

World Population Distribution – Age, Gender, Literacy

Lecture 5

www.thegeoecologist.com

Dr. Krishnanand

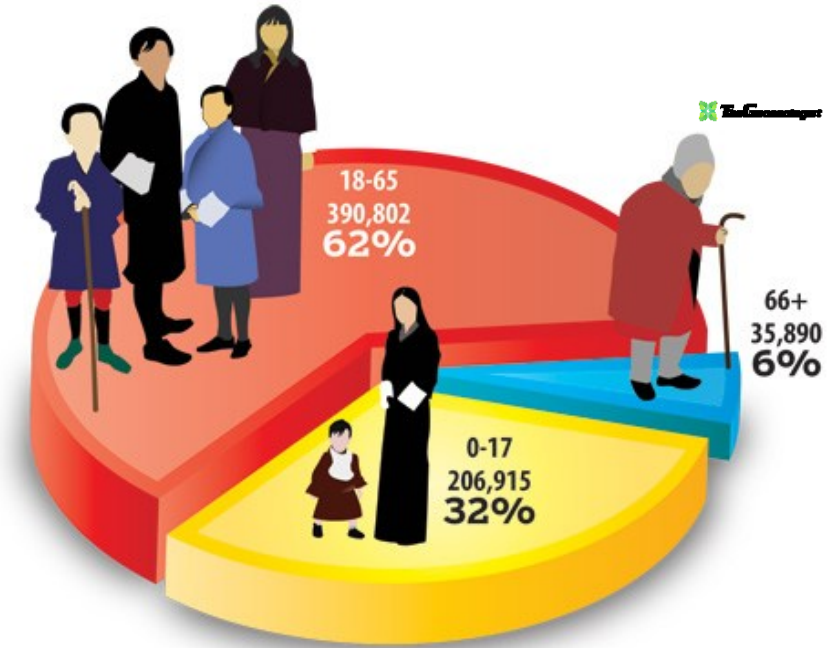
POPULATION COMPOSITION & CHARACTERISTICS

Age-Sex Composition
Rural and Urban Composition
Literacy
Occupational Structure


Population geographers have traditionally been interested in the composition of population or population structure **as it varies over space**.

Population composition refers to: the characteristics of population in which distribution by age and sex holds a very important place.

- People of any country are diverse in many respects. **Each person is unique in her/his own way.**
- People can be distinguished by their **age, sex and their place of residence.**
- Some of the other **distinguishing attributes** of the population are **occupation, education and life expectancy.**



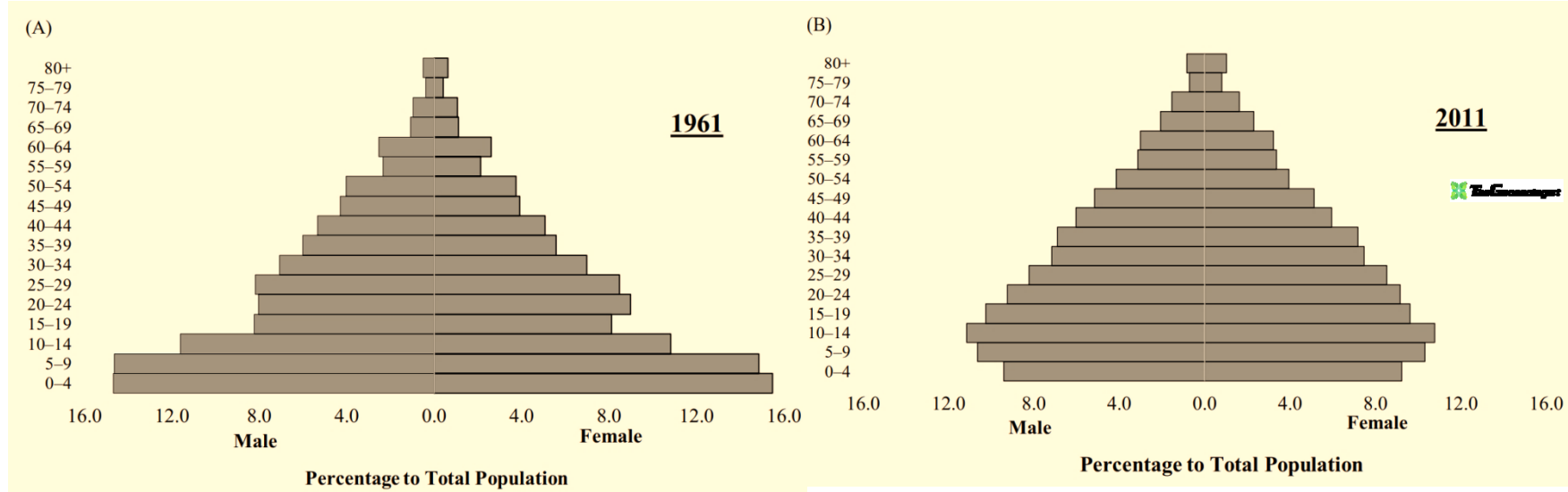
AGE STRUCTURE

Age is a very important biological characteristic of an individual. **The United Nations defines** age of an individual as *“the estimated or calculated interval of time between the date of birth and the date of census, expressed in completed solar years”*. 

- ✓ The **age structure** of a population **determines** the number of **persons available for different social categories**.
- ✓ **For instance**, the size of the labour force available in a population depends on its age structure.
- ✓ **Planning for various social and physical amenities** in a region also requires data on age distribution.
- ✓ A large size of population in the age group of **15-59 indicates a large working population**.
- ✓ A greater proportion of population **above 60 years represents an ageing population** which **requires more expenditure on health care facilities**.
- ✓ Similarly, **high proportion of young population** would mean that the region has a **high birth rate** and the **population is youthful**

MEASURES OF AGE STRUCTURE

1. AGE PYRAMID



2. DEPENDENCY RATIO

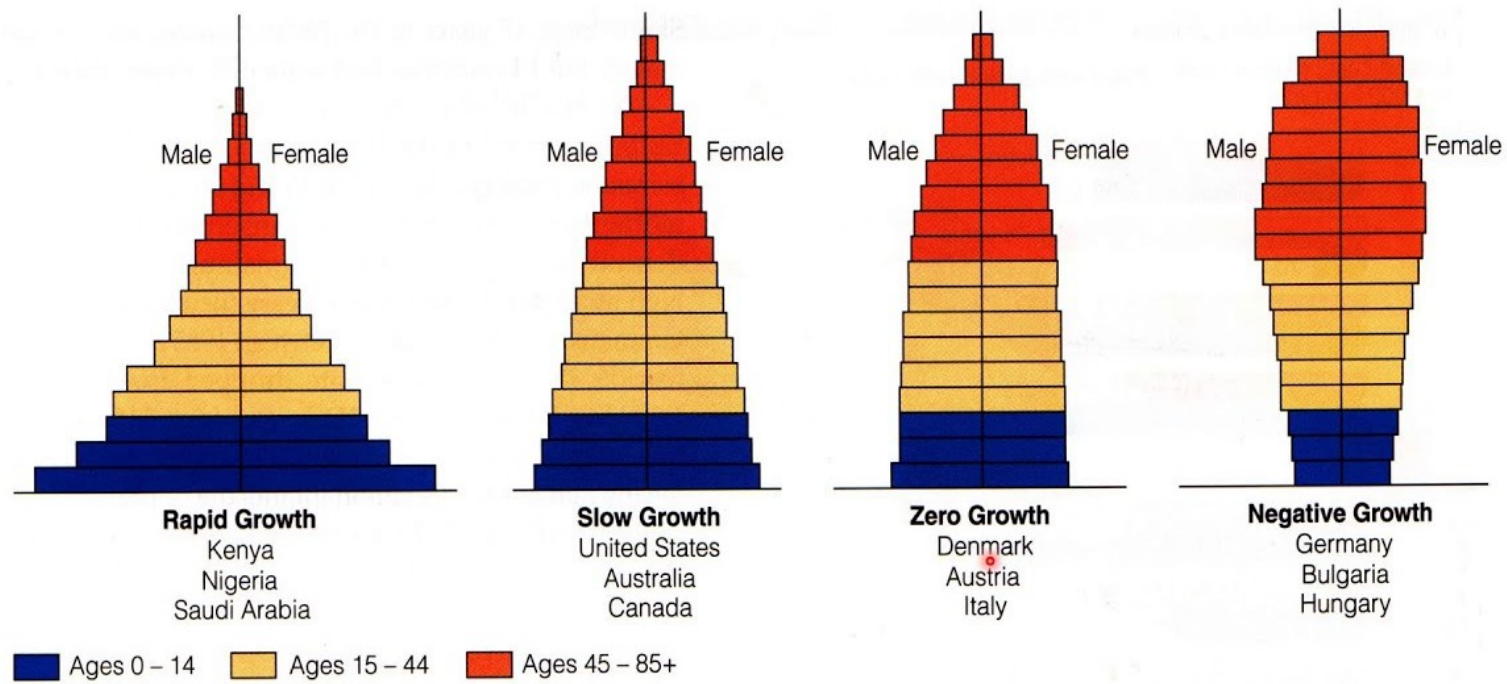
The dependency ratio of a population provides the **number of dependents in the population for every 100 working persons**.

Here, children **below age 15 years** and **persons age 60 years and above** are considered as dependent on people in the working age group i.e. between 15 and 59 years (or 64 years).

$$\text{Dependency Ratio} = \left\{ \frac{P_{0-14} + P_{60+}}{P_{15-59}} \right\} \star 100$$

3 . INDEX OF AGING (Petersen -1975)

$$\text{Index of Ageing} = \left(\frac{P_{65+}}{P_{0-14}} \right) \star 100$$



Major Areas and Countries	Percentage Population in Broad Age Group (years)			Dependency Ratio
	< 15	15–64	65+	
World	26	65	9	53.8
More developed	16	66	18	51.5
Less developed	28	65	7	53.8
Africa	41	56	3	78.6
Asia	24	68	8	47.1
Europe	16	66	18	51.5
Latin America and the Caribbean	26	66	8	51.5
North America	16	66	18	51.5
Oceania	23	65	12	53.8

Source: Based on Population Reference Bureau: *World Population Data Sheet*, 2017.

SEX COMPOSITION

The number of women and men in a country is an important demographic characteristic. **The ratio between the number of women and men in the population is called the Sex Ratio.**



In some countries, like U.S.A, the sex ratio is expressed in terms of number of males per thousand females and is calculated by using the formula:

$$\frac{\text{Male Population}}{\text{Female Population}} \times 1000$$

Or the number of males per thousand females.

In India, the sex ratio is calculated in terms of number of females per thousand males. It is calculated as under

$$\frac{\text{Female Population}}{\text{Male Population}} \times 1000$$

In some countries the sex ratio is unfavorable to women because:

- (i) Female foeticide**
- (ii) Female infanticide**
- (iii) Domestic violence against women**
- (iv) Lower socio-economic status of women**

- ✓ In the world population sex ratio is **102 males per 100 females**.
- ✓ The highest sex ratio in the world is recorded in **Latvia where there are 85 males per 100 females**. In Qatar there are 311 males per 100 females.
- ✓ **Latvia, Lithuania, Armenia, Belarus, Russia, Ukraine and Estonia** are among the countries with the largest female population. This shows the better status of women and an excessively male –dominated out –migration to different parts of the world.
- ✓ **The sex ratio is favourable** for females in **139 countries of the world** and **unfavourable in remaining 72 countries**.
- ✓ Asia has a low sex ratio in countries like **China, India, Saudi Arabia, Pakistan, and Afghanistan**

WELCOME TREND IN GENDER RATIO

	NFHS-5	NFHS-4
All India	1,020	991
Haryana	926	876
Punjab	938	905
Delhi	913	854
Himachal	1,040	1,078
Chandigarh	917	934
J&K	948	971
Ladakh	971	1,000



(SOURCE: UNION MINISTRY OF HEALTH)

RURAL URBAN COMPOSITION

The division of population into rural and urban is based on the residence. This division is necessary because **rural and urban life styles differ from each other in terms of their livelihood and social conditions.**



The **age-sex-occupational structure, density of population and level of development** vary between rural and urban areas

- ✓ The rural and urban differences in sex ratio in **Canada and West European countries like Finland** are **just the opposite** of those in **African and Asian countries like Zimbabwe and Nepal** respectively.
- ✓ In **Western countries, males outnumber females in rural areas** and **females outnumber the males in urban areas.**
- ✓ In countries like **Nepal, Pakistan and India** the case is reverse.
- ✓ The excess of females in urban areas of U.S.A., Canada and Europe is the result of **influx of females from rural areas to avail of the vast job opportunities**

LITERACY

Proportion of literate population of a country **in an indicator of its socio-economic development** as it reveals :

- ✓ **the standard of living,**
- ✓ **social status of females,**
- ✓ **availability of educational facilities and**
- ✓ **policies of government.**



Level of economic development is both a cause and consequence of literacy.

In India – literacy rate denotes the percentage of population above 7 years of age, who is able to read, write and have the ability to do arithmetic calculations with understanding.

The invention of written language involved a gradual development from the use of pictures, **known as pictography, to the use of an alphabet.** This development is said to have occurred in ancient Sumer around 3600 BC (***Cuneiform***) .

People who lived prior to this development, however, cannot be called illiterate. The distinction between the terms like **preliterate, nonliterate** and **illiterate** is important in this regard.

- ✓ Societies that existed prior to the invention of written language are called **non-literate rather than illiterate.**
- ✓ Even after the invention of written language, at present times, there are societies that have never encountered any written language. The people of such societies are referred to as **preliterate.**

OCCUPATIONAL STRUCTURE

The working population takes place in various occupations ranging from **agriculture, forestry, fishing, manufacturing, construction, commercial transport, services, communication** and other unclassified services.

Agriculture, forestry, fishing and mining are classified as **primary activities**, manufacturing as **secondary**, transport, communication and other services as **tertiary** and the jobs related to research and developing ideas as **quaternary activities**.

The proportion of working population engaged in these four sectors is a good indicator of the levels of economic development of a nation.

World/Major Regions

Percentage Share of Workers*

	Agriculture	Industries	Services
World	26	22	51
High Income	3	23	74
Low Income	68	10	22
Middle East and Northern Africa	18	29	54
Sub-Saharan Africa	57	11	31
South Asia	43	23	34
East Asia and Pacific	21	25	54
Europe and Central Asia	9	25	66
European Union	4	24	72
Latin America and the Caribbean	14	21	64
Northern America	2	19	79
Coefficient of variation#	93.22	45.14	38.40

* ILO Modelled Estimates.

Based on estimates available for 185 countries.

Source: World Bank (<https://data.worldbank.org/indicator/SL.AGR.EMP.ZS>; accessed on 15-01-2019).



- A **developed economy** with industries can **accommodate more workers in the secondary, tertiary and quaternary sector.**
- If the **economy is in primitive stages**, then the proportion of **people engaged in primary activities would be high**

POPULATION DYNAMICS

FERTILITY, MORTALITY & MIGRATION

Measures, Determinants and Implications



Population dynamics is the portion of ecology that deals with the **variation in time and space of population size and density** for one or more species

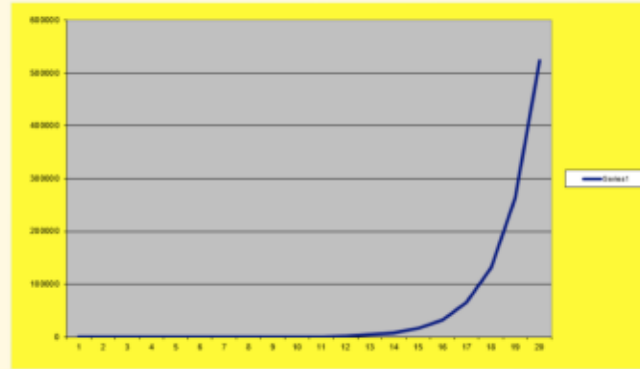
Population Dynamics

The study of population sizes and ages as a dynamic (constantly changing) system, and the environmental and biological factors that drive them.

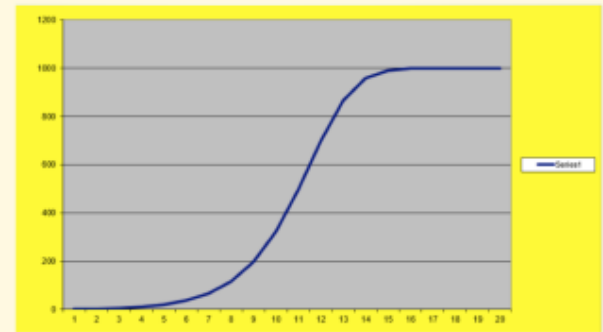
The diagram illustrates the hierarchy of ecological organization. It is divided into five horizontal layers, each with a label at the bottom: Organism (a single gazelle), Population (a group of gazelles), Community (a group of different animals including a zebra, a gazelle, and a turtle), Ecosystem (the community plus a tree and a body of water), and Biosphere (a globe representing the entire planet). The layers are contained within a blue circular border.

The Geoscientist

- Population Dynamics is the sequence of population changes characteristic of a particular organism, it also focuses on these changes — **how, when, and why they occur.**
- It is the branch of life sciences that studies the size and age composition of populations as dynamic systems, and the biological and environmental processes driving them.
- Population Dynamics changes in the number of individuals in a population or **the vital rates of a population over time.**
- It is widely **regarded as the exponential law of Malthus**, as modeled by the **Malthusian growth model.**



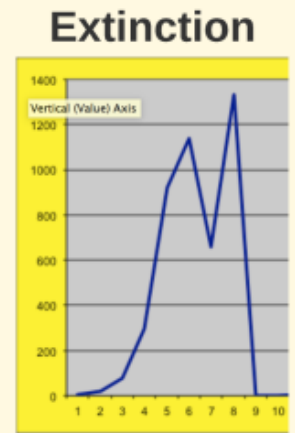
Exponential growth



Population reaching carrying capacity



Chaos



Extinction

Population dynamics can be viewed as having two broad components:

1. **first**, quantitative descriptions of the changes in population number and form of population growth or decline for a particular organism, and
2. **second**, investigations of the forces and biological and physical processes causing those changes.

