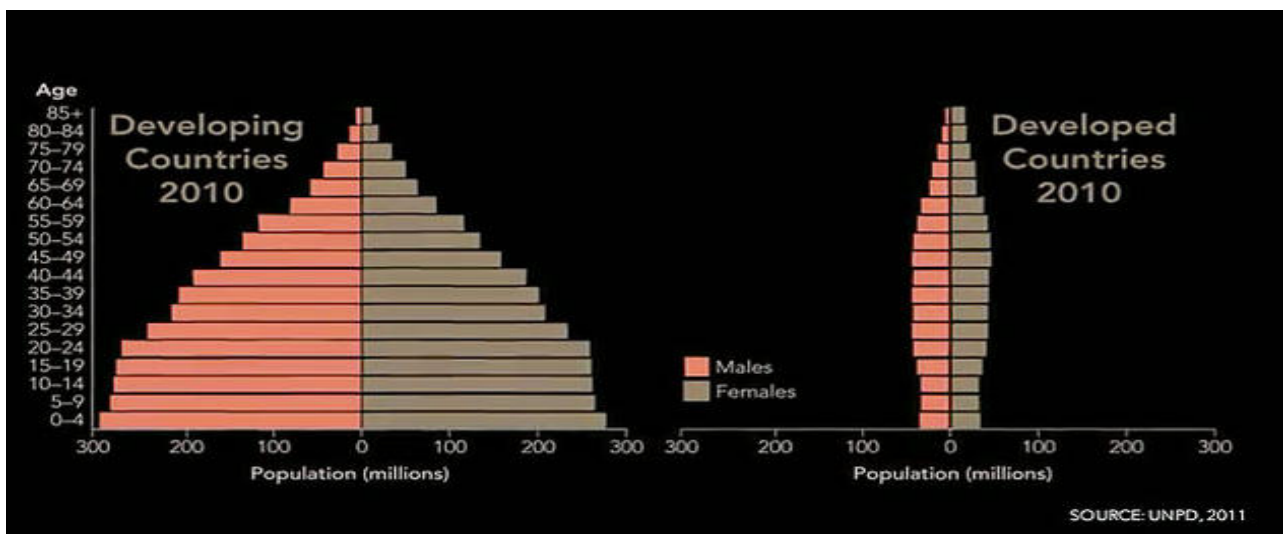
Population by Age Group and Sex (absolute numbers) dotted line indicate excess
male/female population
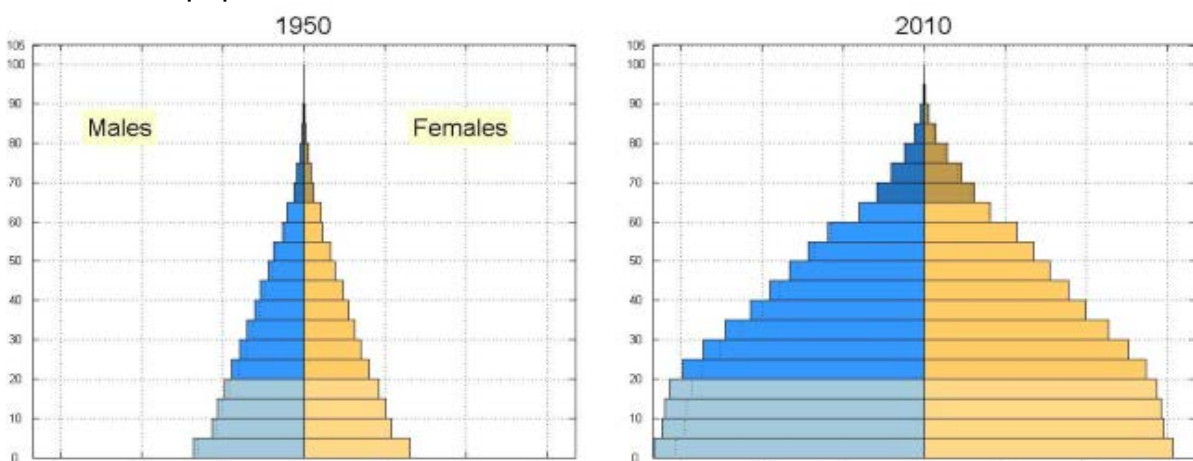
As per results of Census 2011, persons aged 0-6 years accounted for about 13.6 % of
total population with the ratio in case of males being 13.8 % and females being 13.2 %.
Consequently , the sex ratio in the age group 0-6 years was about 919 (much lower than
the overall national average of 943.
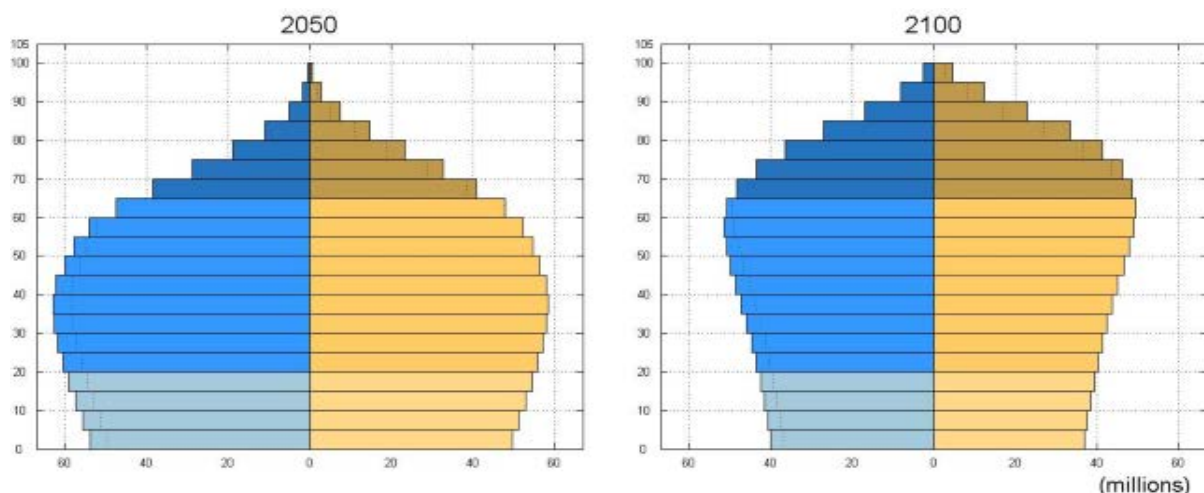
Sex wise composition :

2.11   After an all time low sex ratio (No. of females per thousand males) of 927 in 1991 , the sex ratio of India has shown improvement during last two decades . Sex ratio, as per the recent census is 943 which is largely comparable to the best performance (941 in 1961) in last fifty years. Several steps , including gender equality awareness campaigns were taken by the government to arrest the trend of declining sex ratio. However , as indicated above, **much lower sex ratio of about 919 in case of 0-6 age group** , doesn't augur well as it might be indicative of future trends and preferences of male child still prevalent in a large part of the society.
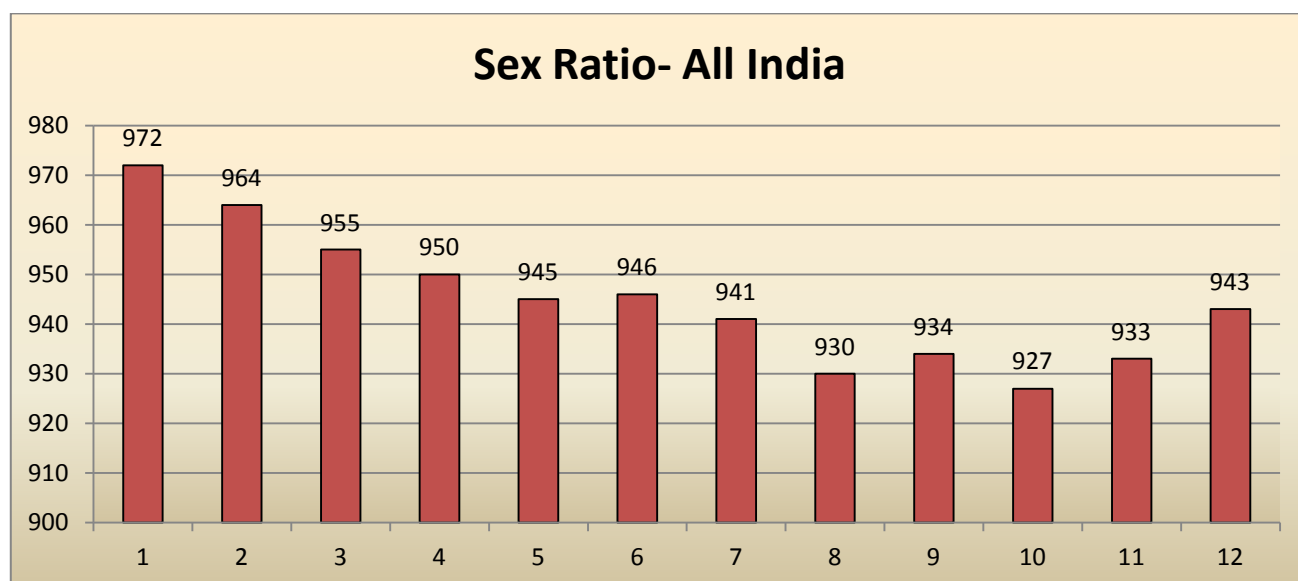
2.12 Statewise comparison with all India Averages   The lowest sex ratio among the States has been recorded in Haryana (877), Jammu & Kashmir (883) and Sikkim (889). Among the UTs the lowest sex ratio has been returned in Daman & Diu (618), Dadra & Nagar Haveli (775) and Chandigarh (818).Comparatively prosperous states of Haryana and Punjab had sex ratio less than 850 in case of age group 0-6 years.
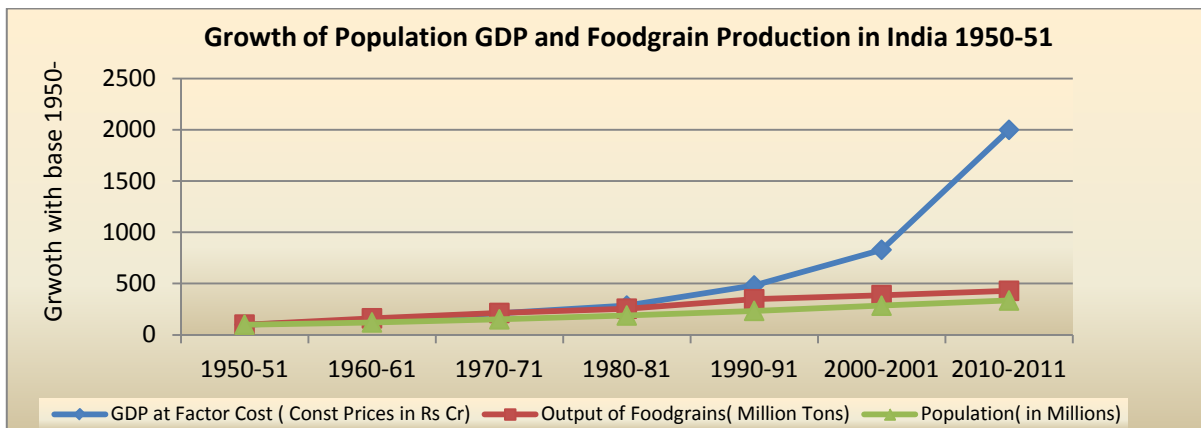
2.13 Increase/ decrease in sex ratio at state level Among the major States, Bihar, Jammu Kashmir and Gujarat have experienced a fall in the sex ratio. The decline ranged from 2 points in Gujarat to 9 points in Jammu & Kashmir. Other smaller Union Territories showing steep decline are Dadra & Nagar Haveli(37 points) and Daman and Diu (92 points). Perceptible increase has been observed in the major States such as Uttar Pradesh, Rajasthan, Jharkhand, Orissa, Chattisgarh, Madhya Pradesh, Andhra Pradesh, West Bengal, Maharashtra, Kerala, Tamil Nadu, Punjab and all the States located in the North East.

2.14 It is interesting to note that States having historically low sex ratio such as Punjab, Haryana, Delhi and Chandigarh have shown appreciable increase in the sex ratio in Census 2011 with Chandigarh & Delhi showing an improvement of more than 40 points compared to 2001. Majority of the States identified as gender critical for special attention and intervention as part of the Census 2011 have shown increasing trend in the sex ratio as per the provisional results.

Population & Issues :

2.15 Population is interchangeably viewed as resource or a problem depending on the context. Increasing population is concern for developing& underdeveloped nations whereas some advanced nations are battling issues of aging population and population decline. India currently at stage three of demographic transition (low mortality & fertility but high births because of large number of people in reproductive age group due to high fertility of previous generations , with huge population size is being increasingly reckoned as an emerging power in the world on the count of its popultaion size , its favourable structure & robust economy. However, it also requires tackling issues stemming from a burgeoning population . Experience around the world indicates that towards the end of demographic transition (i.e. stage four) countries achieve stable population with high social & economic development .However during the phase of expansion , in a country with high population density like India, malthusian concerns of increasing the means of subsistence with an adequate pace to match the geometric population increase remains valid. Figure produced below attempts to compare the decadal growth of population , GDP at factor cost at constant prices and food grain production since 1950-51.

2.16 On the economic front , GDP (FC) has grown annual by more than 10.2 per cent during 2001-10 , increasing the per capita NNP twofold. During the same period annual exponential growth rate of food production comes out to be 1.15 per cent , still a shade lower than the population grwoth rate during 2001-11.However, if the targeted improvement in foodgrain production of 8.5% as envisaged in the Union Budget document 2011-12 , is actually achieved for the two succesive years of 2010-11 and 2011-12, the average annual growth rate in foodgrain production for 2001-12 would touch about 1.5 per cent , making it somewhat similar to growth in population during this period.However, a comparison among the ten most populous countries in the world , in terms of both Human Development Index and per capita GDP in PPP$ shows india has a long way to go.

Growth of Population GDP and Foodgrain Production in India 1950-51

Y-axis: Grwoth with base 1950-
X-axis: 1950-51, 1960-61, 1970-71, 1980-81, 1990-91, 2000-2001, 2010-2011

Legend: GDP at Factor Cost (Const Prices in Rs Cr) — Output of Foodgrains(Million Tons) — Population(in Millions)

2.17   Population growth since 1950-51 , as captured by the Census shows an increasing trend of urbanization wherby the pressure on larger cities has increased considerably resulting in emergence of slums & other civic infrastructure related issues. The graph below summarizes the changing pattern of population distribution wherein share of urban areas has doubled & that of medium sized villages or below, has decreased from about 80 percent to about 50 per cent. **For the first time since independence , absolute increase in population is more in urban areas** though urban population still accounts for less than a third (31%) of entire population.   .

Depending on the definition of urban, more settlements shift from the rural into the urban category.
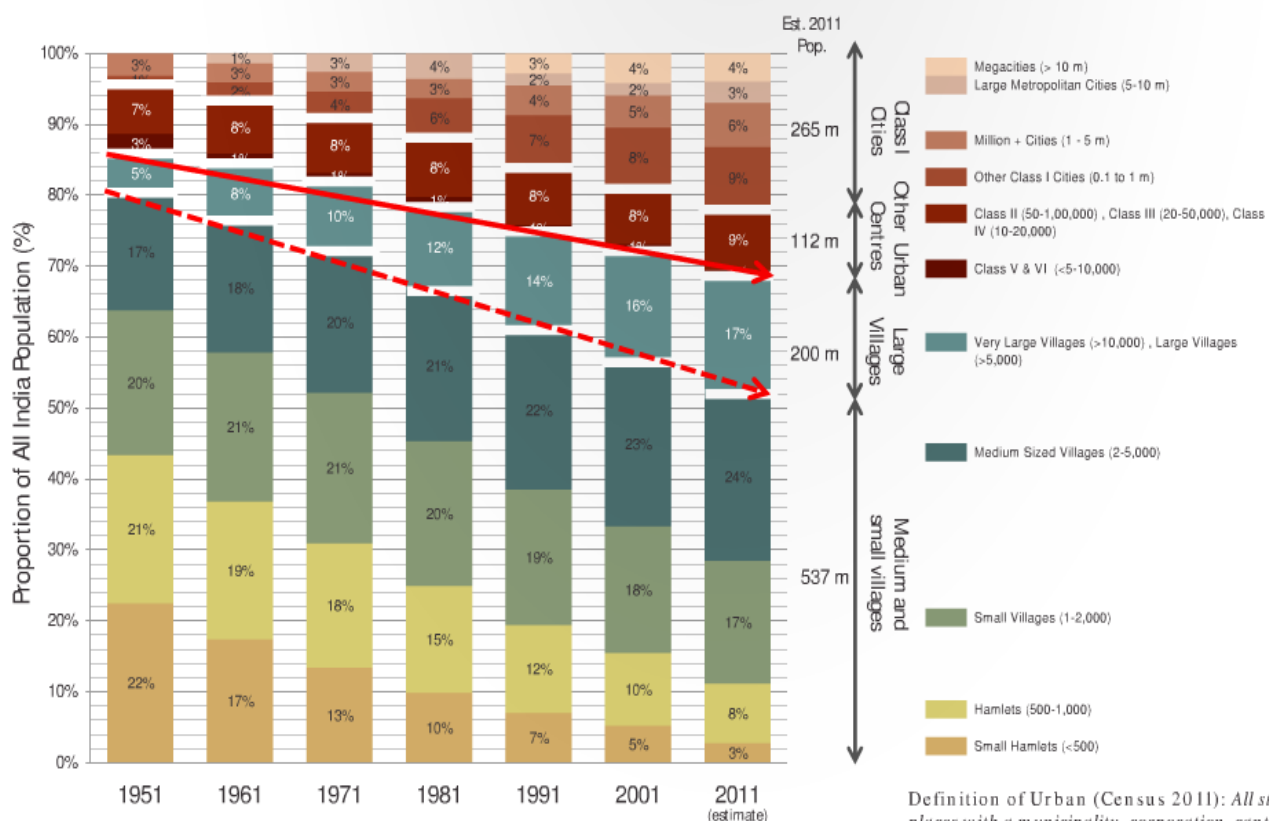
All India: Number of Settlements (1971-2011)

	1991	2001	2011
Urban	3,351	5,161	7,935
Rural	6,34,321	6,38,588	6,40,867

Definition of Urban (Census 2011): *All statutory places with a municipality, corporation, cantonment board or notified town area committee. A place satisfying the following three criteria simultaneously: a minimum population of 5,000; at least 75 per cent of male working population engaged in non-agricultural pursuits; and a density of population of at least 400 per sq. km.*
Source: Census, 2011

*The break-up of smaller cities
+ for 2011 is an estimate

Source: IIHS Analysis based on Census 1951 to 2011

Sources of Demographic Data & their limitations[1] :

2.18 The **Indian Population Census** is the most credible source of information on Demography (Population characterstics), Economic Activity, Literacy and Education, Housing & Household Amenities, Urbanisation, Fertility and Mortality, Scheduled Castes and Scheduled Tribes, Language, Religion, Migration, Disability and many other socio-cultural and demographic data since 1872. The decennial exerciseis carried out by Office of Registrar General of India , Ministry of Home Affairs and fifteenth Census was conducted by it in 2011.*Indian census is the principal source of the data on population size and structure and also provides some estimates of fertility and mortality indirectly. The census data also have the advantage of disaggregation to the level of small regional units.However, since the census data refer to time points spaced by ten years, the period is too long for fast growing economy like india undergoing rapid urbanization and migration . The Census enumeration suffers from both coverage and content errors and post enumeration surveys provide estimates of these. However, Coverage error has been quite small and is generally below 2 percent.*

2.19   Ideally, civil registration should yield estimates of birth and death rates(**System of Civil Registration, CRS** *and the registartion of vital events -births and deaths is compulsary by law) but as the system has not been functioning satisfactorily in India, the* **Sample Registration System,SRS** *(a system of dual recording involving continuous registration by a local registrar and half yearly survey by a supervisor, in a sample of locations since 1969-70)has served the purpose so far.The estimates of SRSare published in a reasonably short time, normally in about a year after the end of the reference year. But it produces estimates only at the state level (larger states only) and disaggregation to lower levels is not possible. Both Civil Registration System and Sample Registration System are being monitored by O/o Registrar General of India*

*2.20   Various surveys, especially the***National Family Health Survey, NFHS(***Ministry of Health & Family Welfare gets this survey conducted through the nodal agency International Institute of Population Sciences, Mumbai) also give valuable data on fertility and child mortality but again face the same constraint since the design and the sample size of these surveys, like the SRS, do not permit estimation of indicators at the district level. Many states in India are larger than most countries of the world, with populations exceeding ten million, and are known to exhibit heterogeneity in physical, economic, and social dimensions. Failure to have indicators for diverse regions within states is a major handicap in carrying out demographic analysis and making forecasts and there seems to be no alternative to strengthening the civil registration system to ensure that all vital events, the registration of which is mandatory by law, are captured. In fact, the SRS was initially designed as a short-term measure, until the coverage of the civil registration system becomes universal, but this interim scheme has continued for over forty years. Newly introduced* **Annual Health Survey***(Ministry of Health & Family Welfare has entrusted the responsibility of this survey to the O/o the Registrar General of India in view of their expertise in handling SRS) has a large enough sample size to obtain district level estimates, but this survey covers barely half the country.The* **National Population Register** *which could ultimately provide the information on population closest to treal time basis is also being worked upon by O/o Registrar General of India and may soon be completed.*

2.21   Some special surveys focus on **migration** *and the 64th round of the* **National Sample Survey Office, NSSO** *carried out during 2007-08 also covered migration. These*

are quite useful to capture factors underlying migration, to assessing the impact of migration on migrants, on place of origin, to study aspects of remittances, but are not suited for estimating the volume of migration. The new National Population Register would, if the updating of the register can be ensured, be able to give data on migration on a continuous basis

2.22   The other potential sources, sample surveys and administrative statistics besides population Census are not commonly used to estimate population size. Surveys also give age-sex structures; however, as the changes in the structure over a short time interval are small, sample surveys are not suited to detect these. Administrative statistics such as numbers of houses, ration cards (cards issued to households to enable purchase of essential items from specified outlets), and lists of voters, are available. However, in the absence of any idea on the completeness, these are not safe to be used.

2.23 At the moment, therefore, the census, the Sample Registration System, and the periodic demographic surveys remain the principal sources, with their known limitations, to study demographic transition in India.

References:

- World Population Prospects : The 2010 Volume II: Demographic profiles, UNDESA/Population Division
- Provisional Population Totals , Paper 1 of 2011 India Series 1, Office of Registrar General & Census Commissioner, India .
- Issues of Data Requirements in the context of the Demographic Transition in India- Prof P M Kulkarni, CSRD,SSS, Jawaharlal Nehru University, New Delhi (for Sources of Demographic data and their limitations[1]).