

A close-up photograph of Grumpy Cat, a famous internet meme. The cat has a grumpy expression, with its eyes squinted and a downturned mouth. It has brown fur around its eyes and ears, and white fur on its face and chest. The background is a plain, light-colored surface.

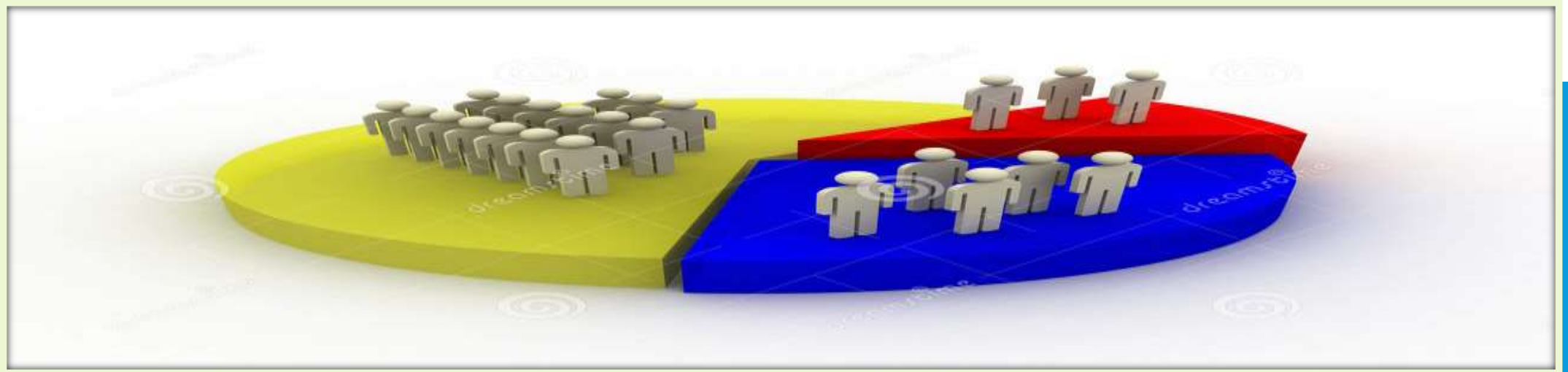
GOOD MORNING.

Seminar



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DEMOGRAPHIC TRENDS IN INDIA



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[1] INTRODUCTION

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INTRODUCTION

- ❖ The disciplines of demography, epidemiology and public health – all are concerned with human populations, with epidemiology dependent on demography and public health dependent on both demography and epidemiology.
- ❖ Demography addresses human populations as population *per se*, that is, their sizes and structures.
- ❖ It is the scientific study of human population.

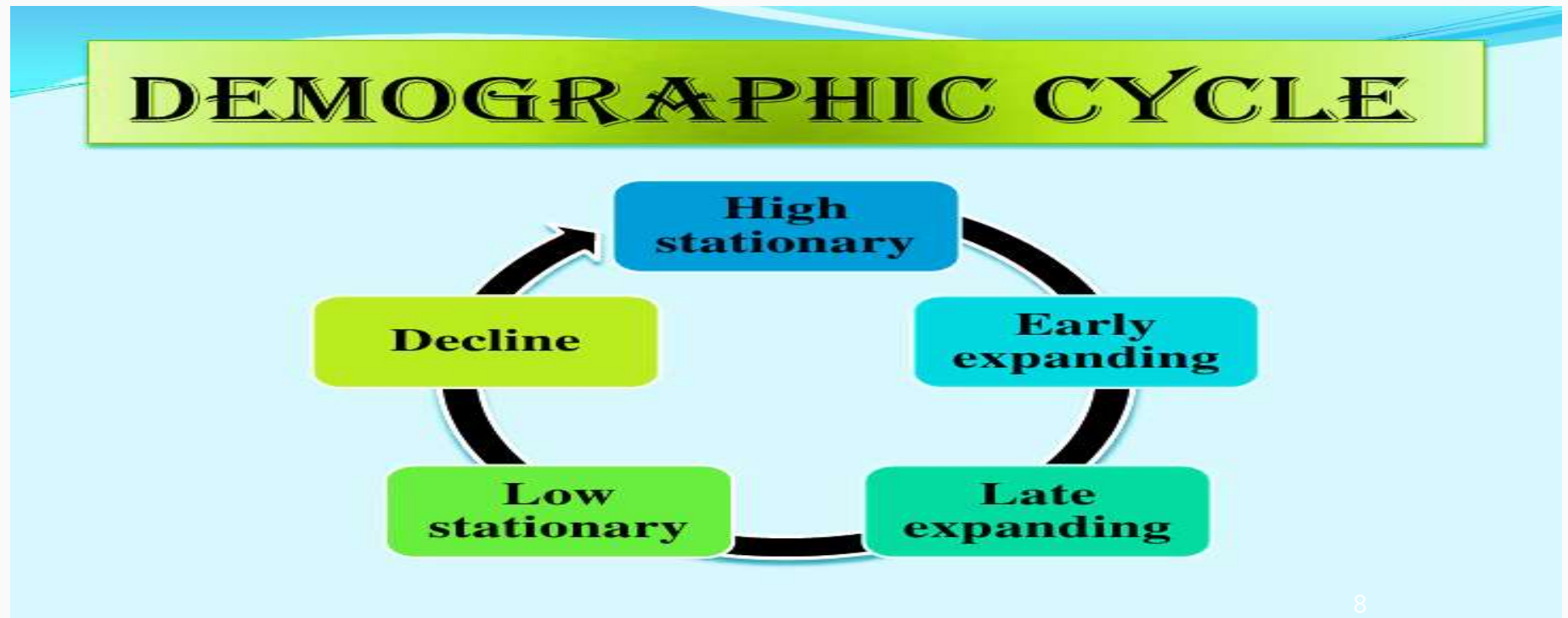
DEFINITION

[1] The definition of demography was given by HAUSER and DUNCAN, ‘THE STUDY OF THE SIZE, TERRITORIAL DISTRIBUTION AND COMPOSITION OF POPULATION, CHANGES THERIN, AND THE COMPOSITION OF SUCH CHANGES, WHICH MAY BE IDENTIFIED AS NATALITY, MORTALITY, TERRITORIAL MOVEMENTS AND SOCIAL MOBILITY’.

[2] In the books of COLLINS DICTIONARY OF SOCIOLOGY, *DAVID AND JULIA GARY* DEFINED DEMOGRAPHY AS THE ‘STATISTICAL STUDY OF HUMAN POPULATION WITH REGARD TO THEIR SIZE AND STRUCTURE, THEIR COMPOSITION BY SEX, AGE, MARITAL STATUS AND ETHNIC ORIGIN AND THE CHANGES TO THESE POPULATION LIKE CHANGES IN THEIR BIRTH RATES, DEATH RATES AND IMMIGRATION.

DEMOGRAPHIC CYCLE

❖ A nation's population passes through 5 phases during its development. They are:-



1ST STAGE [HIGH STATIONARY]

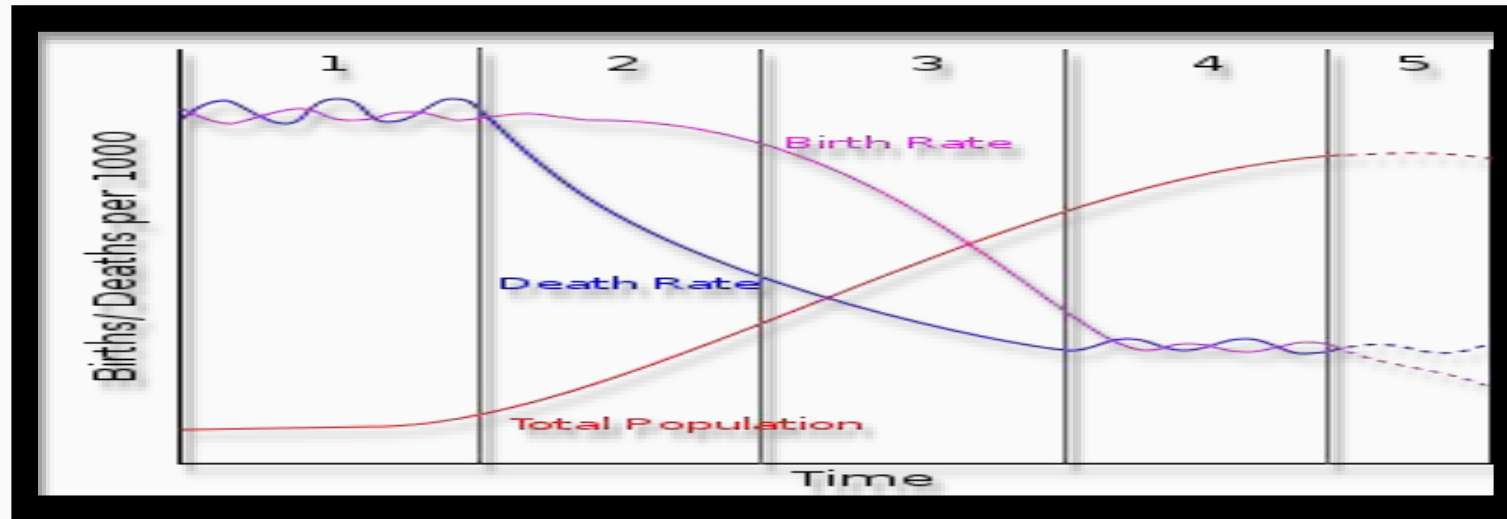
This stage is characterized by :-

➤ HIGH BIRTH RATE

➤ HIGH DEATH RATE

Which cancel each other and the population remains stationary.

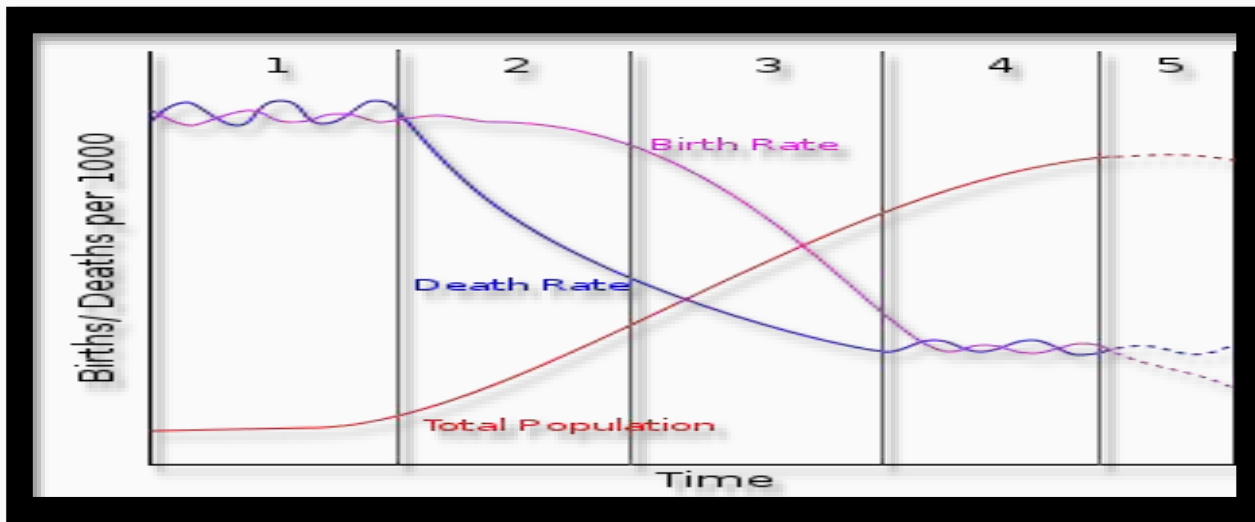
INDIA was in this stage till 1920.



2nd STAGE [EARLY EXPANDING]

This stage is characterized by :-

- BIRTH RATE REMAINS UNCHANGED
- DEATH RATE BEGINS TO DECLINE

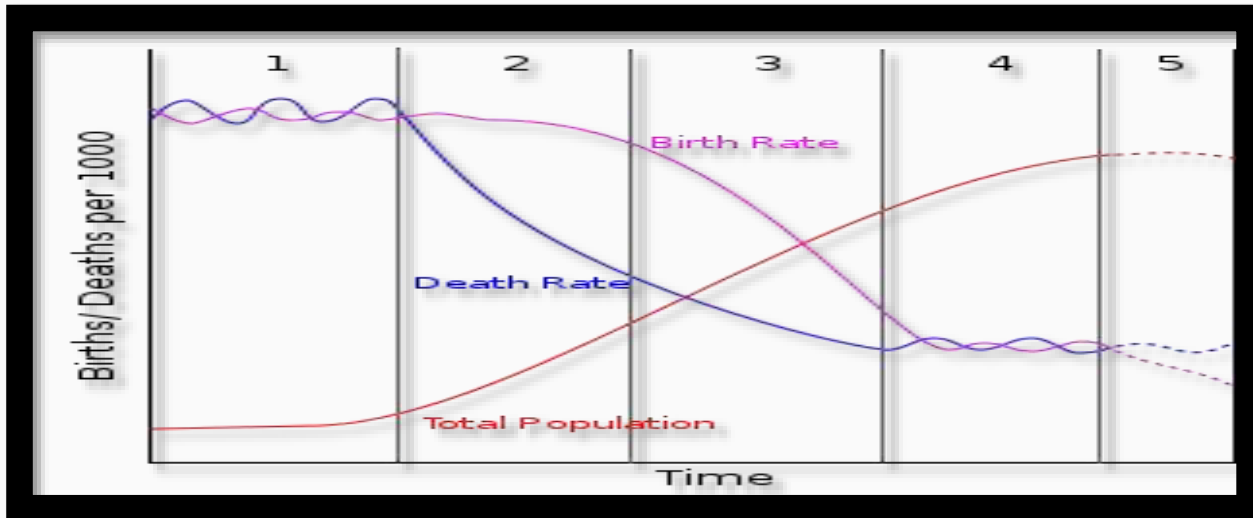


Many countries like
SOUTH ASIA AND
AFRICA as in this stage.

3RD STAGE [LATE EXPANDING]

This stage is characterized by :-

- BIRTH RATE TENDS TO FALL.
- DEATH RATE DECLINES STILL FURTHER.



In this population continues to grow because birth exceeds death.

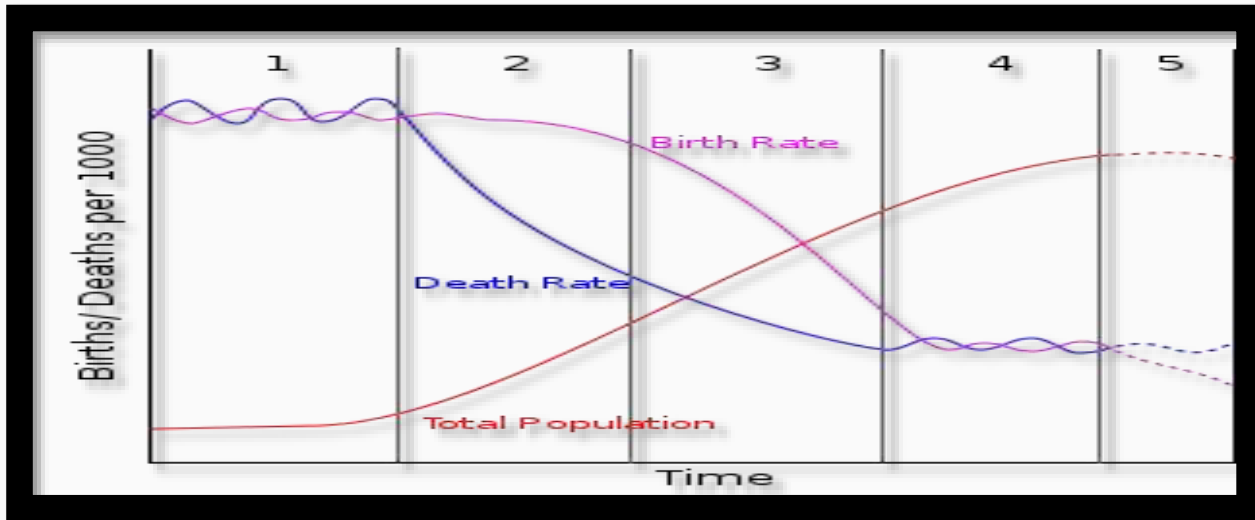
INDIA has entered this phase.

4TH STAGE [LOW STATIONARY]

This stage is characterized by :-

- LOW BIRTH RATE.
- LOW DEATH RATE.

So the population becomes stationary.



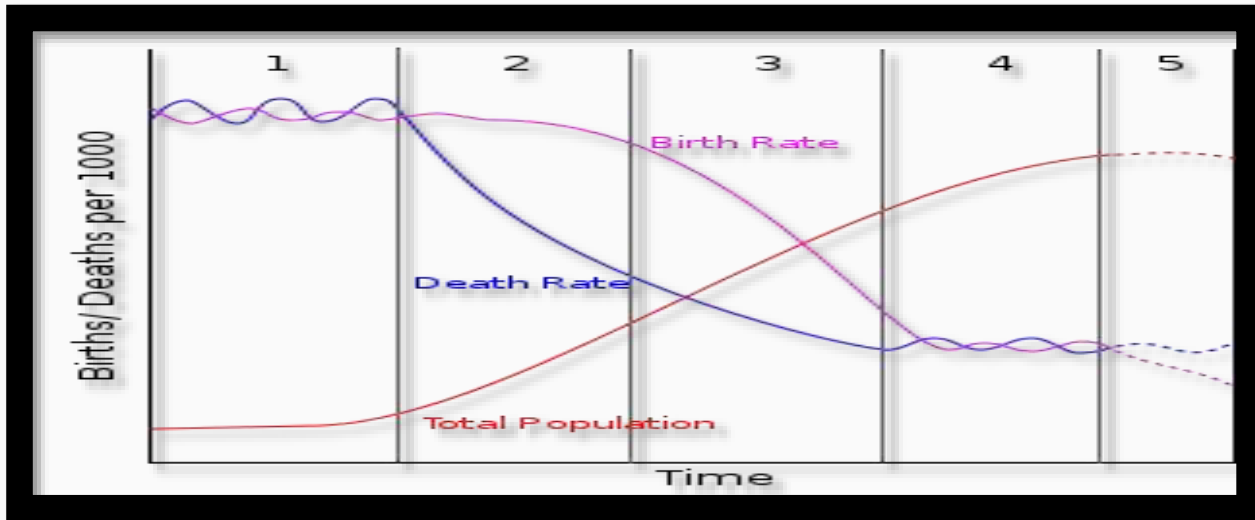
**ZERO POPULATION GROWTH
HAS ALREADY BEEN REPORTED
IN AUSTRIA DURING 1980-1985.**

5TH STAGE [DECLINING]

This stage is characterized by :-

- LOWER BIRTH RATE.
- LOW DEATH RATE.

LOWER BIRTH
RATE THAN THE
DEATH RATE SO
THE POPULATION
BEGINS TO
DECLINE



SOME EAST EUROPEAN COUNTRIES – HUNGARY AND GERMANY ARE EXPERIENCING THIS STAGE.

DEMOGRAPHIC CYCLE

5 STAGES OF DEMOGRAPHIC CYCLE

	Stage	BR	DR	Examples
Stage 1	High Stationary	↑↑	↑↑	India was in this stage till 1920
Stage 2	Early Expanding	+	↓	South Asia & Africa
Stage 3	Late Expanding	↓	↓↓	India, China, Singapore
Stage 4	Low Stationary	↓	↓	UK, Denmark, Sweden, Belgium
Stage 5	Declining	↓↓	↓	Germany & Hungary

INDIA 1920

High Stationary

INDIA PRESENT

Late Expanding



3 COUNTRIES OF SEAR, INDIA (17.5%). INDONESIA (3.4%) AND BANGLADESH (2.4%) ARE AMONG THE MOST POPULOUS TEN COUNTRIES OF THE WORLD. WHO SOUTH-EAST ASIA REGION (SEAR)

➤ At present INDIA's population is 2nd to that of CHINA.

➤ According to UNITED NATION projections INDIA's population will reach 1.53 billion by the year 2050 and will be the highest population in the world.

**TRENDS IN INCREASE
OF POPULATION OF
SEAR COUNTRIES(IN
MILLION)
IS SHOWN IN NEXT
TABLE**

<u>COUNTRY</u>	<u>1975</u>	<u>2010</u>	<u>2015(PROJECTED)</u>
<u>INDIA</u>	<u>6,207</u>	<u>1224.0</u>	<u>1260.4</u>
<u>BANGLADESH</u>	73.2	162.0	168.2
<u>BHUTAN</u>	1.2	0.7	2.7
<u>INDONESIA</u>	134.4	239.0	246.8
<u>MALDIVES</u>	0.1	0.3	0.4
<u>MYANMAR</u>	30.1	47.9	55.0
<u>NEPAL</u>	13.5	29.9	32.7
<u>SRILANKA</u>	14.0	20.8	22.3
<u>THAILAND</u>	41.3	69.1	69.1
<u>TOTAL</u>	<u>6514.8</u>	<u>1735.5</u>	<u>1857.6</u>

DEMOGRAPHIC TRENDS IN INDIA

- [1] DEMOGRAPHIC INDICATORS
- [2] AGE AND SEX COMPOSITION
- [3] AGE PYRAMIDS
- [4] SEX RATIO
- [5] DEPENDENCY RATIO
- [6] DENSITY OF POPULATION
- [7] URBANIZATION
- [8] FAMILY SIZE
- [9] LITERACY AND EDUCATION
- [10] LIFE EXPECTANCY



dreamstime.com

[1] DEMOGRAPHIC INDICATORS

They are divided into 2 parts :-

[A] POPULATION STATISTICS

Include indicators that measure the population size, sex ratio, density and dependency ratio.

[B] VITAL STATISTICS

Include indicators such as birth rate, death rate, natural growth rate, life expectancy at birth, mortality and fertility rates.

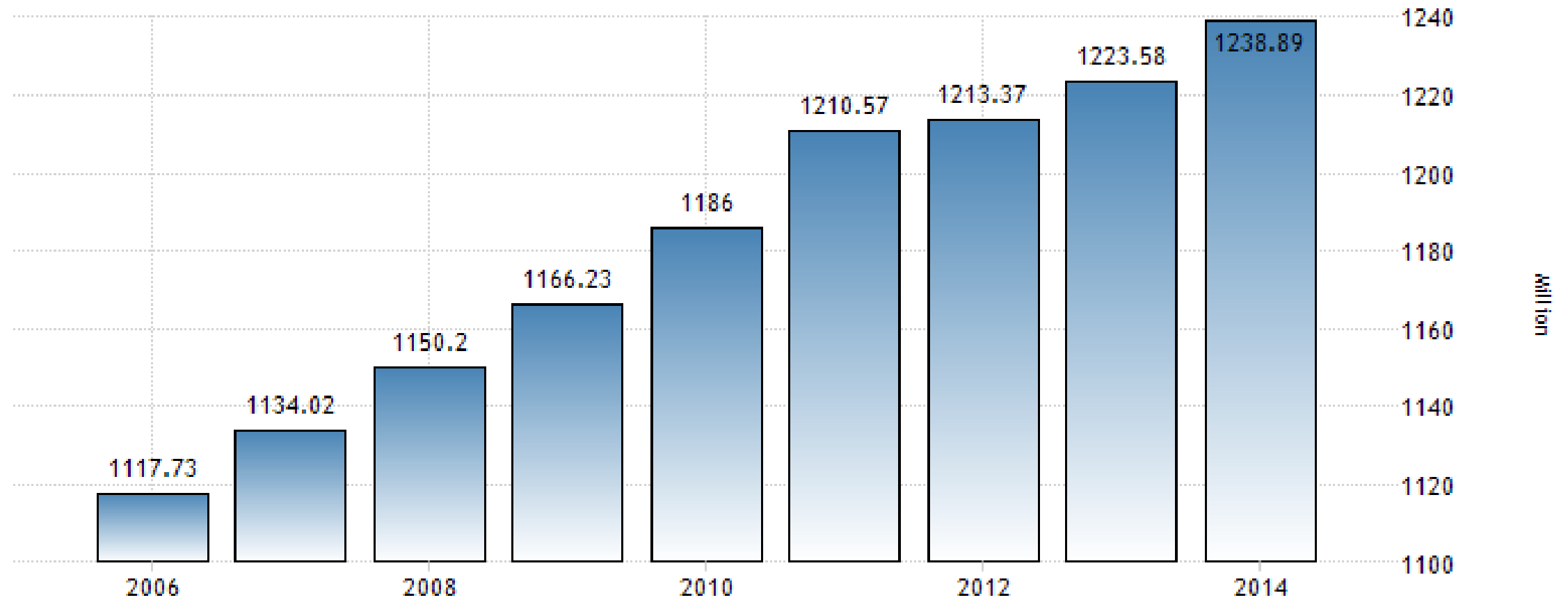
WHAT IS THE USE OF DEMOGRAPHIC INDICATORS ?

- IDENTIFYING AREAS THAT NEED POLICY
- PROGRAMMED INTERVENTIONS
- SETTING NEAR AND FAR- TERM GOALS
- DECIDING PRIORITIES

India is the **second most** populous country in the world, next only to China, whereas **seventh in land area**. With **only 2.4 percent of the world's land area**, India is supporting about **16.87 per cent of the world's population**. The population of **India since 1901**, average annual exponential growth rate (%), and the *decadal* growth of population (%) is as shown in below table :-

Year	Total Population(In Million)	Average Annual Exponential Growth Rate(%)	Decadal Growth Rate(%)
1901	238.4	-	-
1911	252.1	0.56	0.75
1921	251.3	(-) 0.03	(-) 0.31
1931	279.0	1.04	11.00
1941	318.7	1.33	14.22
1951	361.1	1.25	13.31
1961	439.2	1.96	21.64
1971	548.2	2.20	24.80
1981	683.3	2.22	24.66
1991	846.4	2.16	23.87
2001	1028.6	1.7	21.52
<u>2011</u>	<u>1210.1</u>	<u>1.64</u>	<u>17.64</u>

INDIA POPULATION



SOURCE: WWW.TRADINGECONOMICS.COM | MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION (MOSPI)

IN INDIA TOTAL POPULATION IN 2016 :-
LATEST

MALES

657,168

FEMALES

611,793

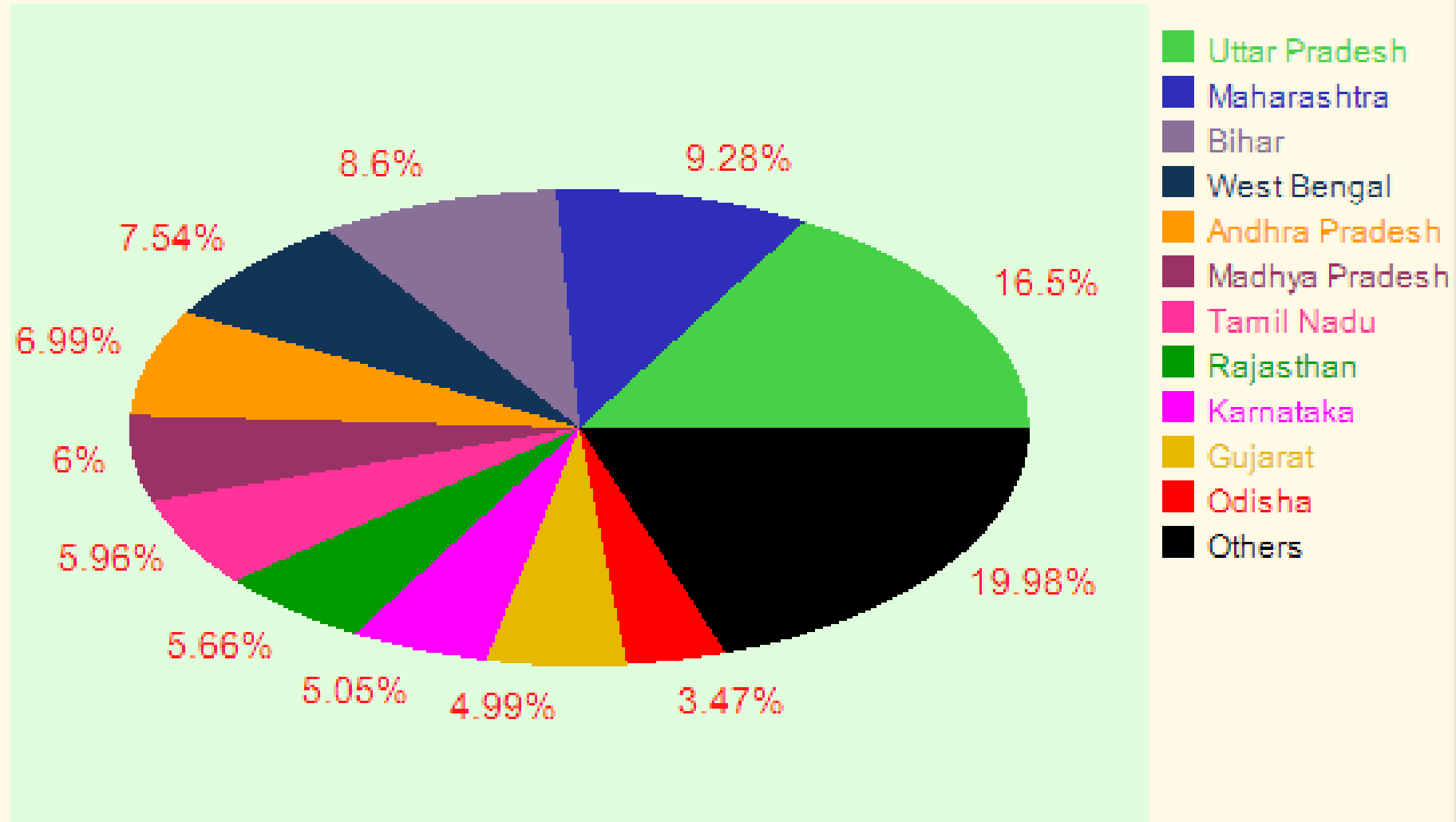
TOTAL

1268961

Geoba.se.com

RANK	STATE	PROJECTED POPULATION 31.3.2011	PERCENT TO TOTAL POPULATION OF INDIA 31-3-2011
<u>1</u>	<u>Uttar Pradesh</u>	<u>199,581</u>	<u>16.50</u>
2	Maharashtra	112,372	9.28
3	Bihar	103,804	8.60
4	West Bengal	91,347	7.54
5	Andhra Pradesh	84,665	6.99
6	Madhya Pradesh	72,597	6.00
7	Tamil Nadu	72,138	5.96
8	<u>Rajasthan</u>	<u>68,621</u>	<u>5.66</u>
9	Karnataka	61,130	5.05
10	Gujarat	60,383	4.99 ₂₅

Indian States by Population



A) India's population has been steadily increasing since **1921**. The year 1921 is called the **"big divide"** because the absolute number of people added to the population during each decade has been on the increase since 1921. India's population is currently increasing at the rate of **16 million each year**.

B) India's population numbered 238 million in 1901 doubled in 60 years to 439 million (1961); doubled again, this time in only 30 years to reach 846 million by 1991. It crossed 1 billion mark on 11 May 2000. and is projected to reach 1.53 billion by the year 2050.

THIS WILL THEN MAKE INDIA MOST
POPULOUS COUNTRY IN THE
WORLD, SURPASSING CHINA.

C) With the division of some states the rank of most populous states have changed.

D) Above Table shows the ten most populous states in the country by rank.

It is seen that **Uttar Pradesh** comes first with
about 199.581 million people. **Maharashtra**
comes second with 112.372 million people and
Bihar comes third with 103.804 million people.

It is seen that these ten states account for about
71 per cent of the total population India.

Ranking of Indian States by Population

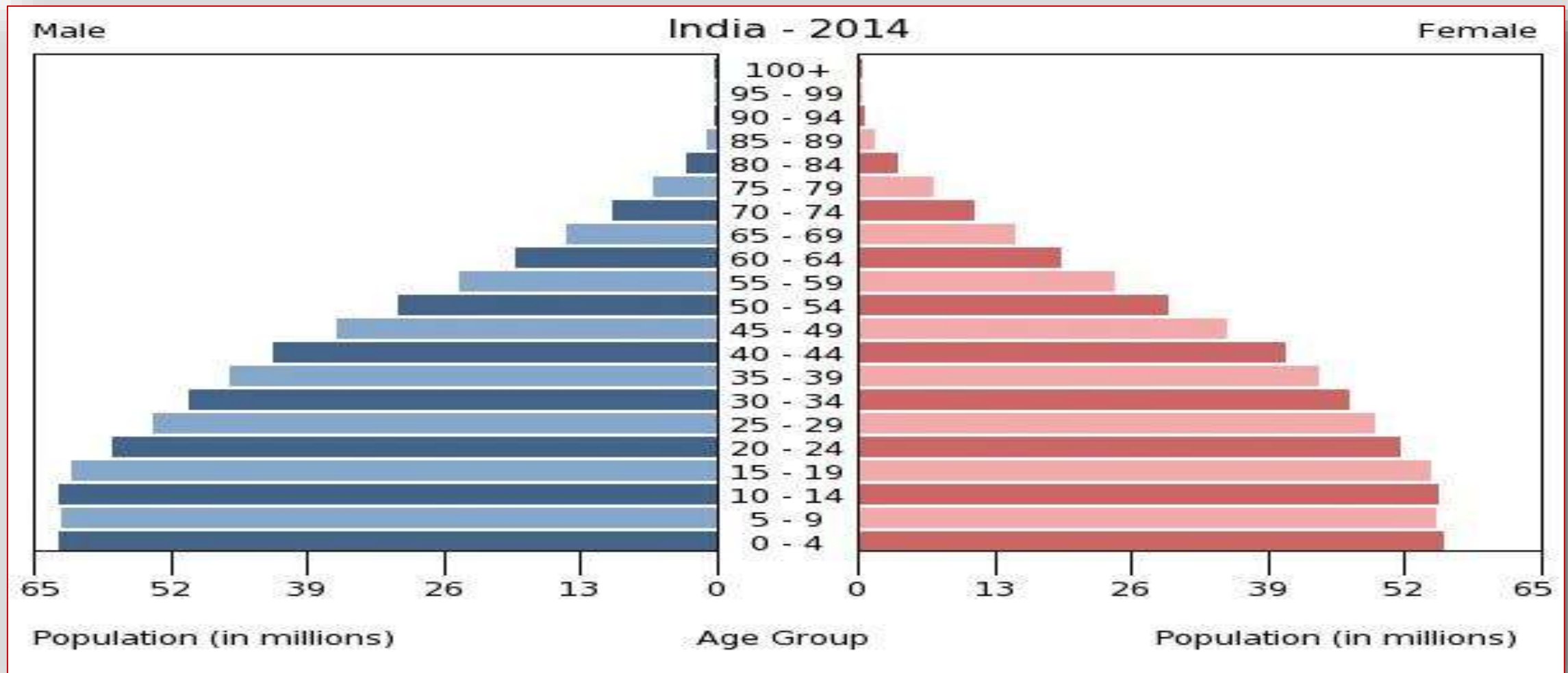
- 1 - Uttar Pradesh
- 2 - Maharashtra
- 3 - Bihar
- 4 - West Bengal
- 5 - Andhra Pradesh
- 6 - Madhya Pradesh
- 7 - Tamil Nadu
- 8 - Rajasthan
- 9 - Karnataka
- 10 - Gujarat

[2] AGE AND SEX COMPOSITION

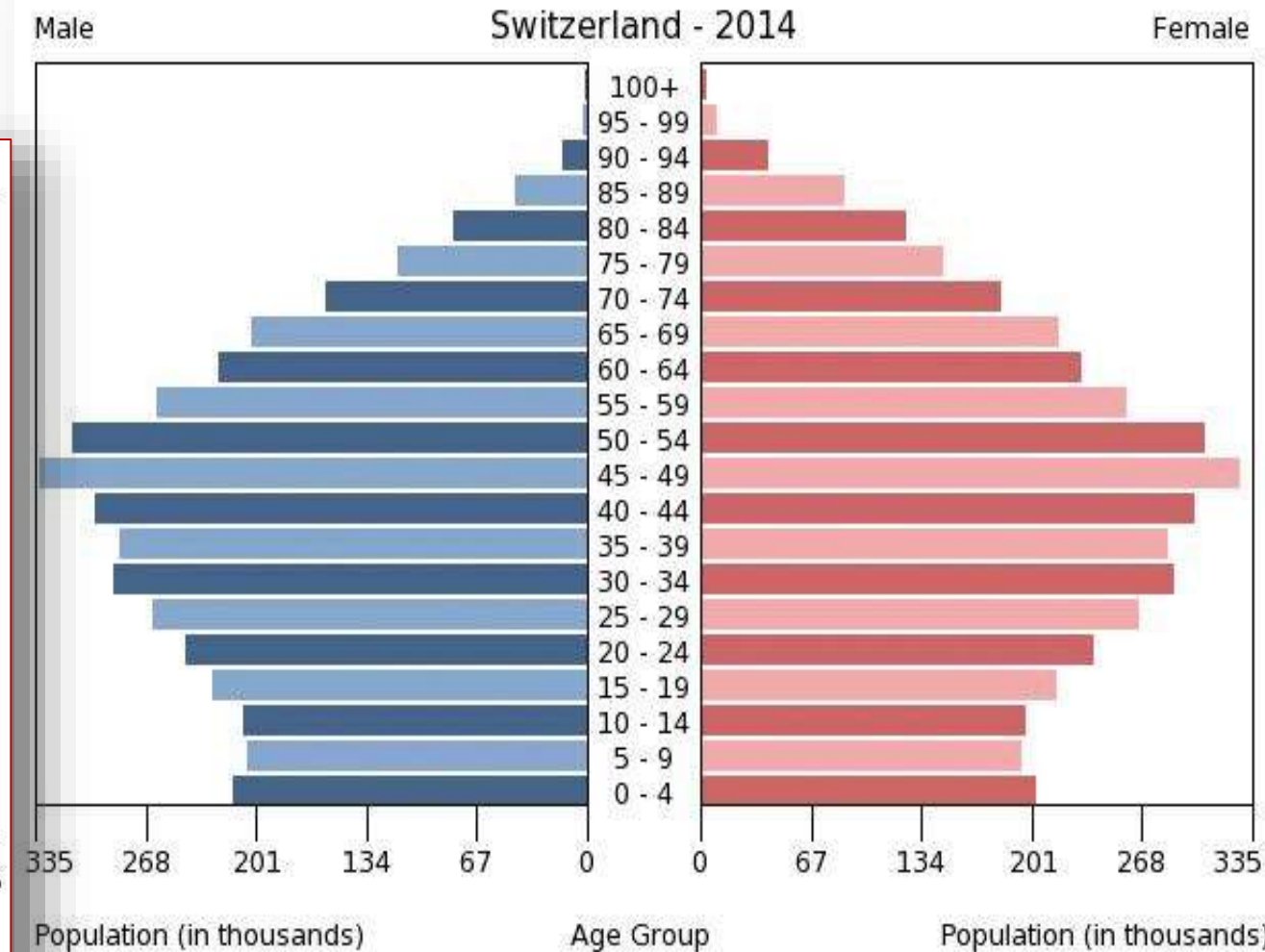
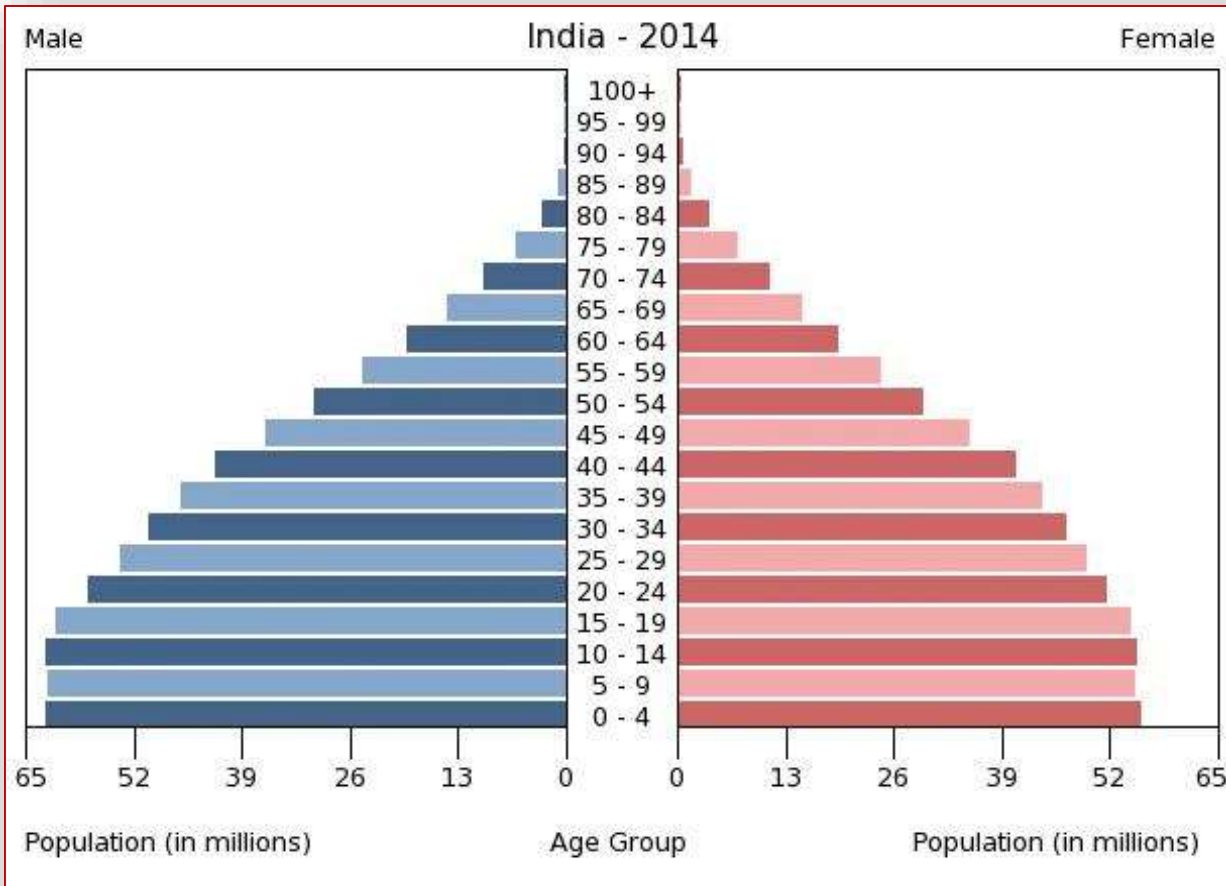
❖ In the age group 0-14 years male population is about 1.3 per cent more than female, whereas in the age group 60+ percentage of female population is 0.6 per cent more than male population. The proportion of population in the age group 0-14 years are higher in rural areas (32.4%) than in urban areas for both male and female population.

[3] AGE PYRAMIDS

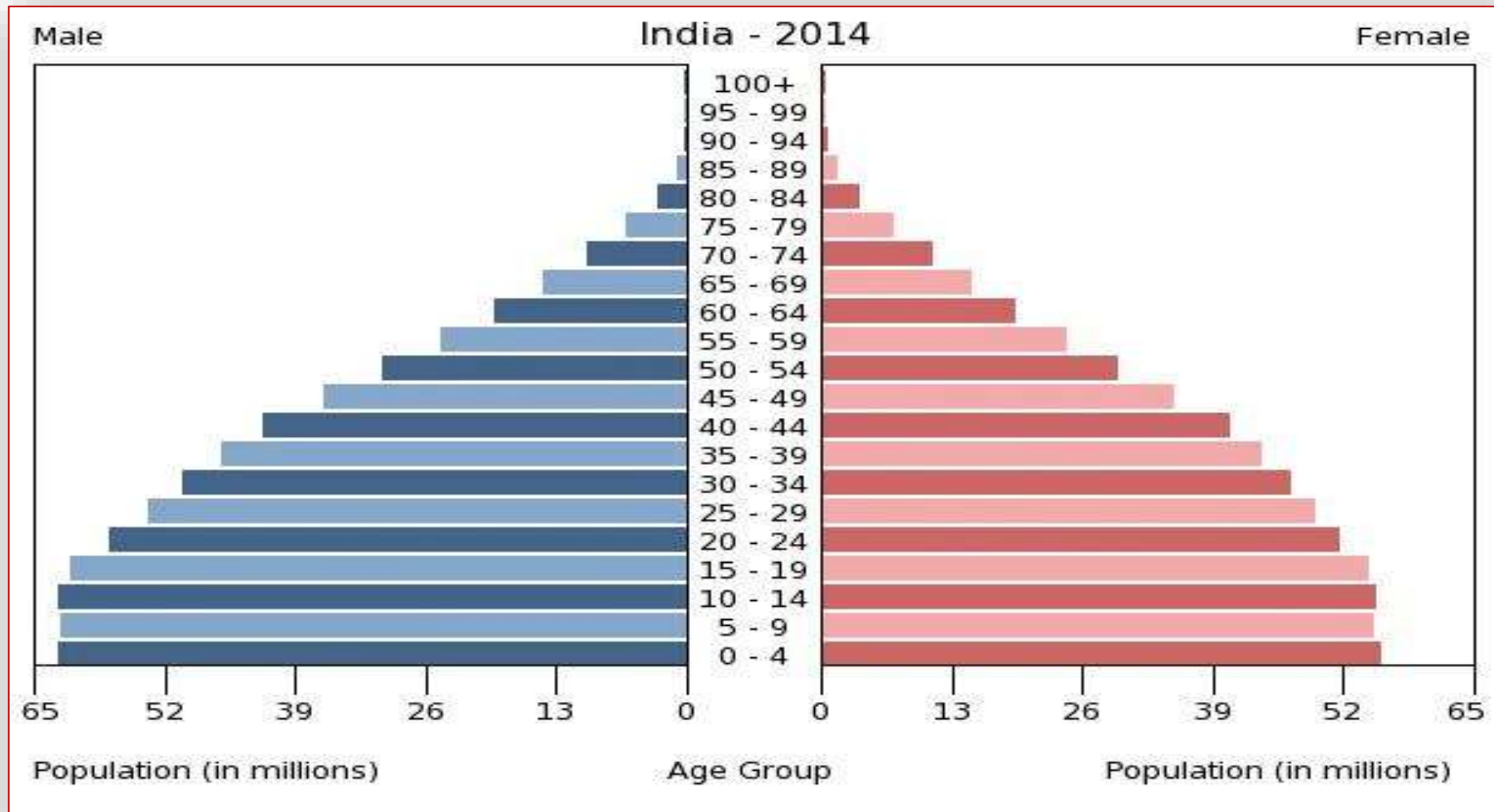
This age structure of a population is best representation



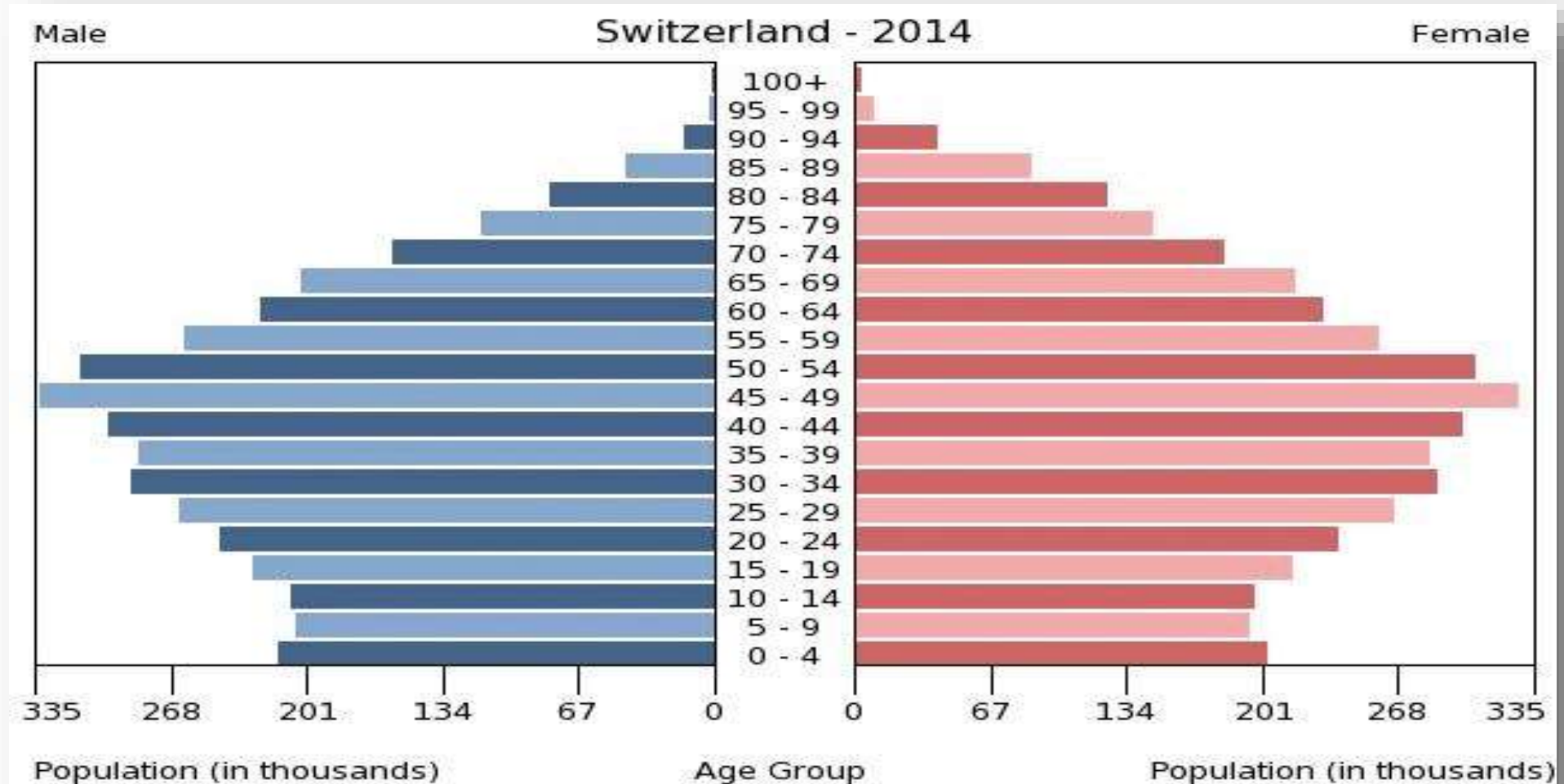
❖ Such a representation is called an "Age Pyramid". A vivid contrast may be seen in the age distribution of men and women in India and in Switzerland.



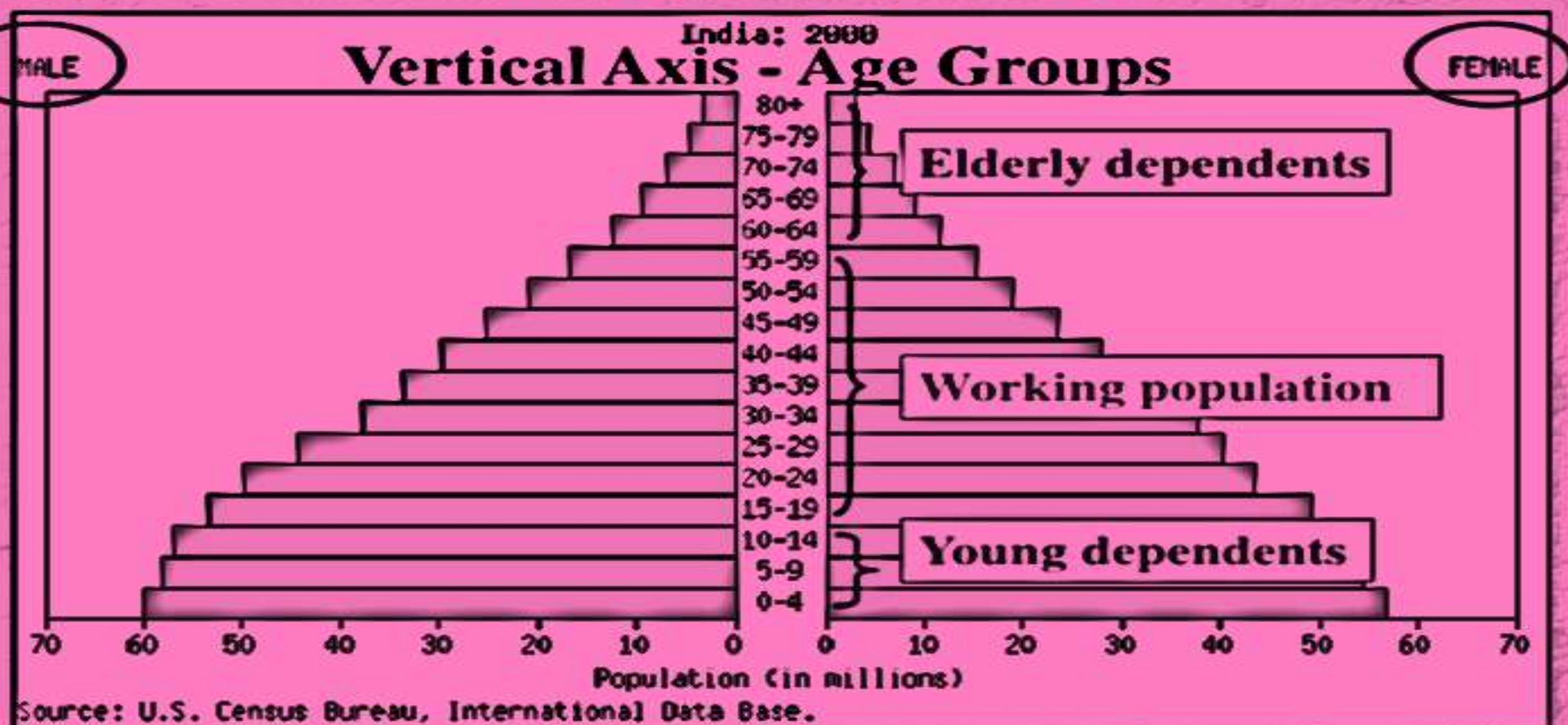
❖ The age pyramid of India is typical of developing countries, with a broad base and a tapering top.



❖ In the developed countries, as in Switzerland. the pyramid generally shows a bulge in the middle, and has a narrower base.



What is a population pyramid?



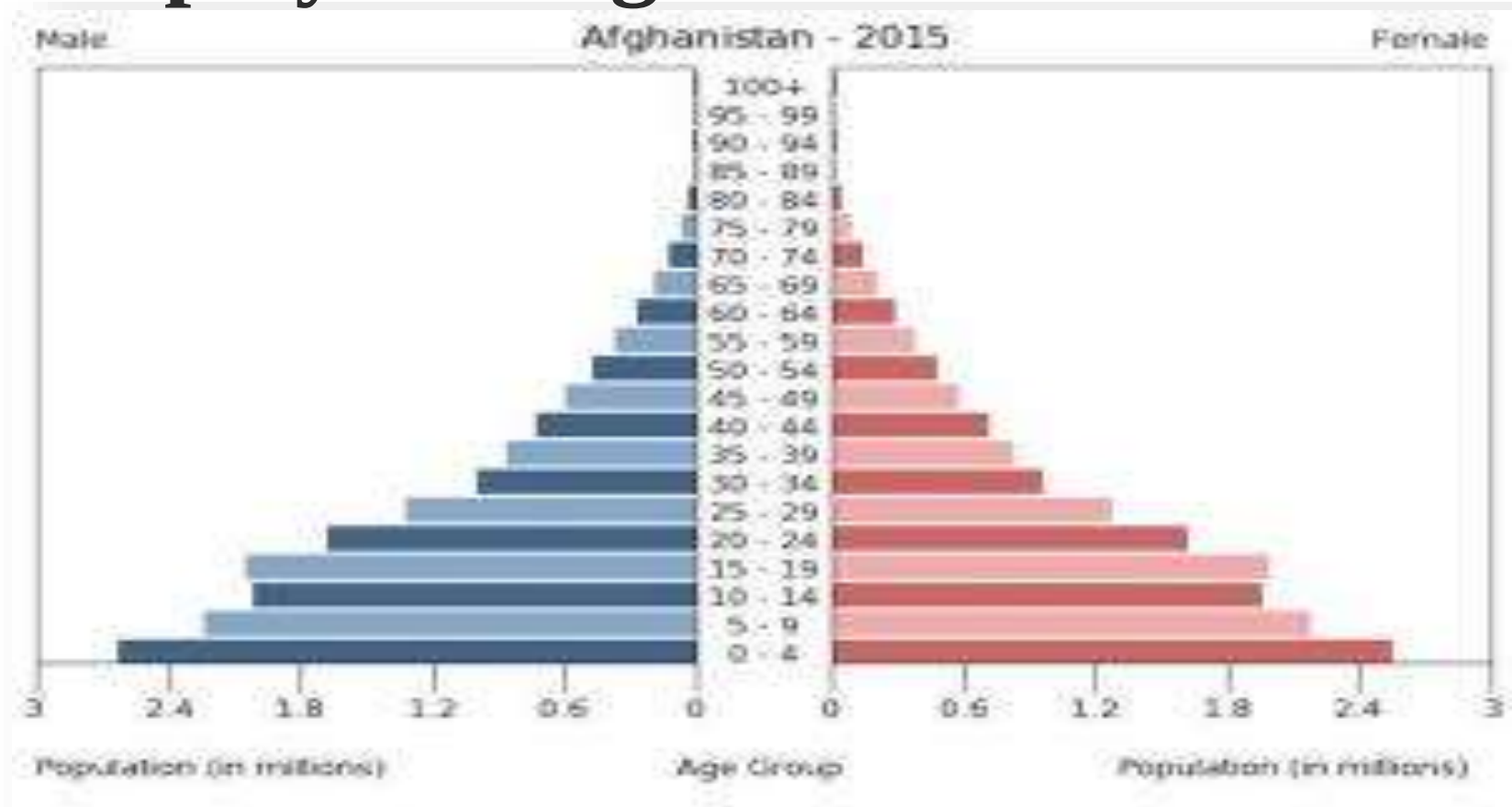
Horizontal Axis – Percentage / number

3 TYPES OF PYRAMIDS :-

- 1) RAPID GROWTH
- 2) SLOW GROWTH
- 3) NEGATIVE GROWTH

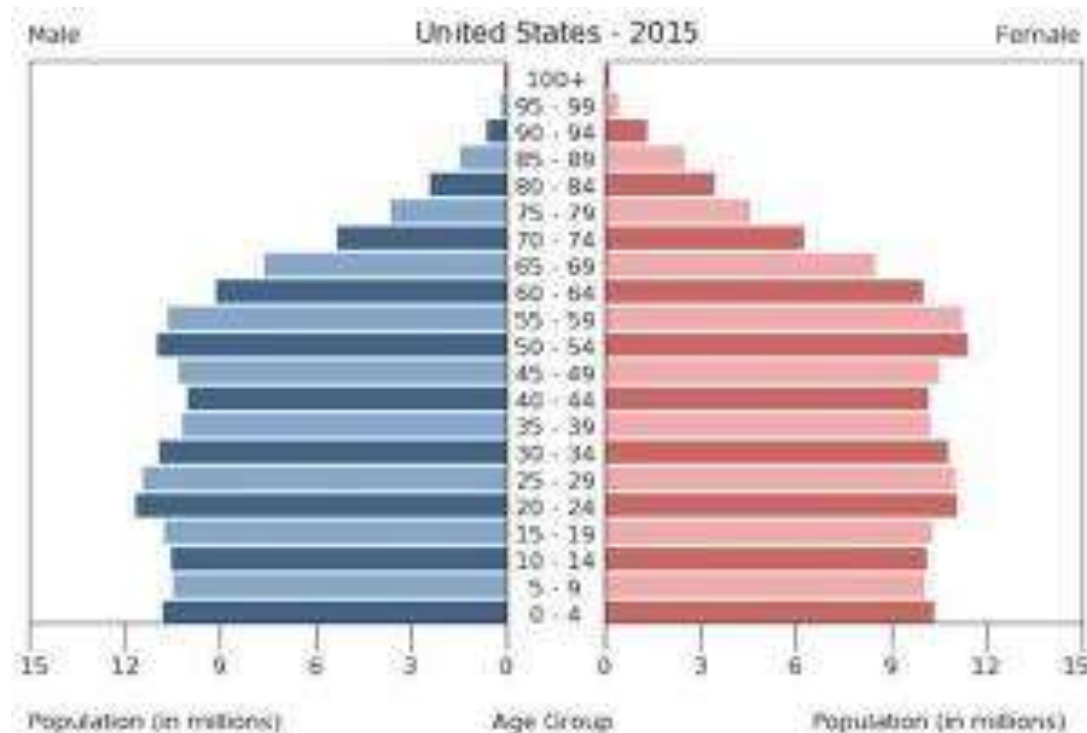
[1] RAPID GROWTH

We can see the distinctive pyramid-like shape to this graph, which displays a high birth rate and a high death rate.



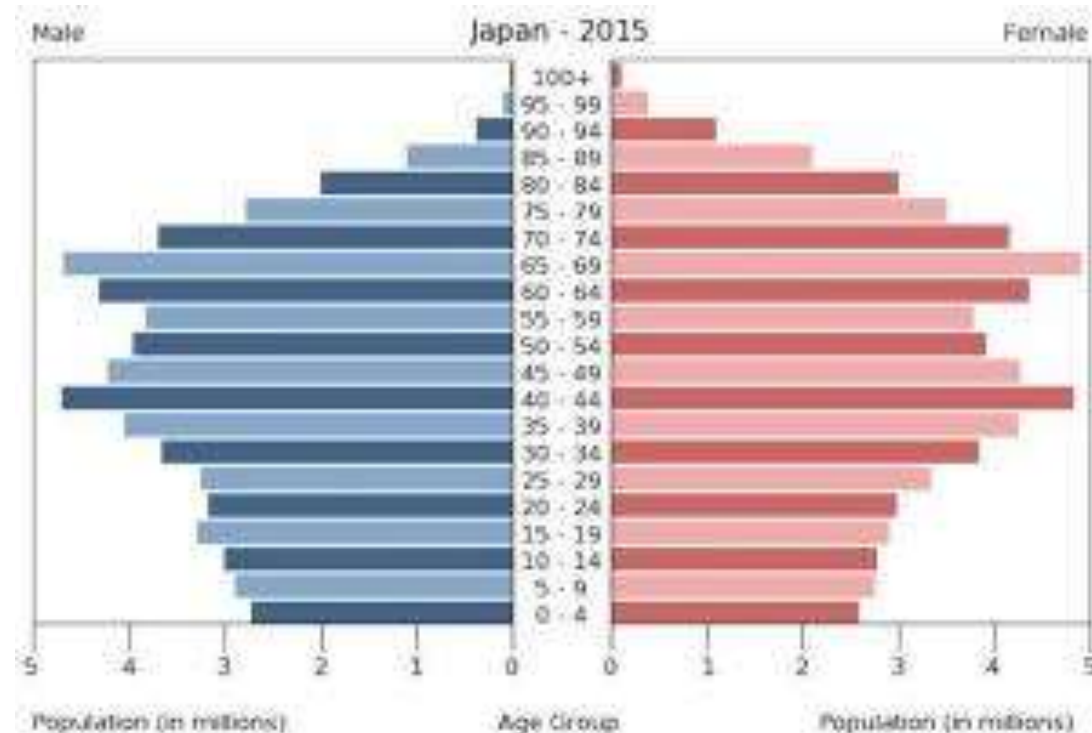
[2] SLOW GROWTH

We can see the growth rate is reflected in the more square-like structure of the pyramid. In the United States, the population is growing at a very slow rate



[3]NEGATIVE GROWTH

As of 2015, Japan is experiencing a negative population growth. As Japan's age-sex pyramid shows, the country has a huge number of elderly and middle-age adults, and the country is experiencing a dearth in the number of babies and children. In fact, Japan has experienced a record low no. of births over the past four years.



▪ [4] SEX RATIO

❖ Sex ratio is defined as "*the number of females per 1000 males*". One of the basic demographic characteristics of the population is the sex composition. In any study of population. analysis of the sex composition plays a vital role.

➤ **FEMALE DEFICIT SYNDROME** is

considered adverse because of social implications.

➤ A low sex ratio indicates strong male-child preference and consequent gender inequities, neglect of a girl child resulting in :-

1. HIGHER MORTALITY AT YOUNGER AGE
2. FEMALE INFANTICIDE
3. FEMALE FOETICIDE
4. HIGHER MATERNAL MORTALITY
5. MALE BIAS IN ENUMERATION OF
POPULATION

■ The sex ratio in India has been generally adverse to women, i.e., the number of women per 1,000 men has generally been less than 1,000. Apart from being adverse to women, the sex ratio has also declined over the decades.

Trends in Sex Ratio

Year	India
1901	972
1911	964
1921	955
1931	950
1941	945
1951	946
1961	941
1971	930
1981	934
1991	927
2001	933

IN 2011 - 940

<u>Current Sex Ratio in India</u> <u>2016</u>	944 females for every 1,000 males
<u>Sex Ratio in India (Yearly)</u>	943 (2015), 942 (2014), 941 (2013), 940 (2012)
<u>Total No. of Males in India</u>	668,760,678 (668 million - Jan, 2016)
<u>Total No. of Females in India</u>	626,283,237 (626 million - Jan, 2016)

Sex ratio at birth :

Sex ratio at birth can be affected by sex-selectivity at birth. The sex ratio at birth for India for the period 2011 has been estimated at 878. It varies from 871 in rural areas to 891 in urban areas.

➤ Kerala with **1084 females for every 1000 males** has the highest sex ratio according to Census of India.

➤ The union territory of Chandigarh has only 818 females for every 1000 males.

➤ According to Census of India, the child sex ratio (0-6 years) in India is one of the poorest, last

▪ [5] DEPENDENCY RATIO

❖ The proportion of persons above 65 years of age and Children below 15 years of age are considered to be dependent on the economically productive age group (15-64 years). The ratio of the combined age groups 0-14 years plus 55 years and above to the 15-65 years age group is referred to as the *total dependency ratio*. It is also referred to as the *societal dependency ratio* and reflects the need for a society to provide for their younger and older population groups.

❖ The dependency ratio can be subdivided into

[1] young age dependency ratio (0-14 years)

[2] old age dependency ratio (65 years and more).

These ratios are, however, relatively crude, since they do not take into consideration elderly or young persons who are employed or working age persons who are unemployed.

DEPENDENCY RATIO CAN BE CALCULATED BY THIS FORMULA:-

$$\frac{\% \text{ pop aged } 0 - 14 + \% \text{ pop aged } 65+}{\% \text{ of population aged } 15-65} \times 100$$

[6] DENSITY OF POPULATION

❖ One of the important indices of population concentration is the density of population. In the Indian census, density is defined as the number of persons, living per square kilometre.

Top Ten Most Densely Populated States of India

S.No.	States	Population Density (per square km)
1	Bihar	1,102
2	West Bengal	1,029
3	Kerala	859
4	Uttar Pradesh	689
5	Haryana	573
6	Tamil Nadu	555
7	Punjab	550
8	Jharkhand	442
9	Assam	397
10	Goa	394

Source: Family Welfare Statistics in India - 2011 & CensusIndia.gov

Arunachal Pradesh and Andaman & Nicobar Islands have the lowest population densities among the Indian states and union territories respectively.

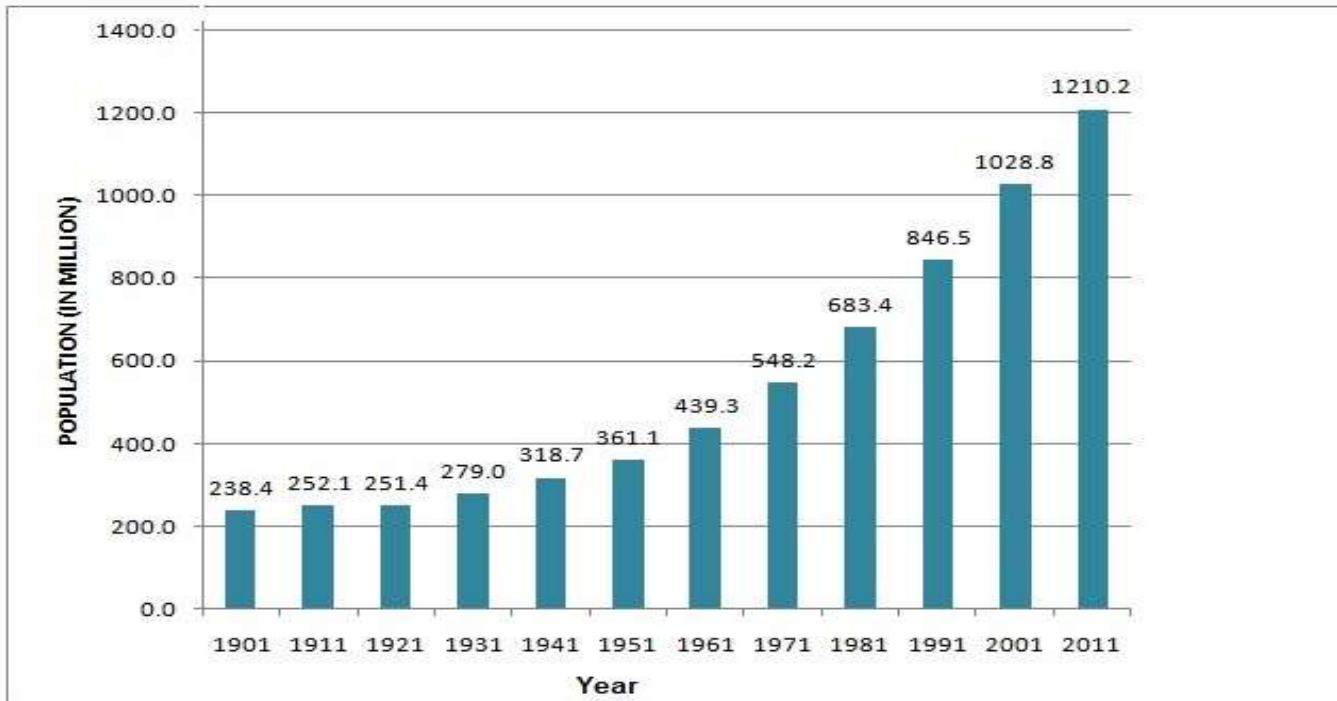
Population Density of India in a chronological order

Year	Density of population per sq km
1901	77
1911	82
1921	81
1931	90
1941	103
1951	117
1961	142
1971	177
1981	216
1991	274
2001	324
2011	382

Source: Family Welfare Statistics in India - 2011 & CensusIndia.gov

[7] URBANIZATION

- ❖ Urban population is the number of persons residing in urban localities. The definition of urban locality varies from country to country.
- ❖ In Indian context, the urban areas are the towns.



In absolute terms, the urban population in India was projected to be 385 million in 2011 as compared to 217.17 million in 1991.

URBAN & RURAL INDIA

CENSUS CLASSIFICATION OF TOWNS & CITIES

Class of Cities/Towns	Range of Population	No. of Towns (Census of India)
Class I	100,000 and above	393
Class II	50,000 to 99,999	401
Class III	20,000 to 49,999	1151
Class IV	10,000 to 19,999	1344
Class V	5,000 to 9,999	888
Class VI	Below 5,000	191

Report of National Commission on Urbanization, vol. One

POPULATION OF INDIA#

Census year	Rural	Urban	Total
1951	298.6	62.4	361.1
1961	360.3	78.9	439.2
1971	439	109.1	548.2
1981	523.9	159.5	683.3
1991	628.7	217.6	846.3
2001	742.5	286.1	1,028.7
2011	833.1	377.1	1,210.2

Figures rounded off to millions

▪ [8] FAMILY SIZE

❖ While in common parlance, family size refers to the total number of persons in a family, in demography, family size means the **total number of children** a woman has borne at a point in time. The completed family size indicates the total number of children borne by a woman during her child-bearing age, which is generally assumed to be between 15 and 45 years. The total fertility rate gives the approximate magnitude of the completed family size.

❖ The family size depends upon numerous factors, viz duration of marriage, education of the couple, the number of live births and living children, preference of male children. desired family size, etc.

Table shows the total fertility rates (completed family size) in India and selected countries.

Total fertility rates

Number of children born to women aged 15 to 49

	1970	1980	1990	2000	2010
Japan	2.13	1.75	1.54	1.36	1.39
Mexico	6.77	4.97	3.43	2.77	2.05
United States	2.48	1.84	2.08	2.06	1.93
China	5.51	2.63	2.34	1.74	1.60
India	5.49	4.68	3.92	3.12	2.63
OECD	2.76	2.18	1.91	1.68	1.74

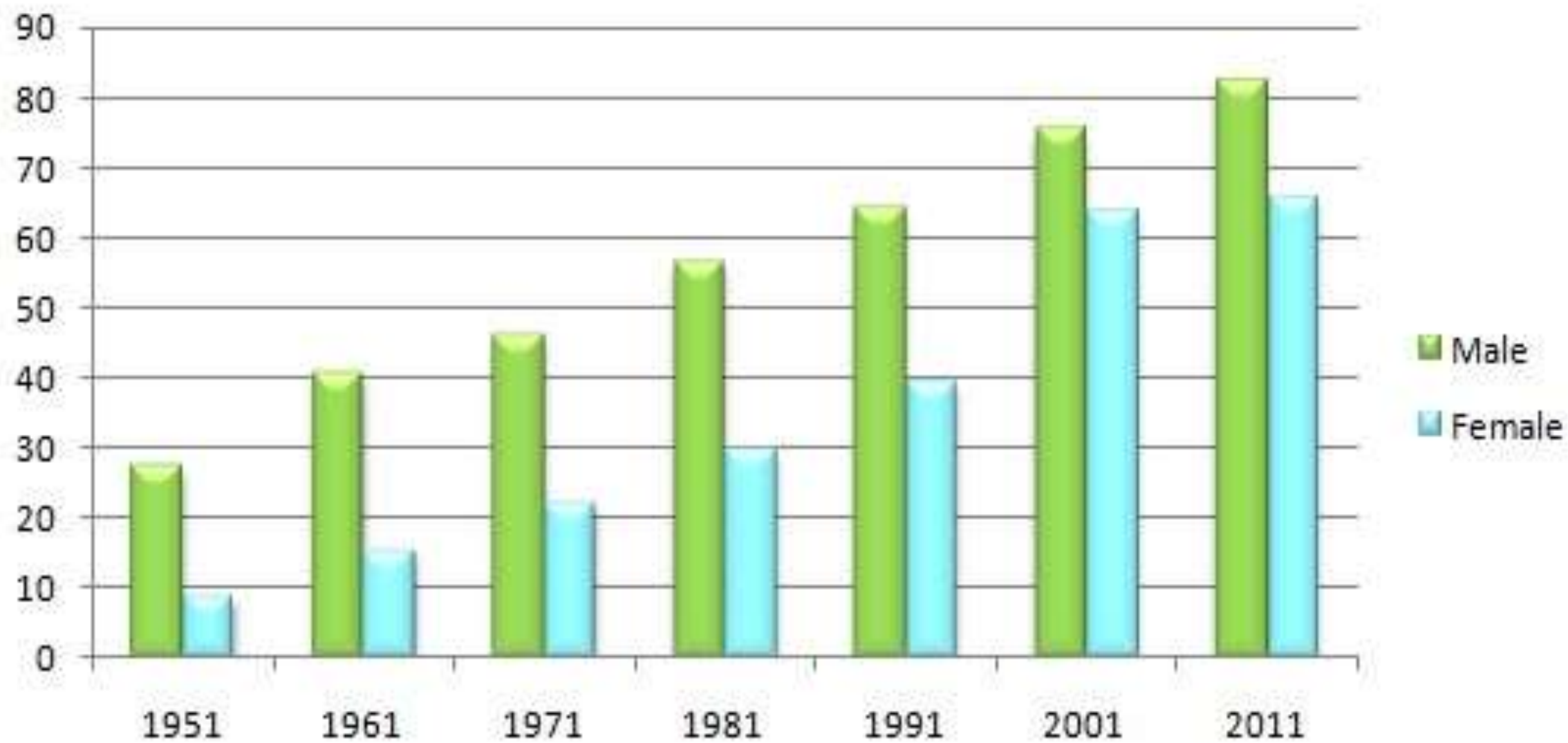
▪ [9] LITERACY AND EDUCATION

❖ The 1948, the Declaration of Human Rights stated that everyone has a right to education. Yet, even today, this right is being denied to millions of children. Education is a crucial element in economic and social development. Without education, development can neither be broad based nor sustained. Spread of literacy is generally associated with modernization, urbanization, industrialization, communication and commerce.



❖ It forms an important input in the overall development of individuals enabling them to comprehend their social, political and cultural environment better, and respond to it appropriately. Higher levels of education and literacy lead to a greater awareness and also contribute to improvement of economic conditions, and is a prerequisite for acquiring various skills and better use of health care facilities.

Literacy Rate in India : 1951-2011



Census Data for Selected States

State / UT	Literacy Rate					
	Overall		Male		Female	
	2001	2011	2001	2011	2001	2011
Andhra Pradesh	60.5	67.7	70.3	75.6	50.4	59.7
Gujarat	69.1	79.3	79.7	87.2	57.8	70.7
Madhya Pradesh	63.7	70.6	76.1	80.5	50.3	60
Chhattisgarh	64.7	71	77.4	81.5	51.9	60.6
Orissa	63.1	73.5	75.4	82.4	50.5	64.4
Maharashtra	76.9	82.9	86	89.8	67	75.5
Karnataka	66.6	75.6	76.1	82.9	56.9	68.1
Kerala	90.9	93.9	94.2	96	87.7	92
Tamil Nadu	73.5	80.3	82.4	86.8	64.4	73.9
India	64.8	74.1	75.3	82.1	53.7	65.5

&c Figures pertain to 1999-00 prices

Sources: Census of India 2011, Central Statistical Organisation, Pl

[10] Life expectancy

❖ Life expectancy - or expectation of life - at a given age is the average number of years which a person of that age may expect to live, according to the mortality pattern prevalent in that country. Demographers consider it as one of the best indicators of a country's level of development and of the overall health status of its population.

❖ Life expectancy at birth has continued to increase globally over the years. For 1950 - 1955, the combined life expectancy at birth for both sexes was 46.5 years. Five decades later by 2008, it was 69 years-an increase of 22.5 years. The increase has been more marked in less developed regions of the world than in the developed regions.

EXPECTATION OF LIFE AT BIRTH, YEARS - INDIA

YEAR	MALES	FEMALES
1901	23.63	23.96
1911	23.59	23.31
1921	19.42	20.91
1931	26.91	20.91
1941	32.09	26.56
1951	32.45	31.37
1961	41.89	31.66
1971	46.40	44.70
1981	54.10	54.70
1991	59.70	60.90
<u>2001</u>	<u>63.90</u>	<u>66.90</u>

FERTILITY RELATED STATISTICS

FERTILITY is meant the actual bearing of children

Other name – natality

Fertility may be measured by number of indicators are as follows:-

1. **BIRTH RATE**
2. **GENERAL FERTILITY RATE**
3. **GENERAL MARITAL FERTILITY RATE**
4. **AGE SPECIFIC FERTILITY RATE**
5. **AGE SPECIFIC MARITAL FERTILITY RATE**
6. **TOTAL FERTILITY RATE**
7. **TOTAL MARITAL FERTILITY RATE**

8. GROSS REPRODUCTION RATE

9. NET REPRODUCTION RATE

10. CHILD WOMEN RATIO

11. PREGNANCY RATE

12. ABORTION RATE

13. ABORTION RATIO

14. MARRIAGE RATE.

[1] BIRTH RATE

The number of live births per 1000 estimated mid year population, in a given year.

number of live births

During the year

**Estimated mid-year
population**

X

1,000

[2] GENERAL FERTILITY RATE [GFR]

The number of live births per 1000 women in the reproductive age group (15-44 or 49 years) in a given year.

**number of live births in an
area during the year**

**Mid year female population
age 15-44(or 49) in the same
area in same year** **X** **1,000**

[3] GENERAL MARITAL FERTILITY RATE [GMFR]

The number of live births per 1000 married women in the reproductive age group (15-44 or 49 years) in a given year.

**number of live births in a
year**

**Mid -year married female
population age 15-44(or 49)**

X

1,000

[4] AGE SPECIFIC FERTILITY RATE [ASFR]

The number of live births in a year to 1000 women in any specified age-group.

**number of live births in a
particular age group**

**Mid -year female
population of the same age
group** **X** **1,000**

[5] AGE –SPECIFIC MARITAL FERTILITY RATE [ASMFR]

The number of live births in a year to 1000 married women in any specified age-group.

$$\frac{\text{number of live births in a particular age group}}{\text{Mid -year married female population of the same age group}} \times 1,000$$

[6] TOTAL FERTILITY RATE[TFR]

The number of children who would be born per woman (or per 1,000 women) if she/they were to pass through the childbearing years bearing children according to a current schedule of age-specific fertility rates.

(45-49)

$$\text{TFR} = 5 \times \sum \text{ASFR}$$

(15-19)

1000

[7] TOTAL MARITAL FERTILITY RATE [TMFR]

Average number of children that would be born to a married women if she experiences the current fertility pattern throughout her reproductive span.

(45-49)

$$\text{TFR} = 5 \times \sum \text{ASMFR}$$

(15-19)

1000

[8] GROSS REPRODUCTIVE RATE [GRR]

Average number of girls that would be born to a women if she experiences the current fertility pattern throughout her reproductive span 9(15-44 OR 49), assuming no mortality.

(45-49)

TFR = 5 × $\sum$ ASMFR for female live births

(15-19)

—————

1000

[9]NET REPRODUCTION RATE [NRR]

Number of daughters a newborn girl will bear during her lifetime assuming fixed age – specific fertility and mortality rates.

[10] CHILD WOMEN RATIO [CWR]

Number of children 0 – 4 years of age per 1000 women of child bearing age, usually defined as 15-44 or 49 years age.

[11] PREGNANCY RATE

It is the ratio of no. of pregnancies in a year to a married women in the ages 15-44 (or 49 years).

[12] ABORTION RATE

The annual no. of all types of abortions, usually per 1000 women of child bearing age usually 15-44 years.

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If you tell the
truth
it becomes a part
of your past.
But if you
lie
it becomes a part
of your future.

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