

## CHAPTER 1

### POPULATION OF THE WORLD - DISTRIBUTION, DENSITY, AND GROWTH

#### INTRODUCTION

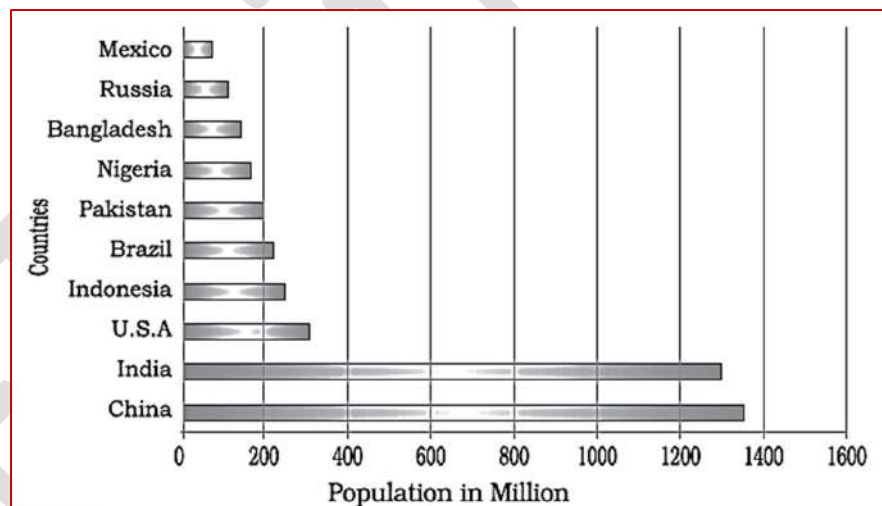
Analysing global population distribution offers a comprehensive view of how people are spread across various regions of the world. This distribution highlights significant patterns, such as high-density urban centres versus sparsely populated rural areas, and the shifting trends in migration and urbanization. By examining these patterns, we gain valuable insights into the socio-economic dynamics at play, including how population density affects resources, infrastructure, and regional development. Additionally, understanding these patterns helps in addressing challenges related to environmental sustainability, resource allocation, and planning for future growth. Overall, studying population distribution at a global level is crucial for devising effective strategies to manage and improve living conditions across diverse regions.

#### TOPICS COVERED

- Population of the world - distribution, density and growth;
- Population change-spatial patterns and structure; determinants of population change.
- Age-sex ratio; rural-urban composition

#### POPULATION

**DEFINITION:** Population refers to the total number of individuals of a particular species living within a specific geographic area at a given time. In the context of human geography and demographics, population typically refers to the total number of people inhabiting a specific region, country, city, or other defined area.



1. **Total Number of Individuals:** Population counts the total number of individuals in a specific area, considering all age groups and sexes.
2. **Specific Geographic Area:** The area can range from a small community or city to an entire country or even the world.
3. **Given Time:** Population is often assessed at a specific point in time, for example, during a census.

#### DEFINING POPULATION

The **United Nations** defines population as the total number of people inhabiting a particular area or country at a given time. According to the **U.S. Census Bureau**, population refers to all people, regardless of age or status, who reside in a specific geographic area. **Demographers** study populations to understand the structure, distribution, and trends, often focusing on aspects like age, sex, birth rates, death rates, and migration patterns.

**PATTERNS OF POPULATION DISTRIBUTION:** Population distribution refers to how people are spread across the earth's surface. Approximately 90% of the world's population inhabits about 10% of its land area. The ten most populous countries contribute around 60% of the global population, with six of these countries located in Asia.

**DENSITY OF POPULATION:** Density of population is a measure of the number of people living per unit area of land, usually expressed as persons per square kilometre. It can be calculated using the formula:

**POPULATION DENSITY = *Total Population* ÷ *Total Area***  
**POPULATION DENSITY** measures the number of people living per unit area of land, commonly expressed as persons per square kilometre (persons/km<sup>2</sup>).

**GLOBAL PATTERNS**

1. **High Density Regions:** South Asia (e.g., India), East Asia (e.g., China), and parts of Europe (e.g., the Netherlands).
2. **Low Density Regions:** Deserts (e.g., Sahara), arctic areas (e.g., Greenland), and rainforests (e.g., Amazon Basin).

**DENSITY OF POPULATION = POPULATION AREA:** For example, if Region X has an area of 100 sq km and a population of 150,000, the population density would be 1,500 persons/sq km.

**FACTORS INFLUENCING POPULATION DENSITY**

**GEOGRAPHICAL FACTORS**

- **Relief and Topography:** Plains and lowlands are more densely populated than highlands and mountainous regions.
- **Climate:** Moderate climates with less seasonal variation attract higher populations.
- **Soil and Vegetation:** Fertile areas capable of supporting agriculture are densely populated.

**ECONOMIC FACTORS**

- **Urbanization:** Urban areas with developed infrastructure have higher population densities.
- **Industrialization:** Industrial regions offer job opportunities, attracting more people.
- **Transportation:** Areas with developed transportation networks facilitate higher densities.

**SOCIAL AND CULTURAL FACTORS**

- **Cultural and Religious Centres:** Places with cultural or religious significance attract large populations.
- **Political and Social Stability:** Stable regions with good governance attract and retain populations.

**DENSITY OF POPULATION IN WORLD**

Population density is a measure of the number of people living per unit of land area, typically expressed as persons per square kilometre (persons/km<sup>2</sup>). Here's an overview of population density across different regions of the world:

**HIGH POPULATION DENSITY AREAS**

HIGH POPULATION DENSITY AREAS	
<b>Monaco</b>	Approx. 26,150 persons/km <sup>2</sup> ; Small city-state known for its high urban population density.
<b>Singapore</b>	Approx. 8,358 persons/km <sup>2</sup> ; Island city-state with significant economic and urban development.

<b>Bangladesh</b>	Approx. 1,265 persons/km <sup>2</sup> ; Densely populated South Asian country with a high rural and urban population.
<b>Taiwan</b>	Approx. 673 persons/km <sup>2</sup> ; Island nation with significant urban areas and industrial development.
<b>South Korea</b>	Approx. 527 persons/km <sup>2</sup> ; Highly urbanized country with major metropolitan areas like Seoul; Moderate Population Density Areas.
<b>India</b>	Approx. 464 persons/km <sup>2</sup> ; Large country with varying population densities; high in urban areas.
<b>Netherlands</b>	Approx. 507 persons/km <sup>2</sup> ; High density in urban regions, balanced by agricultural land.
<b>Japan</b>	Approx. 347 persons/km <sup>2</sup> ; High density in urban areas like Tokyo, balanced by rural areas.
<b>United Kingdom</b>	Approx. 277 persons/km <sup>2</sup> ; High urban density, with rural and suburban regions.
<b>Germany</b>	Approx. 233 persons/km <sup>2</sup> ; High density in urban industrial regions, balanced by rural areas; Low Population Density Areas.
<b>Russia</b>	Approx. 9 persons/km <sup>2</sup> ; Vast land area with sparse population in many regions.
<b>Canada</b>	Approx. 4 persons/km <sup>2</sup> ; Large landmass with population concentrated in southern regions.
<b>Australia</b>	Approx. 3 persons/km <sup>2</sup> ; Majority of population lives in coastal cities, with vast outback.
<b>Greenland</b>	Approx. 0.03 persons/km <sup>2</sup> ; Extremely low population density due to harsh Arctic environment.
<b>Mongolia</b>	Approx. 2 persons/km <sup>2</sup> ; Large land area with a nomadic population and vast steppes.

## KEY FACTORS INFLUENCING POPULATION DENSITY

### 1. Geography and Climate:

Favourable climates and flat terrains attract more people, whereas harsh climates and rugged terrains have lower densities.

### 2. Economic Opportunities:

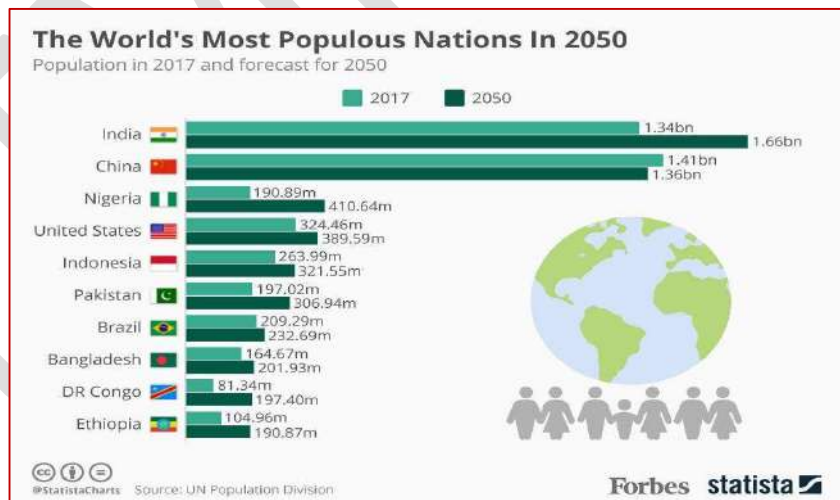
Industrial regions and urban centres attract people due to job availability.

### 3. Agricultural Suitability:

Fertile lands support higher populations through agriculture.

### 4. Political Stability: Stable regions attract and retain higher populations.

### 5. Infrastructure and Development: Well-developed areas with good infrastructure support higher population densities.



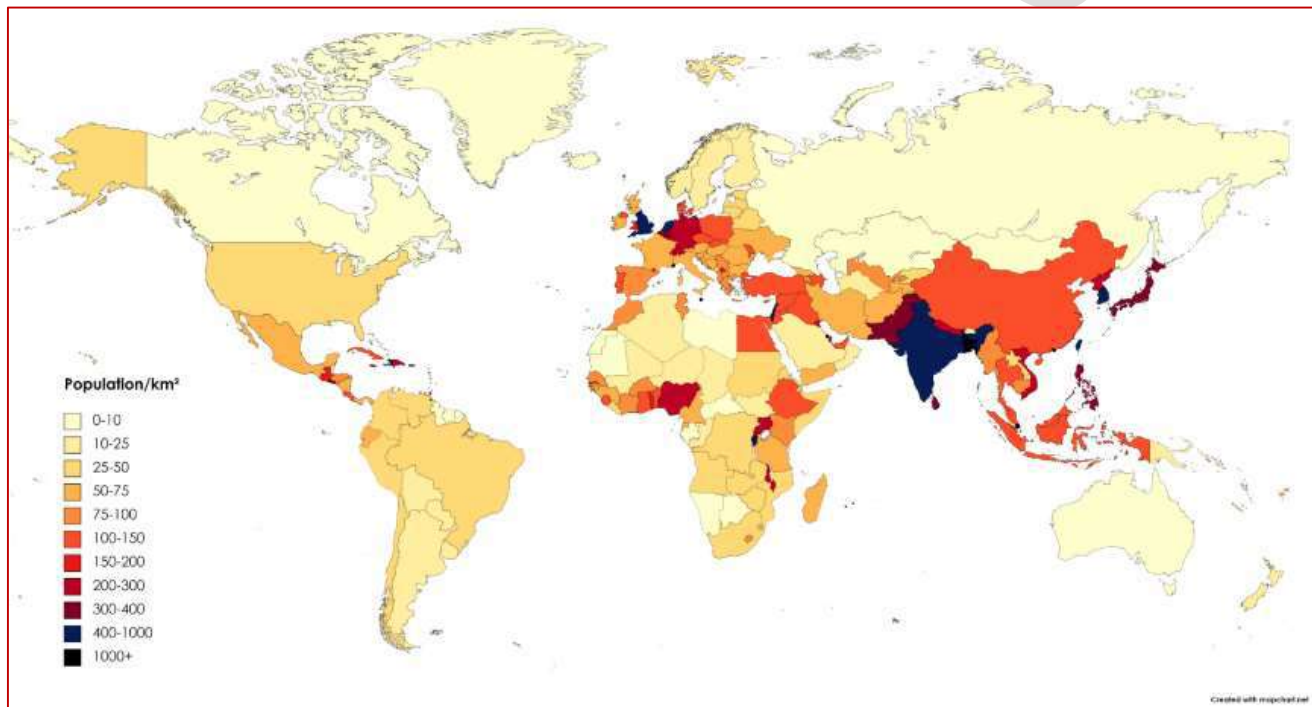
## REGIONAL OVERVIEW

1. **Asia:** High population densities in countries like Bangladesh, India, and Japan due to large populations and limited land areas.

2. **Europe:** Moderate to high densities, with urbanized nations like the Netherlands and the United Kingdom showing higher densities.

3. **North America:** Moderate densities in the USA, with much lower densities in Canada due to its vast uninhabitable northern regions.
4. **Africa:** Varies widely, with high densities in countries like Nigeria and lower densities in desert regions.
5. **South America:** Generally lower densities, with exceptions in urban areas like São Paulo, Brazil.
6. **Oceania:** Low densities overall, with Australia having most of its population in coastal cities.

Population density provides insights into how populations are distributed across the globe, influenced by various geographical, economic, and social factors. High-density areas often face challenges like congestion and resource management, while low-density areas might struggle with economic development and infrastructure provision.



**World Map - Density of Population**

## FACTORS INFLUENCING POPULATION DISTRIBUTION

### GEOGRAPHICAL FACTORS:

1. **Availability of Water:** People prefer areas with abundant fresh water for drinking, agriculture, and industrial uses.
2. **Landforms:** Flat plains and gentle slopes are more densely populated due to their suitability for agriculture and infrastructure development.
3. **Climate:** Moderate climates attract higher populations. Extreme climates, such as deserts and polar regions, tend to be sparsely populated.
4. **Soils:** Fertile soils support intensive agriculture, leading to higher population densities.

### ECONOMIC FACTORS:

1. **Minerals:** Regions with abundant mineral resources attract industries and thus higher populations.

2. **Urbanization:** Cities offer better employment opportunities and amenities, drawing large populations.
3. **Industrialization:** Industrial regions attract diverse workers, leading to dense populations.

### SOCIAL AND CULTURAL FACTORS:

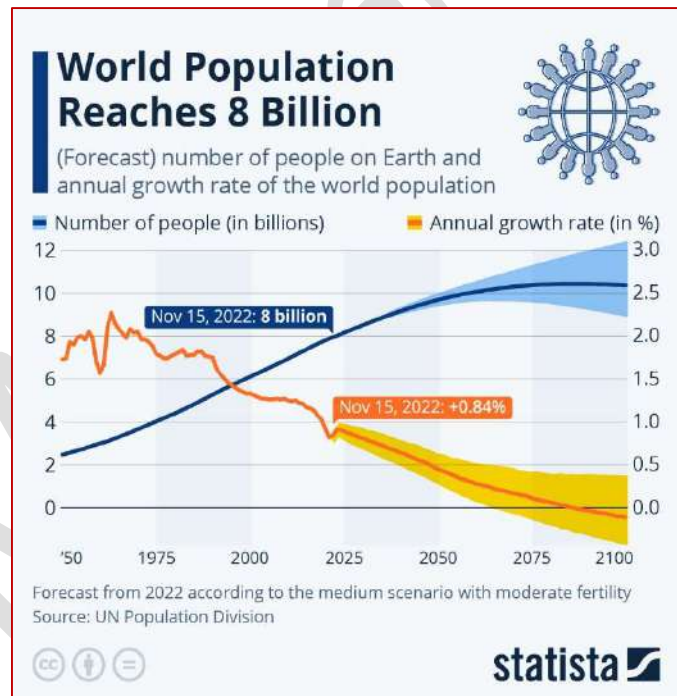
1. Places with religious or cultural significance attract more people.
2. Areas with social or political unrest see population decline.
3. Government incentives can encourage people to move to sparsely populated areas.

## POPULATION GROWTH

Population growth refers to the change in the number of inhabitants over a specific period. It can be positive or negative and is expressed in absolute numbers or as a percentage.

### BASIC CONCEPTS OF POPULATION GEOGRAPHY

- **Growth of Population:** Refers to the change in population in a specific area between two time points. For instance, India's population grew by 18.15 crore between 2001 (102.70 crore) and 2011 (121.02 crore).
- **Growth Rate of Population:** The change in population expressed as a percentage.
- **Natural Growth of Population:** The increase in population determined by the difference between births and deaths in a region over a period of time. Formula:  $\text{Natural Growth} = \text{Births} - \text{Deaths}$ .
- **Actual Growth of Population:** The population increase considering births, deaths, and migration (in-migration and out-migration). Formula:  $\text{Actual Growth} = \text{Births} - \text{Deaths} + \text{In-Migration} - \text{Out-Migration}$ .



### Natural Growth of Population

- $\text{Natural Growth} = \text{Births} - \text{Deaths}$



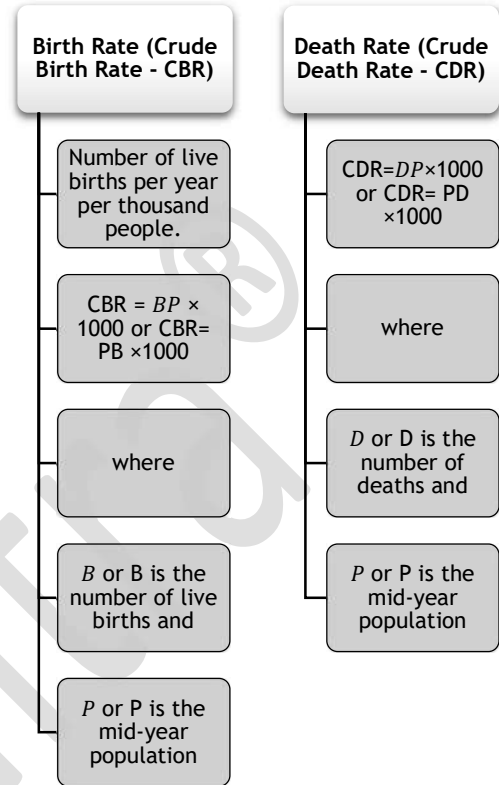
### Actual Growth of Population

- $\text{Actual Growth} = \text{Births} - \text{Deaths} + \text{In-Migration} - \text{Out-Migration}$

- **Positive Growth of Population:** Occurs when the birth rate exceeds the death rate or when people migrate permanently into a region.
- **Negative Growth of Population:** Happens when the population decreases between two time points, due to the birth rate falling below the death rate or people migrating to other countries.

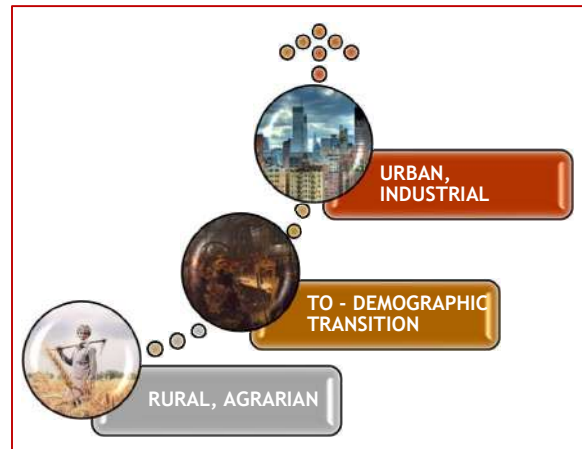
**COMPONENTS OF POPULATION CHANGE:** The components of population change refer to the key factors that determine how a population grows or declines over time. These factors are typically measured using birth and death rates.

1. **BIRTH RATE (CRUDE BIRTH RATE - CBR):** The birth rate is the number of live births per thousand people in a given year. It is a basic measure of how fast a population is growing due to new births.
2. **Death Rate (Crude Death Rate - CDR):** The death rate is the number of deaths per thousand people in a given year. It indicates how fast people are dying in the population.
3. Birth Rate tells us how many people are being added to the population through births.
4. Death Rate shows how many people are being lost from the population due to deaths.
5. The difference between birth and death rates helps determine whether the population is growing, declining, or remaining stable.



## MIGRATION

When people move from one location to another, the place they leave is known as the **Place of Origin**, and the location they move to is called the **Place of Destination**. The population decreases at the origin and increases at the destination. Migration can be seen as a natural effort to balance population with available resources. Hence, migration refers to the movement of people from one place to another, involving **immigration** (moving into a new location) and **emigration** (moving out of a location). It is driven by **push factors** like unemployment and **pull factors** such as better job opportunities.



## DEMOGRAPHIC TRANSITION

Demographic Transition Theory was first proposed by Warren Thompson (pic on top left of next page) in 1929. Thompson, an American demographer. His work laid the foundation for the Demographic Transition Model (DTM), which describes the transition from high birth and death rates to low birth and death rates as a country develops economically

The demographic transition theory describes how populations transition from high birth and death rates to low birth and death rates through stages as societies develop.

- Stage I: High fertility and mortality rates; population growth is slow.
- Stage II: High fertility, declining mortality; rapid population growth.
- Stage III: Low fertility and mortality; stable or slow-growing population.

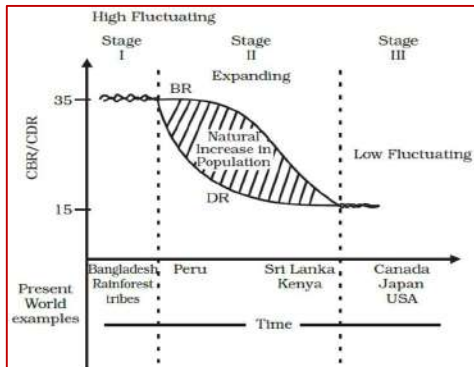
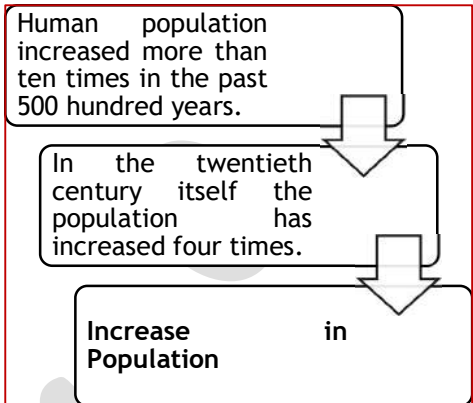


Figure 1: Demographic Transition Theory

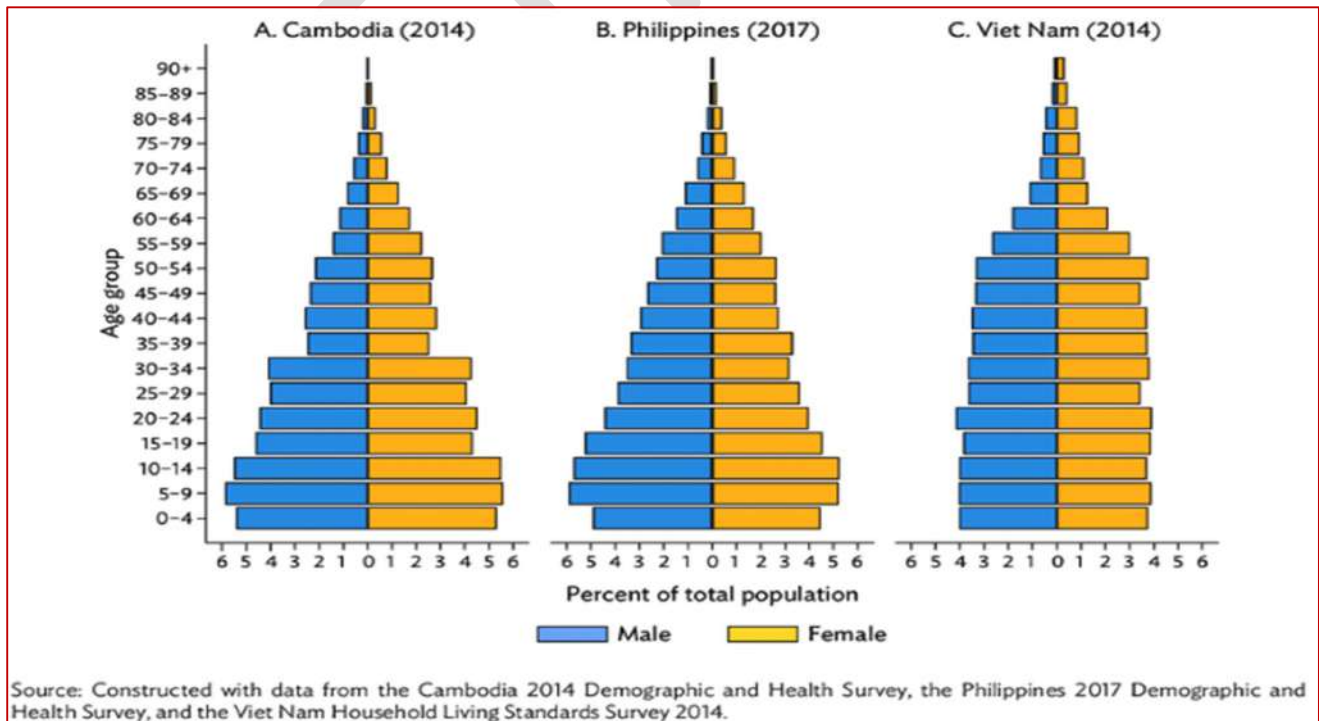


## POPULATION PYRAMIDS

**DEFINITION:** A population pyramid is a graphical representation of the age and sex distribution of a population. It shows the number or percentage of people within each age group, divided by gender. Population pyramids are essential tools for analysing the demographic structure of a population, providing insights into age distribution, gender balance, and future trends.



The first recorded census in history took place in ancient Egypt around 3050 BC during the reign Pharaoh Sesostri Dynasty.



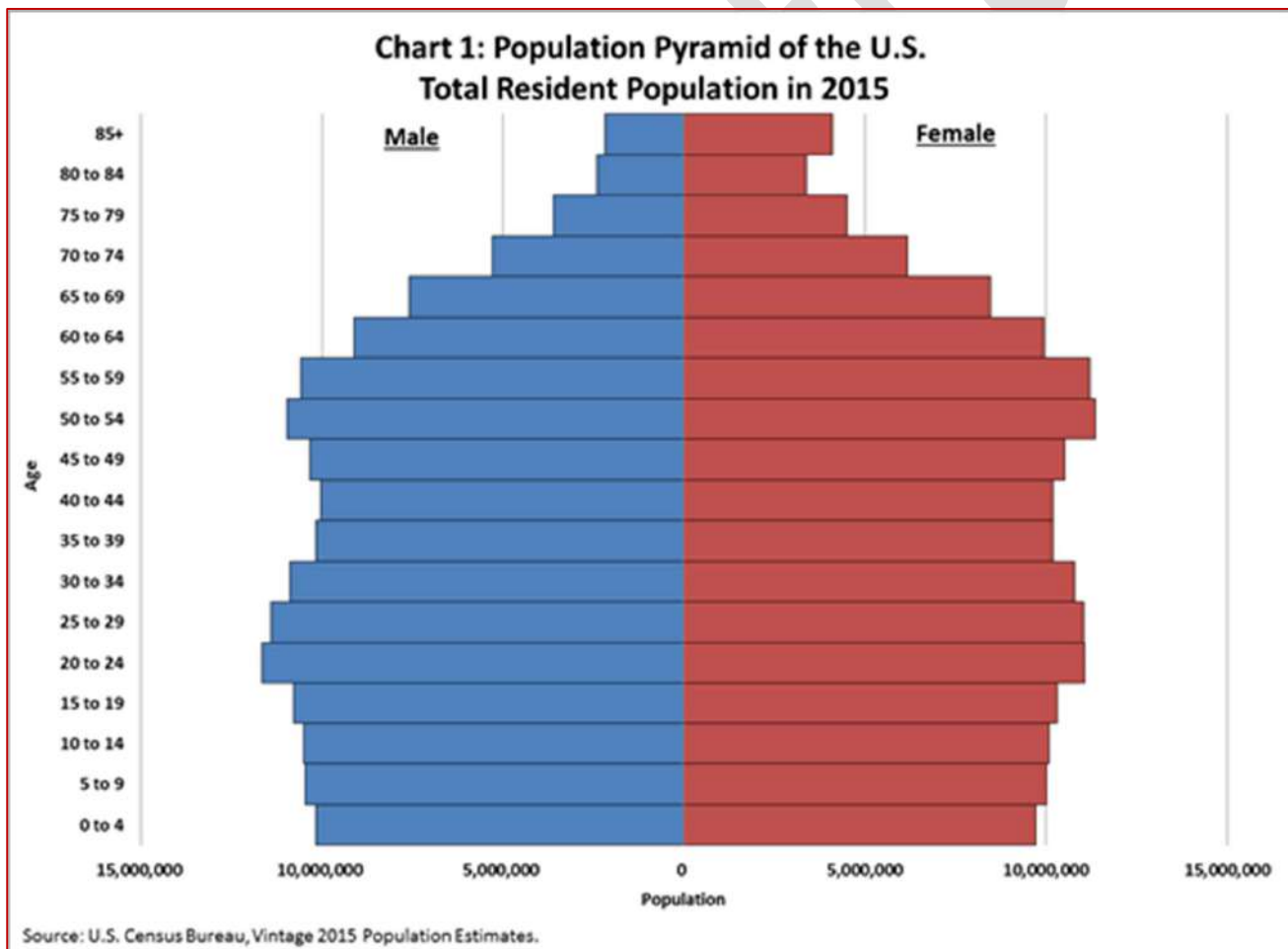
Source: Constructed with data from the Cambodia 2014 Demographic and Health Survey, the Philippines 2017 Demographic and Health Survey, and the Viet Nam Household Living Standards Survey 2014.

## USES OF POPULATION PYRAMIDS

1. **Demographic Analysis:** Helps in understanding the age structure and trends within a population.
2. **Policy Planning:** Assists in planning for healthcare, education, and other services based on the age distribution.
3. **Economic Planning:** Aids in forecasting the potential labour force and the burden of dependents.
4. **Analysing:** Population pyramids are essential tools for analysing the demographic structure of a population, providing insights into age distribution, gender balance, and future trends.

## TYPES

1. **Expansive Pyramid:** Broad base indicating high birth rates and a large proportion of young people.
2. **Constrictive Pyramid:** Narrow base indicating lower birth rates and a smaller proportion of young people.
3. **Stationary Pyramid:** Uniform shape indicating stable birth and death rates across all age groups.



## POPULATION CONTROL MEASURES

Family planning and access to contraceptives are crucial for controlling population growth. Propaganda, free contraceptives, and tax disincentives for large families are effective measures.



## Abbreviations related to the Topic

<b>CDR (Crude Death Rate)</b>	The number of deaths per 1,000 people in a given year.
<b>IMR (Infant Mortality Rate)</b>	The number of deaths of infants under one year old per 1,000 live births in a given year.
<b>TPR (Total Population Rate)</b>	The total number of people residing in a specific area.
<b>GFR (General Fertility Rate)</b>	The number of live births per 1,000 women of reproductive age (usually 15-49 years) in a given year.
<b>NIR (Natural Increase Rate)</b>	The difference between the crude birth rate and the crude death rate.
<b>TFR (Total Fertility Rate)</b>	The average number of children a woman would have assuming she lives through her childbearing years.
<b>LED (Less Economically Developed)</b>	Countries with lower levels of industrialization, lower living standards, and lower Human Development Index (HDI) scores.
<b>MED (More Economically Developed)</b>	Countries with higher levels of industrialization, higher living standards, and higher Human Development Index (HDI) scores.
<b>MDC (More Developed Country)</b>	Similar to MED, referring to countries with advanced economies and higher standards of living.
<b>LDC (Less Developed Country)</b>	Similar to LED, referring to countries with less developed industrial bases and lower Human Development Index (HDI) scores.
<b>HIC (High-Income Country):</b>	Countries with a high gross national income (GNI) per capita.
<b>LIC (Low-Income Country):</b>	Countries with a low gross national income (GNI) per capita.
<b>BR (Birth Rate):</b>	The number of live births per 1,000 people per year.
<b>DR (Death Rate):</b>	The number of deaths per 1,000 people per year.
<b>HDI (Human Development Index):</b>	A composite index measuring average achievement in three basic dimensions of human development: health, education, and income.
<b>GNI (Gross National Income)</b>	The total domestic and foreign output claimed by residents of a country, including wages and salaries and investment income earned abroad.