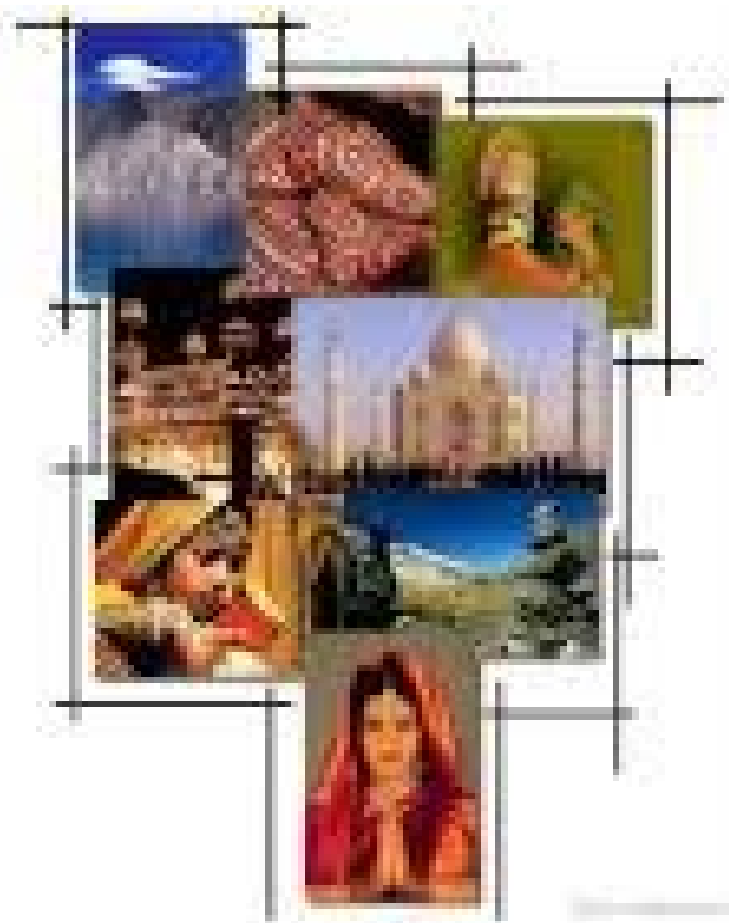


Demography

Dr. Meenal Thakare,
Assist.Professor,
Community Medicine

DEMOGRAPHY OF INDIA

POPULATION, AGE STRUCTURE,
SEX RATIO, EMPLOYEMENT,
LITERACY, INCOME



By : Achi Jeyaraj, An Zuhir, Devina Paul, Deepa Pillai, Marilyn Paulson, Sakita Achi Thomas, Virgil Raj

DEMOGRAPHY

- Scientific study of human population
- Community Medicine is vitally concerned with population
- Population ***size*** (GROWTH or DECLINE)
- Population ***composition*** (AGE, SEX, OCCUPATION, SOCIOECONOMIC STATUS etc.)
- Population ***distribution*** in space



dreamstime.com

Demography symbol

Demographic processes:

- Fertility
- Mortality
- Marriage
- Migration
- Social mobility

Sources of demographic statistics in India

- Population censuses
- National sample surveys
- Registration of vital events
- adhoc demographic studies



Census 2011 in process

Demographic cycle

Each nation passes through 5 stages of demographic cycle

1.High stationary- high birth rate

high death rate

population remains stationary

India till 1920

2.Early expanding- death rate decline

birth rate remains unchanged

many countries in south Asia and Africa

3. Late expanding- death rate declines further

birth rate tends to fall

births exceed deaths

population continues to grow

India has entered in this phase

4. Low stationary- low birth rate

low death rate

population stationary

industrialized countries

e.g. Austria, Sweden, Denmark, Belgium

5. Decline- population declines

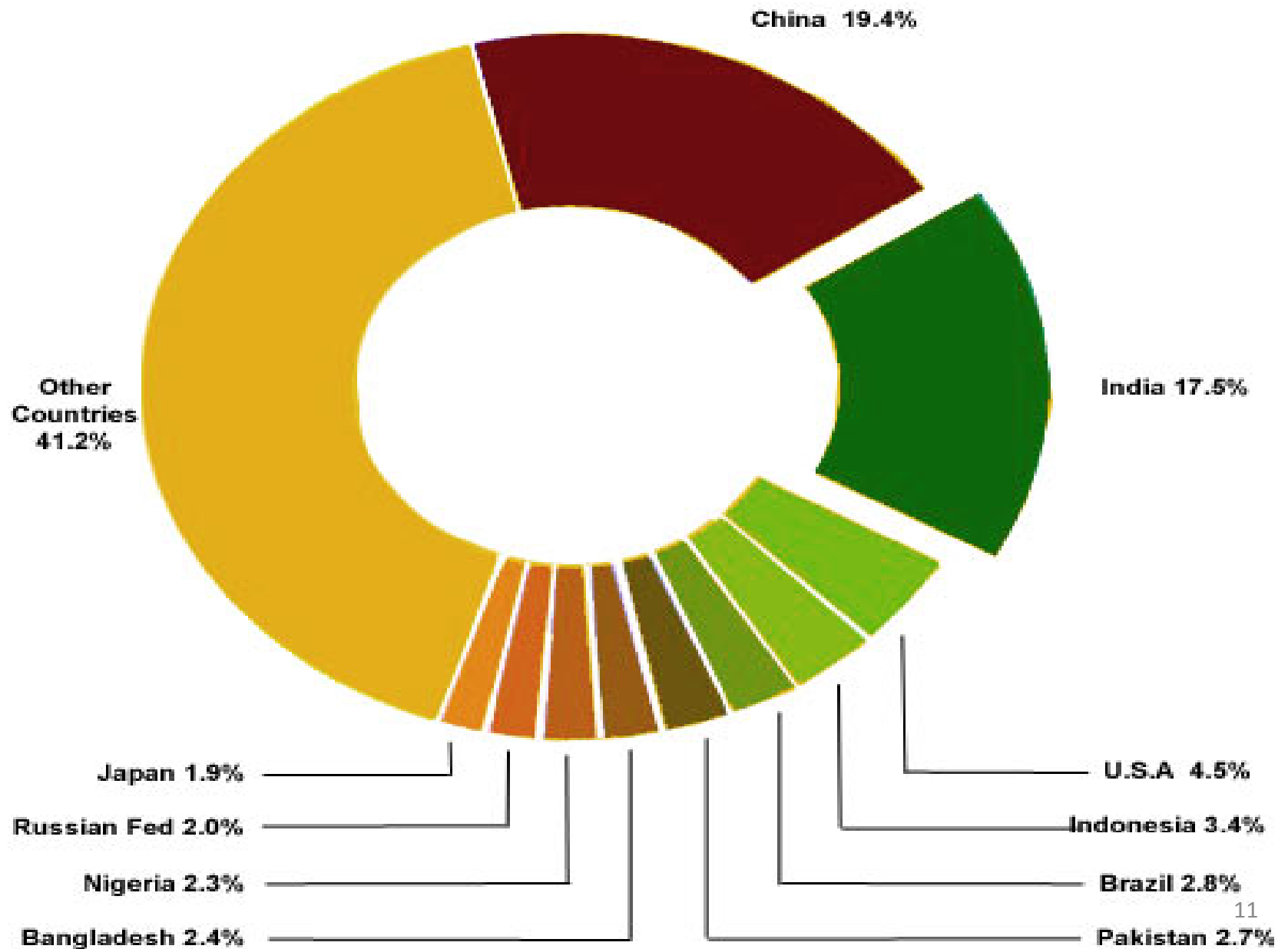
birth rate is lower than death rate

e.g. some East European countries like Germany

World population trends

- Ever increasing
- 1 billion in 1800 years
- 2 billion after 130 years 1930
- 3 billion 1960
- 4 billion 1974
- 5 billion 1987
- 6 billion 1999
- Expected to reach 8 billion in 2025.

The most populous countries of the world



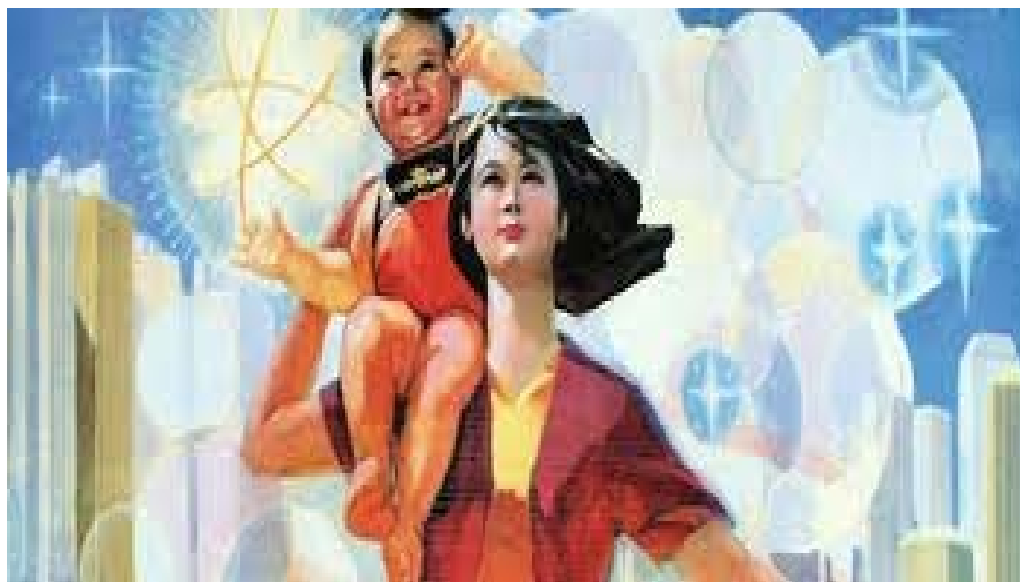
Birth and death rates

Declining birth rates –

- Changes in government attitude towards growth
- spread of education
- increased availability of contraception
- family planning programs
- change in marriage patterns

Declining death rate-

- improvement in maternal and child health services
- successful immunization
- diarrhoeal and respiratory disease control programs
- reduction in infant and child mortality



Improvement in maternal and child health services



Growth rate

Crude death rate is subtracted from crude birth rate, the net residual is the current annual growth rate, exclusive of migration

- Growth rates are subject to momentum
- Affected by age distribution, marriage customs, numerous cultural and economic factors
- Not uniform in the world
- Approximately 95% of growth is occurring in developing countries
- Expected no. births per woman – 1.7 in industrialized countries
 - 2.7 in developing countries
 - 4.4 in least developed

2001-2011 Population Growth Rates

10 MOST POPULOUS NATIONS

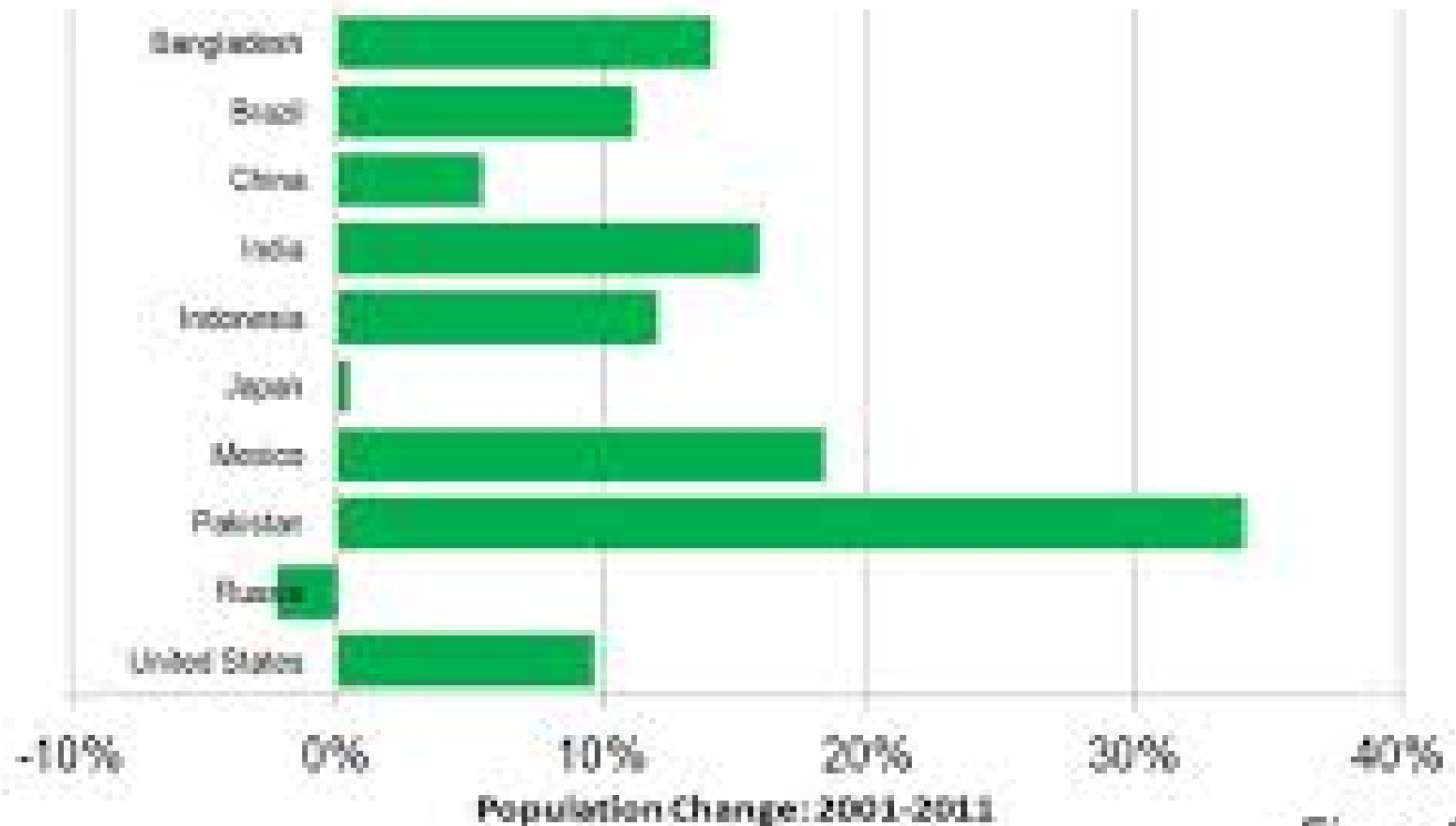


Figure 2

DEMOGRAPHIC TRENDS IN INDIA

Demographic indicators-

1. Population statistics- population size, sex ratio, density, dependency ratio
 2. Vital statistics- birth rate, death rate, natural growth rate, life expectancy at birth, mortality and fertility rates
- Land area 2.4%
 - Supports 16.8% of world population
 - 1921- year of “BIG DIVIDE”
 - 1901- 238 millions
 - 1961- 439 millions
 - 1991- 846 million
 - 11th May 2000 crossed 1 billion mark
 - projected to reach 1.53 billions by 2050 when India will be the most populous country in the world surpassing China

NEW India CENSUS 2011

1.21 Billion

Female : 586.5

Male : 623.7

Sex Ratio : 914:1000

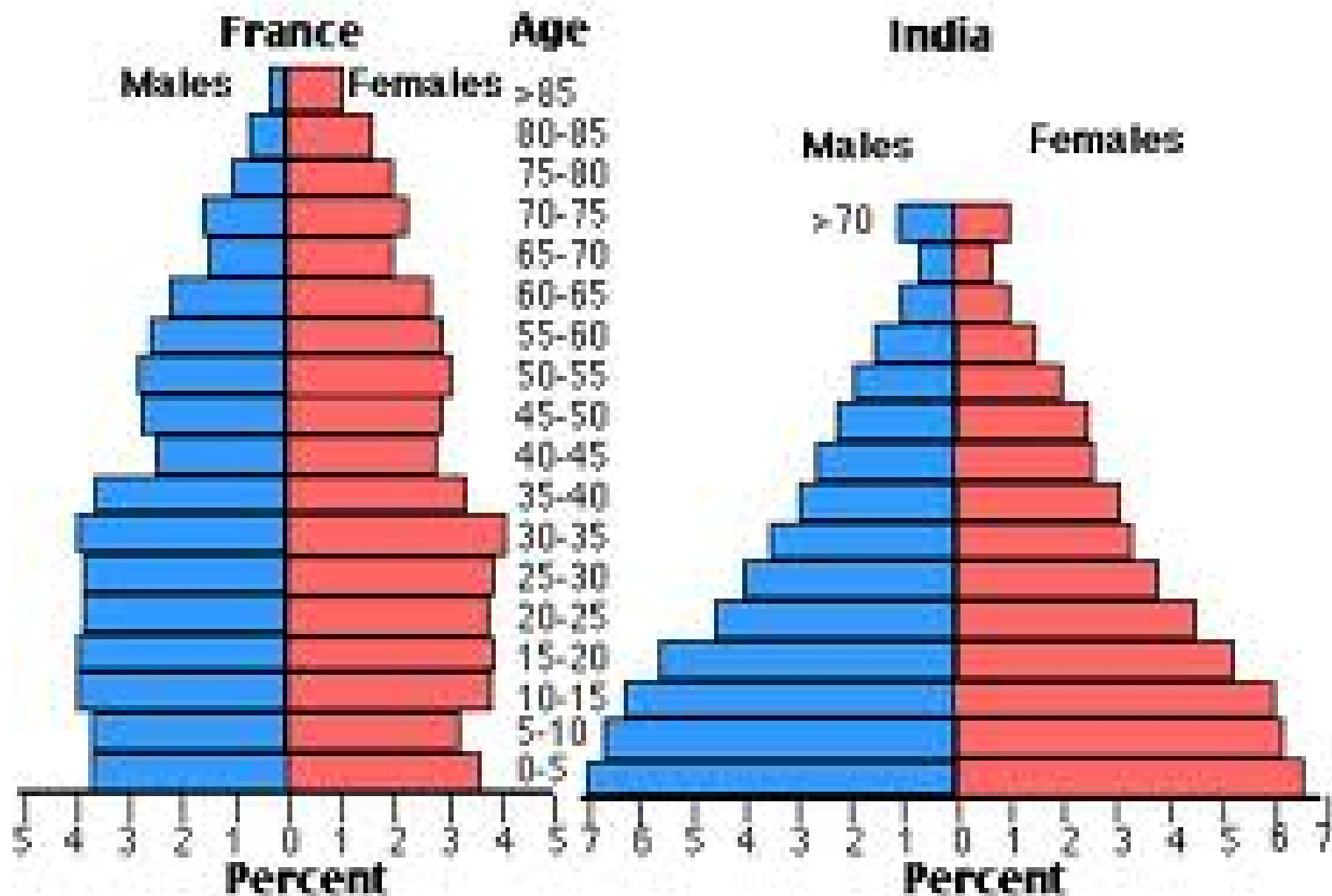
Literacy Rate Has Gone Up From 64.83 Per Cent In 2001 To 74.04 Per Cent In 2011

Age and sex composition

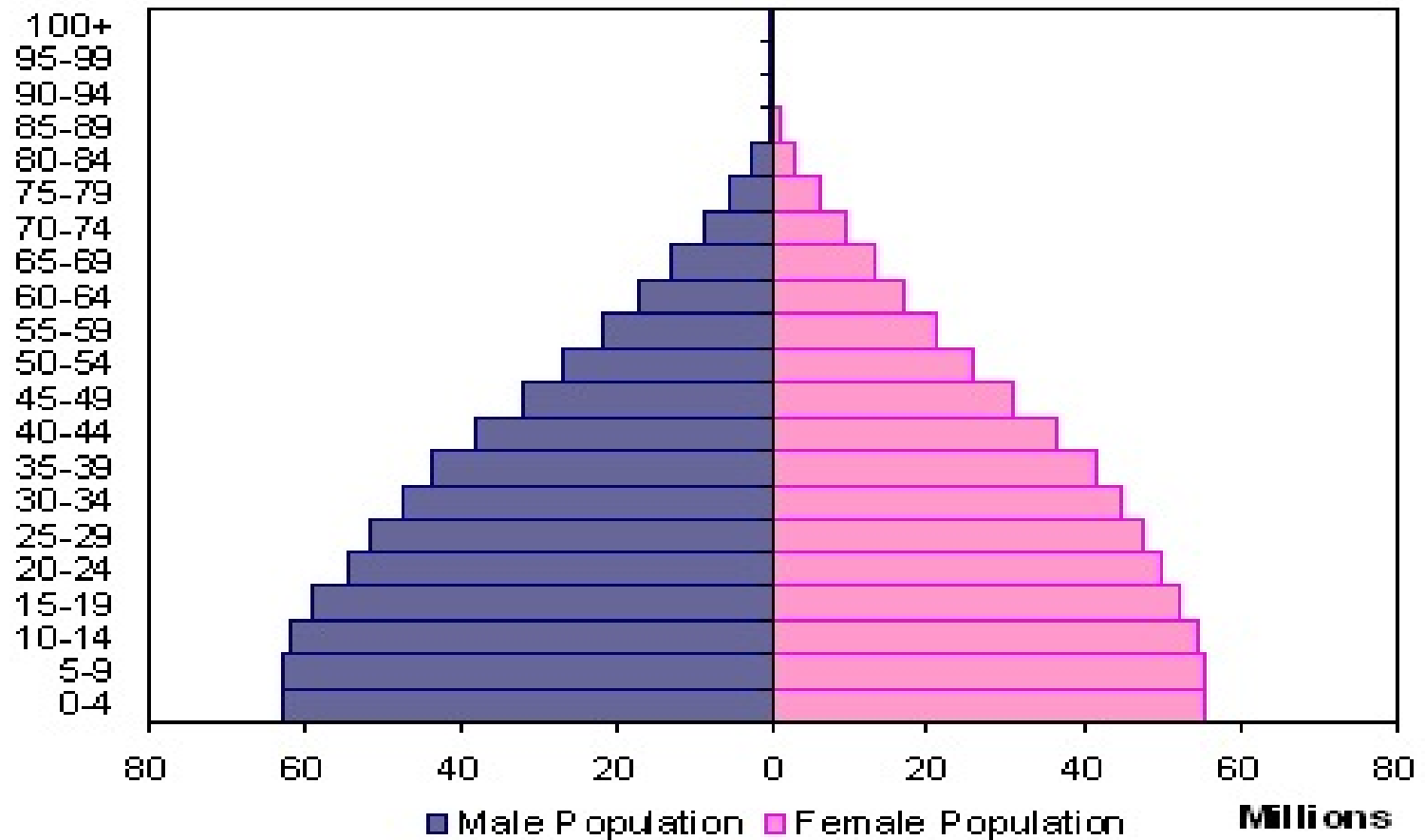
- In age group 0-14 years male population is more
- In age group above 60 years female population is more
- 0-14 years age group population is more in rural areas than in urban
- Population below 14 years is showing decline whereas
- Elderly population is increasing.

Age pyramids

- A specific type of graph showing the age and sex wise distribution of population of the country.
- In developing countries- broad based
 - tapering top e.g. India
- Developed countries- bulge at the middle e.g. Switzerland.



India



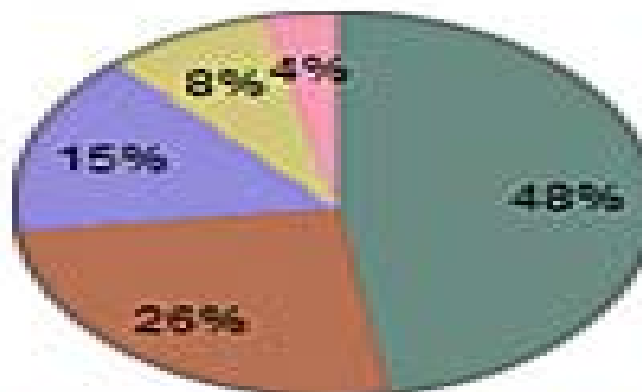
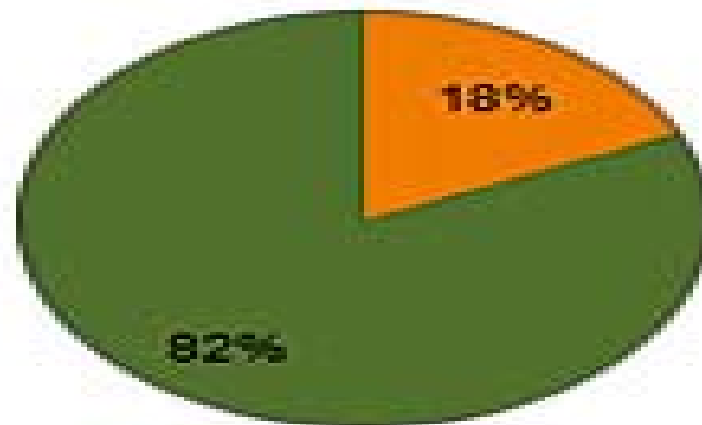
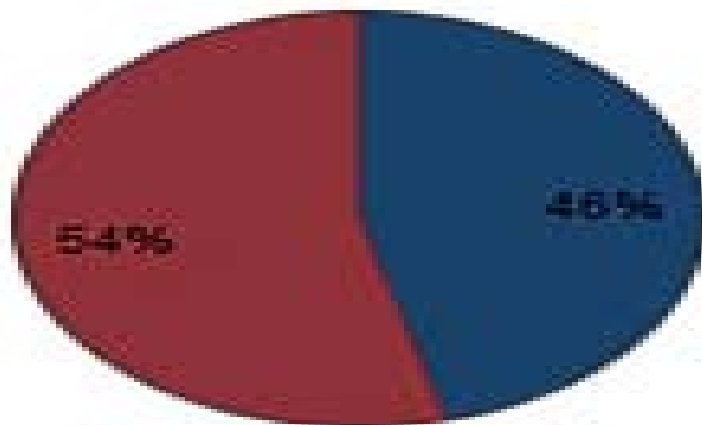
Sex ratio

- no. of females per thousand males
- plays a vital role in population studies.
- female deficit syndrome has social implications.
- strong male child preference
- gender inequalities.
- sex ratio in India adverse to women
- declining over decades



Dependency ratio

- persons above 65 years and children below 15 years are economically dependent on productive age group.
- divided- young age dependency ratio
 - old age dependency ratio



Indian demography

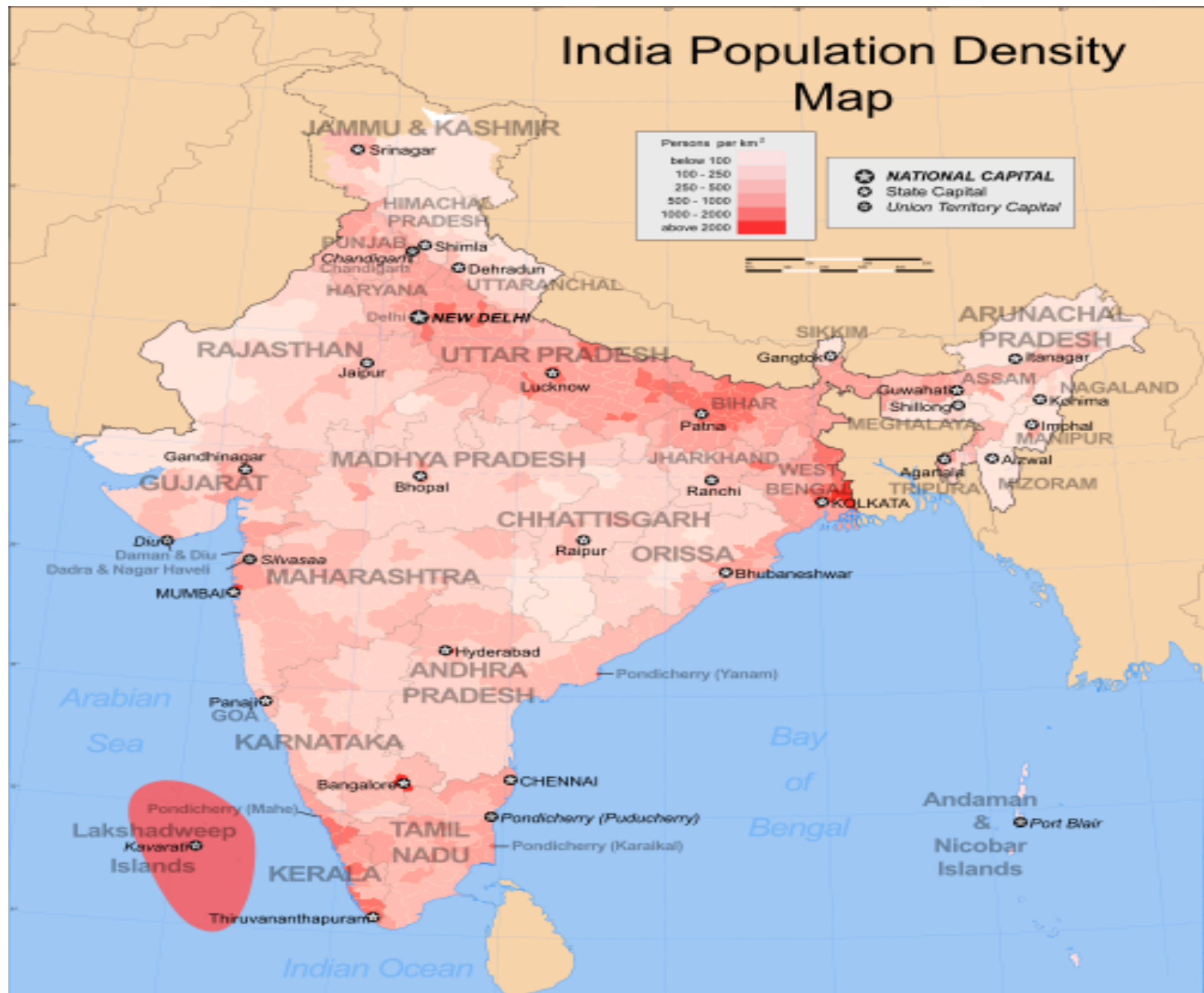
$$\text{Total dependency ratio} = \frac{\text{0-14 years children+ above 65 years population}}{\text{population of 16-64 years}} \times 100$$

- **demographic bonus**- period when dependency ratio in a population declines because of decline in fertility as a part of country development.
- **demographic burden**- increase in total dependency ratio during any period of time, mostly caused by increased old age dependency ratio.

Density of population

- ratio between total population and surface area.
- no. of persons living per square kilometer
- increasing in India continuously.

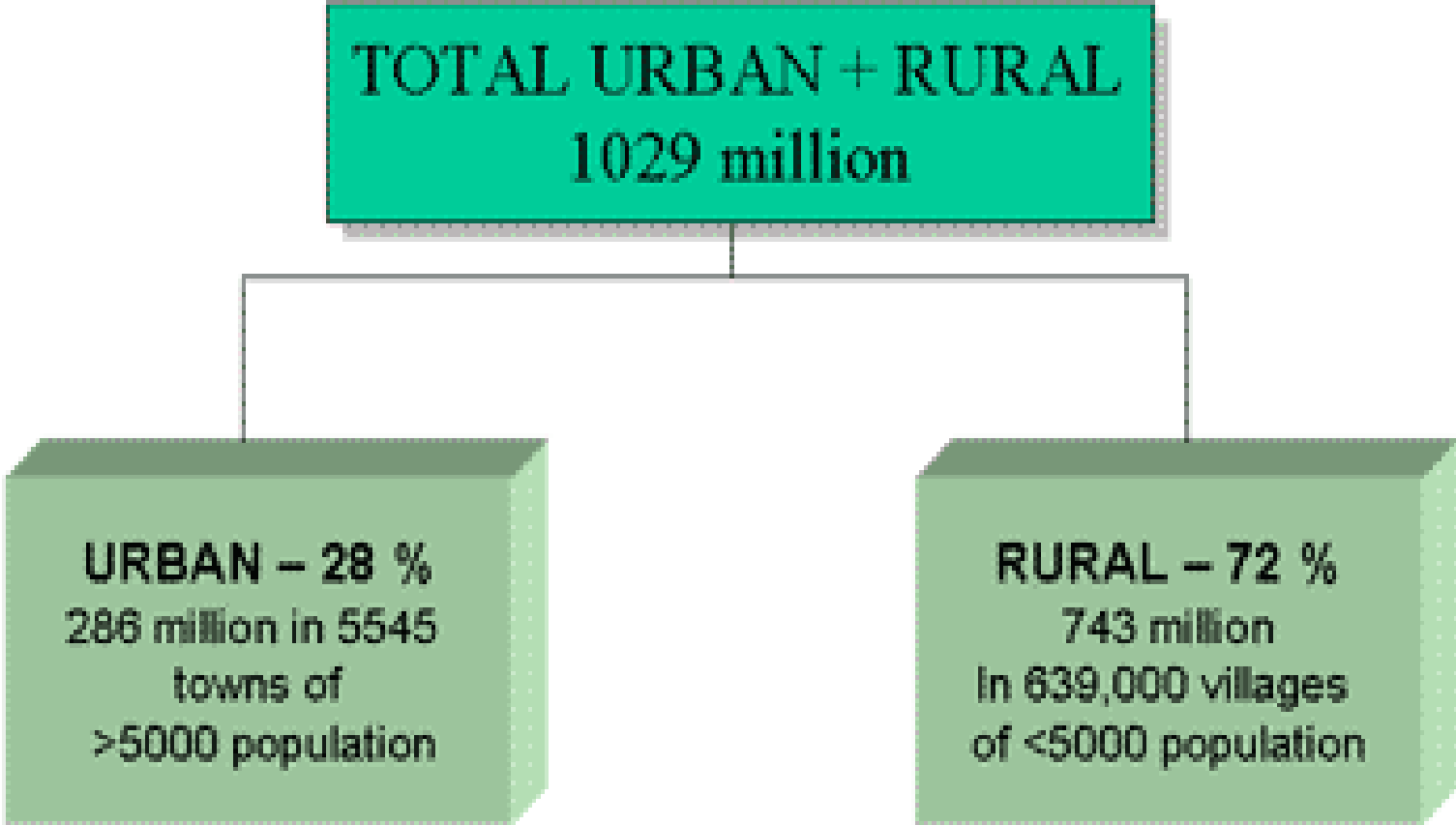
India Population Density Map



Urbanization

- no. of person residing in urban localities.
- towns(places with municipal corporations, municipal area committee, notified area committee, town committee or cantonment board); also all places having 5000 or more inhabitants, a density of not less than 1000 persons per square mile or 390 per square kilometer, pronounced urban characteristics and at least $3/4^{\text{th}}$ of adult males population employed in pursuits other than agriculture.
- percentage of population residing in urban areas has increased dramatically
- megacities- those with population 10 millions or more

TOTAL URBAN + RURAL
1029 million



```
graph TD; A[TOTAL URBAN + RURAL  
1029 million] --> B[URBAN - 28 %  
286 million in 5545 towns of  
>5000 population]; A --> C[RURAL - 72 %  
743 million  
In 639,000 villages of <5000 population];
```

URBAN – 28 %
286 million in 5545
towns of
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RURAL – 72 %
743 million
In 639,000 villages
of <5000 population



Family size

- total no. of children a woman has borne at a point in time
- completed family size- total no. of children a woman has borne during her reproductive age 15-45 years.
- total fertility rate- approximate magnitude of completed family size.
- depends on- duration of marriage
 - education of couple
 - no. of live births and living children
 - preference of male children
 - desired family size.

Family planning programme- 2 child family norm


NRR- 1



Literacy and education

- education is crucial element of economic and social development
- Literacy is generally associated with- modernization
 - urbanization
 - industrialization
 - communication and
 - commerce
- literate- the one above 7 years of age and can read and write with understanding in any language
- there is major improvement in literacy status in India.
- government of India has made education compulsory up to the age of 14 years in the country.

THE INDIAN DILEMMA



HARDWORKING
DEVELOPING ECONOMY
IMPROVED EDUCATION STANDARDS
LARGEST YOUTH WORKFORCE BY 2020

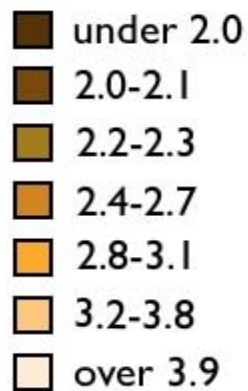
FOOD INFLATION : 20%
AVERAGE RURAL INCOME : ₹14.3
PEOPLE BELOW POVERTY LINE : 40 %
EDUCATION DEPRIVED INDIANS: 21.6%

Life expectancy

- average no. of years which a person of that age may expect to live, according to the mortality pattern prevalent in that country.
- one of the best indicators of country's level of development and of overall health status of its population.
- continued to increase globally
- most countries exhibit sex differentials in mortality favouring women- females live longer than males
- in India it is almost equal.
- Japan leads in life expectancy.

Fertility

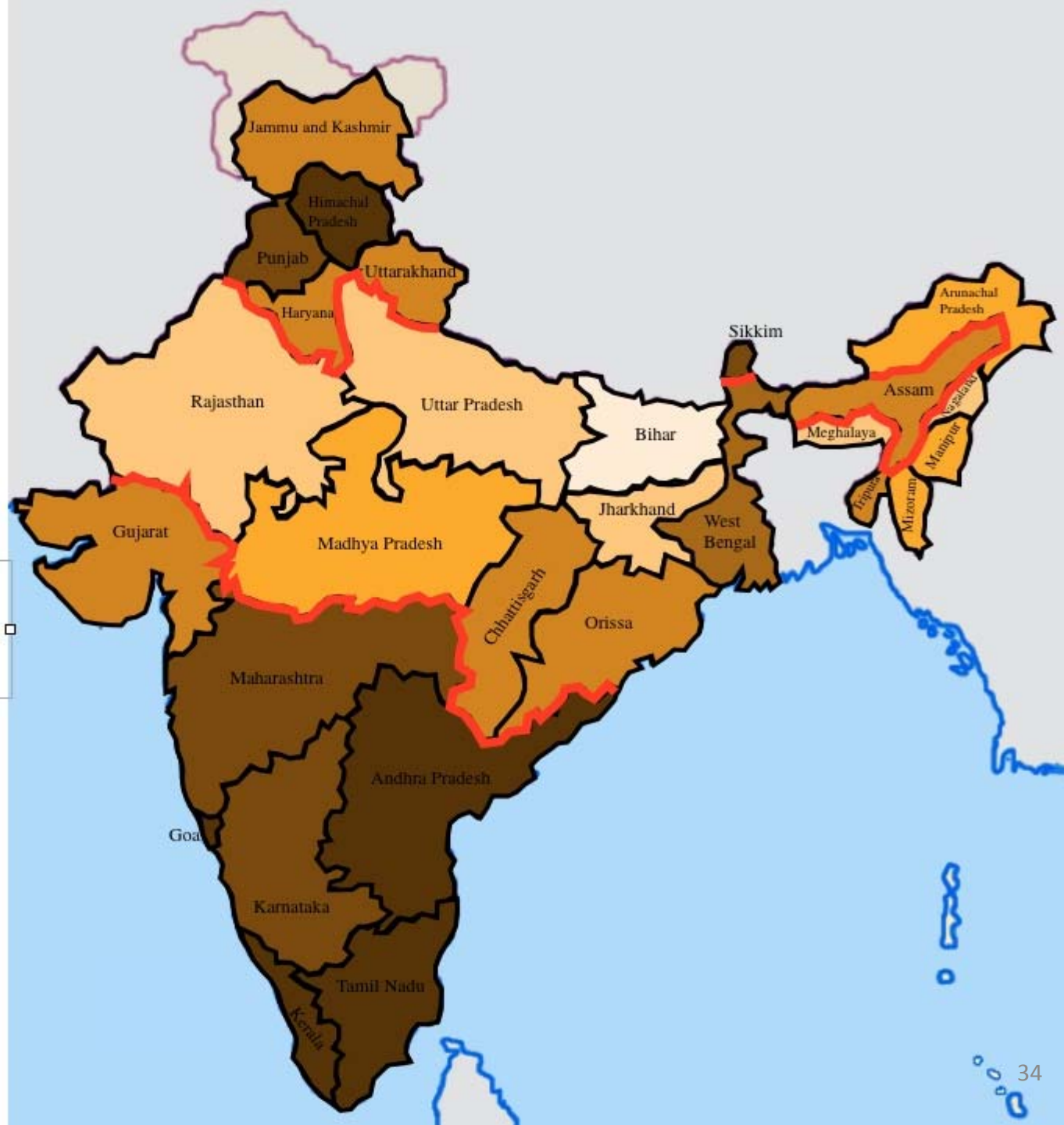
- actual bearing of children
- reproductive age roughly 15-45 years- 30 years period
- a woman marries at 15 and living till age 45 years with her husband is exposed to the risk of pregnancy for 30 years may give birth to 15 children, but it is rarely achieved.
- fertility depend on several factors.



Developmental Divide

Total Fertility Rate

India National Health Survey 3, 2005-2006



1. Age at marriage-

- early marriage is long established custom in India
- Child marriage restraint act 1978- legal age for marriage 18 years for girls and 21 years for boys.

2. Duration of married life-

- births are more in first few years of life
- Family planning efforts should be concentrated in this period.

3. Spacing of children-

- When all births are postponed by one year, in each age group, there will be a decline in total fertility.

4. education-

- Inverse association between fertility and education
- Education provides knowledge, increased exposure to information and media, builds skill for gainful employment, increased female participation in decision making

5. Economic status-

- bears inverse relationship with fertility
- economic development is the best contraceptive

6. Caste and religion-

- Muslims have higher fertility than Hindus
- total fertility rate among Christians is minimum.

7. Nutrition -

- well- fed societies have low fertility

8. Family planning-

- key factor in declining fertility

9. others-

- no. of physical, biological, social and cultural factors play role

Family planning-

WHO definition-

A way of thinking and living that is adopted voluntarily, upon the basis of knowledge, attitudes and responsible decisions by individuals and couples, in order to promote the health and welfare of the family group and thus contribute effectively to the social development of the country

Objectives:

- to avoid unwanted births
- To bring about wanted births
- To regulate intervals between pregnancies
- to control time at which birth occurs in relation to age of the parents
- to determine no. of children in family

Basic human right

“ all couples and individuals have the basic human right to decide freely and responsibly the no. and spacing of the children and to have the information, education and means to do so.”

Scope of family planning services:

1. Proper spacing and limitation of births
2. Advice on sterility
3. Education on parenthood
4. Sex education
5. Screening for pathological conditions related to reproductive system e.g. cervical cancer
6. Genetic counseling
7. Premarital consultation and examination
8. Pregnancy tests
9. Marriage counseling
10. Preparation of couples for arrival of first child

- 11. Providing services for unmarried mothers
- 12. Teaching home economics and nutrition
- 13. Providing adoption services

Health aspects of family planning:

Women's health-

Maternal mortality, morbidity of women of child bearing age, nutritional status, weight changes, hemoglobin levels, preventable complications of pregnancy and abortion

Foetal health-

Foetal mortality, abnormal development

Infant and child health-

Neonatal infant and preschool mortality, health of the infant at birth, vulnerability to diseases

Small family norm

symbol- inverted red triangle

Initially adopted model of 3 child family

1970- DO YA TEEN BAS

1980- two child norm

Currently-

SONS OR DAUGHTERS TWO WILL DO

SECOND CHILD AFTER 3 YEARS

UNIVERSAL IMMUNIZATION

Eligible couple-

Currently married couple where the wife is in the reproductive age i.e. between 15-45 years

Target couple-

Couple who have had 2-3 living children

Couple protection rate-

The percent of eligible couples effectively protected against child birth by one or the other approved methods of family planning viz. sterilization, IUD, condom or oral pills

National population policy:

- first formed in April 1976
- approved by parliament in 1983
- national population policy 2000 is latest
- commitment TARGET FREE APPROACH
- The objective is to bring the TFR to replacement level by 2010.

Goals to be achieved by 2010-

- 1.To address unmet needs for basic reproductive and child health services, supplies an infrastructure
- 2.Make school education up to age 14 free and compulsory reduce drop-outs at primary and secondary school level to below 20% for both boys and girls
- 3.Reduce infant mortality rate below 30 per 1000 live births
- 4.Reduce maternal mortality ratio to below 100 per 100000 live births

5. To achieve universal immunization of children against all vaccine preventable diseases
6. Promote delayed marriage for girls not earlier than 18 years and preferably after 20 years
7. Achieve 80% institutional deliveries and 100% deliveries by trained persons
8. Achieve universal access to information/ counseling and services for fertility regulation and contraception
9. Achieve 100% registration of births, deaths, marriages and pregnancy
10. Contain the spread of AIDS and promote greater integration between management of RTI and STI and NACO.
11. Prevent and control communicable diseases
12. Integrate Indian system of medicine
13. Promote vigorously the small family norm

14. Bring about convergence in implementation of related social sector programs so that family welfare becomes a people centered programme

Abortion

Termination of pregnancy before the foetus becomes viable

Fixed administratively at 28 weeks

Foetus weighs approximately 1000gms

Medical termination of pregnancy act 1971

- Condition under which the pregnancy can be terminated
- Person who can perform such termination
- Place where it can be performed.

Conditions-

- Medical
- Eugenic
- Humanitarian
- Socioeconomic
- Failure of contraceptive devices

Persons who can perform-

Registered medical practitioner with experience in gynecology and obstetrics for pregnancy not exceeding 12 weeks

More than 12 weeks and less than 20 weeks opinion of 2 RMPs

