

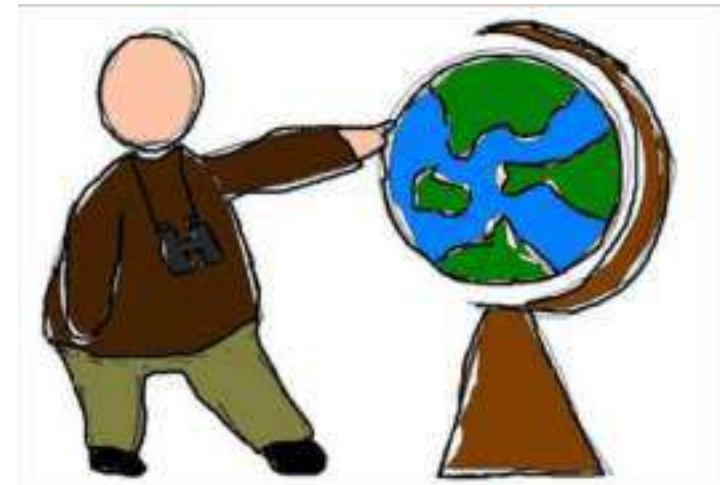


UNIT 2 – PART IA: POPULATION

POPULATION AND MIGRATION

ENDURING UNDERSTANDING (2.A)

- By the end of this section, you will *understand* that **knowledge of the geographic patterns and characteristics of human populations facilitates understanding of cultural, political, economic, and urban systems.**



LEARNING OBJECTIVE (2.A.1)

- By the end of this section, you will *be able to analyze the distribution of human populations at different scales.*
 - Factors that explain *patterns of population distribution* vary according to the scale of analysis (i.e., local to global)
 - Physical factors (e.g., climate, land forms, water bodies) and human factors (e.g., cultural, economic, historical, political) influence the *distribution of population*

POPULATION DISTRIBUTION

- Essential question: How does understanding **where** people live help to explain **how** they live?
- *“Half the world’s population lives in just 1 percent of the land.”* – Max Galka, *Metrocosm*, January 4, 2016



POPULATION DISTRIBUTION

- Human geography tries to explain why people live where they do through two distinct but related concepts:
 - Population distribution
 - Population density

POPULATION DISTRIBUTION

- **Population distribution** is the pattern of human settlement – the spread of people across the earth.
- **Population density** is a measure of the average population per square mile or kilometer of an area – how crowded a place is.

POPULATION DISTRIBUTION

- Why does it matter?
 - Set boundaries for electoral districts
 - Develop new housing

POPULATION DISTRIBUTION

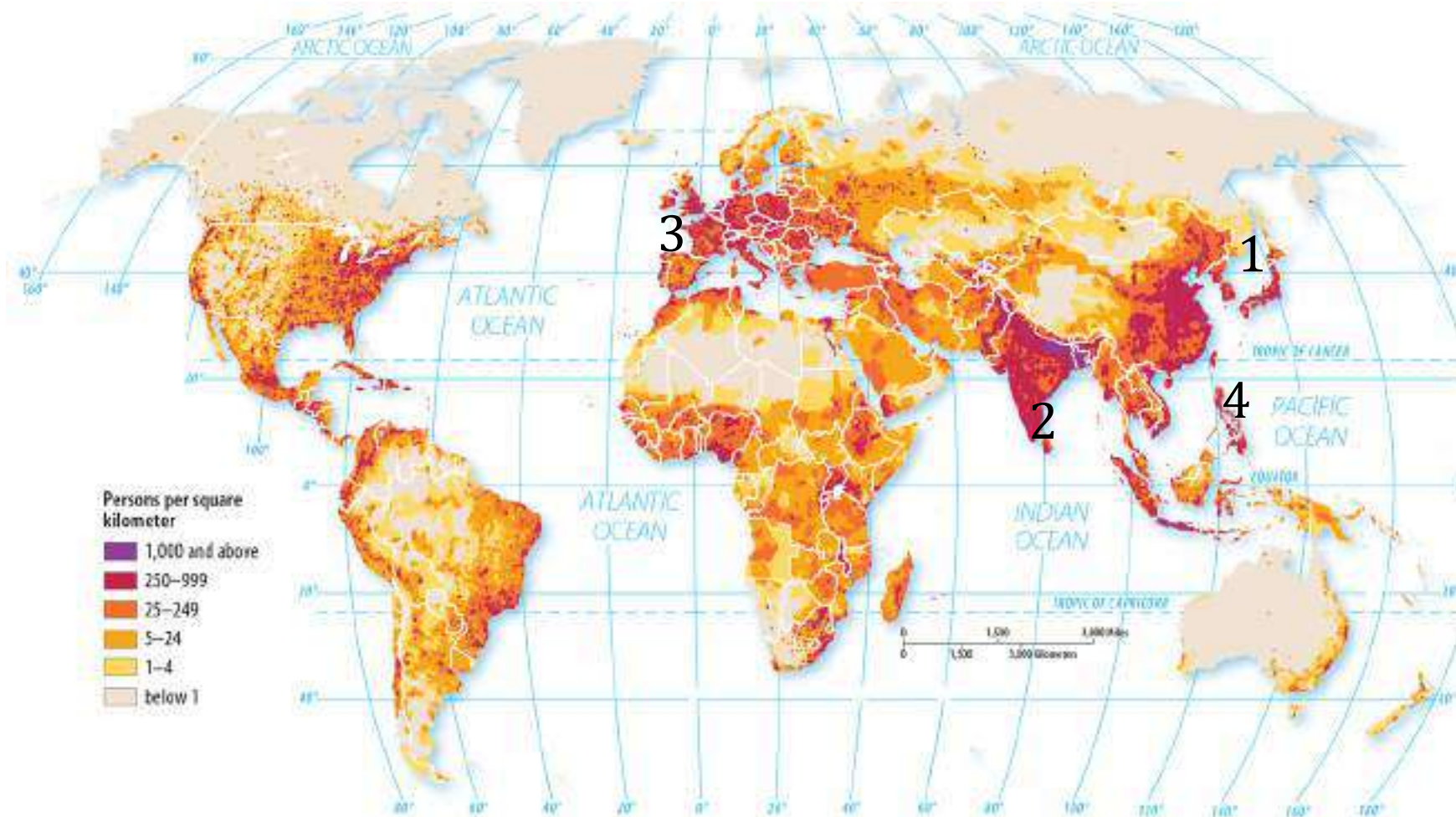
- Population density has increased significantly but population distribution has not. Why?
 - Because the vast majority of growth occurs in places that are already settled
 - Example: eastern China was one of the most populated parts of the world in 1800 – and it still is today

POPULATION DISTRIBUTION

Each of the seven portions indicated by color in this figure contains approximately 1 billion inhabitants



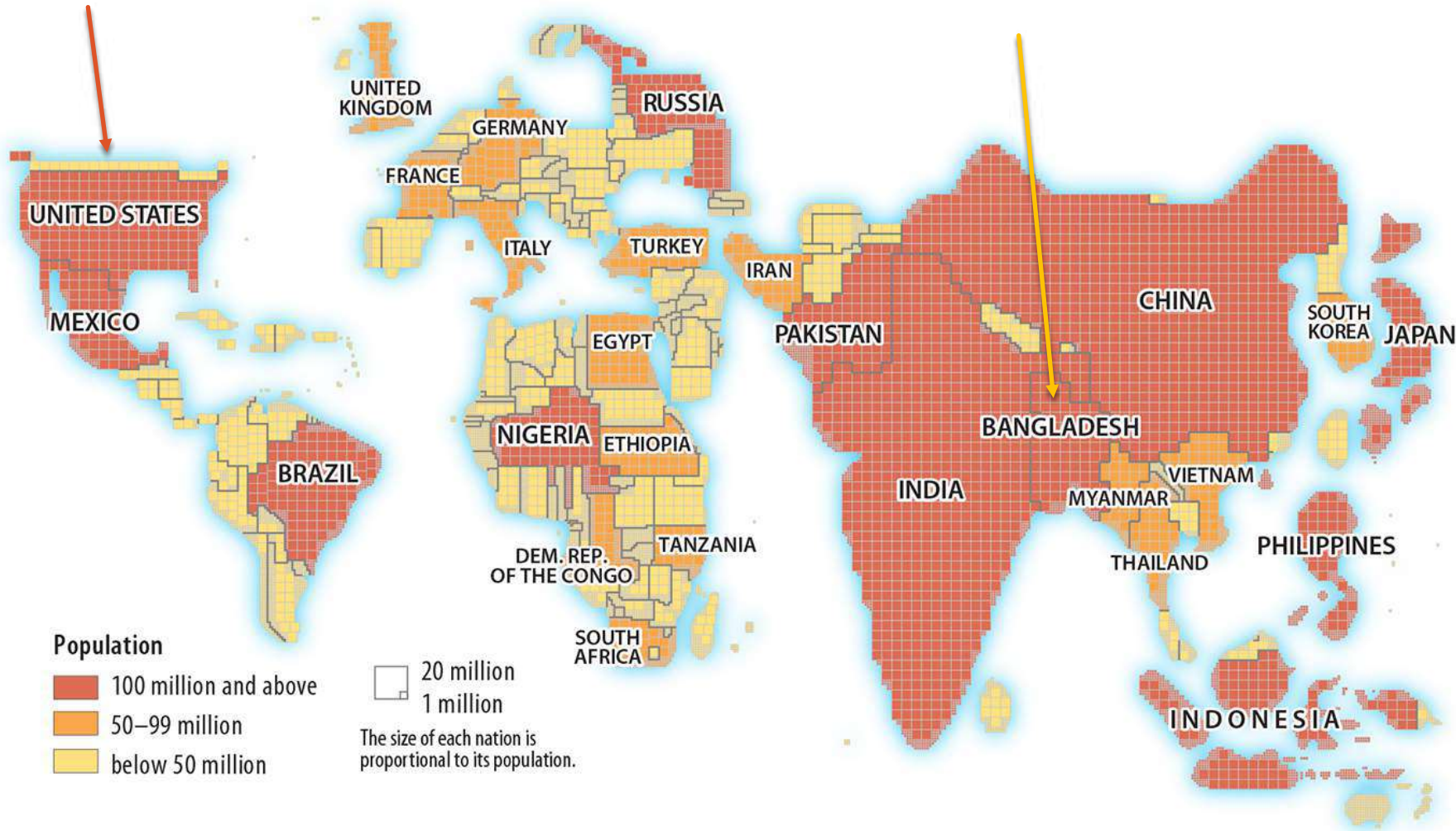
POPULATION DISTRIBUTION



Distribution is not uniform – 2/3 of the world's inhabitants are clustered in four regions

1. East Asia
2. South Asia
3. Europe
4. SE Asia

POPULATION DISTRIBUTION



Canada is the 2nd largest country in land area but 37th in population

Bangladesh is 92nd in land area but 8th in population

WHERE PEOPLE LIVE – PHYSICAL FACTORS

- **Ecumene** is a term used by geographers to mean inhabited land
- People want to live in places where survival is easy – raise or obtain food and water and moderate climates
- Where don't people live?
 - Wetlands, Drylands, Coldlands, Highlands
 - Wet, dry, cold, and high

WHERE PEOPLE LIVE – PHYSICAL FACTORS



WHERE PEOPLE LIVE – PHYSICAL FACTORS

- Early survival depended on food, water, and shelter
- Today is not much different – as population increases, population density increases
- Most people live in **midlatitudes** – more moderate climates and better soils
- Low-lying areas typically have better soil and are often close to oceans (transportation, source of food, moderate temperatures)
- Fresh water – lakes and rivers (drink, irrigation, transportation, food)
- Other resources – natural resources (forest products and materials)

WHERE PEOPLE LIVE – HUMAN FACTORS

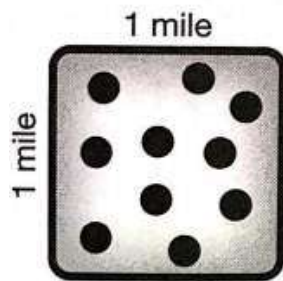
- At first, people settled near natural resources but eventually, the people themselves became an attraction
- Jobs, friends, family, etc.
- People prefer to live close to trade routes (transportation networks – roads, train lines, rivers, etc.)
- Political decisions – Canadian military base called Alert is the most northerly community in the world. It was close to the Soviet Union and allowed them to watch for hostile military activities.

LEARNING OBJECTIVE (2.A.2)

- By the end of this section, you will *be able to* **use population density to explain the relationship between people and the environment.**
 - The three methods for calculating population density are arithmetic, physiological, and agricultural.

POPULATION DENSITY - ARITHMETIC

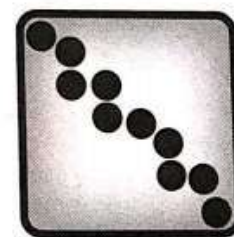
- Calculated by dividing a region's population by total area
- Example:
 - United States population (07/2015) – 321,368,864
 - United States total area – 3,841,999 square miles
 - Arithmetic density – 83.6 people per square mile
- Says little about population *distribution* – where they live



A Even Distribution

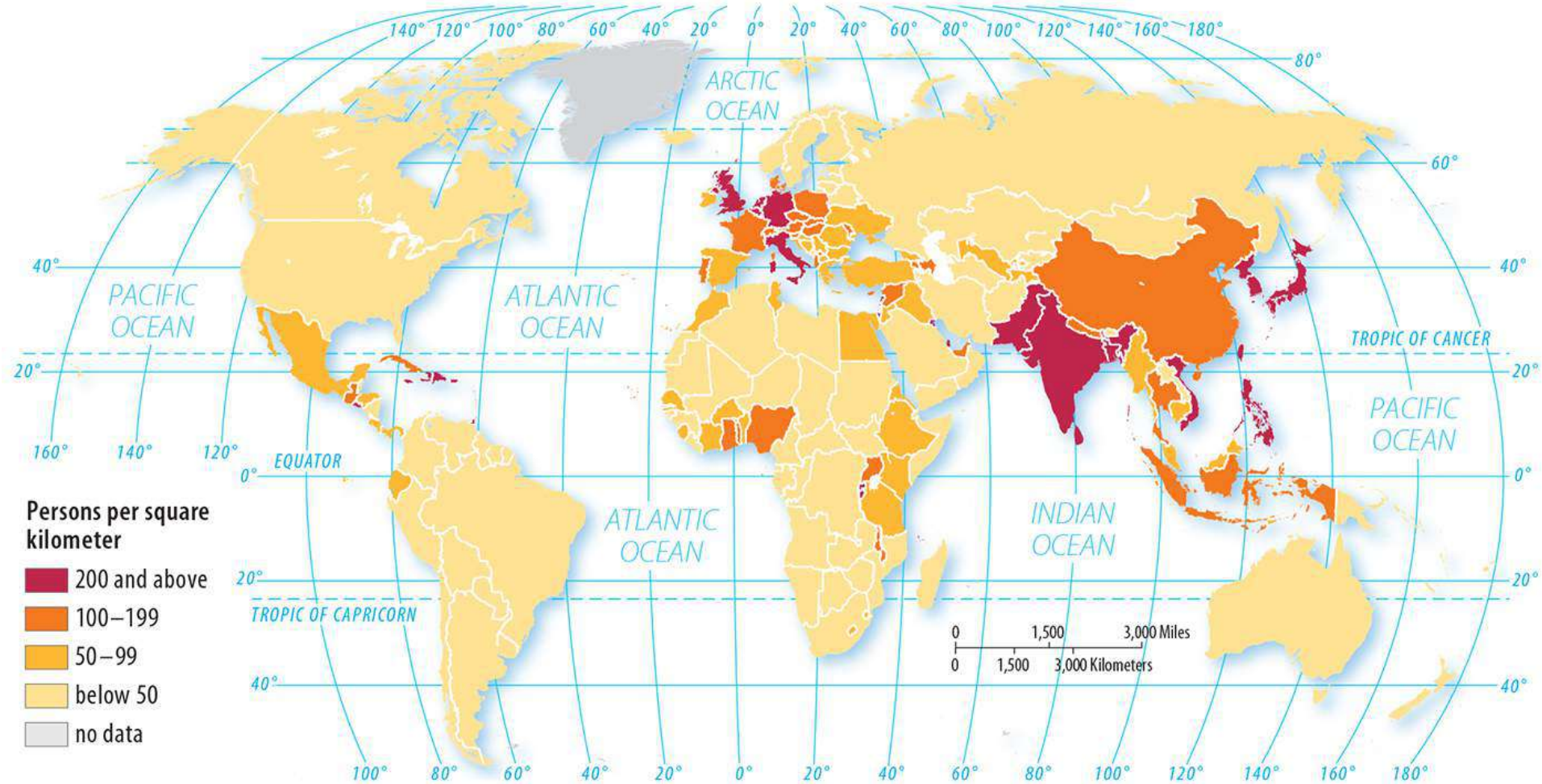


B Cluster Distribution



C Linear Distribution

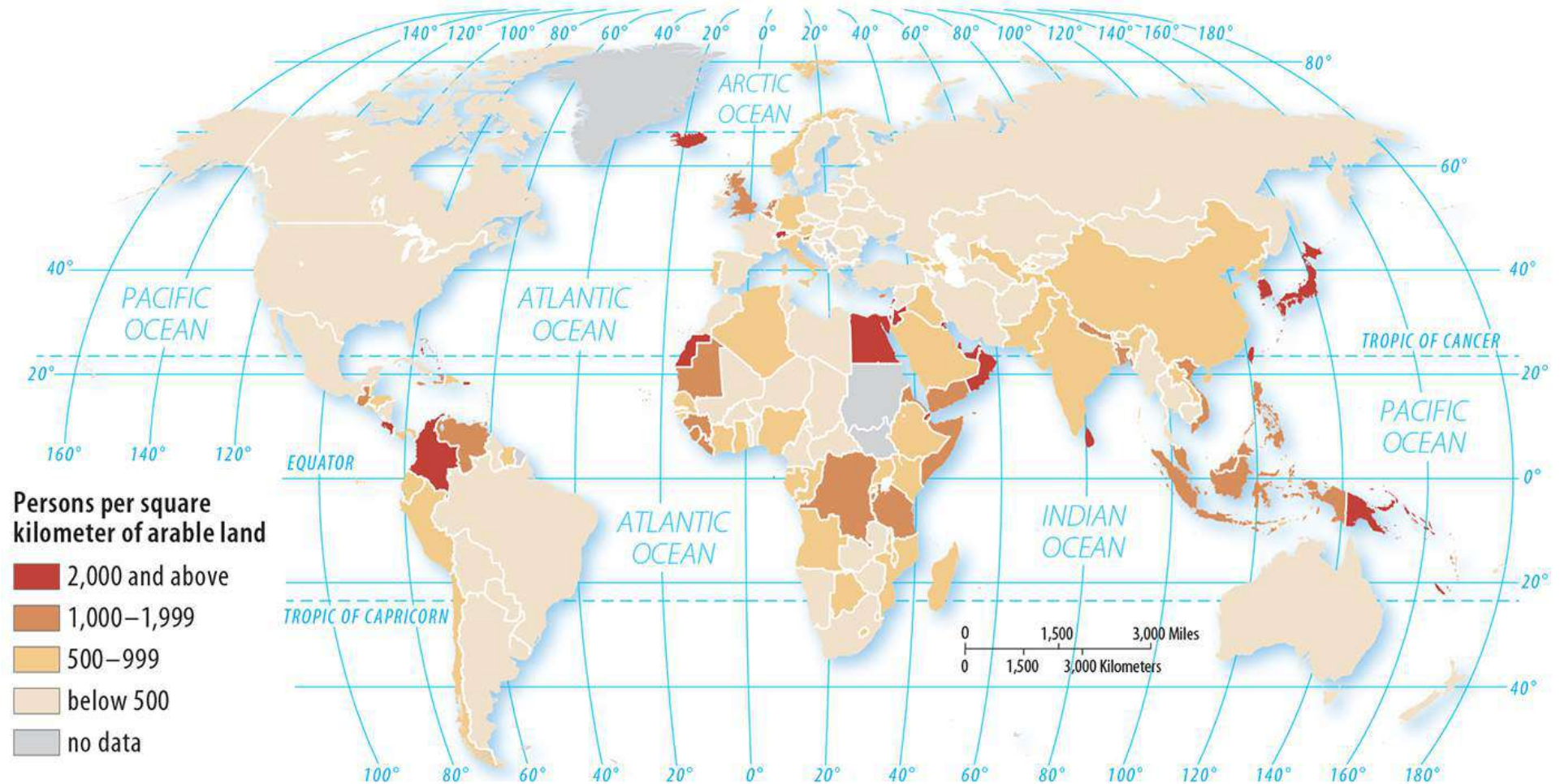
POPULATION DENSITY - ARITHMETIC



POPULATION DENSITY - PHYSIOLOGICAL

- Calculated by dividing population by the amount of **arable** land (suitable for growing crops)
- Example:
 - Egypt – 2.8% arable land with a high population
 - Physiological density is 8,078/sq. mile
 - Arithmetic density is 226/sq. mile
- This large gap indicates that a small percentage of land is capable of growing crops and indicates the need for greater crop yields or other food sources

POPULATION DENSITY - PHYSIOLOGICAL



POPULATION DENSITY - PHYSIOLOGICAL

- The physiological density is more useful than arithmetic density when trying to determine a region's **carrying capacity** - the population it can support without significant environmental deterioration.
- Not all countries can produce higher yields and must import food
- Egypt and Japan both supplement crops through the fishing industry and with imported food – but *paying* for it is easier for developed countries (Japan) than less developed countries (Egypt)

POPULATION DENSITY – PHYSIOLOGICAL

The Sahel region of Africa, including much of the country of Mali, is threatened by overpopulation. The number of people living here is not very high, but the capacity of the environment to support life is extremely low. These people are chopping down one of the few remaining trees in this region.

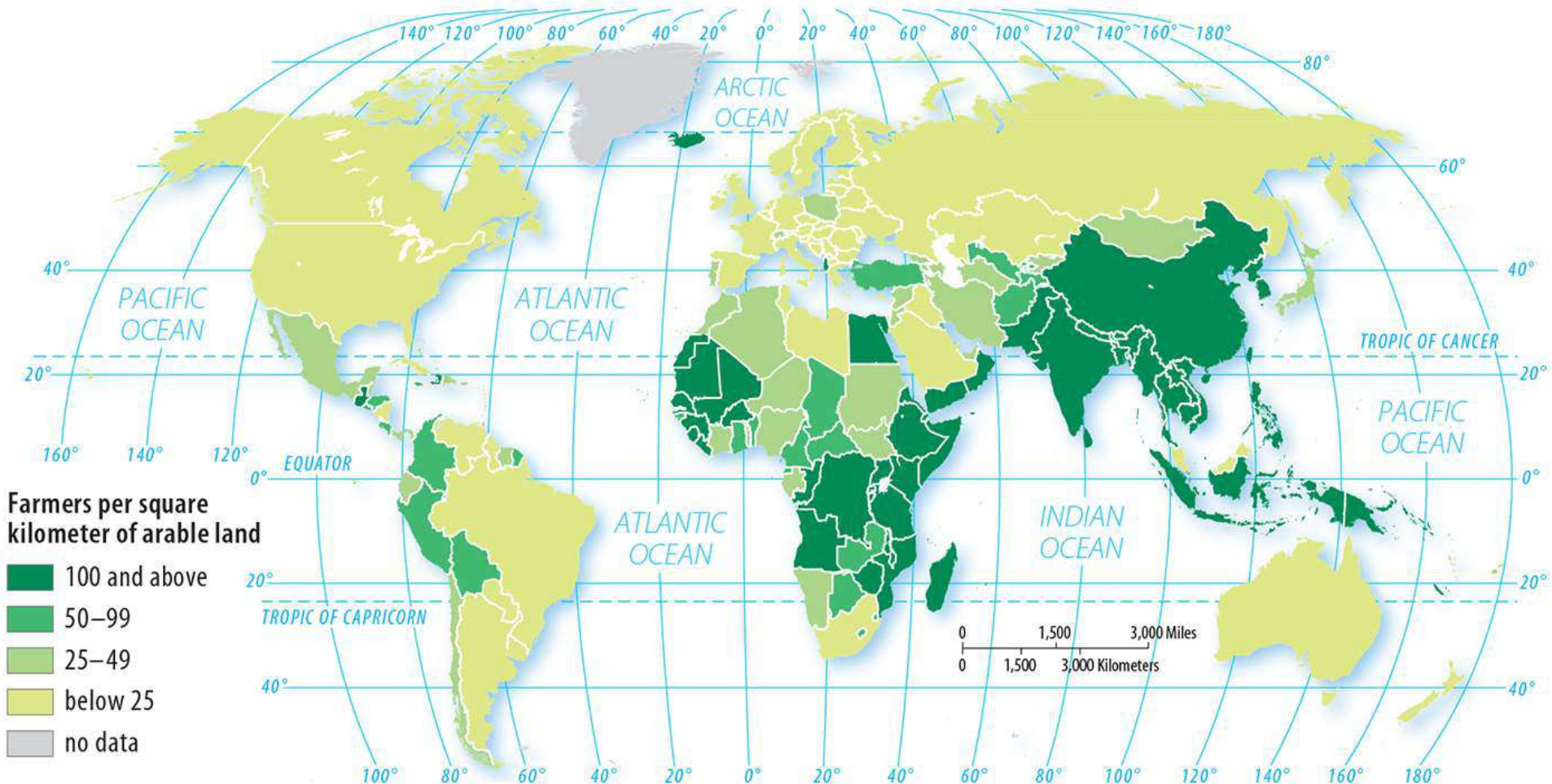


Carrying capacity – population that can be supported without significant environmental deterioration

POPULATION DENSITY - AGRICULTURAL

- Compares the number of *farmers* to the area of **arable land** – provides an indication of the *efficiency* of the region's farmers
- Developed countries – less farmers (technology)
- Less developed countries – more farmers (labor)
- Compare Bangladesh to the Netherlands

POPULATION DENSITY - AGRICULTURAL



POPULATION DENSITY AND TIME

- Density also varies by time of year
 - Snowbirds
- Time of day
 - Commuters – Manhattan, New York City
 - 1.5 million people live in Manhattan
 - During the workday, the population increased to 3 million
 - Water, sewer, fire, services, etc.

LEARNING OBJECTIVE (2.A.3)

- By the end of this section, you will *be able to* **explain the implications of population distributions and densities.**
 - Population distribution and density influence political, economic, and social processes (e.g., redistricting, provision of services such as medical care)
 - Population distribution and density impact the environment and natural resources (e.g., carrying capacity)
 - Population distribution and density affect the need for infrastructure (e.g., housing) and urban services (e.g., sanitation)

IMPLICATIONS OF DISTRIBUTION AND DENSITY

■ **Economic, Political, and Social**

- Businesses earn more when located near large customer base
- Manufacturing plants are closer to a large labor force
- The Supreme Court requires state legislatures to create electoral districts of reasonably equal population size so each representative serves approximately the same people – **redistricting** occurs every 10 years to adjust boundaries
- Urban districts are usually smaller than rural
- Services – schools, police stations, etc. are usually positioned close to concentrations of population (closer in rural areas)

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IMPLICATIONS OF DISTRIBUTION AND DENSITY

■ Environment and Natural Resources

- **Overpopulation** – more people than it can support
- Carrying capacity – higher population density creates a strain on the environment
- Cities *could* be built on land with low carrying capacity, such as areas with poor soil, but for historical reasons, many are located on land with the greatest carrying capacity
- Other areas: pollution and depletion of resources (many lakes and rivers no longer provide drinkable water and must be piped in)









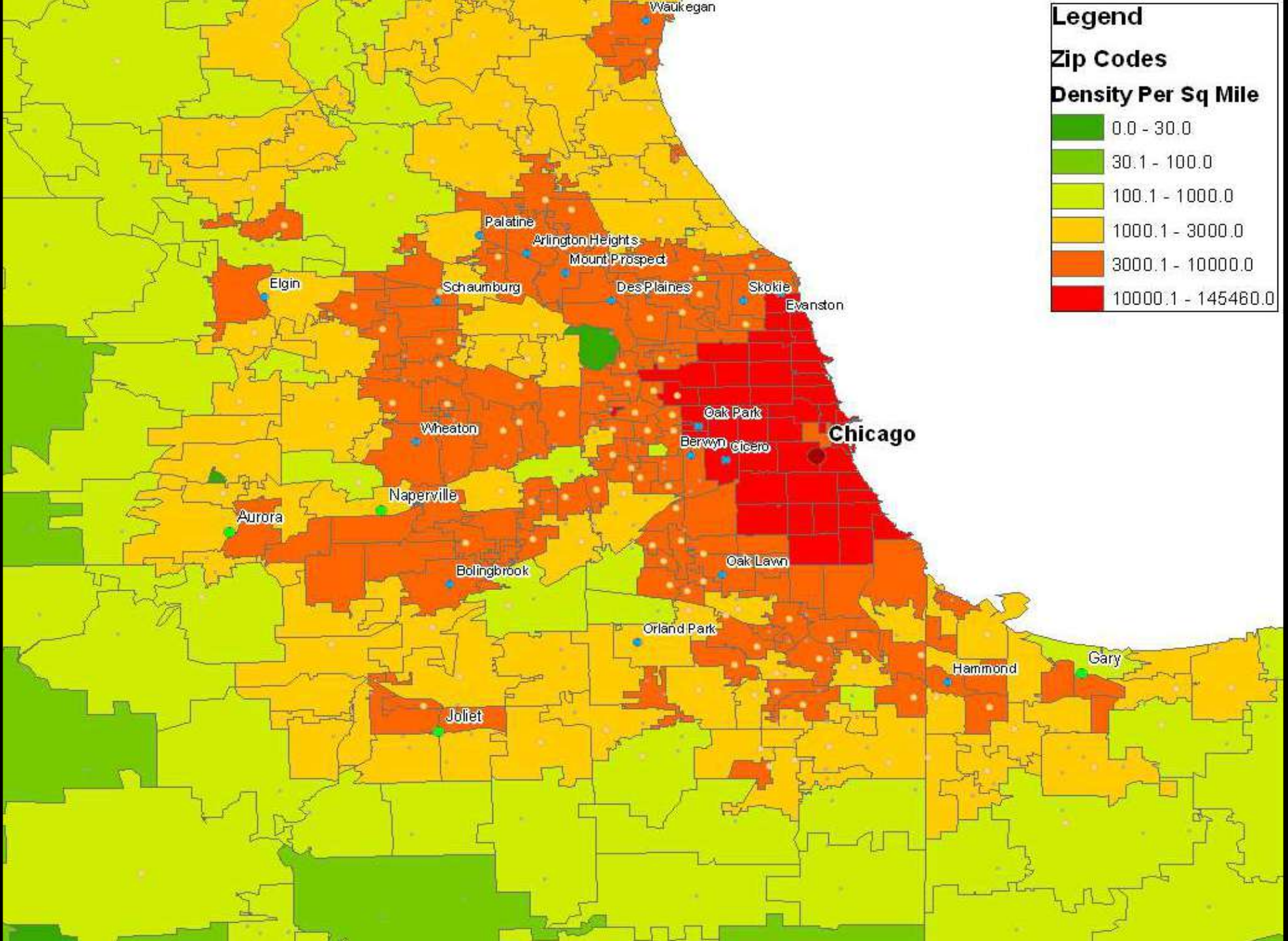
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IMPLICATIONS OF DISTRIBUTION AND DENSITY

■ **Infrastructure and Urban Services**

- When people want to live in a particular region, they drive up the population density
- High-density housing vs. single-family homes
- Centers of big cities usually feature apartments and condos
- Example: Chicago, The Loop, 21,000 people/sq. mile (Orlando has an estimated population density of 2,327 people per sq. mile)



IMPLICATIONS OF DISTRIBUTION AND DENSITY

■ **Infrastructure and Urban Services**

- **Benefits:** providing services (sewer, water, snowplowing, and policing) is more cost-effective in high-density areas. The cost mostly comes from labor, not the size of the pipe being used.
- **Challenges:** contamination of the water supply for a downtown area can make thousands of people ill; disease spreads quickly and is hard to manage.

LEARNING OBJECTIVE (2.A.4)

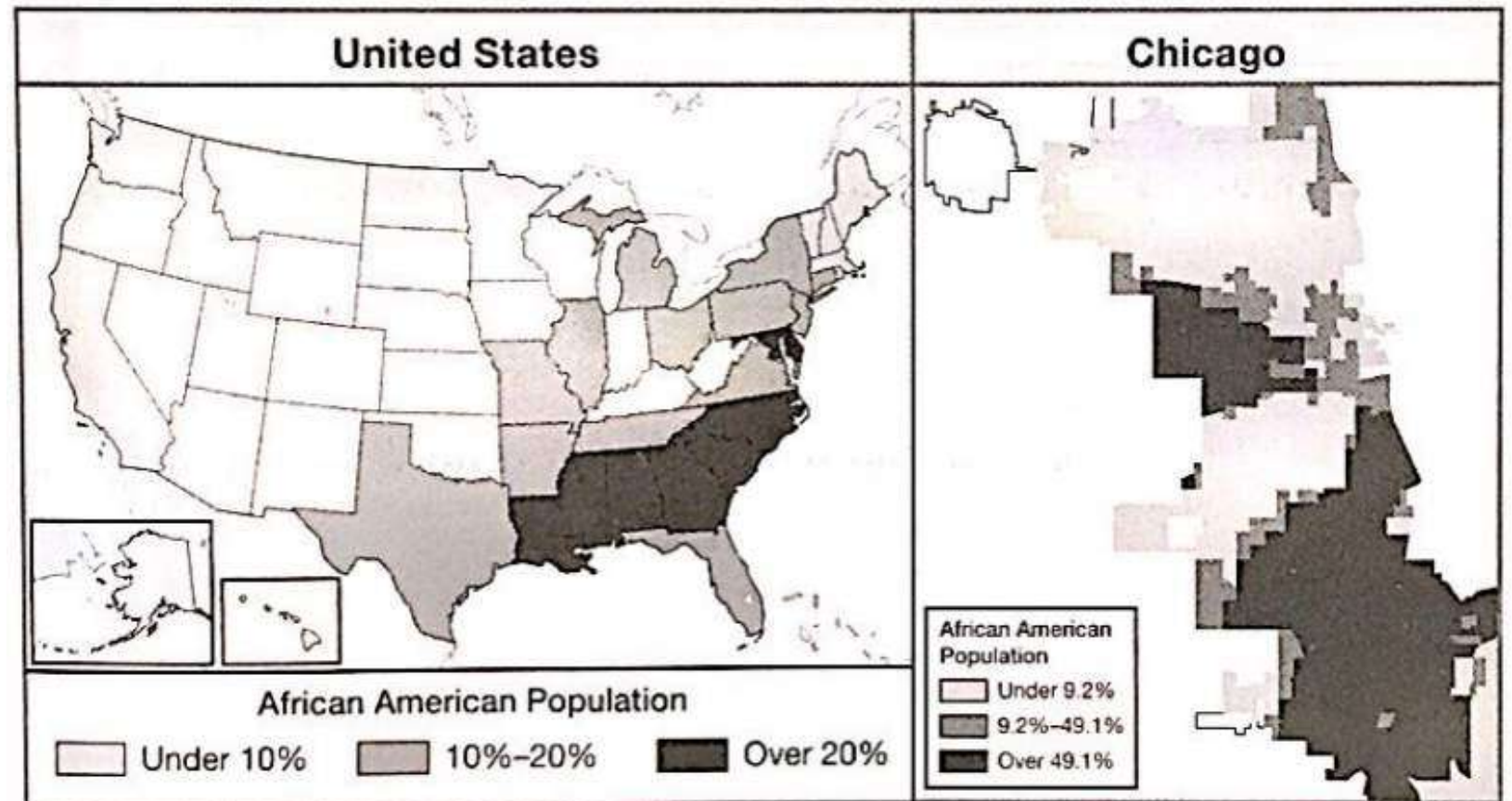
- By the end of this section, you will *be able to* **analyze population composition**.
 - Age, sex, and ethnicity are elements of population composition that may be mapped and graphed at various scales
 - Population pyramids are used to project population growth and decline and to predict markets for goods and services

POPULATION COMPOSITION

- Ethnicity
 - Members of a particular ethnic group tend to cluster in particular regions – culture, religion, discrimination
 - Example: historically, many cities limited the neighborhoods where African Americans could live
 - Many neighborhoods are named for ethnic clusters – Little Italy, Chinatown, Little Havana, Little Haiti

POPULATION COMPOSITION

- Scale –
concentrated in
the Southeastern
US; clustered in
large cities and in
particular
neighborhoods







Chinatown: New York City, NY



Chinatown: San Francisco, California



POPULATION COMPOSITION

■ Age

- In 2013, Utah had the youngest average age in the U.S. at 29.9 years old, while the oldest average age was in Maine at 43.5
- Shapes public policy – school-aged children vs. senior citizen services

■ Sex

- Affected by wars, migrations, and government policies
- Mining towns and military bases often have significantly more men
- Colleges offering courses that tend to attract students of one sex

LEARNING OBJECTIVE (2.A.4)

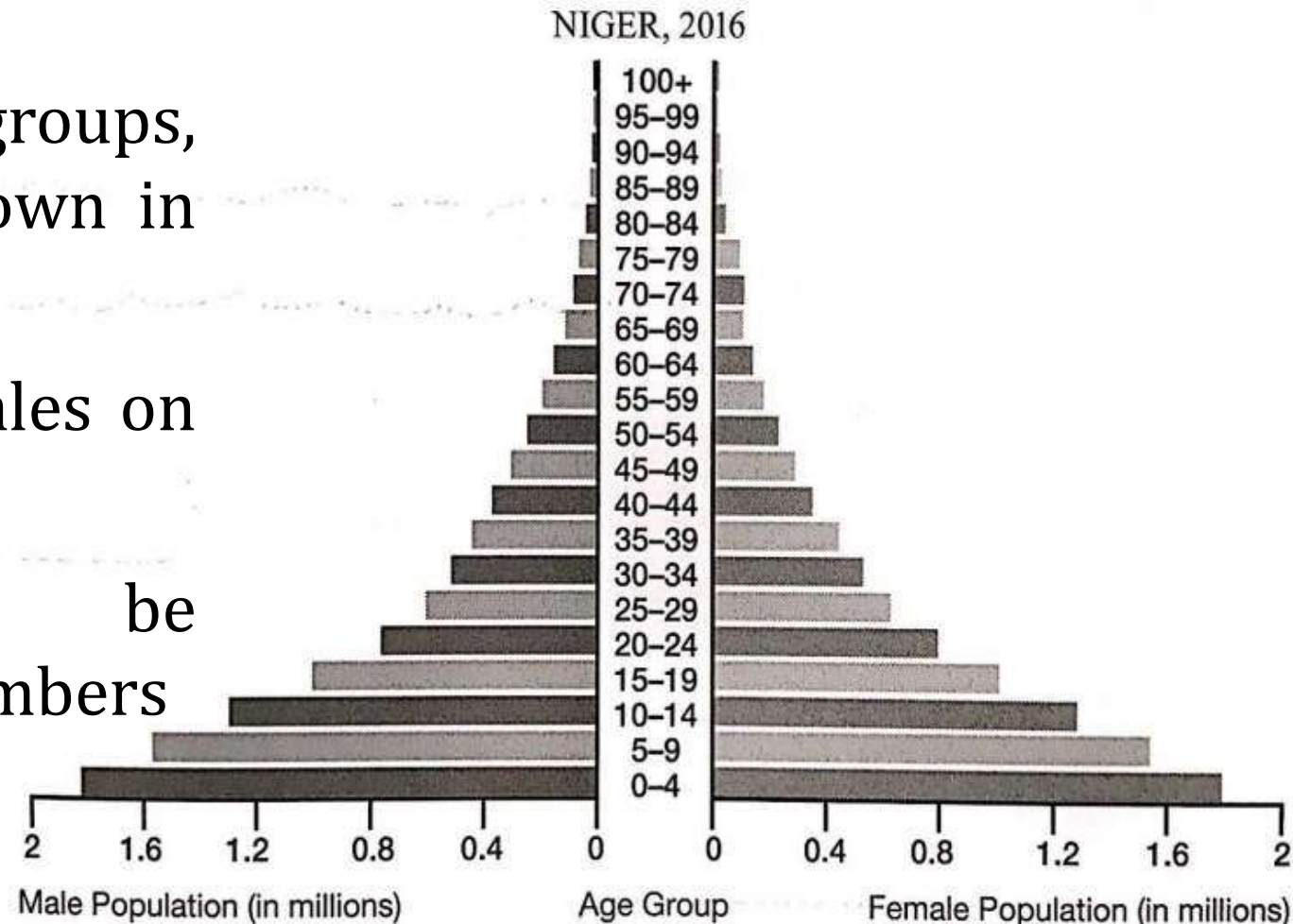
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POPULATION PYRAMIDS

- One of the most useful tools to study population is the **age-sex composition graph** – or population pyramid
- Based solely on age and sex data
- Provides information on birth rates, death rates, average life span, and economic development
- Reflects natural disasters, wars, political changes, and epidemics

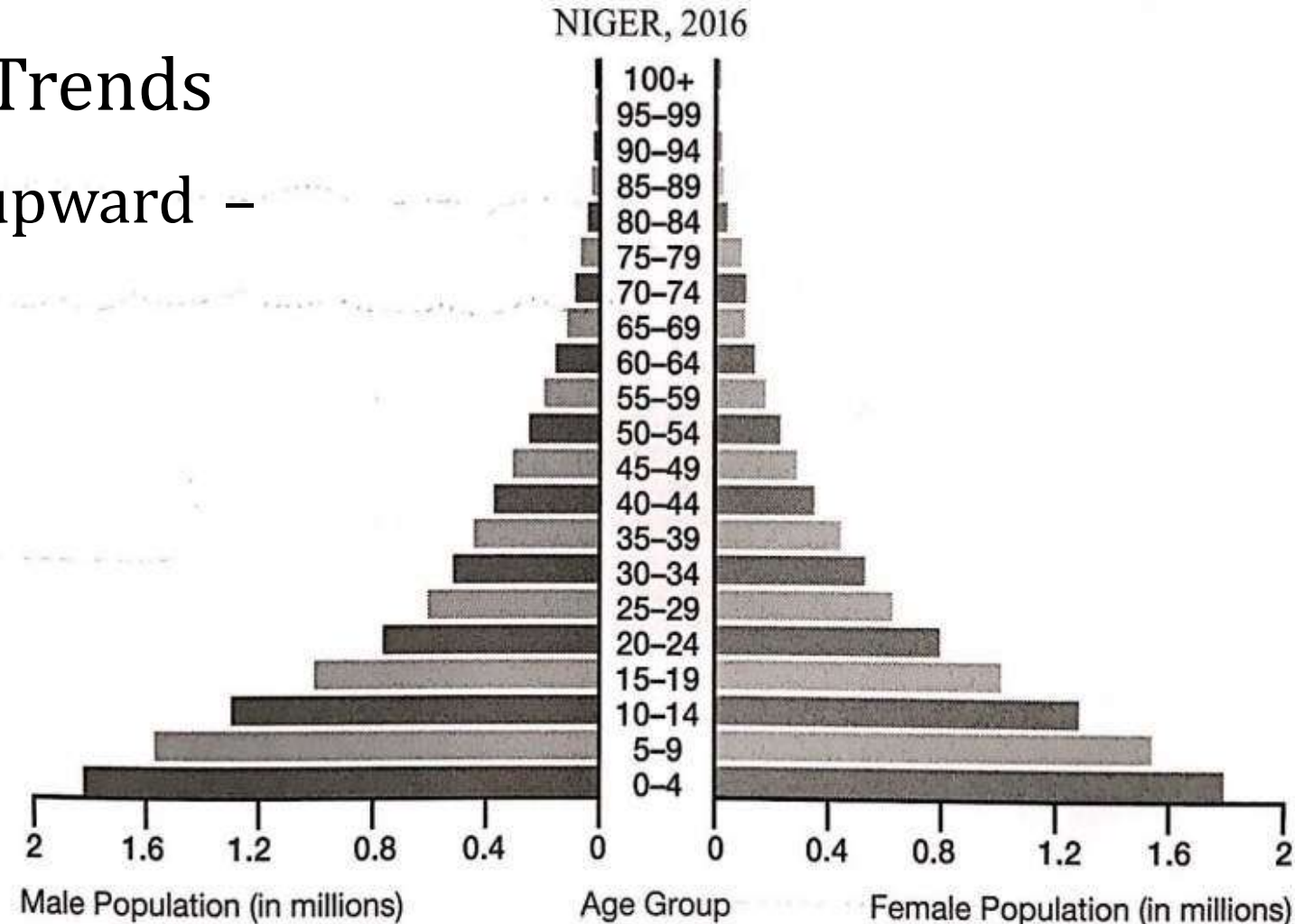
POPULATION PYRAMIDS

- Reading a pyramid
 - Vertical axis shows age groups, called **cohorts**, usually shown in the middle
 - Males on the left and females on the right
 - Horizontal axis may be percentages or absolute numbers
 - Usually on a country scale



POPULATION PYRAMIDS

- Determining Population Trends
 - Wide base and tapers upward – population growth



POPULATION PYRAMIDS

■ Common Patterns

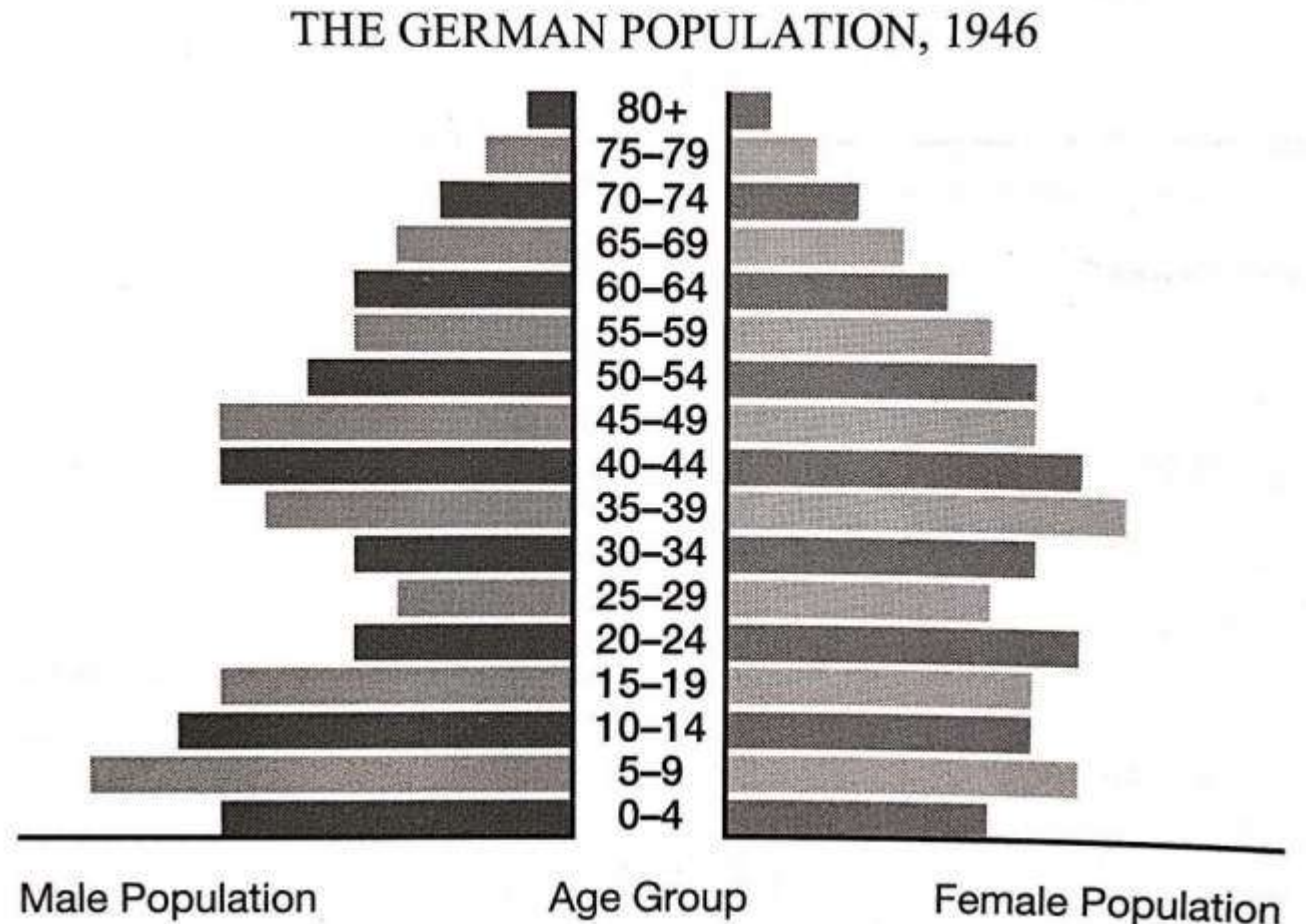
- The Niger pyramid is nearly symmetrical, or balanced, left to right, indicated a balance of males and females until approximately age 65 – women live longer
- Look for sudden bulges or indentations
- Symmetry and gradual change is normal, assuming there have been no circumstances such as war, natural disaster, epidemics, or government interference.

POPULATION PYRAMIDS

- Impact of War
 - Clearest impact is death
 - Oftentimes, half or more of deaths in wartime are civilians and therefore affect people of all ages
 - However, the loss of fighting-age people, traditionally males between the ages of 18 and 40, is often noticeable
 - Men and women are usually separated or delay having children creating a slowdown of births called a **birth deficit**

POPULATION PYRAMIDS

- The post-WWII 1946 graph of Germany shows the loss of life of both males and females in the 20 to 40 age cohorts, with a greater loss of men than women
- The birth deficit is evident in the 0-4 cohort

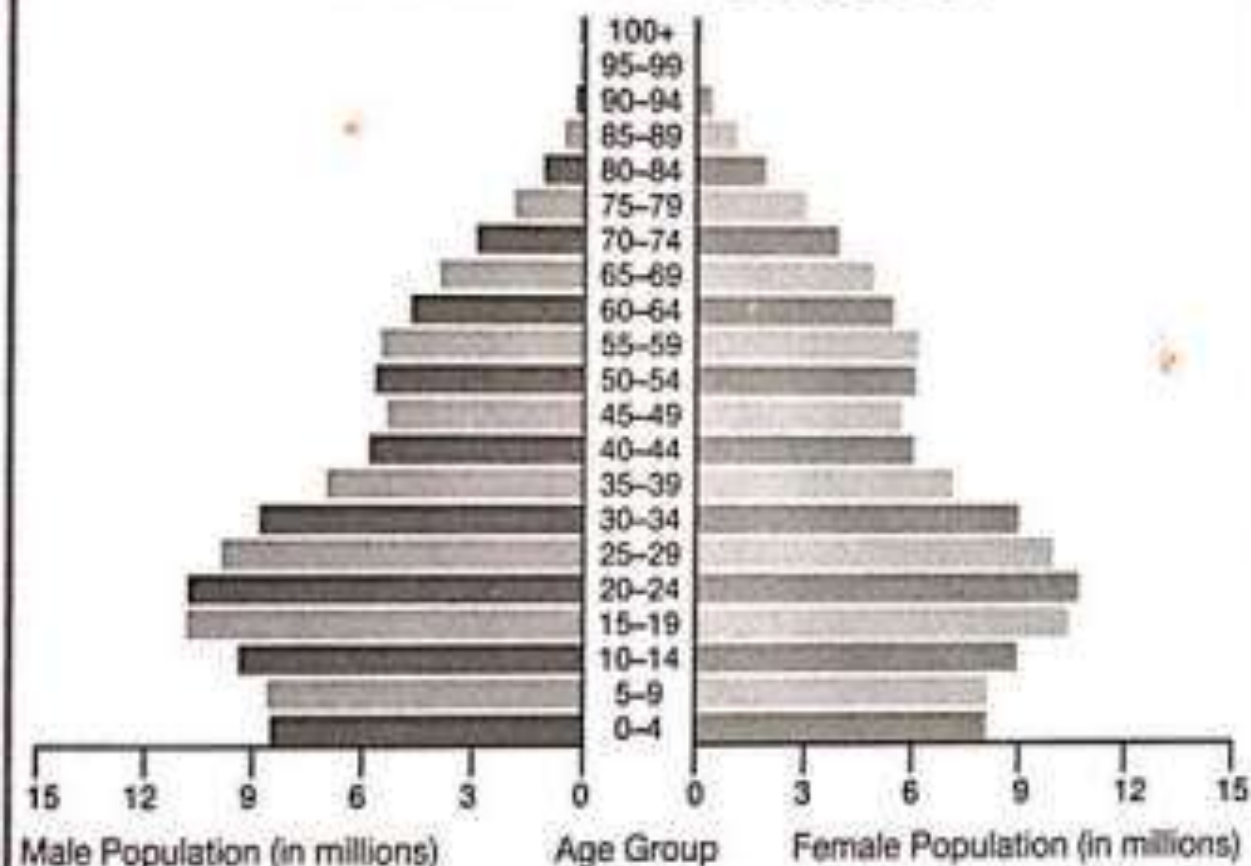


POPULATION PYRAMIDS

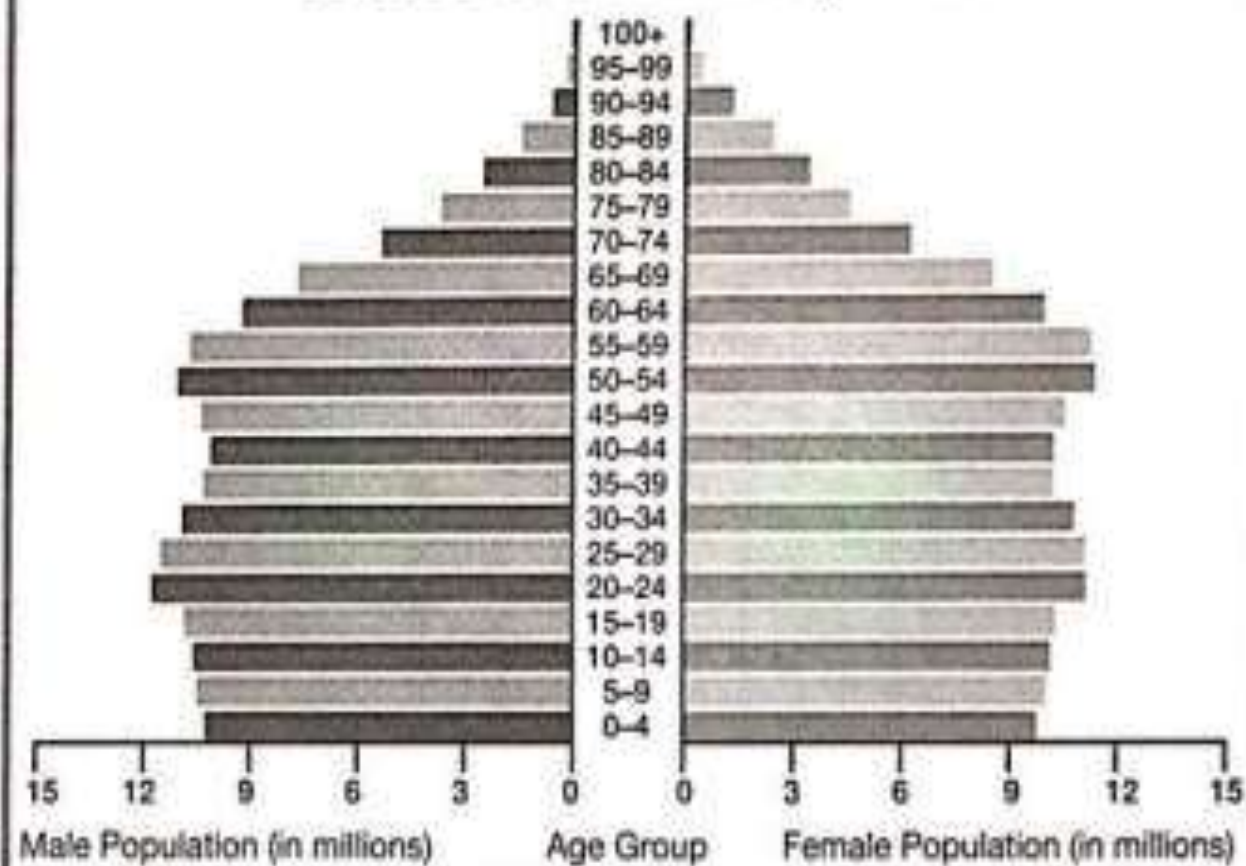
- Baby Booms, Busts, and Echoes
 - Once hostilities end and peace continues, the birth rate often spikes, an increase known as a **baby boom**
 - The WWII baby boom lasted from 1946 to 1965
 - Baby booms are followed by a **baby bust**, which continues until the boomers reach child-bearing age, resulting a bulge in the pyramid – this is called an **echo**
 - Anomalies remain in the pyramid and move upward until the cohort dies

BOOMS AND ECHOES IN POPULATION PYRAMIDS

UNITED STATES, 1980



UNITED STATES, 2015



- Baby boomers are ages 16-34.
- No echo is apparent.

- Baby boomers are ages 51-69.
- An echo appears in the 20-34 cohort.

POPULATION PYRAMIDS

- Migration and Other Anomalies
 - Many factors can affect a population pyramid and an asymmetrical pyramid, one with significant differences between cohorts, suggests that something notable happened in the population
 - It is your job to determine what historical event caused the irregularity.

ANOMALIES IN POPULATION PYRAMID

Pyramid Feature	Possible Reason
Longer bars for people ages 18 to 25 than for people younger or older	<ul style="list-style-type: none">• A small city includes a large university.• A shortage of school funding causes families to move away when they have children.
Longer bars for people ages 25 to 50 than for children	<ul style="list-style-type: none">• An economic crisis causes people to decide to have fewer children.• A government policy to slow population growth discourages births.• An epidemic causes many infants to die.
Longer bars for people over the age of 65	<ul style="list-style-type: none">• A community in a warm climate attracts retirees.• A lack of jobs causes young people to move away.
Longer bars for males than females	<ul style="list-style-type: none">• An oil boom attracts people for jobs that are traditionally done by men.

POPULATION PYRAMIDS

- Dependency Ratio

- Population pyramid data is often used to estimate the **dependency ratio** (DR), a value comparing the working to the nonworking parts of a population
- **Potential workforce:** 15-64
- **Dependent population:** people under 15 and over 64
- Dividing potential workforce by dependent population results in the dependency ratio (only a rough estimate)

CALCULATING DEPENDENCY RATIO

Country	Population by Age Group	Calculation	Dependency Ratio
United States	<ul style="list-style-type: none"> • under 15: 18.8% • 15 to 64: 65.9% • over 64: 15.3% 	$\frac{18.8 + 15.3}{65.9} = 0.52$	<p style="text-align: center;">.....</p> <p style="text-align: center;">1 : 0.52</p>
Niger	<ul style="list-style-type: none"> • under 15: 49.3% • 15 to 64: 48.1% • over 64: 2.6% 	$\frac{49.3 + 2.6}{48.1} = 1.08$	<p style="text-align: center;">1 : 1.08</p>

POPULATION PYRAMIDS

- Interpreting DR
 - Suggests differences in how people live in each place
 - Each person in the US supported himself or herself plus an average of .52 additional people
 - Each person in Niger supported 1.08 additional people
 - Japan, Australia, and most of Europe have DRs similar to the United States.
 - Countries throughout Africa and parts of South America and Asia look more like Niger