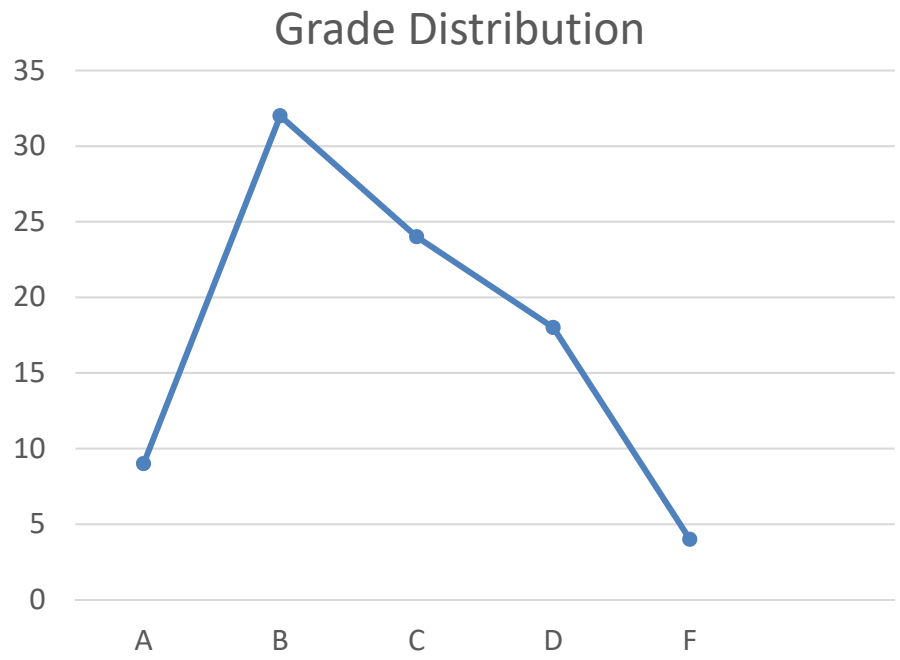
GRADE DISTRIBUTION
EXAM 2

Maximum Scores	
Exam	100
Atlas Ex. Cr.	8
TOTAL	108



Exam II Grade Distribution

Highest grade = 106

6 students scored 95+

A	**9**
B	**32**
C	**24**
D	**21**
F	**4**
Exams taken:	90
Not taken:	5
Withdrawals:	5

REMINDERS

- Two required essays (10% of your grade) were due on April 17.
- ✓ Late penalty now applies (better than a zero!).
- ✓ Must submit missing essays by May 12, 2020 to avoid a ZERO grade.

❑ EXAM III – **Final Exam**

Tuesday, May 19, 2020 from 9 AM – 11 AM on BlackBoard

Covers Part III of the course.

❖ Extra Credit: "Think Geographically" Essays from any five of Chapters 4-12

- O R -

❖ The 3rd topic from required essay list plus 4 chapter essays.

– Last day to submit is May 12 but it is best to do them as you read a chapter.

- Extra credit may be submitted before the deadline.
- Don't wait for the due day to write them.

TEXTBOOK READING FOR PART III

Selected parts of Chapters 6-12

FREE TUTORING IS AVAILABLE REMOTELY from the HC Skirball Learning Center

GEOG 101
PART III

20
Life on Earth:
Population Geography 1 - 2

Chapter 6

Prof. Anthony Grande
Hunter College Geography

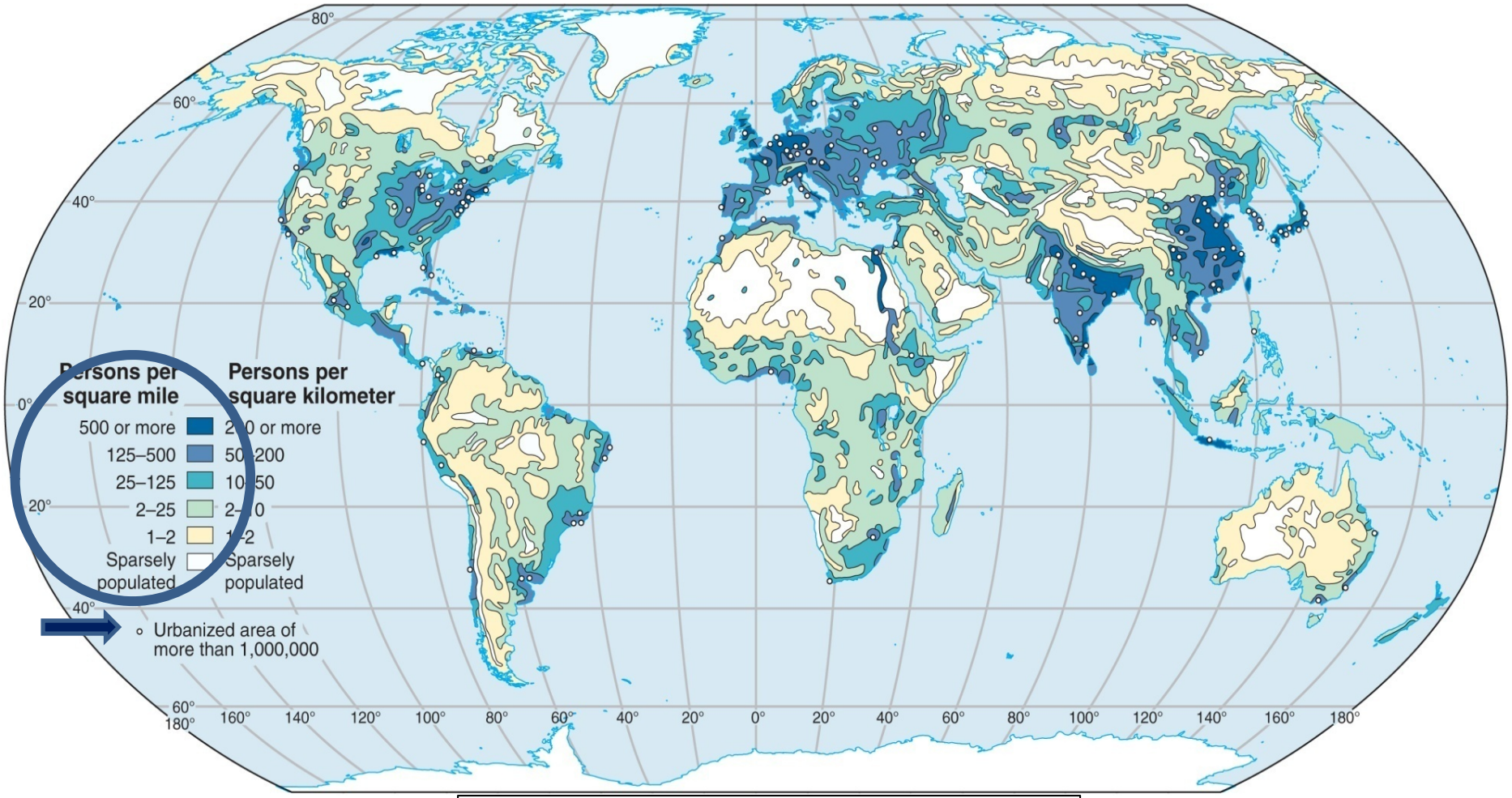
Lecture Topics for Part III

- ✓ **I Intro. to Human Geography**
- ➢ **II Life on the Earth**
  - A. Habitat
  - B. Demography
  - C. Medical geography
  - D. Population growth
  - E. Biogeography/Ecology
- **III Economic Geography**
- **IV Urban Geography**
- **V Political Geography**

Population Geography

The study of people in relation to their habitat; spatially studies their distribution, make-up, movement, well-being and growth potential.

World Population Distribution



This is a qualitative choropleth map showing actual distribution of people, not country totals.

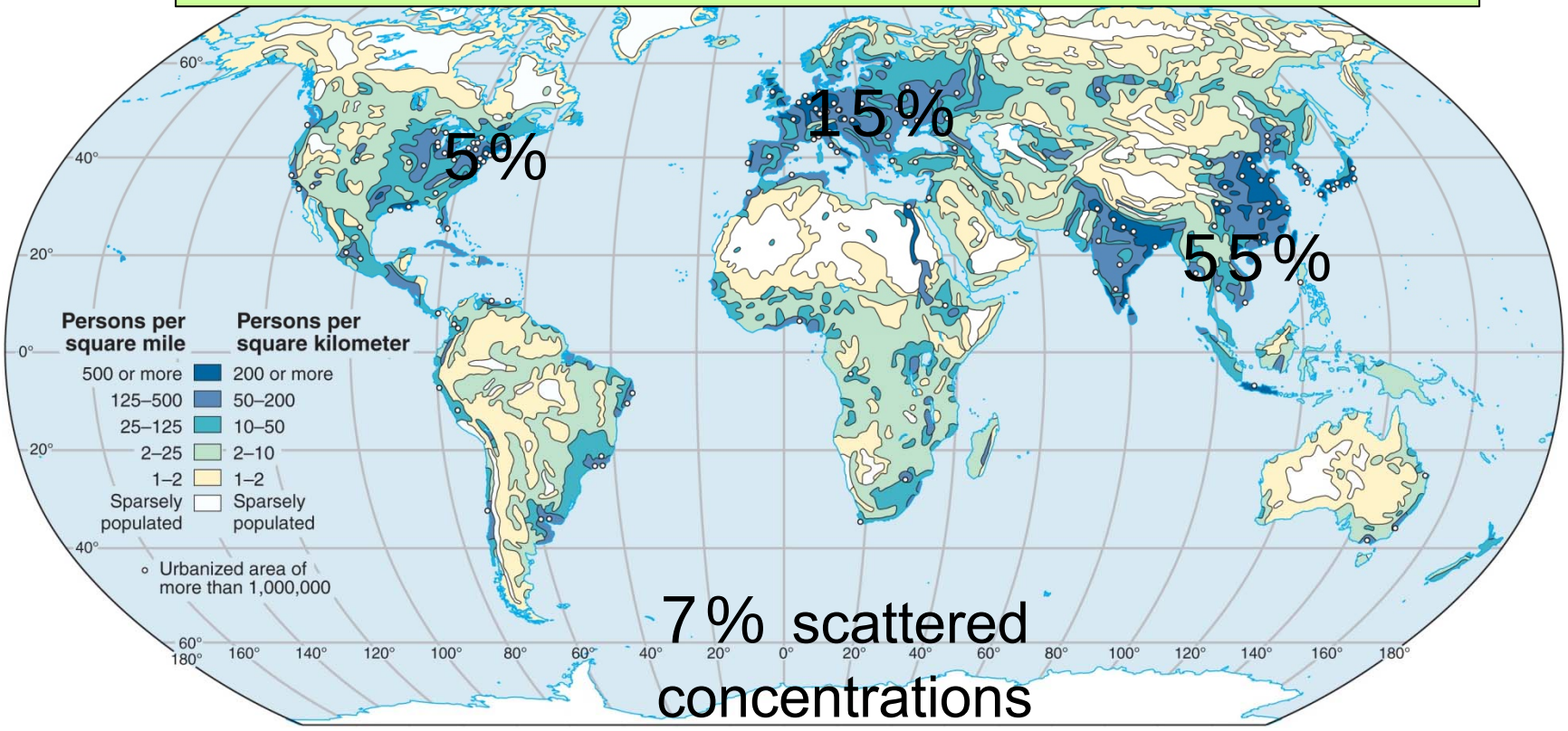
Earth as a Home for People

- **50%** of the world's people live on **5%** of the land.
- **90%** of the world's people live on **10%** of the land.
- **95%** of the world's people live on **40%** of the land.

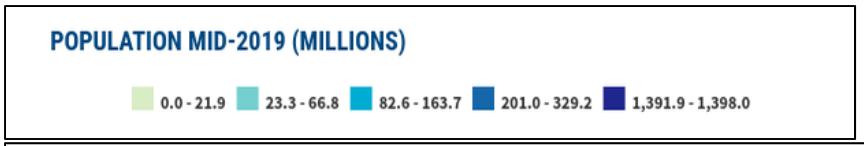
Conversely, **60% of the land is virtually empty** and has only **5% of the world's people**.

Earth as a Home for People

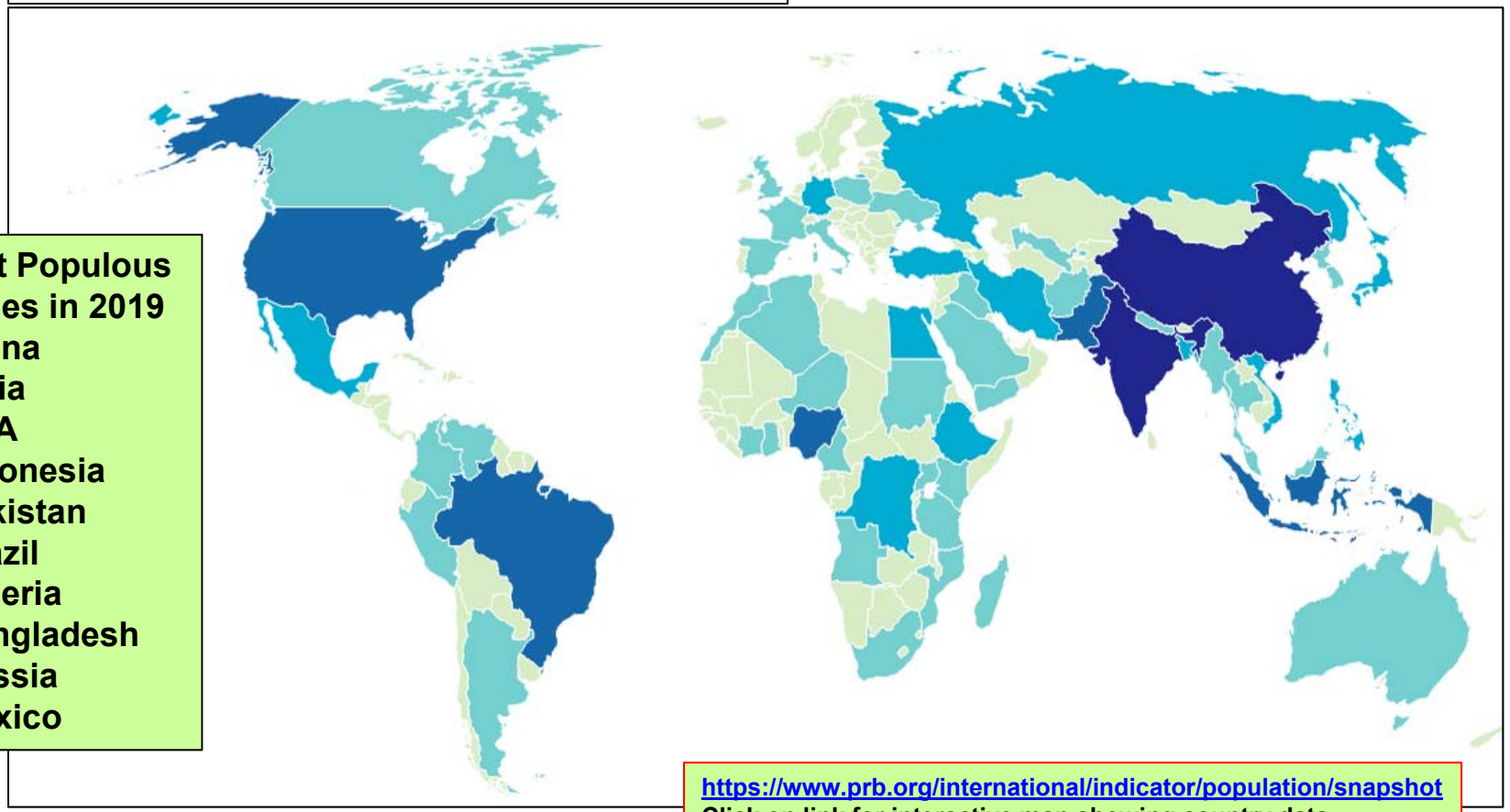
Over 80% of the world's people live in relatively high density:
all need food, water, resources and space.



Population (headcount) by Country



This is a quantitative choropleth map showing country totals, not distribution of people.



10 Most Populous Countries in 2019

1. China
2. India
3. USA
4. Indonesia
5. Pakistan
6. Brazil
7. Nigeria
8. Bangladesh
9. Russia
10. Mexico

https://www.prb.org/international/indicator/population/snapshot
Click on link for interactive map showing country data

Source: Population Reference Bureau (PRB.ORG)

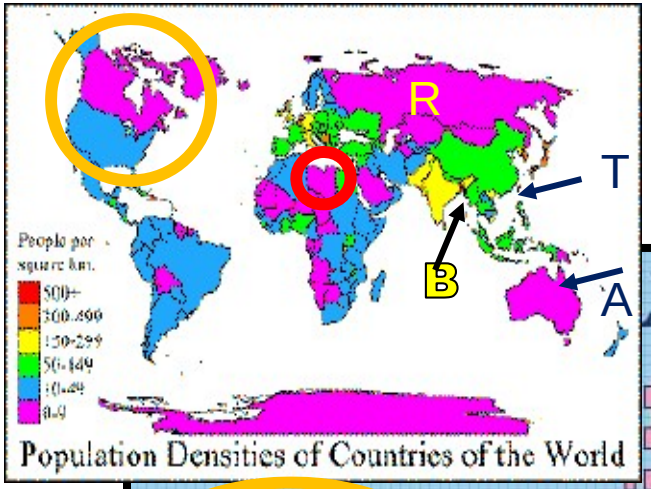
World's 10 Largest Countries

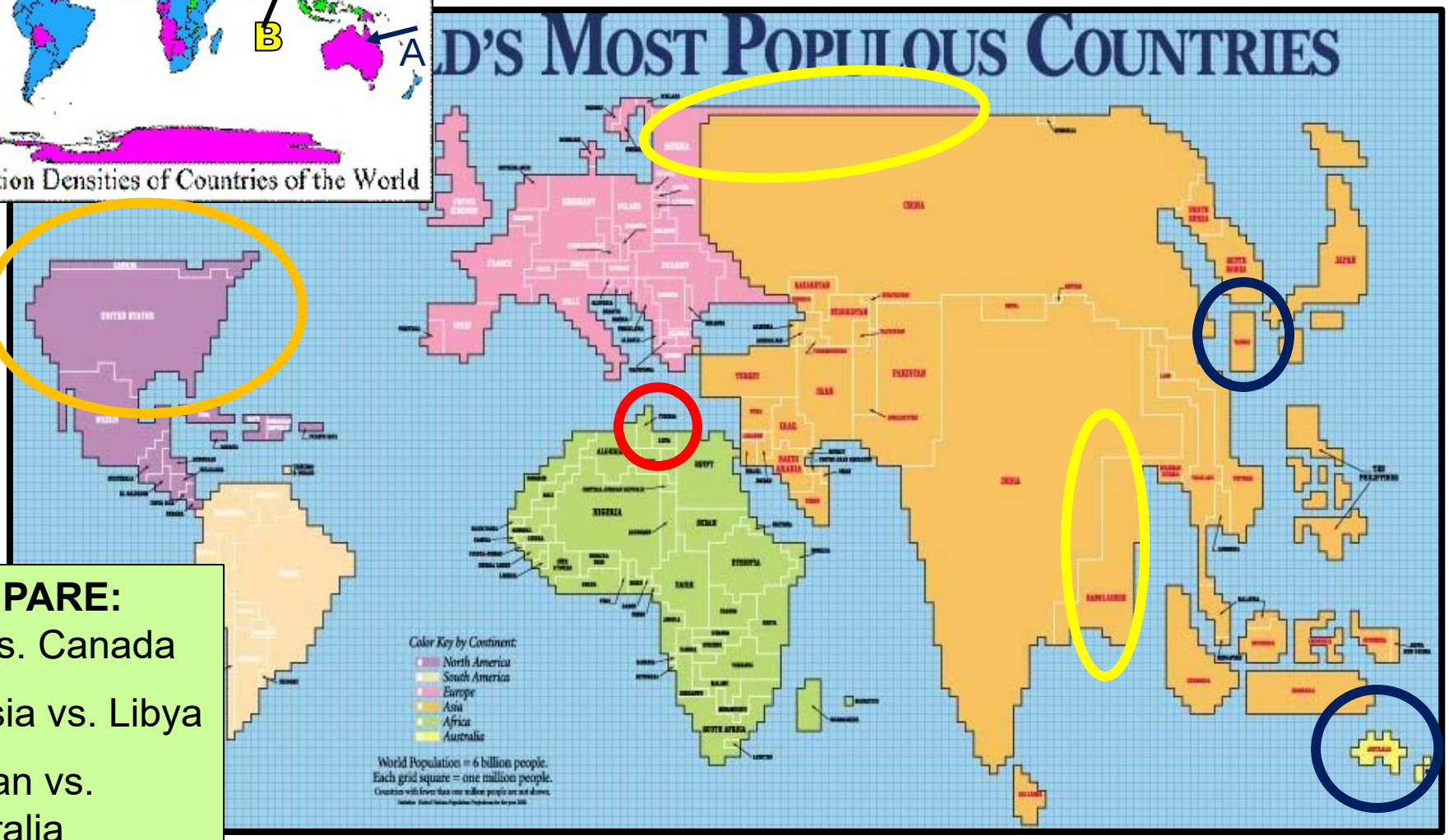
2020 World Population: 7,794,798,739

Flag	Country	2020 (Live)	2019 Population	Area	2019 Density	Growth Rate	World %	Rank
	China	1,438,317,637	1,433,783,686	9,706,961 km^2	148/km^2	0.39%	18.47%	1
	India	1,377,465,900	1,366,417,754	3,287,590 km^2	420/km^2	0.99%	17.70%	2
	United States	330,635,126	329,064,917	9,372,610 km^2	35/km^2	0.59%	4.25%	3
	Indonesia	272,981,233	270,625,568	1,904,569 km^2	144/km^2	1.07%	3.51%	4
	Pakistan	220,091,906	216,565,318	881,912 km^2	250/km^2	2.00%	2.83%	5
	Brazil	212,281,435	211,049,527	8,515,767 km^2	25/km^2	0.72%	2.73%	6
	Nigeria	205,172,147	200,963,599	923,768 km^2	223/km^2	2.58%	2.64%	7
	Bangladesh	164,384,989	163,046,161	147,570 km^2	1,116/km^2	1.01%	2.11%	8
	Russia	145,925,112	145,872,256	17,098,242 km^2	9/km^2	0.04%	1.87%	9
	Mexico	128,679,137	127,575,529	1,964,375 km^2	66/km^2	1.06%	1.65%	10

http://worldpopulationreview.com Interactive and live updating site

Population Cartogram





COMPARE:

US vs. Canada

Tunisia vs. Libya

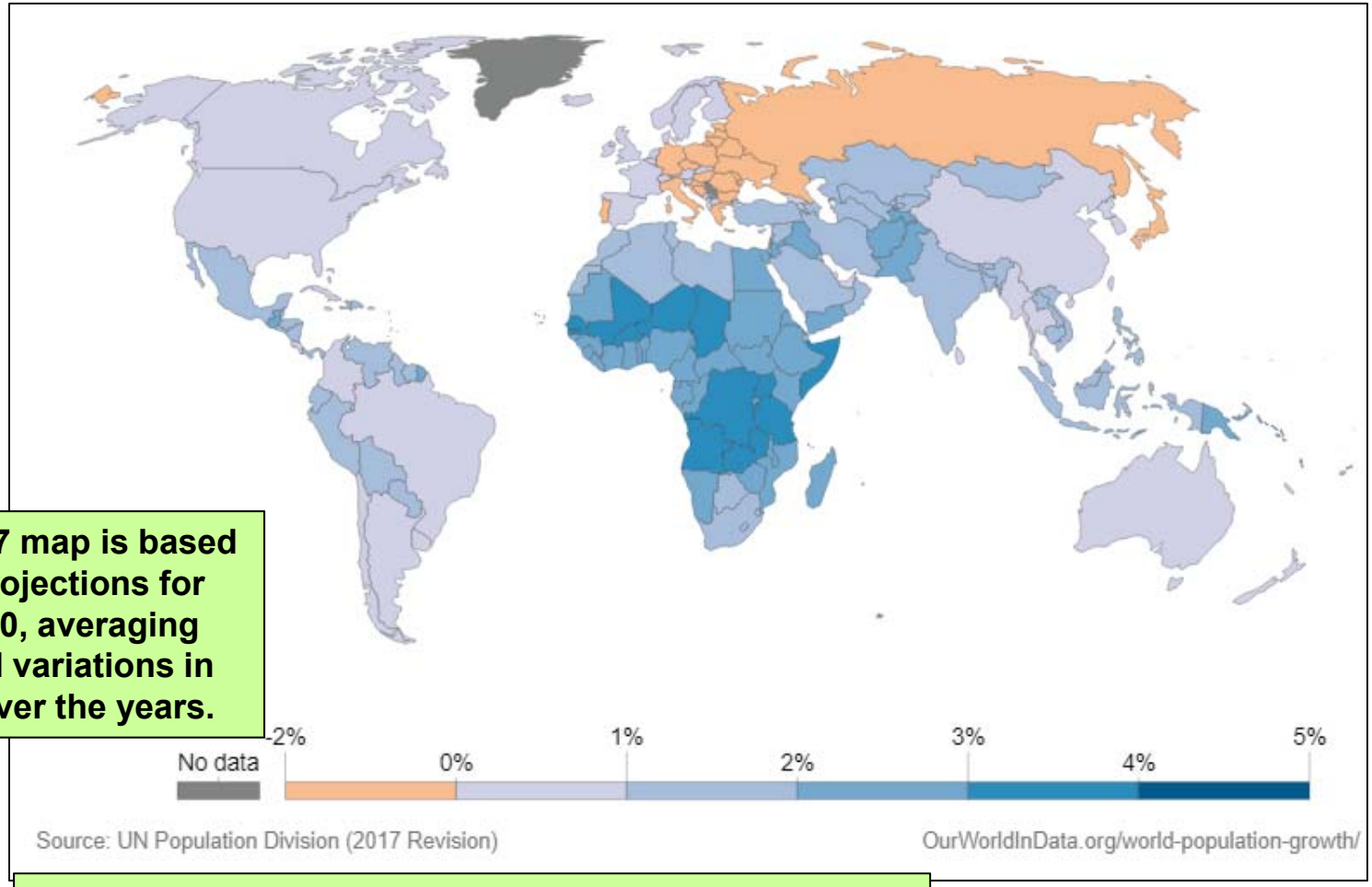
Taiwan vs. Australia

Bangladesh vs. Russia

Bangladesh recently surpassed Russia in population. Russia is the world's largest country in land area; Bangladesh ranks 92nd in land area.

Rate of Natural Population Growth

Natural population growth is defined as the increase in population determined by births and deaths. Migration (emigration/immigration) is not factored in.



This 2017 map is based on UN projections for 1950-2100, averaging assumed variations in BR/DR over the years.

https://population.un.org/wpp/Maps/ UN population mapping site

Factors that Encourage Settlement and Higher Population Densities

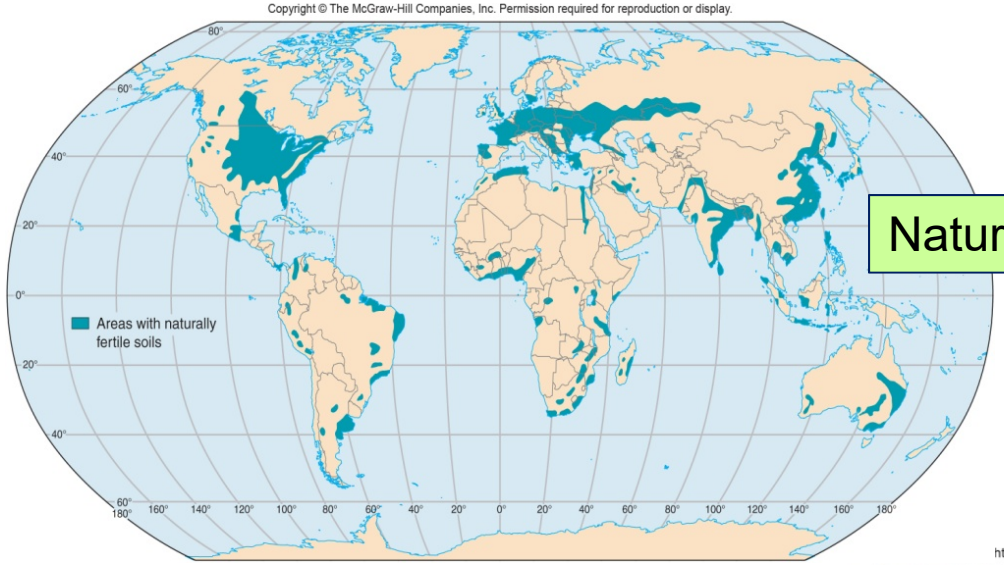
1. **Landforms** (size, topography, altitude, situation)
2. **Climate**
3. **Soil fertility**
4. **Natural vegetation and wildlife**
5. **Water supply**
6. **Mineral and energy resources**
7. **Absence of natural hazards** (safe areas)
8. **Absence of disease and pests** (healthy areas)

Factors that Encourage Settlement and Higher Population Densities

- 1. Landforms
- 2. Climate
- 3. Soil fertility
- 4. Natural vegetation/wildlife
- 5. Water supply
- 6. Mineral/energy resources
- 7. Absence of natural hazards
- 8. Absence of disease/pests

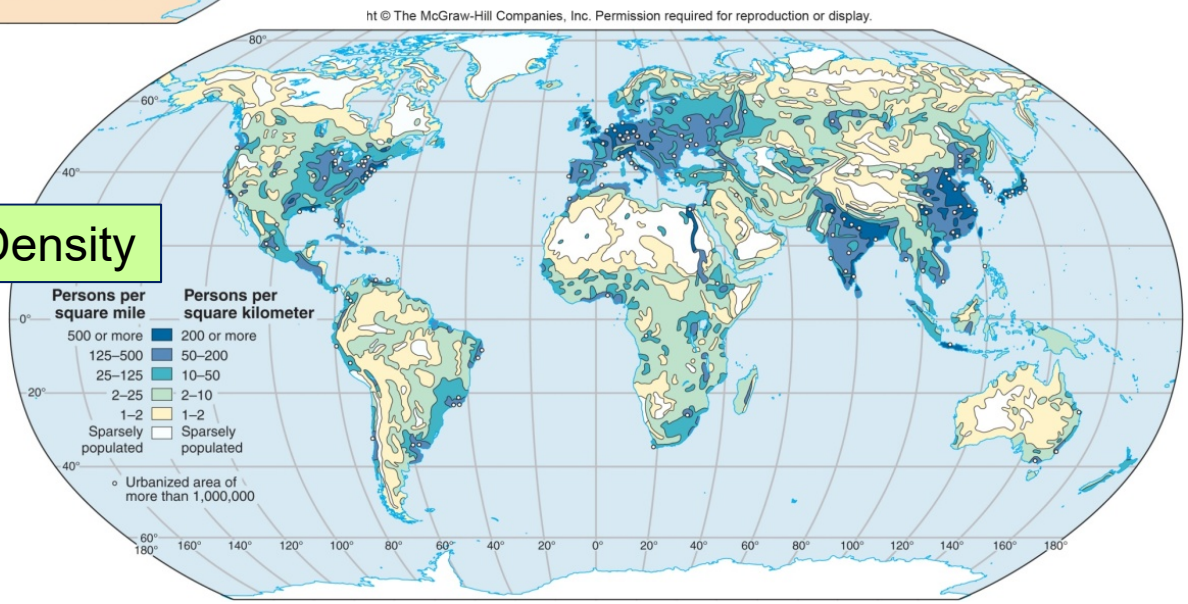
- ✓ **All 8 are modified by levels of technology and forms of economy.**
- ✓ **All 8 are influenced by historical circumstances and cultural parameters.**

Soil Fertility vs. Population Density



Naturally fertile areas

World Population Density



Habitat Decisions

- **7.79 billion people need food, water, shelter, resources and living space + a place for their waste.**
  - People have a perception of what the environment has to offer.
  - They make choices; people make changes.
  - They create mental images and mental maps.
  - They are influenced by **push-pull-stay** factors.

Push-Pull-Stay Factors

- **PUSH factor**: characteristic of a region that leads to dissatisfaction; encourages movement away **(negative connotation).**
- **PULL factor**: characteristic of a region that has an attractive force, drawing migrants from other regions **(positive connotation).**
- **STAY factor**: characteristic of a region that keeps people where they are **(can either be positive or negative)**.

Push-Pull-Stay

These factors can be either real or imagined.

Variables (perceptions) **include**:

- Distance
- Physical barriers
- Cultural factors
- Political factors
- Economic factors

Where the People Are and What's There for Them

We need data to evaluate a population.

1. **Numbers of people.**
2. **Concentration of people.**
3. **Other data to help assess a situation** (quality of life within a habitat)

Population Dynamics

Things we need to know about a population:

1. Where are they found (locations)?

2. What are their growth rates?

3. What is their density or grouping pattern?

4. What are the urban/rural ratios?

5. How do the numbers relate to an area's resource base (habitat) and will it put a strain on the area's carrying capacity (habitat quality)?

Carrying Capacity and Overpopulation

- **CARRYING CAPACITY: The ability of the land to support life.**
  - ✓ It is directly related to **resource base** (food-water-shelter) which composes a **habitat**. Carrying capacity is **reached** if too many people use what is available and the resource base is stressed to its limit.
  - ✓ Once carrying capacity is reached, the **quality of habitat diminishes** and an area is said to be overpopulated.
- ❖ **OVERPOPULATION: Too many people for the resource base.** (The term is also applied to animal habitats.)

Population Growth

Can the earth support its fast-growing population?

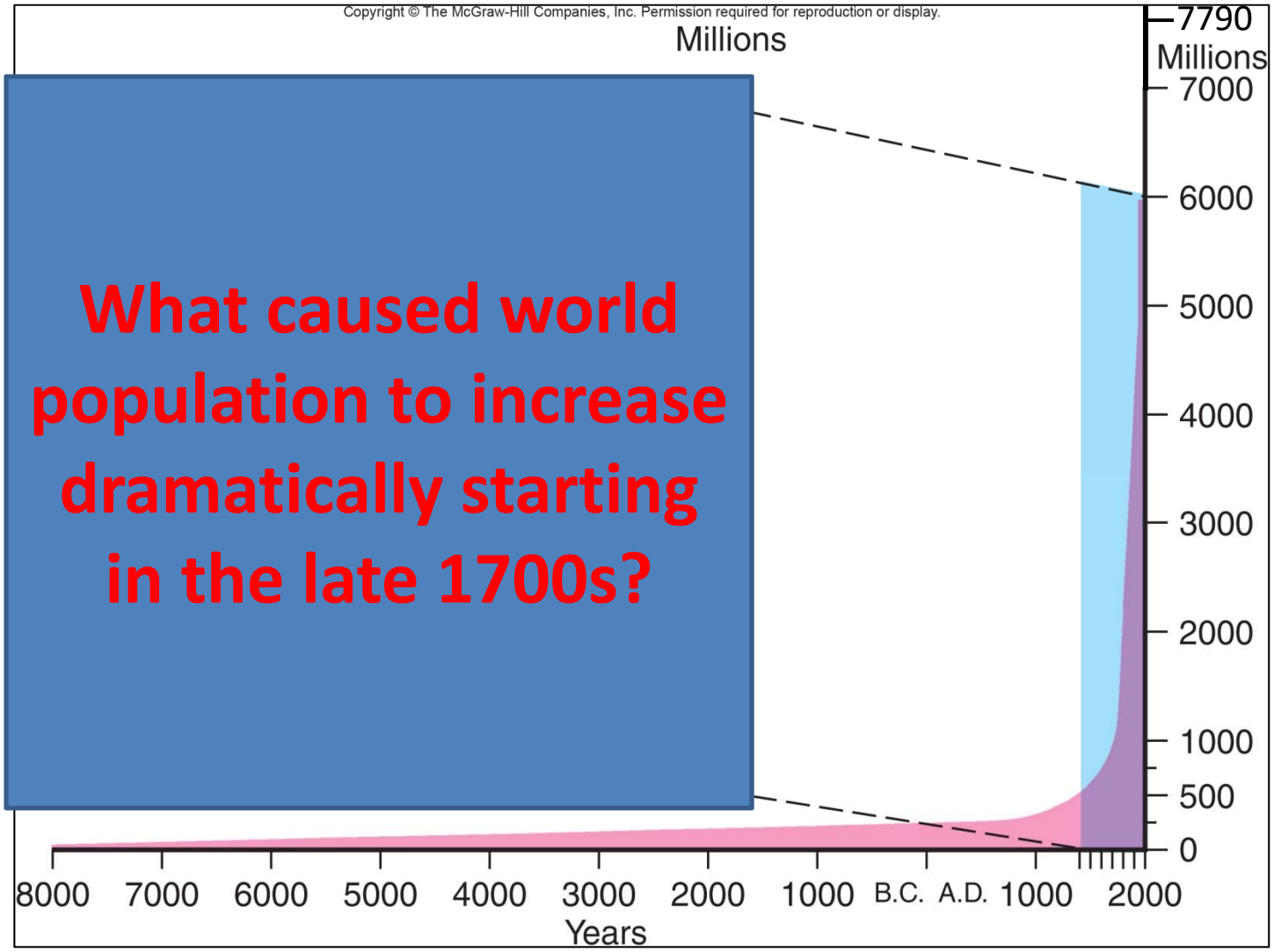
- **Does it have the capacity to keep up with a population's demands on its resources?**
- **How can we tell?**
- **Need data.**

❖ **DEMOGRAPHY: statistical study of a population.**

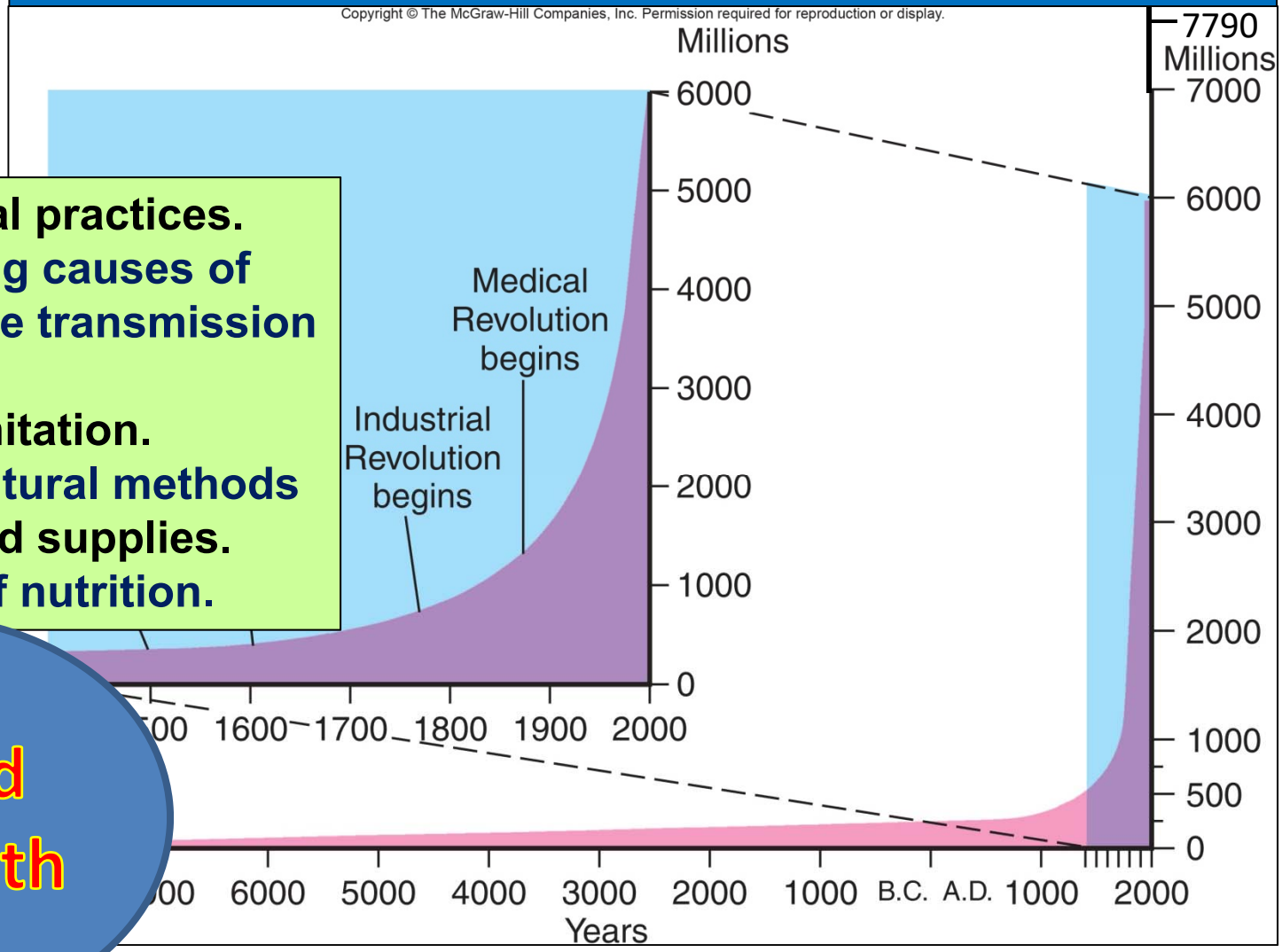
However, there is a problem with the data.

Accuracy of national censuses varies.

Historic Population Growth



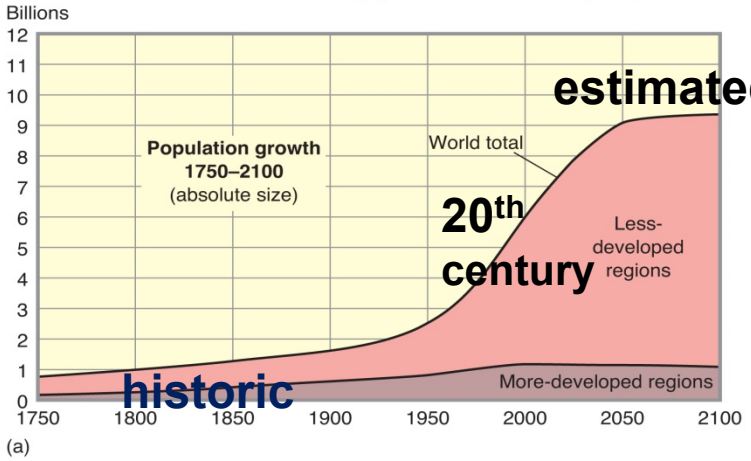
Population J-Curve



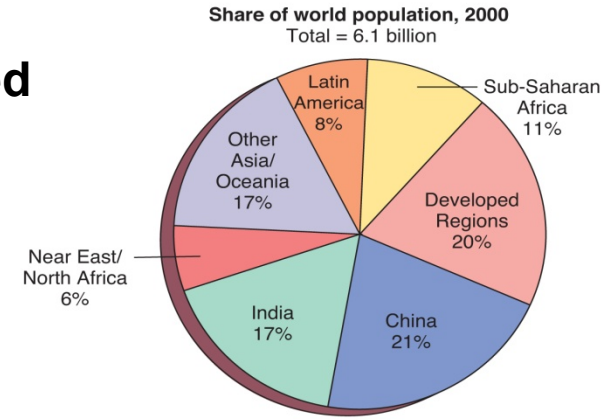
- ✓ **Better medical practices.**
- ✓ **Understanding causes of illness and the transmission of disease.**
- ✓ **Improved sanitation.**
- ✓ **Better agricultural methods**
- ✓ **Improved food supplies.**
- ✓ **Knowledge of nutrition.**

We slowed the death rate

Population Growth and Projections

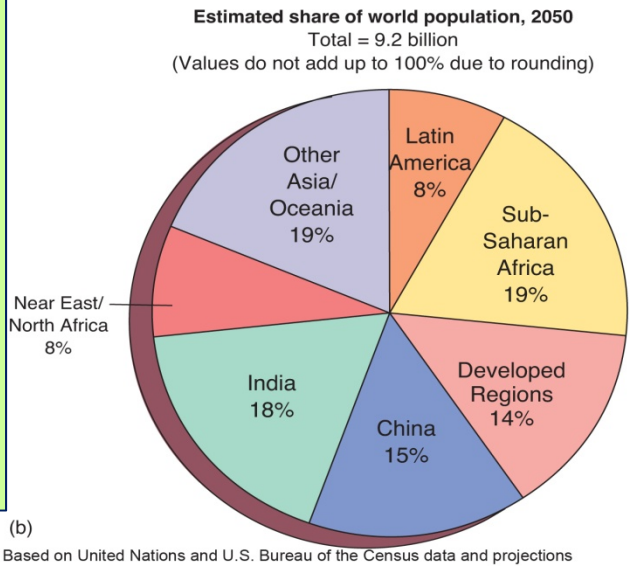


(a)



2000

1. World population growth has been fast since the mid-1900s.
2. It has been regionally uneven.
3. Estimates are based on current growth rates and they change over time and with reassessment of regional situations.



2050

(b)

(a) Estimates from Population Reference Bureau and United Nations Population Fund; (b) Based on United Nations and U.S. Bureau of the Census data and projections

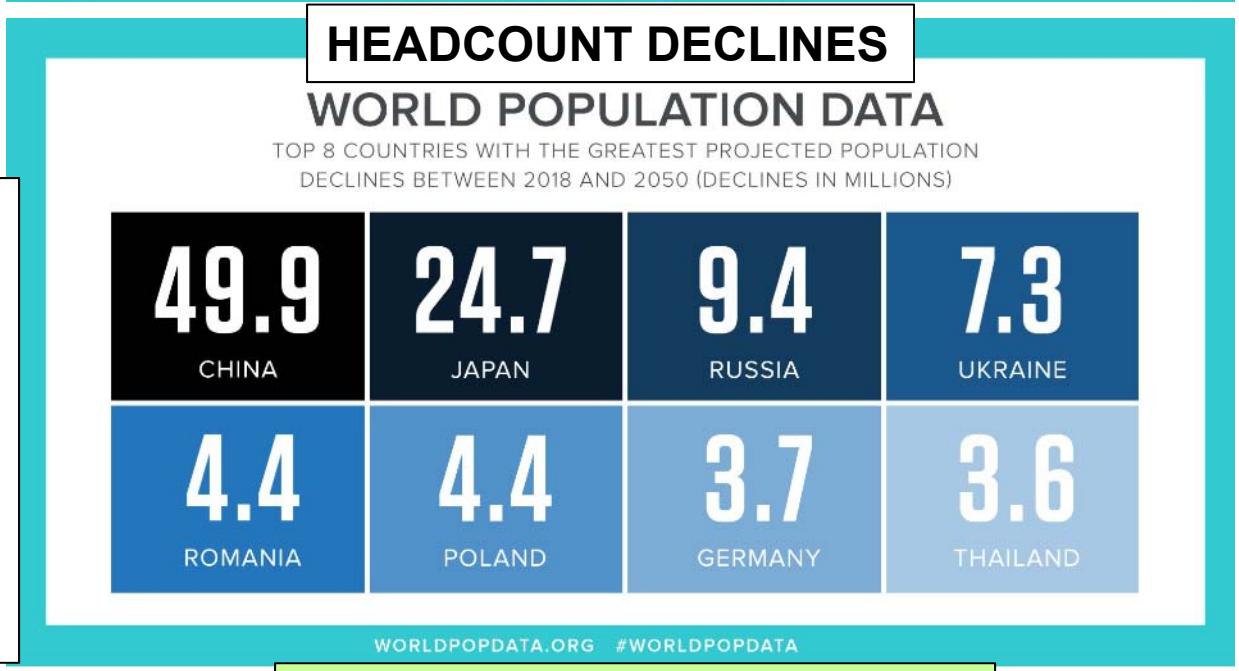
Population Change Data

Greatest <u>estimated</u> country population (headcount) **increases and declines for the period 2018 to 2050.**

Population Reference Bureau (PRB) estimates that by 2050, India will surpass China as the world's most populous country with c. 1.67 billion people, while Nigeria will have a popu-lation larger than that of the United States.

HEADCOUNT INCREASES

HEADCOUNT DECLINES



http://www.worldpopdata.org/index.php/map
interactive map and data collection

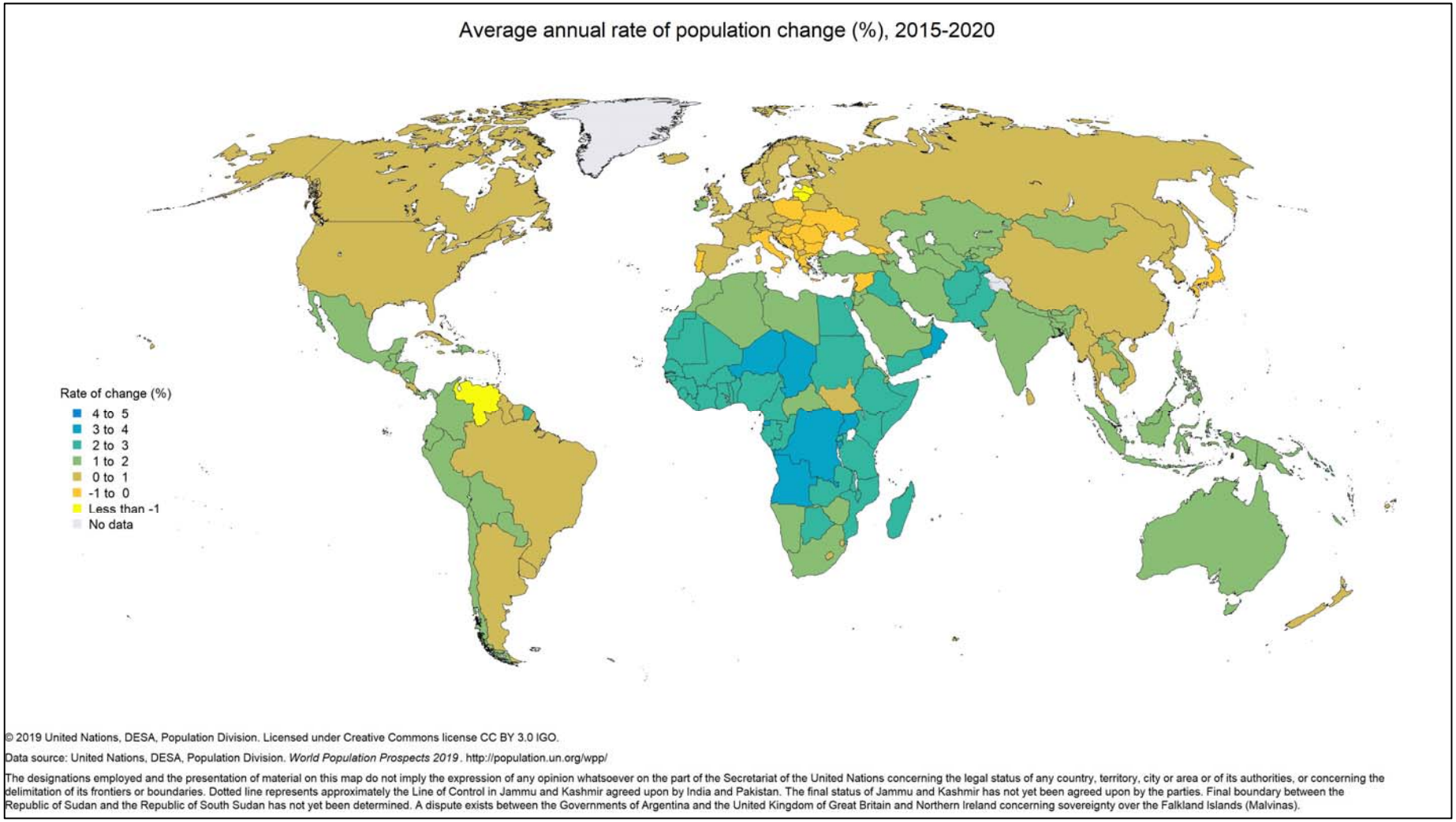
Where the People Are and What's There for Them

We need data to evaluate a population.

1. **Numbers of people.**
2. **Concentration of people.**
3. **Other data to help assess a situation** (quality of life within a habitat)

Recent Past Rate of Population Change

2015-2020 average annual values in %

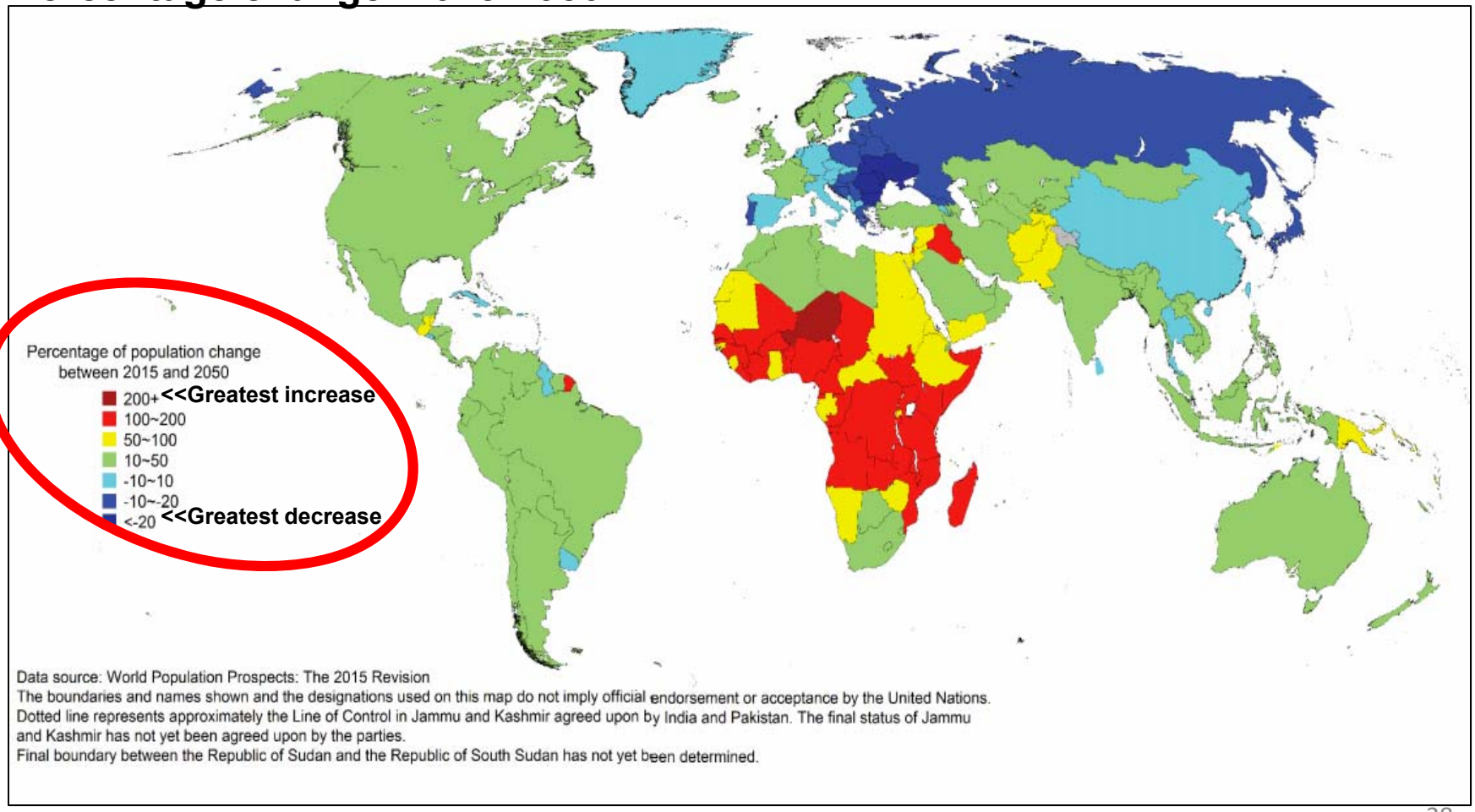


Data source: United Nations, DESA, Population Division. *World Population Prospects 2019*. http://population.un.org/wpp/

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

Projected Long-term (35 yrs) Population Change

Percentage change: 2015-2050



World Birth Rates and Death Rates

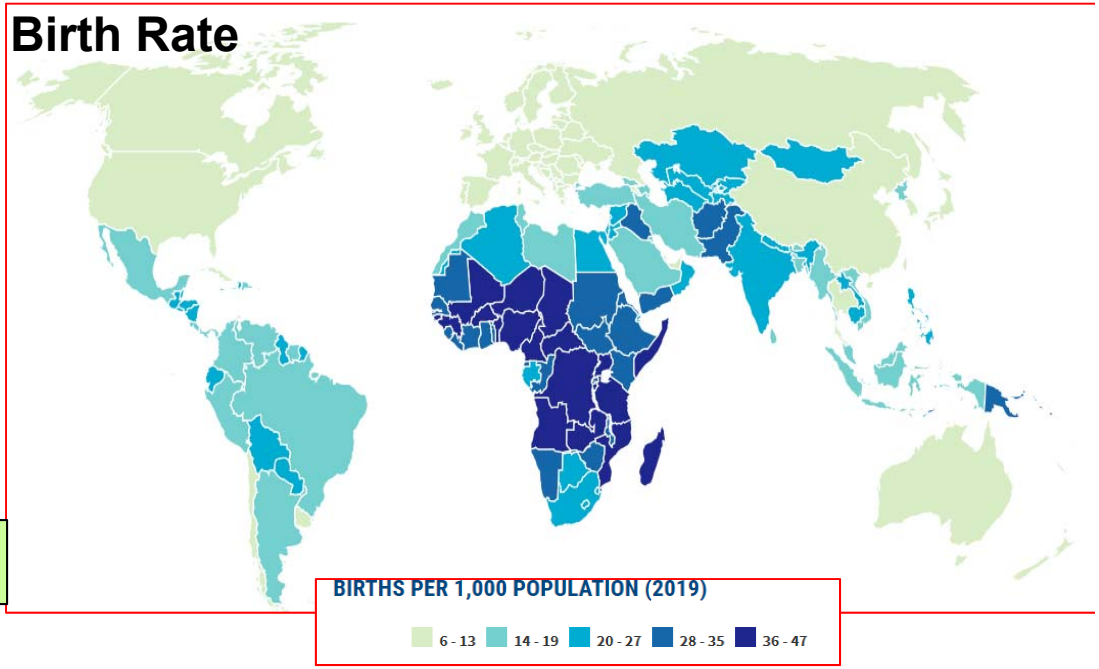
https://www.prb.org/international/indicator/births/snapshot
Click on link for interactive map.

https://www.prb.org/international/indicator/deaths/snapshot
Click on link for interactive map.

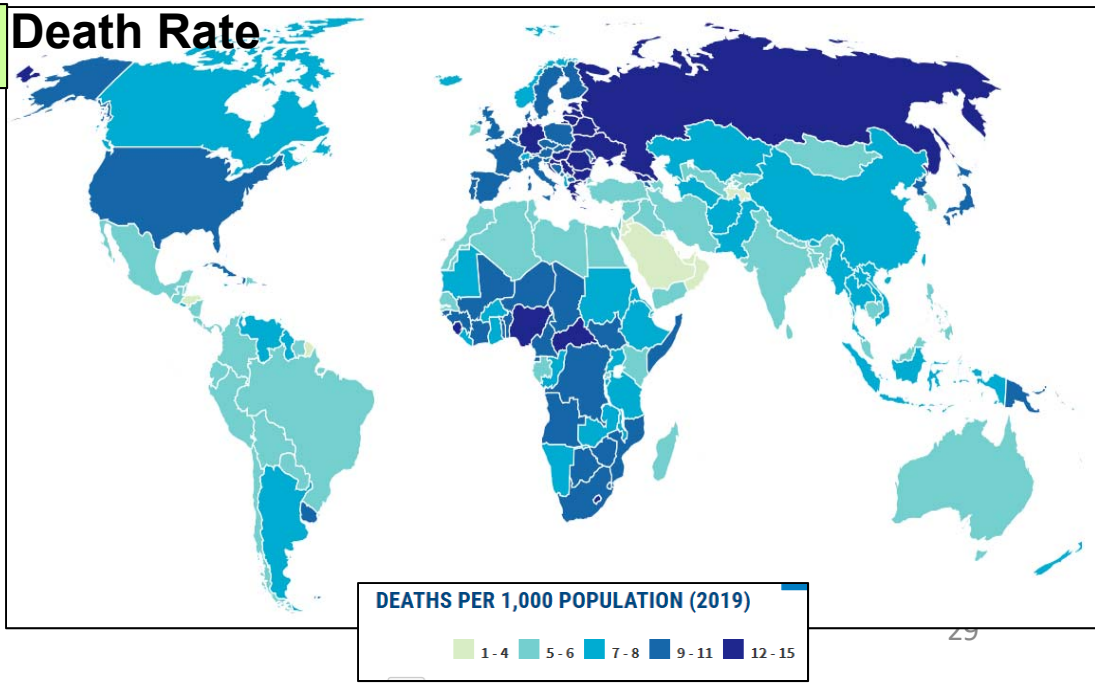
Birth rate factors tend to be cultural (customs/belief systems/female employment/infant mortality rate) **while death rate factors tend to be circumstantial** (medical/economic/environmental/ technological/age structure).

Source: Population Reference Bureau (PRB.ORG)

Birth Rate



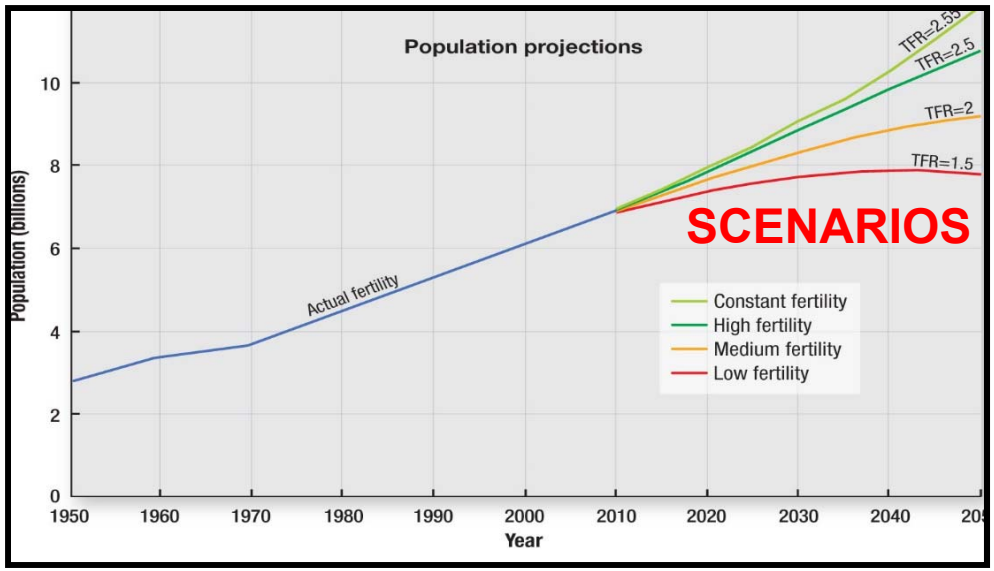
Death Rate



Total Fertility Rate and ZPG

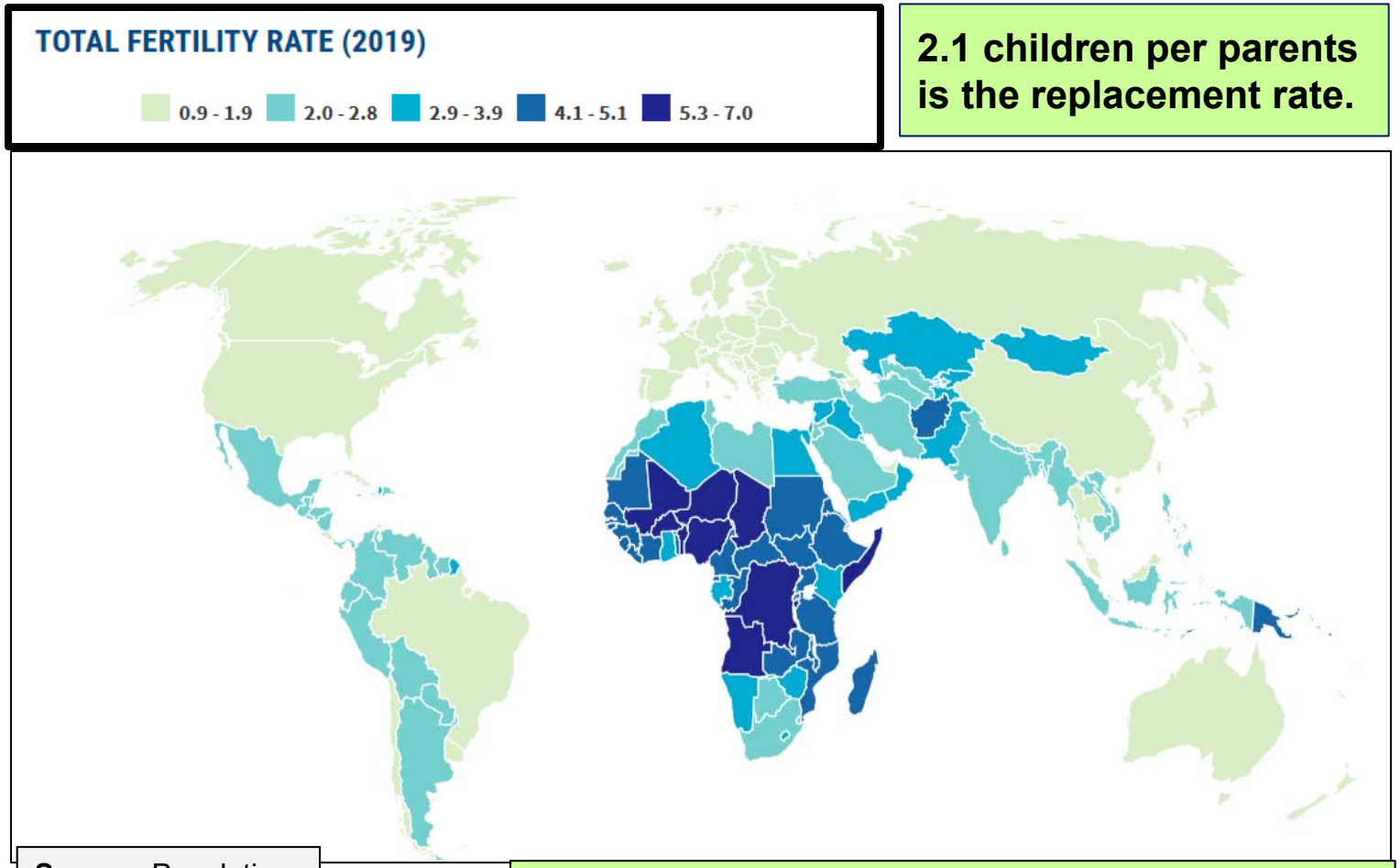
❖ **TFR: Total Fertility Rate.** **The number of children borne by child-bearing age women.** The younger and larger a population, the higher the TFR and the higher growth potential, especially, if infant mortality rates are reduced.

❖ **ZPG: Zero population growth** is considered to be the **replacement** rate *(statistically the number is 2.1 children/parents).* Any number higher than 2.1 leads to a population increase.



https://www.nytimes.com/2018/04/25/health/africa-infant-mortality-antibiotic.html : **Antibotics reduce infant mortality in Africa.**

Total Fertility Rate

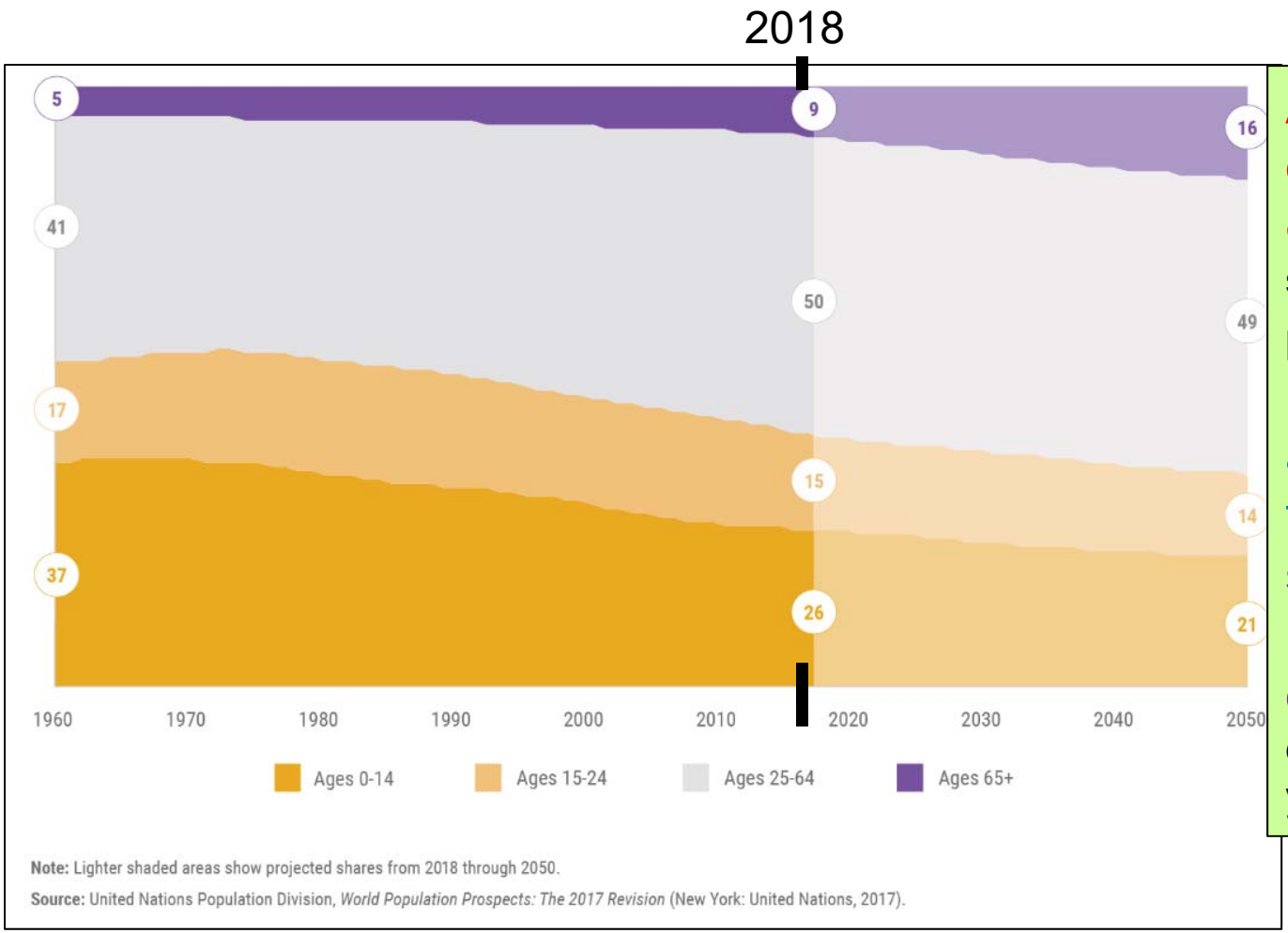


2.1 children per parents is the replacement rate.

Source: Population Reference Bureau (PRB.ORG)

https://www.prb.org/international/indicator/fertility/snapshot
Click the link for the interactive map

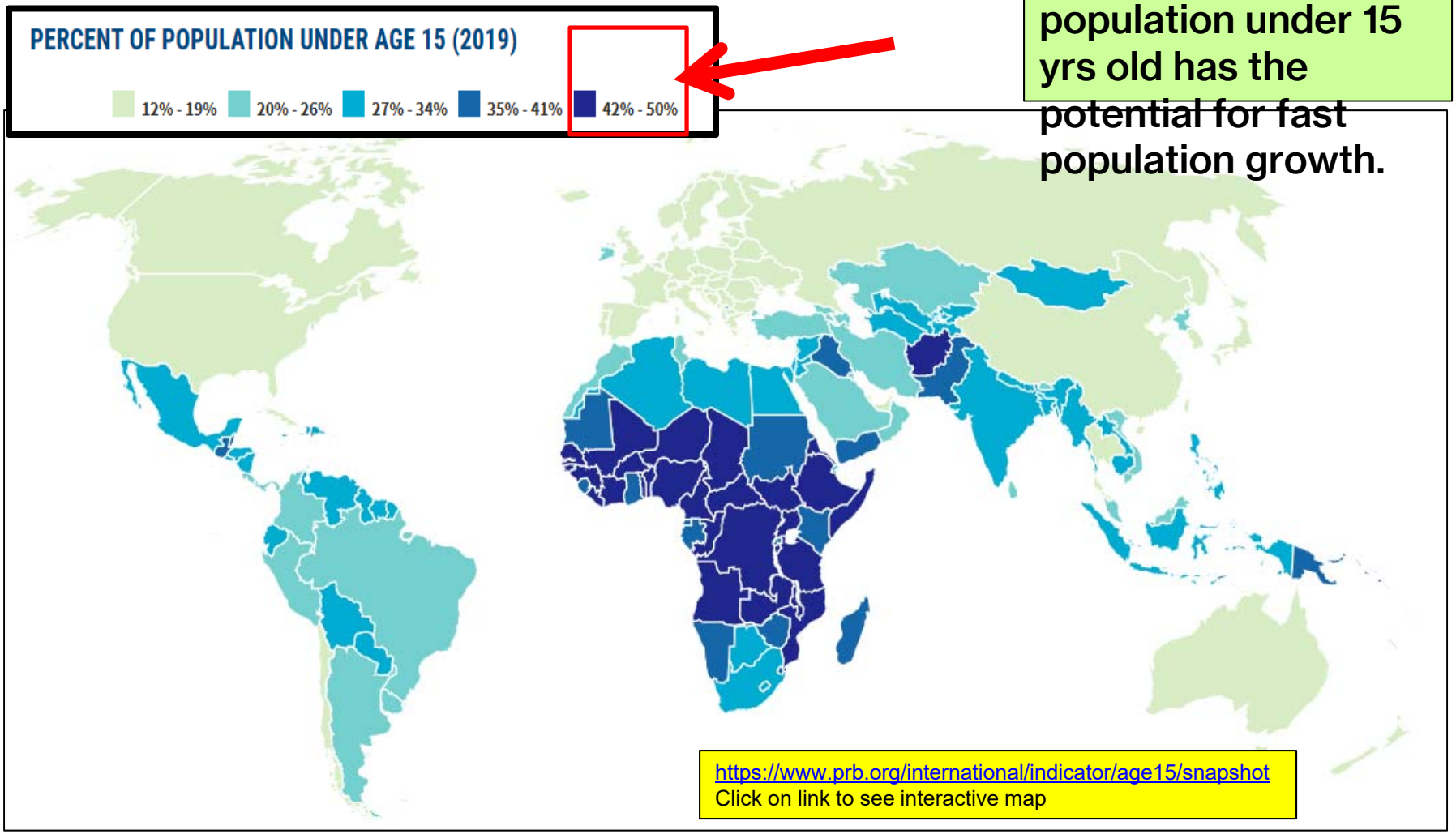
Changing Age Structure
1960-2050



Age structure not only affects **quality of habitat** (relation-ship to potential rates of population growth), it has an **economic aspect** with regard to **workers** and a **social aspect** with regard to **depend-ency ratios** (the caring for the very young and very old).

Percent of Population UNDER 15 Years of Age

People under age 15 are considered a dependent group. An area with a high percentage of its population under 15 yrs old has the potential for fast population growth.

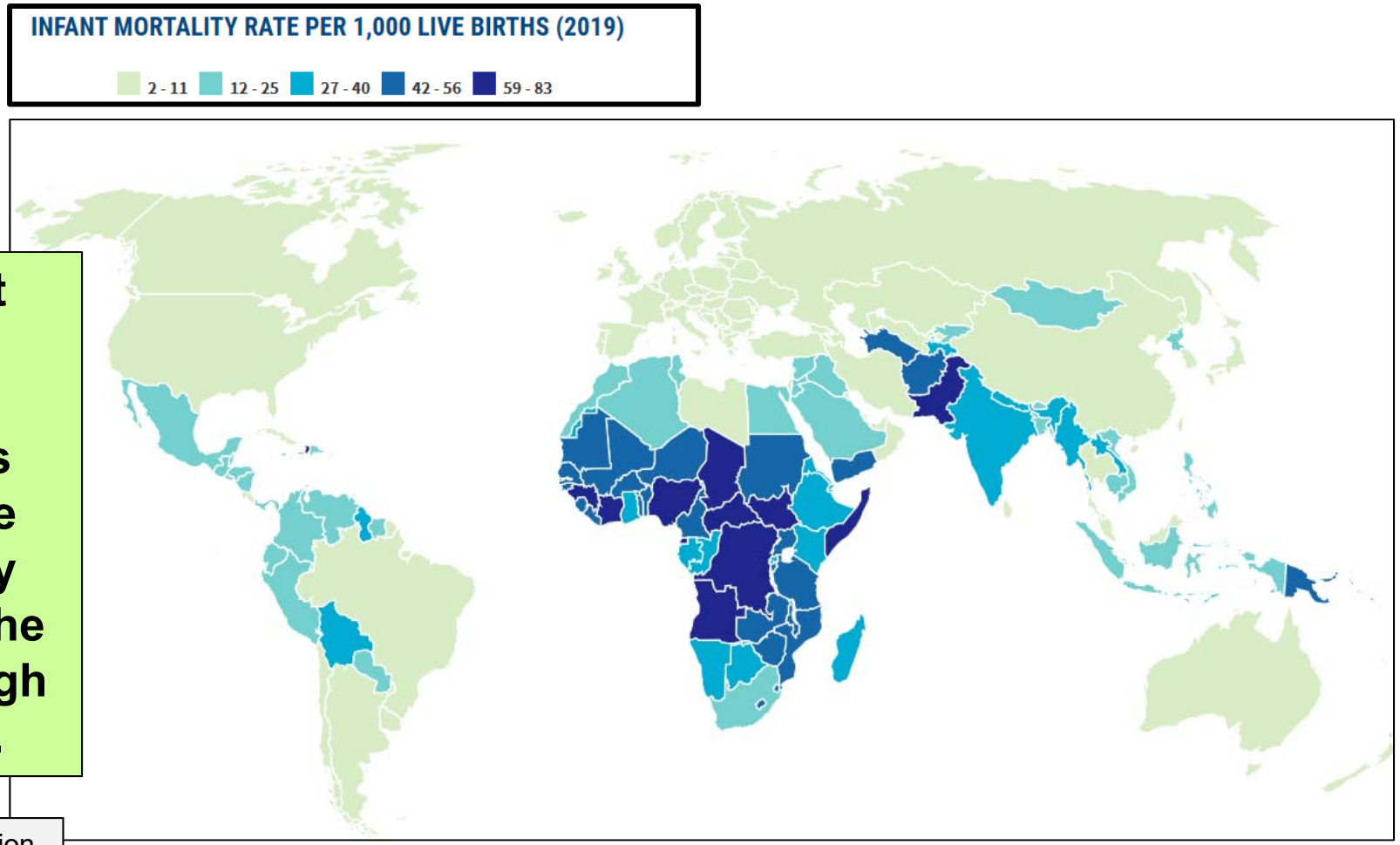


https://www.prb.org/international/indicator/age15/snapshot
Click on link to see interactive map

Source: Population Reference Bureau (PRB.ORG)

Infant Mortality

The annual number of deaths of infants under age 1 per 1,000 live births.



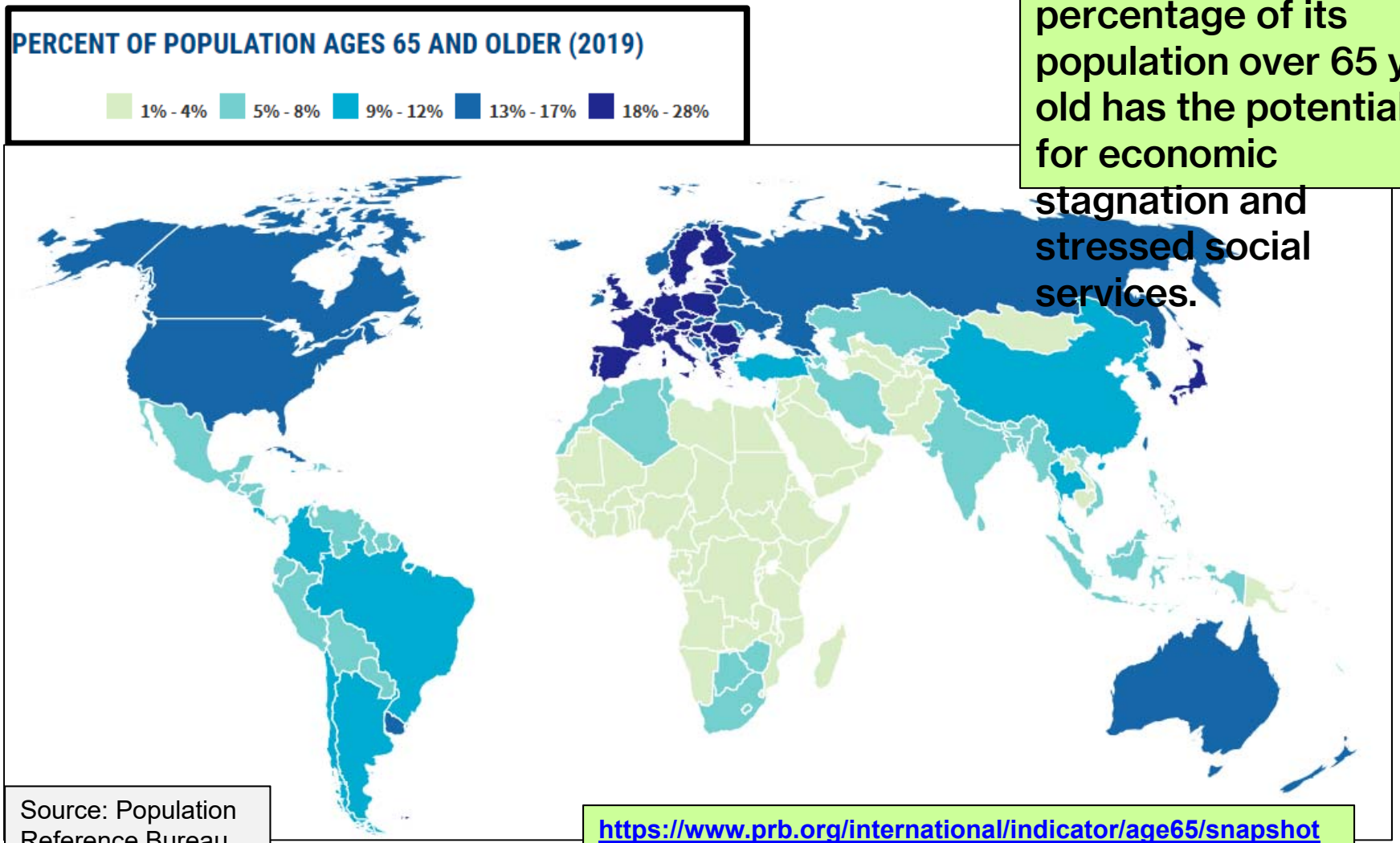
High infant mortality rates, high death rates and low life expectancy reinforce the cycle of high birth rates.

Source: Population Reference Bureau (PRB.ORG)

https://www.prb.org/international/indicator/infant-mortality/snapshot
Click on link for interactive map.

Percent of Population OVER 65 Years of Age

People over age 65 are considered a dependent group. An area with a high percentage of its population over 65 yrs. old has the potential for economic stagnation and stressed social services.

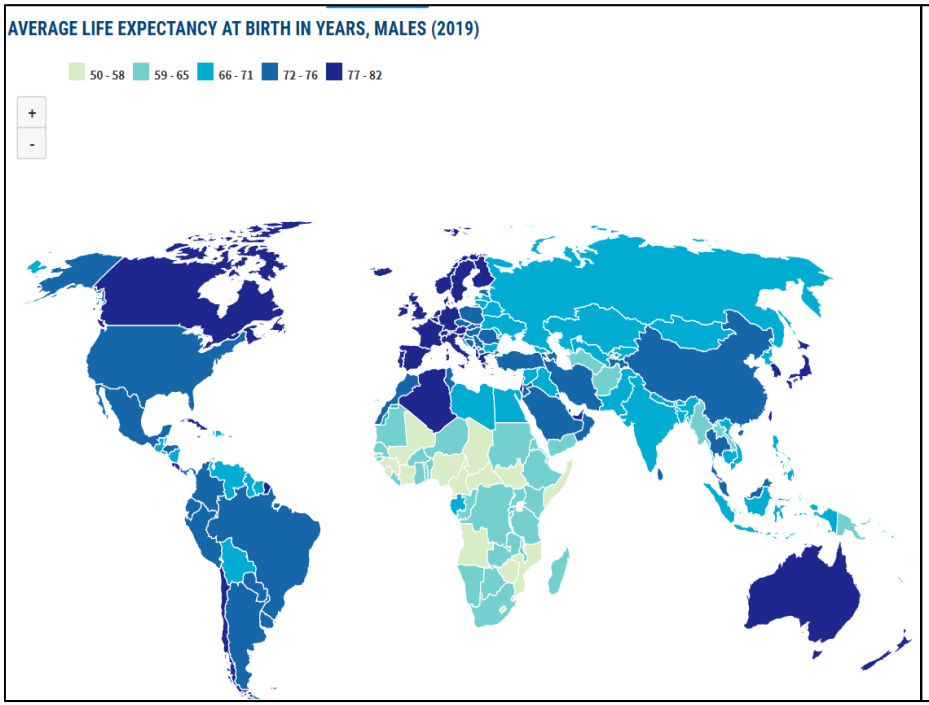


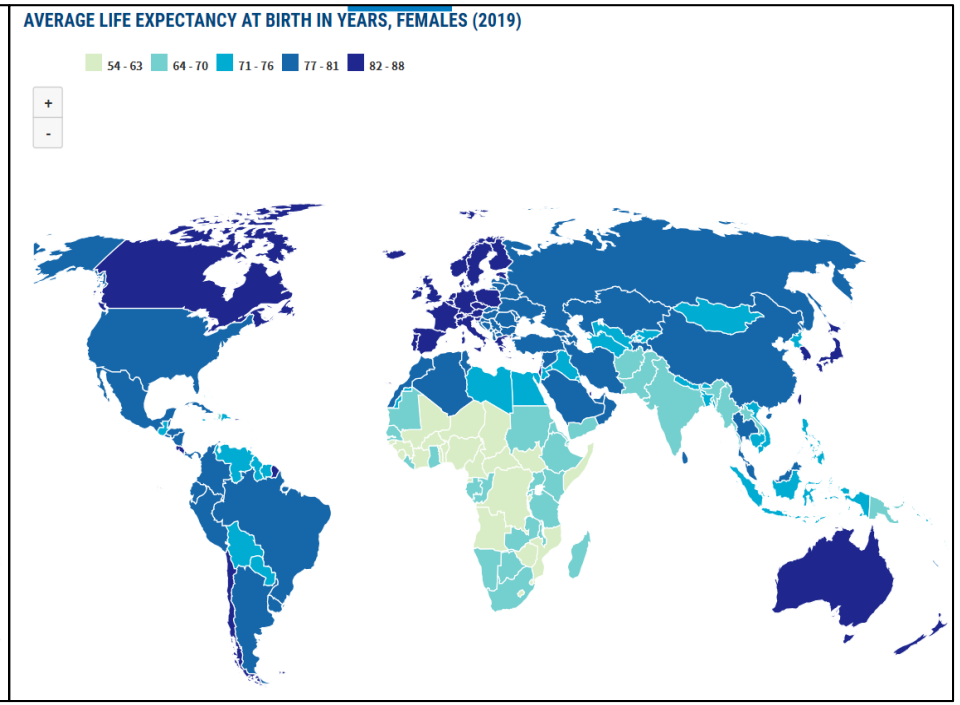
Source: Population Reference Bureau (PRB.ORG)

https://www.prb.org/international/indicator/age65/snapshot
Click on link for interactive map.

Life Expectancy

The average number of years an infant can expect to live under current mortality rates in their country.
Note difference between males and females worldwide.

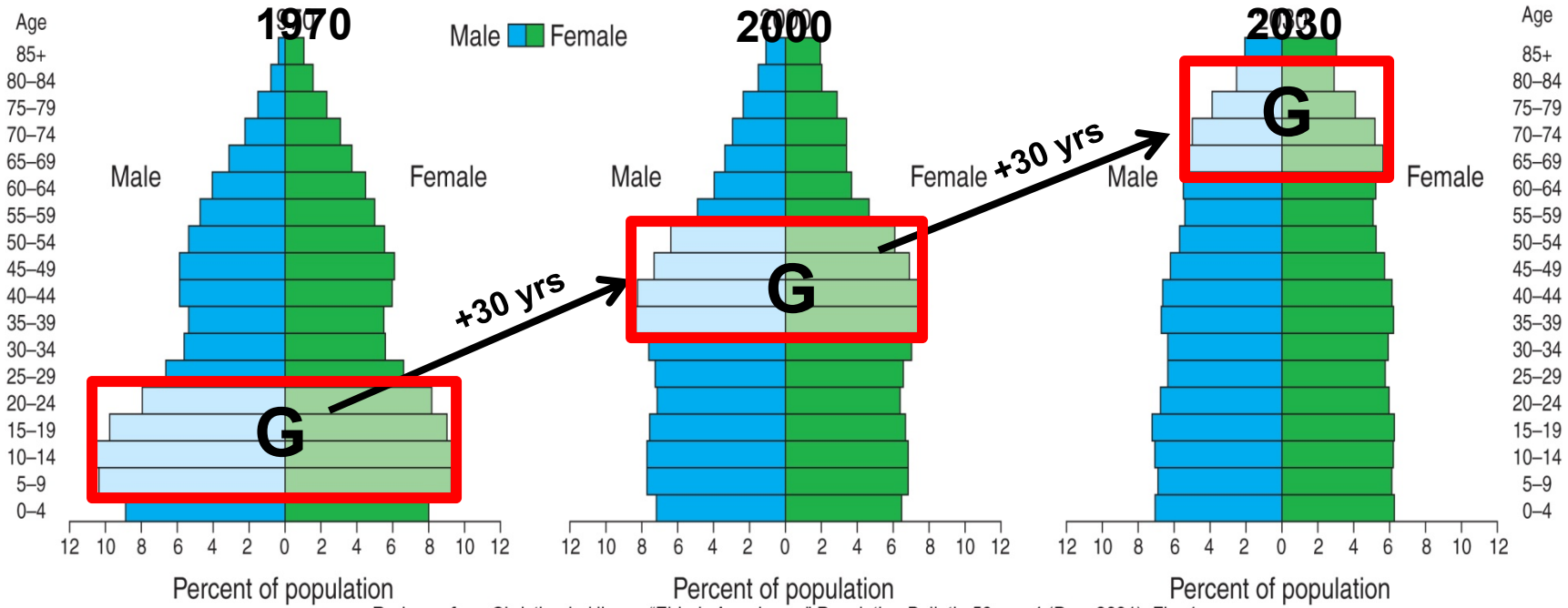




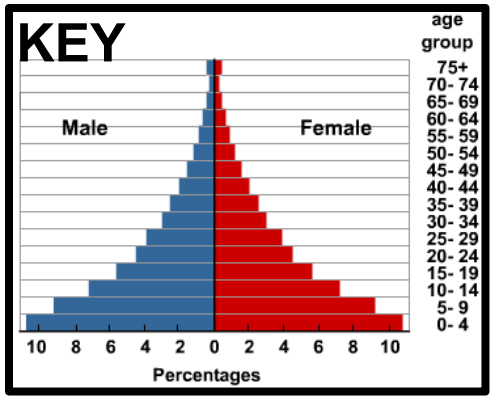
Source: Population Reference Bureau (PRB.ORG)

https://www.prb.org/international/indicator/life-expectancy-birth-male/snapshot
https://www.prb.org/international/indicator/life-expectancy-birth-female/snapshot
Click on the link for the interactive map.

Population Pyramid



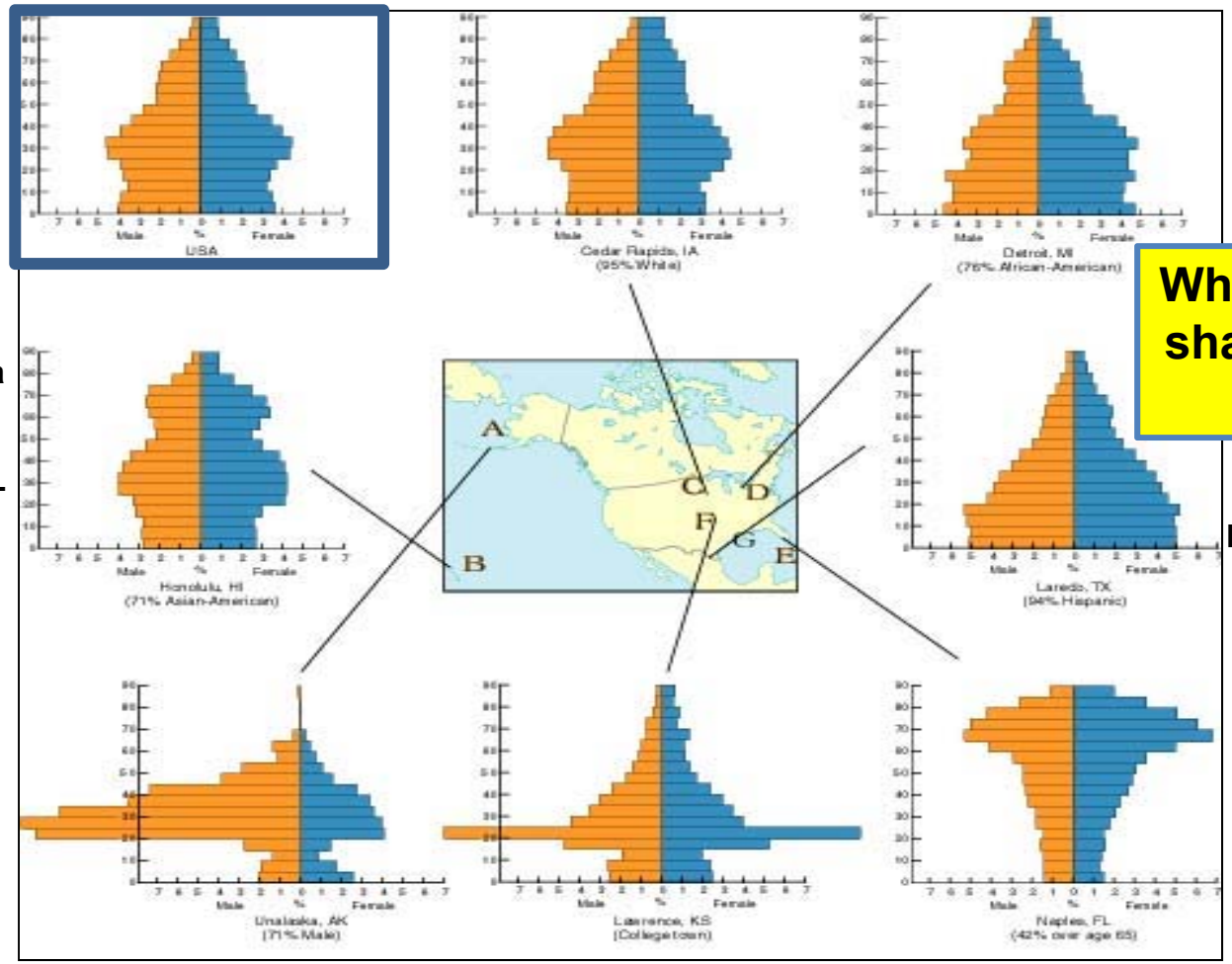
Redrawn from Christine L. Himes, "Elderly Americans." Population Bulletin 56, no. 4 (Dec. 2001), Fig. 1



Every year age groups move up the pyramid. The groups get <u>smaller</u> as members die, unless an area experiences immigration.

Population Pyramids for Regions of the United States

USA



Larger female population due to crime against males and males leaving for jobs elsewhere.

Why the different shapes for areas of the US?

Low birth rate area with a shrinking local population but a high military-age population plus retirees

High birth rate area

Male oil field workers

College students

Retired people; creates a reverse pyramid

Malthusian Theory

In 1798 Thomas Malthus postulated that unless population growth was slowed (by "self-control", war or natural disaster), **its rate of growth would soon exceed the rate of food production** (exceed carrying capacity).

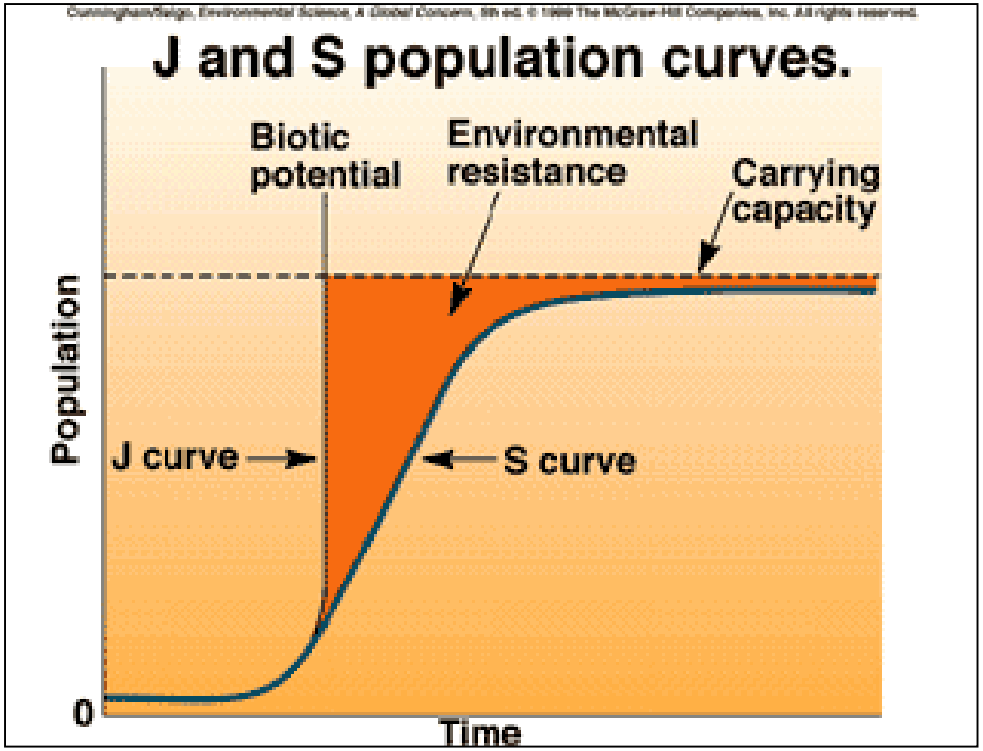
He predicted that people would not be able to feed themselves and wide-spread poverty and hunger would follow.

WHY? Because population tends to double in size quickly, while agriculture grows at a steady rate.

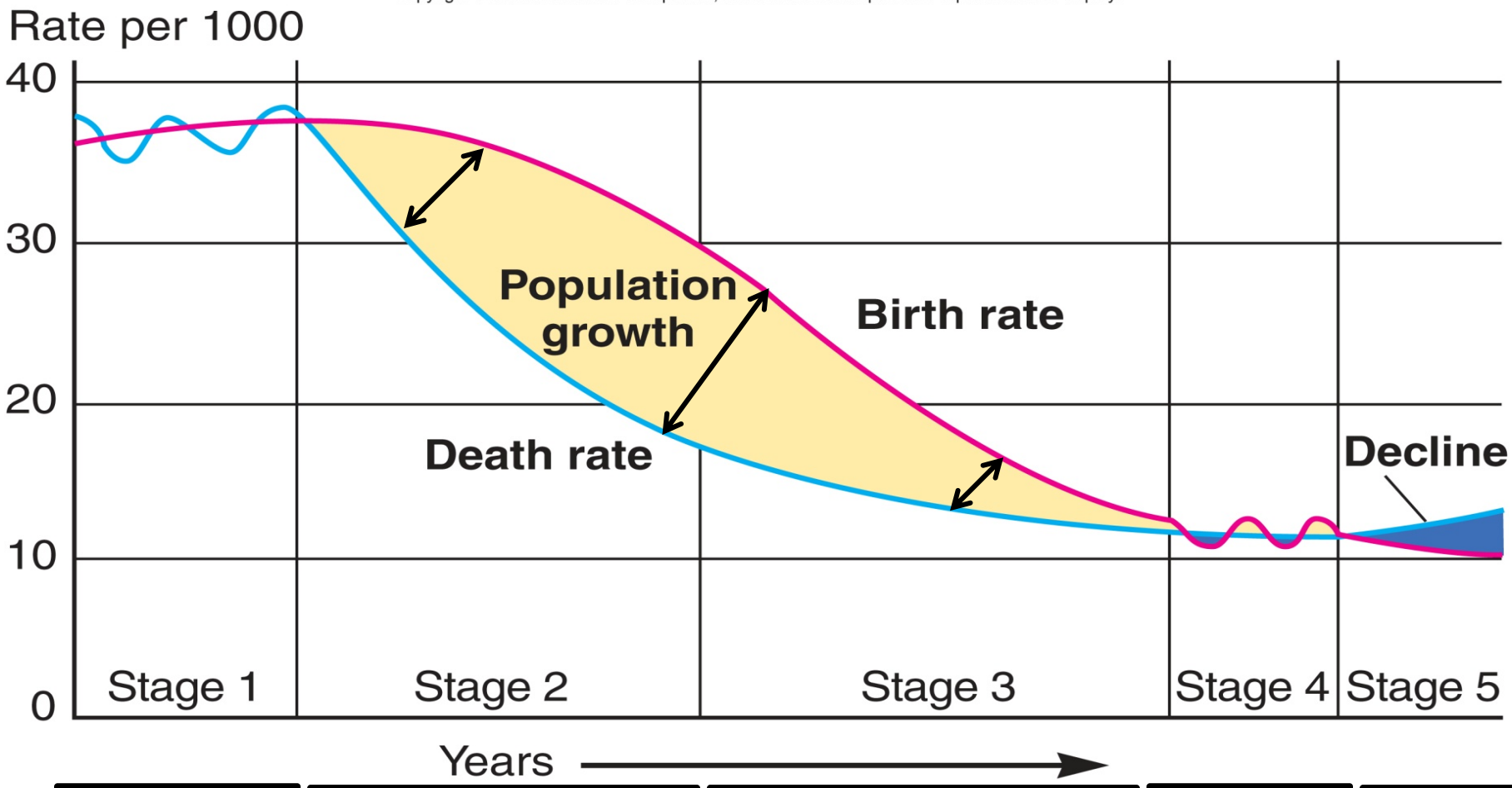
His prediction did not take into account <u>new</u> <u>tech-nologies</u> that allowed people to produce more food.

Demographic Transition

- **The J-Curve becomes an S-Curve when a population reaches carrying capacity.**
- It returns to a J-Curve when new technologies allow people to live longer.

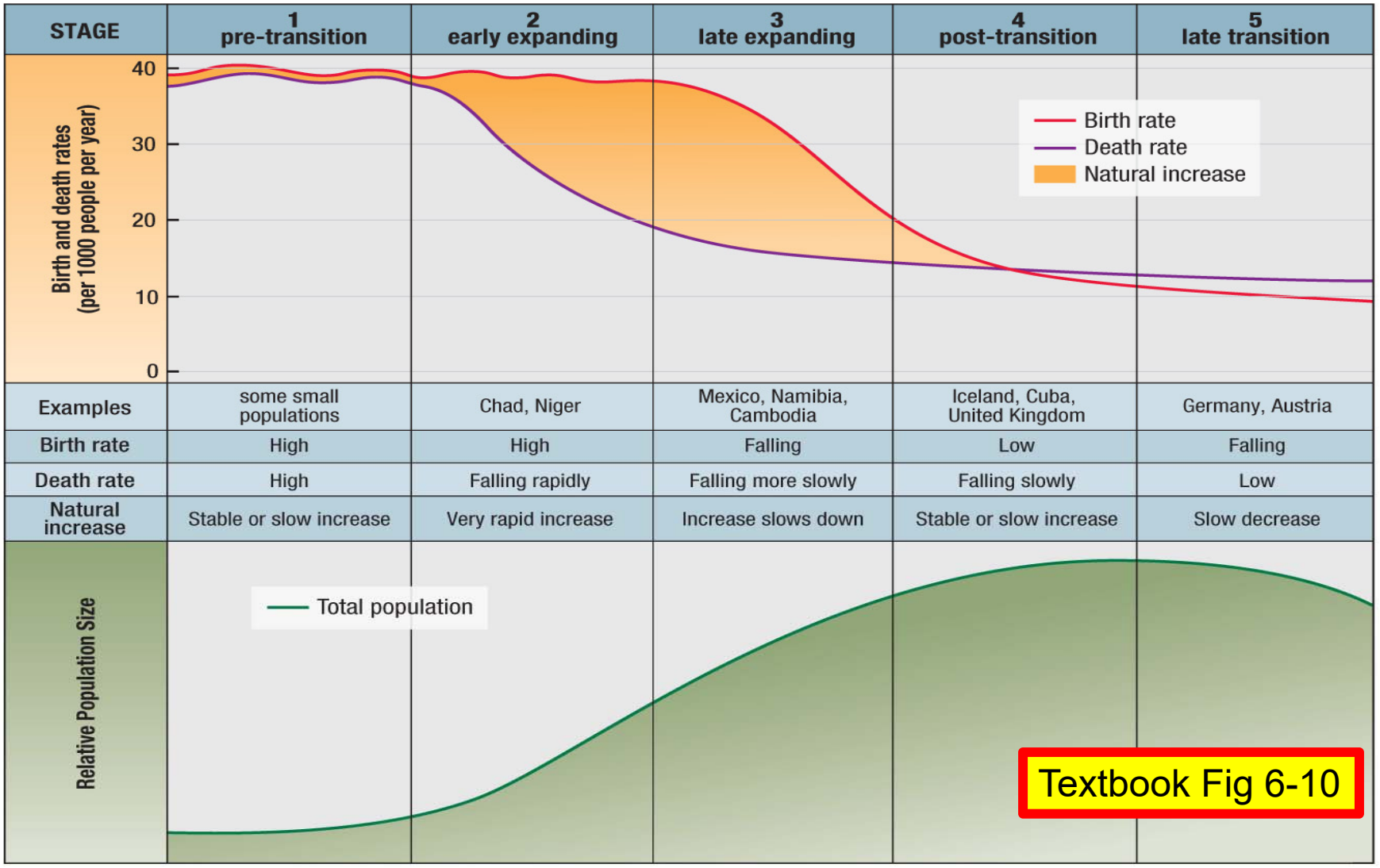


Demographic Transition and Economic Development



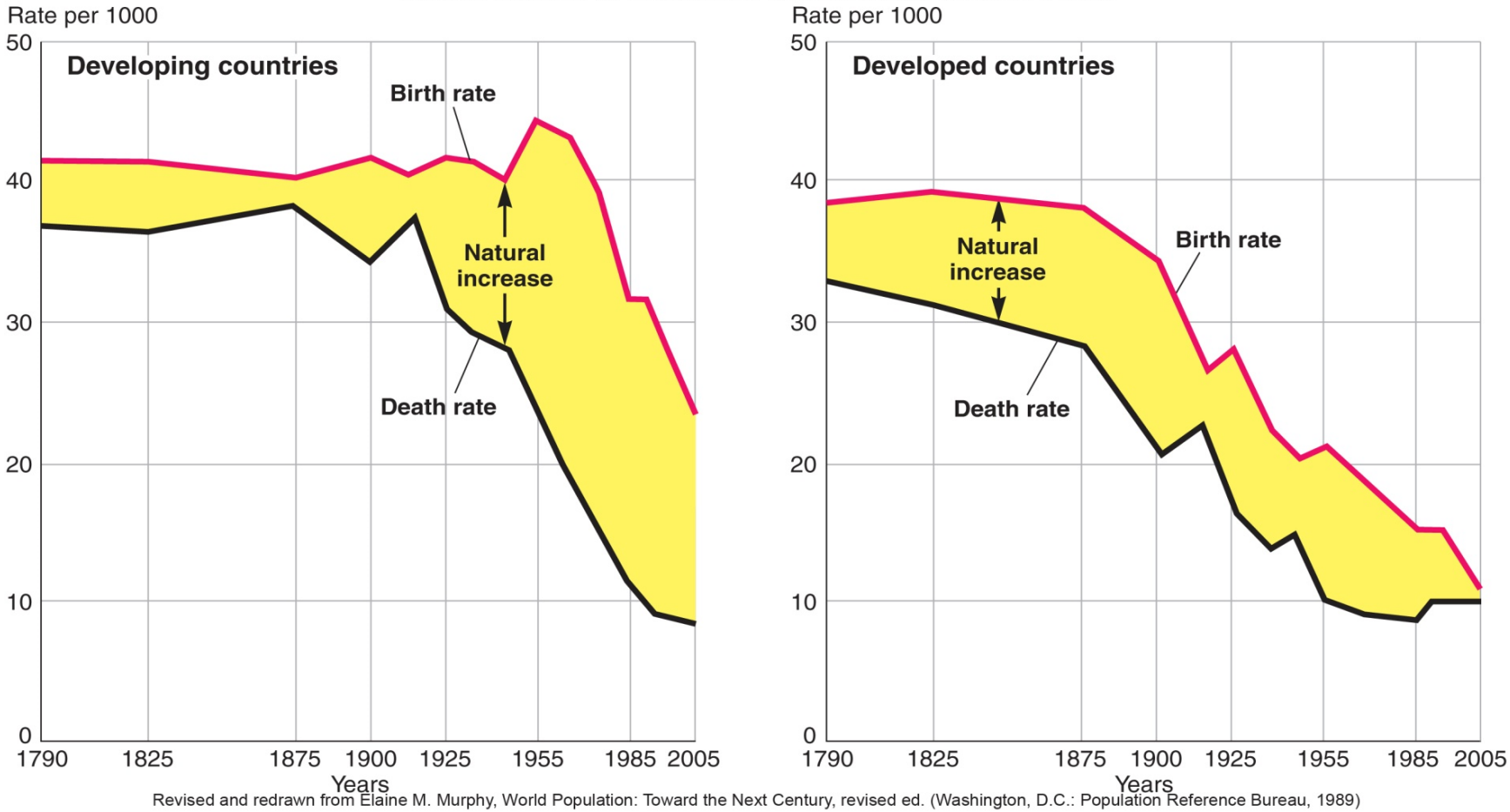
1	2	3	4	5
Agrarian society	**Industrialization established**	**Urban/economic society**	Highly developed	**Old-age** population

Demographic Transition and Economic Development



Textbook Fig 6-10

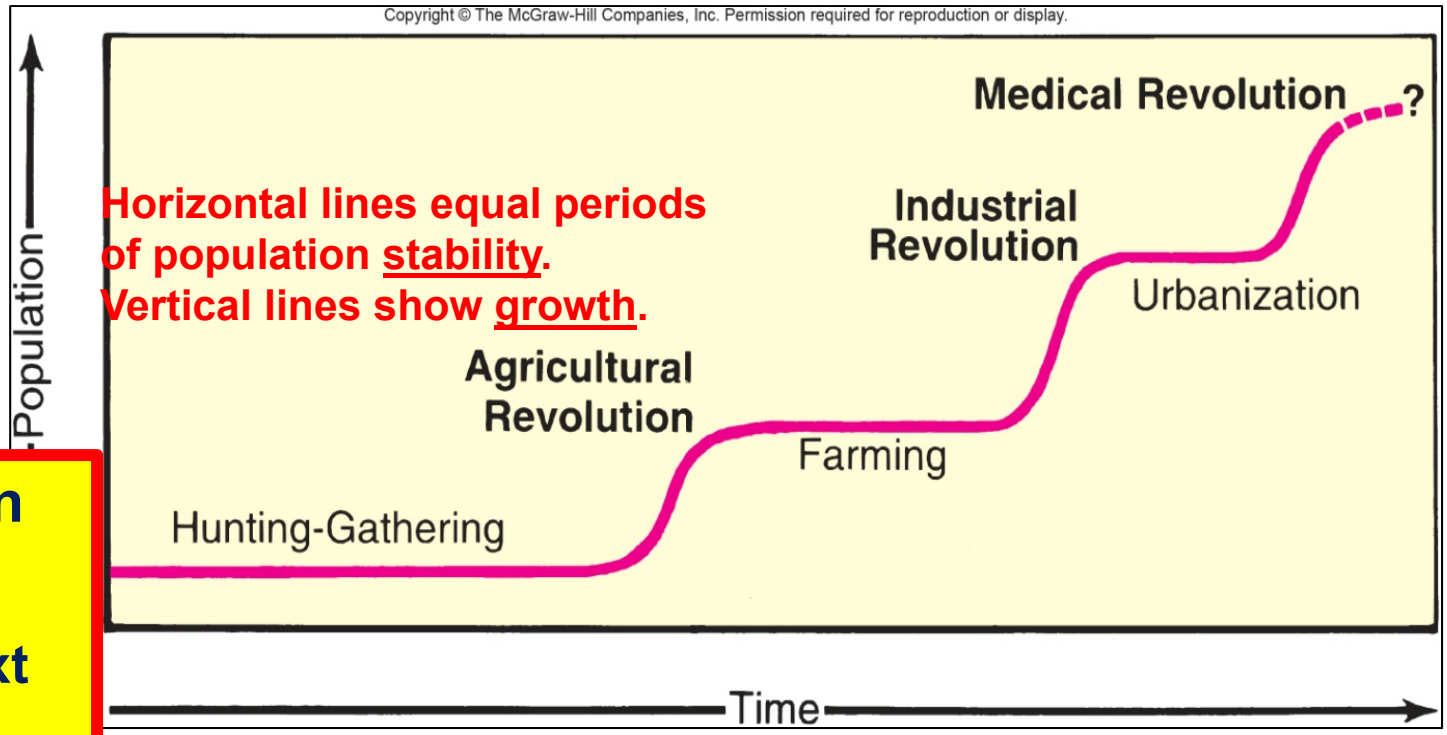
Comparison of BR and DR by Economic Development



Revised and redrawn from Elaine M. Murphy, World Population: Toward the Next Century, revised ed. (Washington, D.C.: Population Reference Bureau, 1989)

Homeostatic Plateaus:
Balance between population and resources

The "J-Curve" turns into an "S-Curve" every time something occurs to either increase or slow down the death rate (changes existing equilibrium).



How long can this go on?

What's the next magic trick?
Biotechnology?

NEXT

Health and Nutrition affecting Populations: Medical Geography

and

An introduction to

Biogeography and Ecology