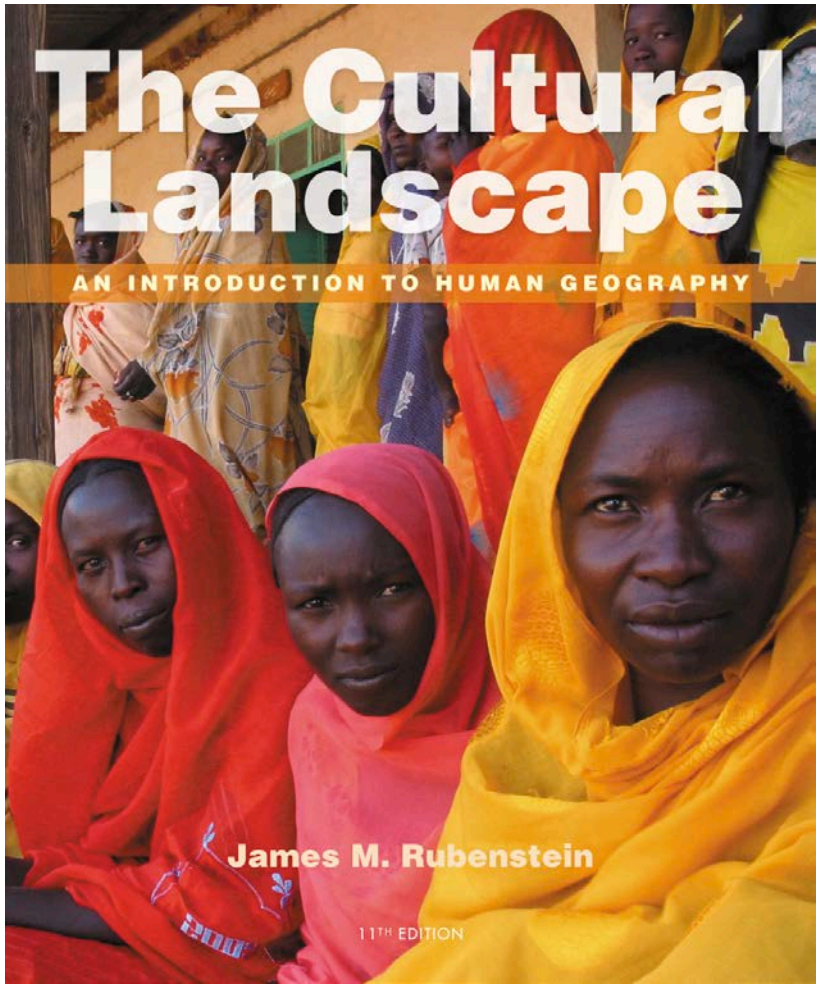
The Cultural Landscape

Eleventh Edition



Population and Health

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Key Issues

- Where is the world population distributed?
- Why is global population increasing?
- Why does population growth vary among regions?
- Why do some regions face health threats?

Learning Outcomes

- 2.1.1: Describe regions where population is clustered and where it is sparse.
- 2.1.2: Define three types of density used in population geography.
- 2.2.1: Understand how to measure population growth through the nature increase rate.
- 2.2.2: Understand how to measure births and deaths through CBR and CDR.
- 2.2.3: Understand how to read a population pyramid.

Learning Outcomes

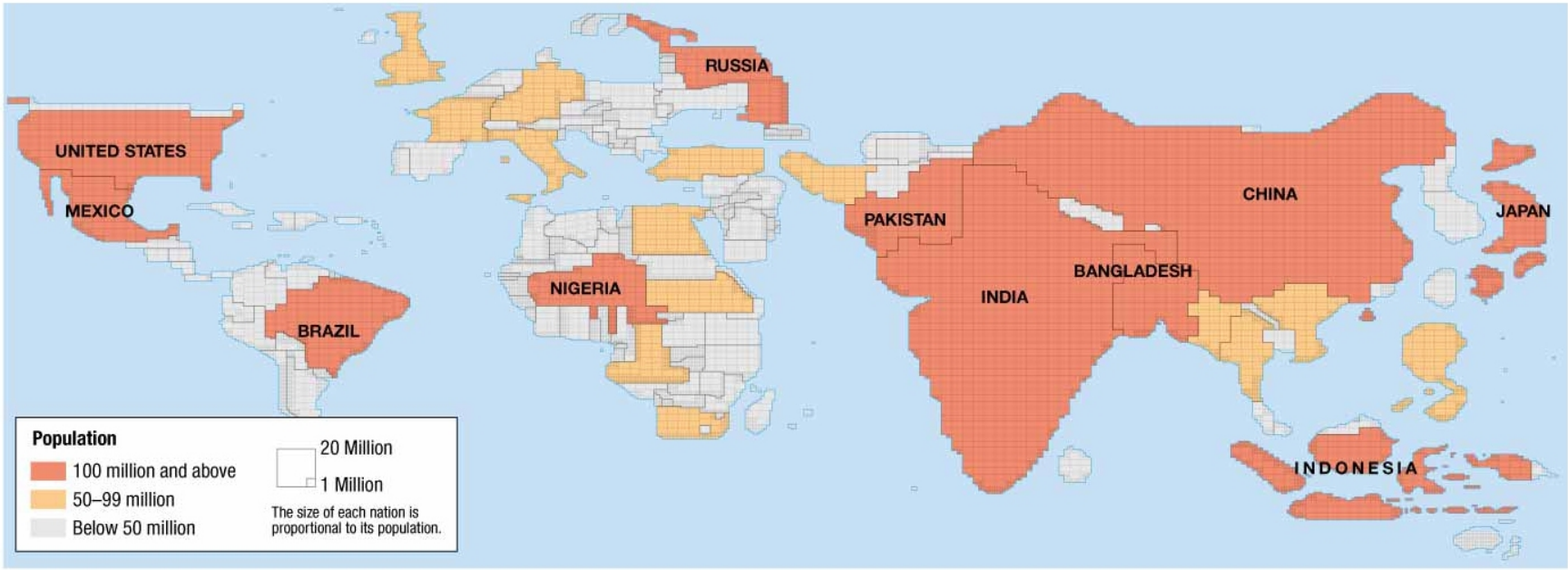
- 2.3.1: Describe the four stages of the demographic transition.
- 2.3.2: Summarize two approaches to reducing birth rates.
- 2.3.3: Summarize Malthus's argument about the relationship between population and resources.
- 2.3.4: Summarize the possible stage 5 of the demographic transition.

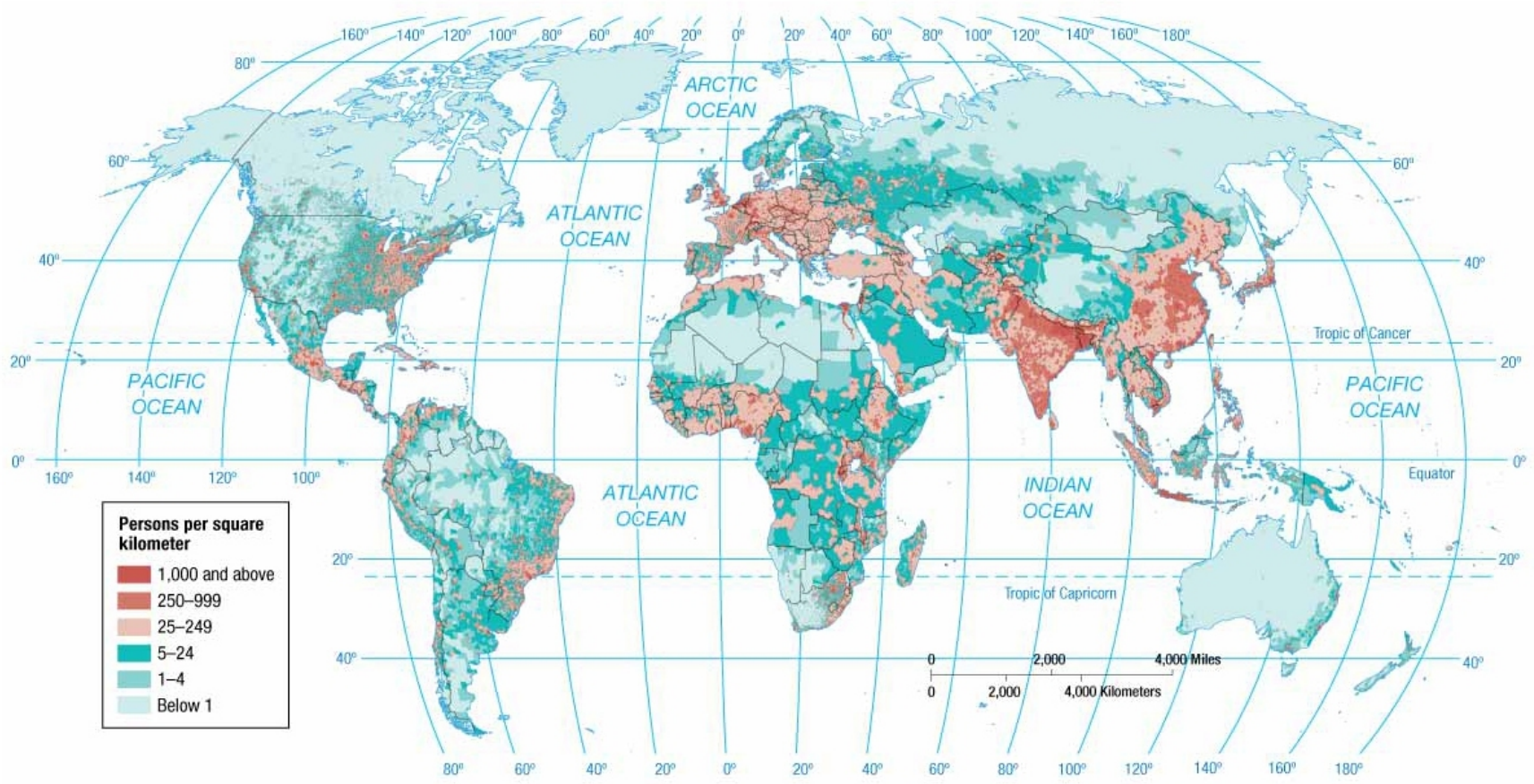
Learning Outcomes

- 2.4.1: Summarize the four stages of the epidemiologic transition.
- 2.4.2: Summarize the reasons for a possible stage 5 of the epidemiologic transition.
- 2.4.3: Understand reasons for variations in health care.

Where Is the World's Population Distributed?

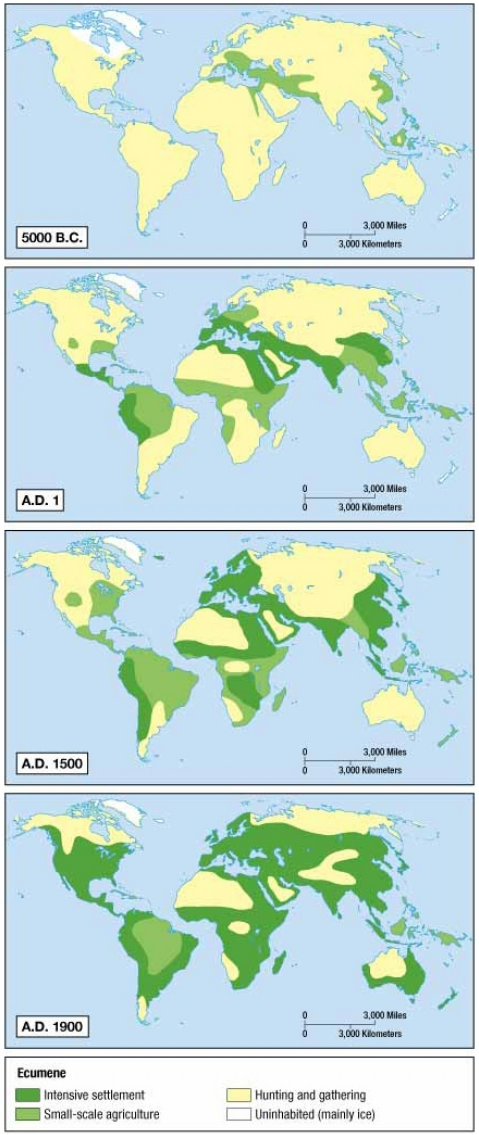
- Population Concentrations
  - 2/3 of the world's inhabitants are clustered in four regions.
    - East Asia
    - South Asia
    - Southeast Asia
    - Europe
  - Site and Situation of Population Clusters
    - Low-lying areas with fertile soil and temperate climate
    - Near an ocean or near a river with easy access to an ocean.





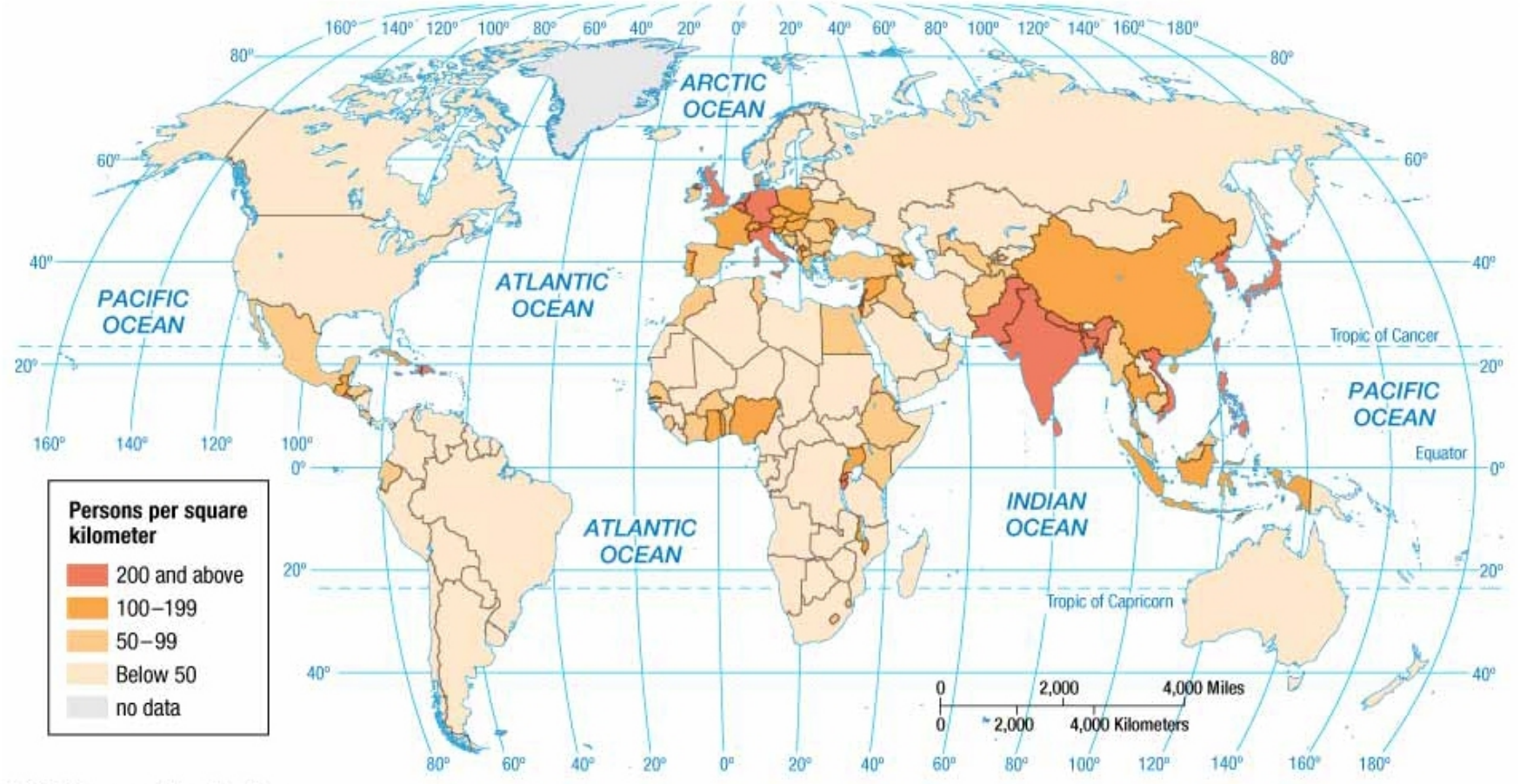
Where Is the World's Population Distributed?

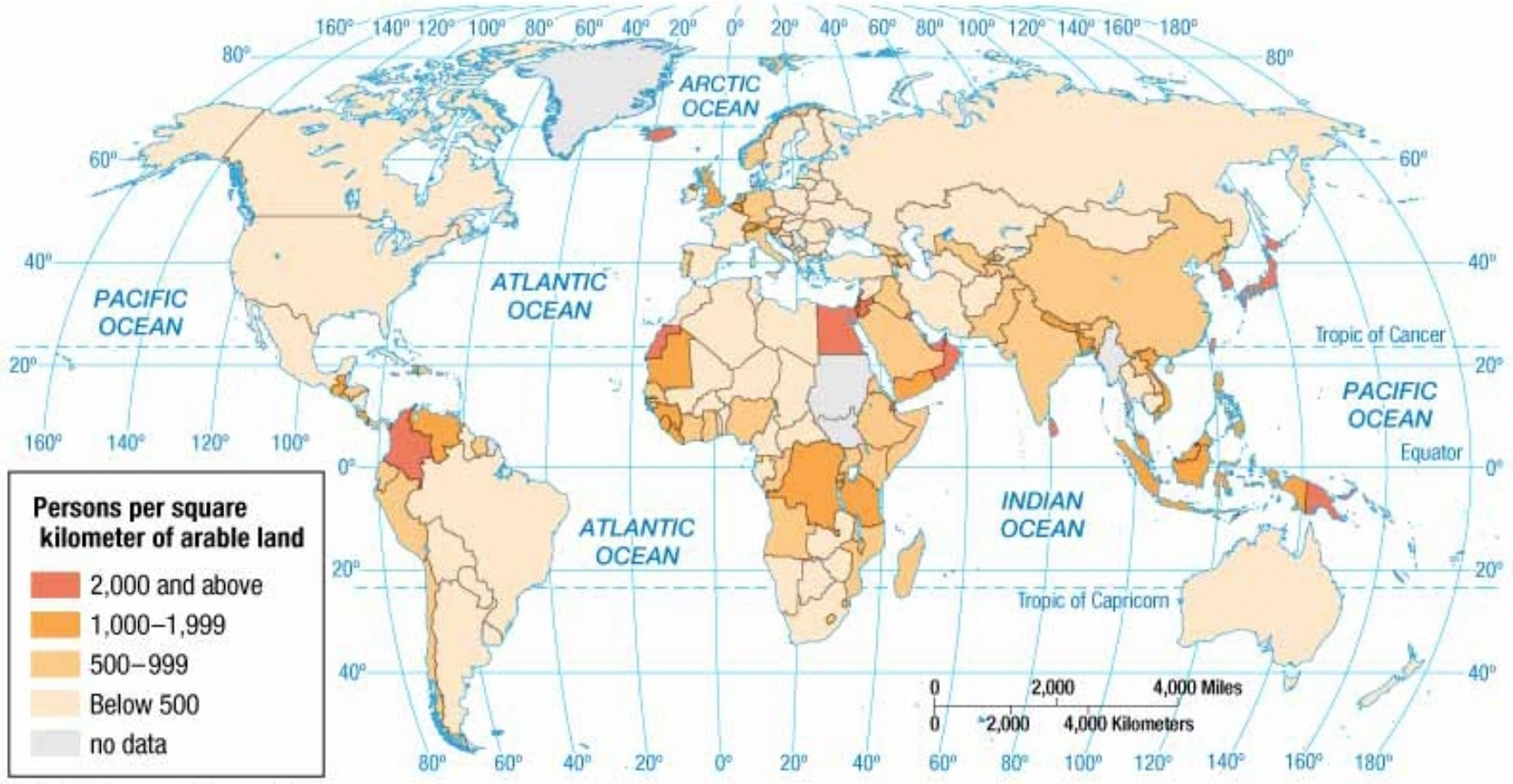
- Sparsely Populated Regions
  - Humans avoid clustering in certain physical environments.
    - Dry Lands
    - Wet Lands
    - Cold Lands
    - High Lands
  - Places considered too harsh for occupancy have diminished over time.
    - Places of permanent human settlement are termed the *ecumene.*

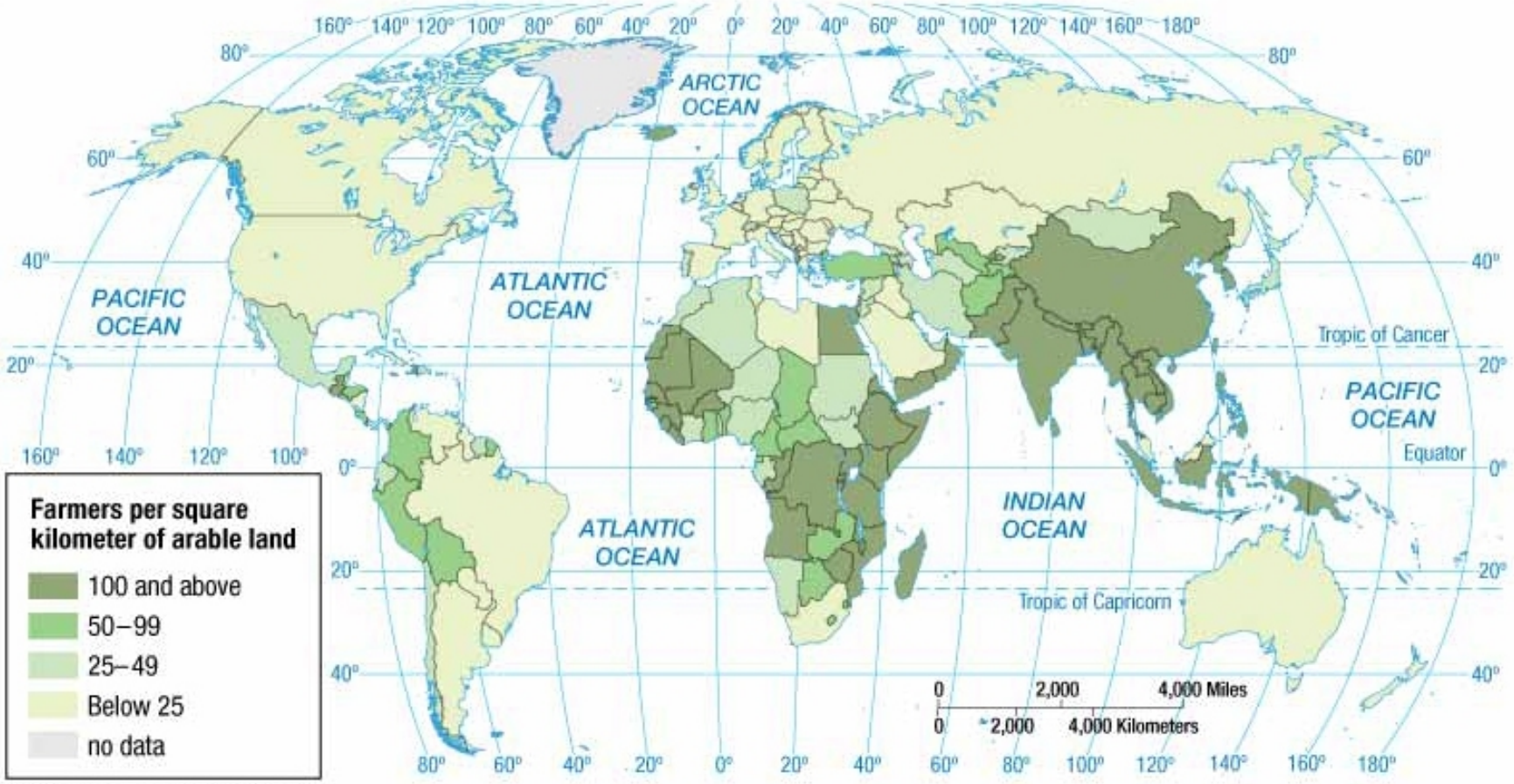


Where Is the World's Population Distributed?

- Population Density
  - Density can be computed in up to three ways for a place.
    1. Arithmetic Density
       - Total number of objects in an area
       - Computation: Divide the population by the land area
    2. Physiological Density
       - Number of people supported by a unit area of arable land
       - Computation: Divide the population by the arable land area
    3. Agricultural Density
       - Ratio of the number of farmers to amount of arable land
       - Computation: Divide the population of farmers by the arable land area

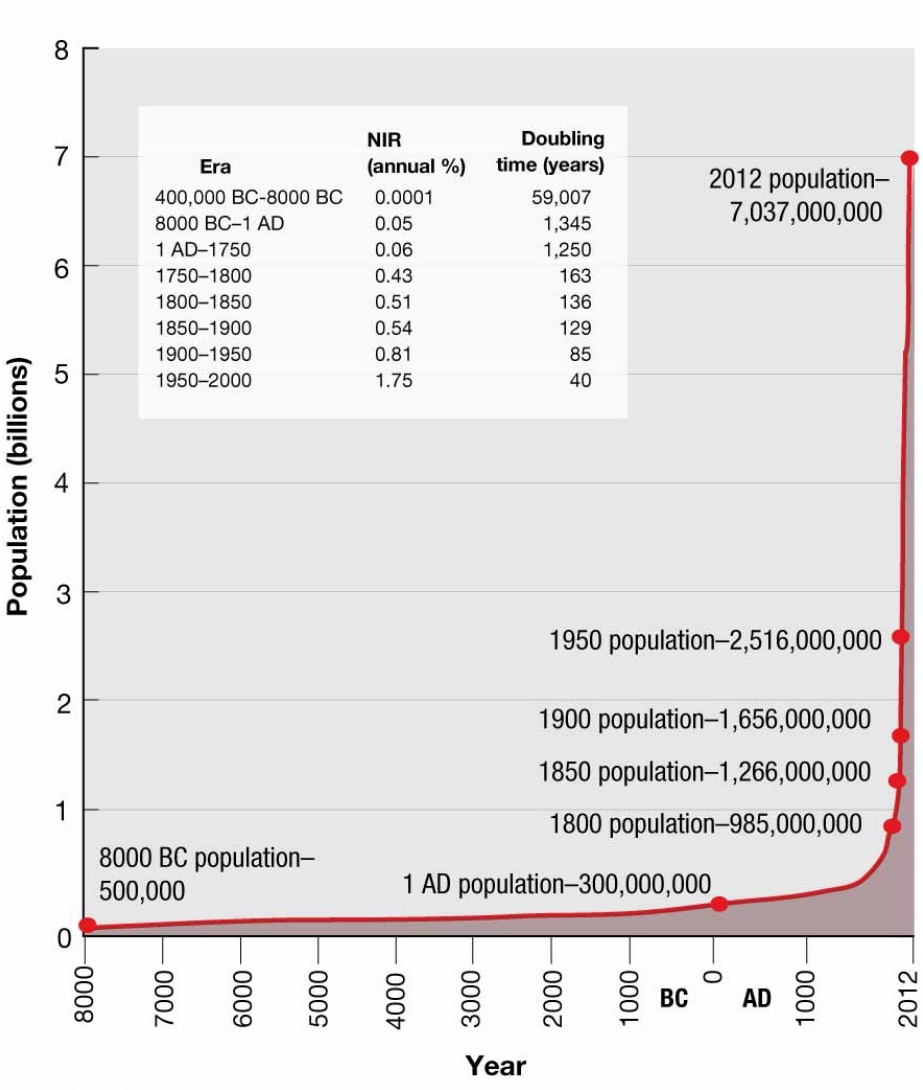






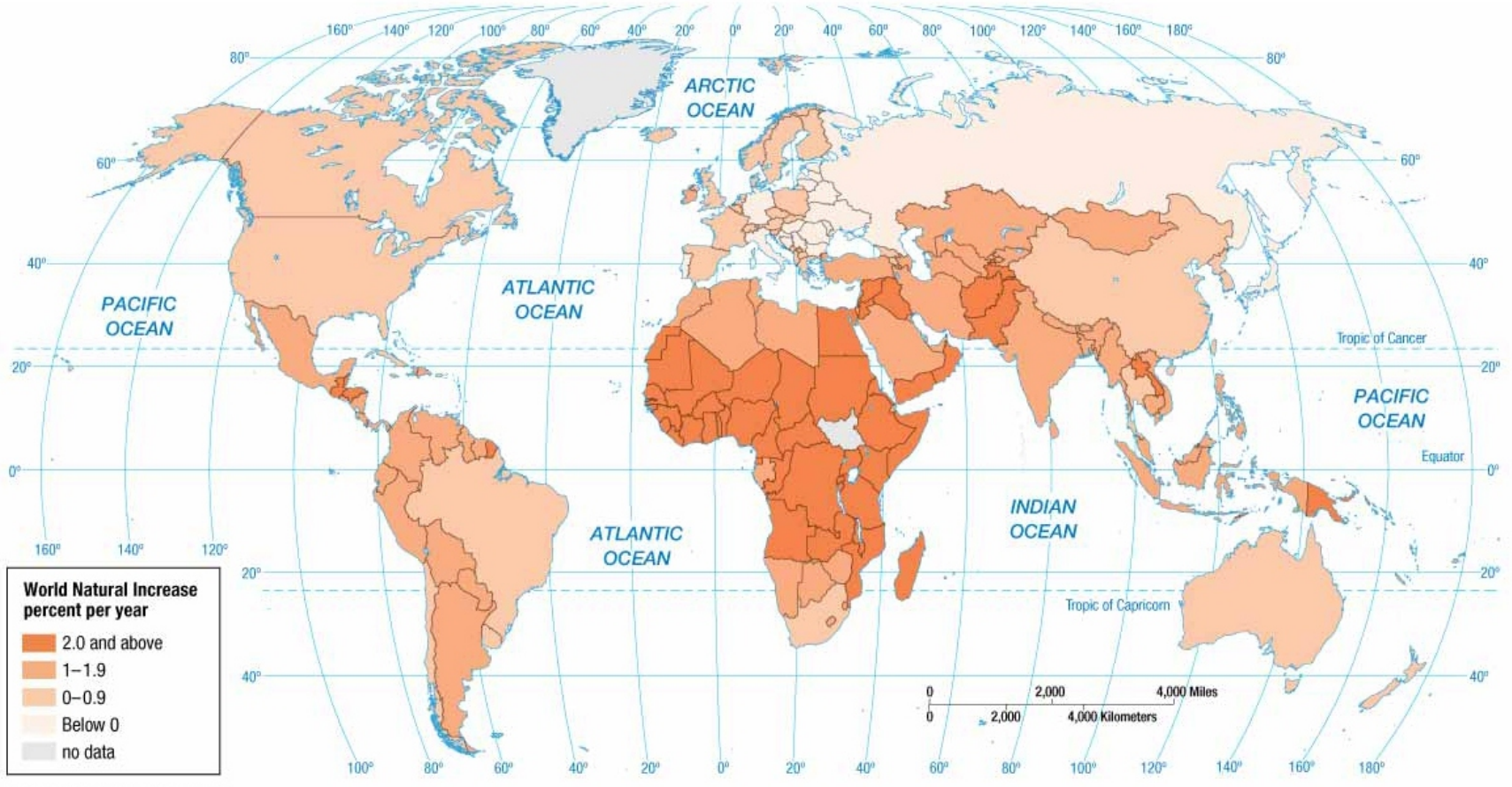
Why Is Global Population Increasing?

- Components of Population Growth
  - Geographers measure population change in a country or the world as a whole by using three measures:
    - **Crude Birth Rate (CBR)** – total number of live birth in a year for every 1,000 people alive in society.
    - **Crude Death Rate (CDR)** – total number of deaths in a year for every 1,000 people alive in society.
    - **Natural Increase Rate (NIR)** – *percentage* by which a population grows in a year.
      - Computation: CBR – CDR = NIR
        - » Remember NIR is a percentage (*n* per 100, while CBR and CDR are expressed as *n* per 1,000)



Why Is Global Population Increasing?

- Components of Population Growth
  - Natural Increase
    - About 82 million people are added to the population of the world annually.
    - Rate of natural increase affects the *doubling time*–number of years needed to double the population, assuming a constant rate of natural increase.
      - Twenty-First Century Rate (1.2 percent): 54 years
        - » Global population in 2100 would reach 24 billion.
      - 1963 (2.2): 35 years
        - » Global population in 2010 would have been 10 billion instead of nearly 7 billion.
    - More than 95 percent of the natural increase is clustered in developing countries.

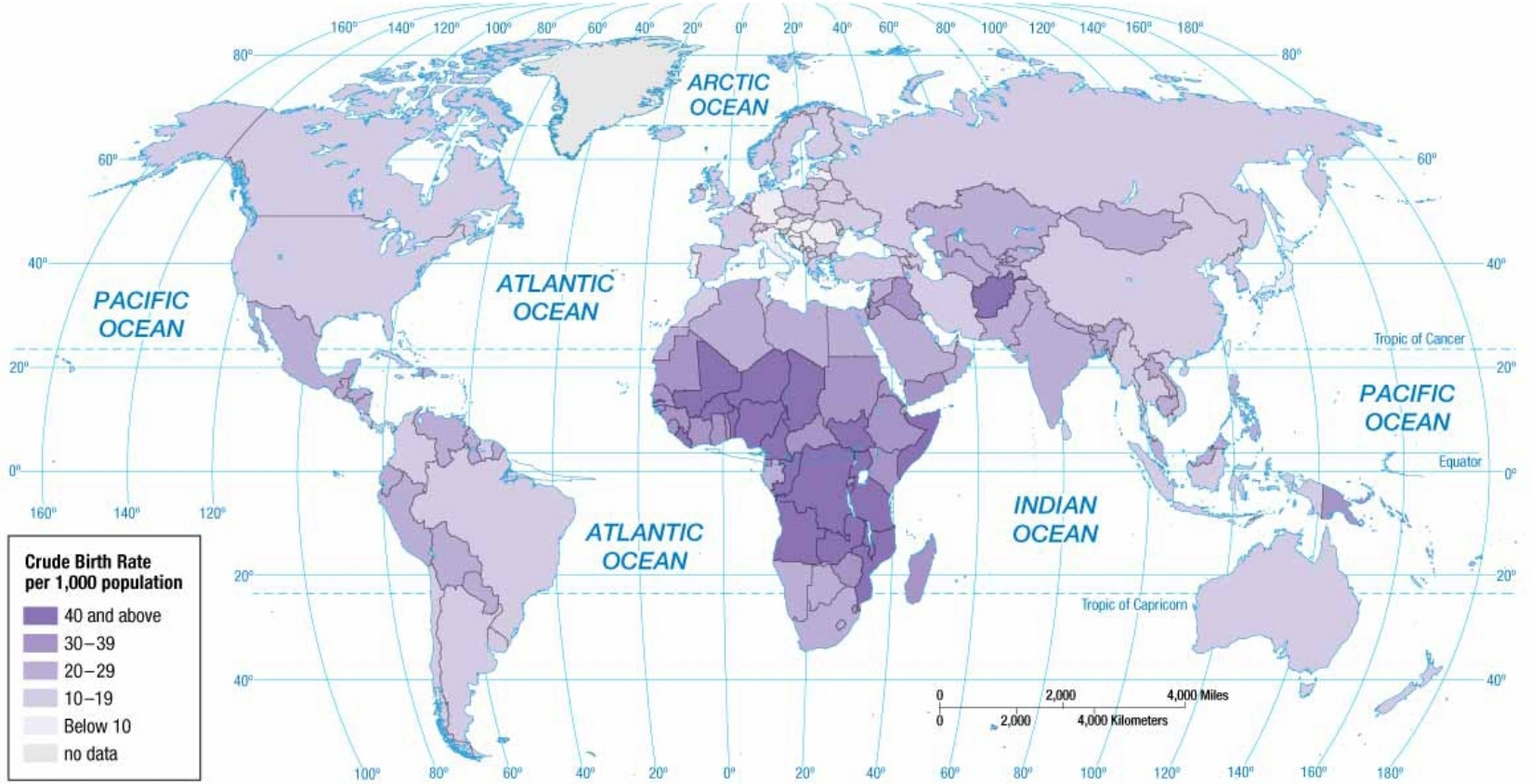


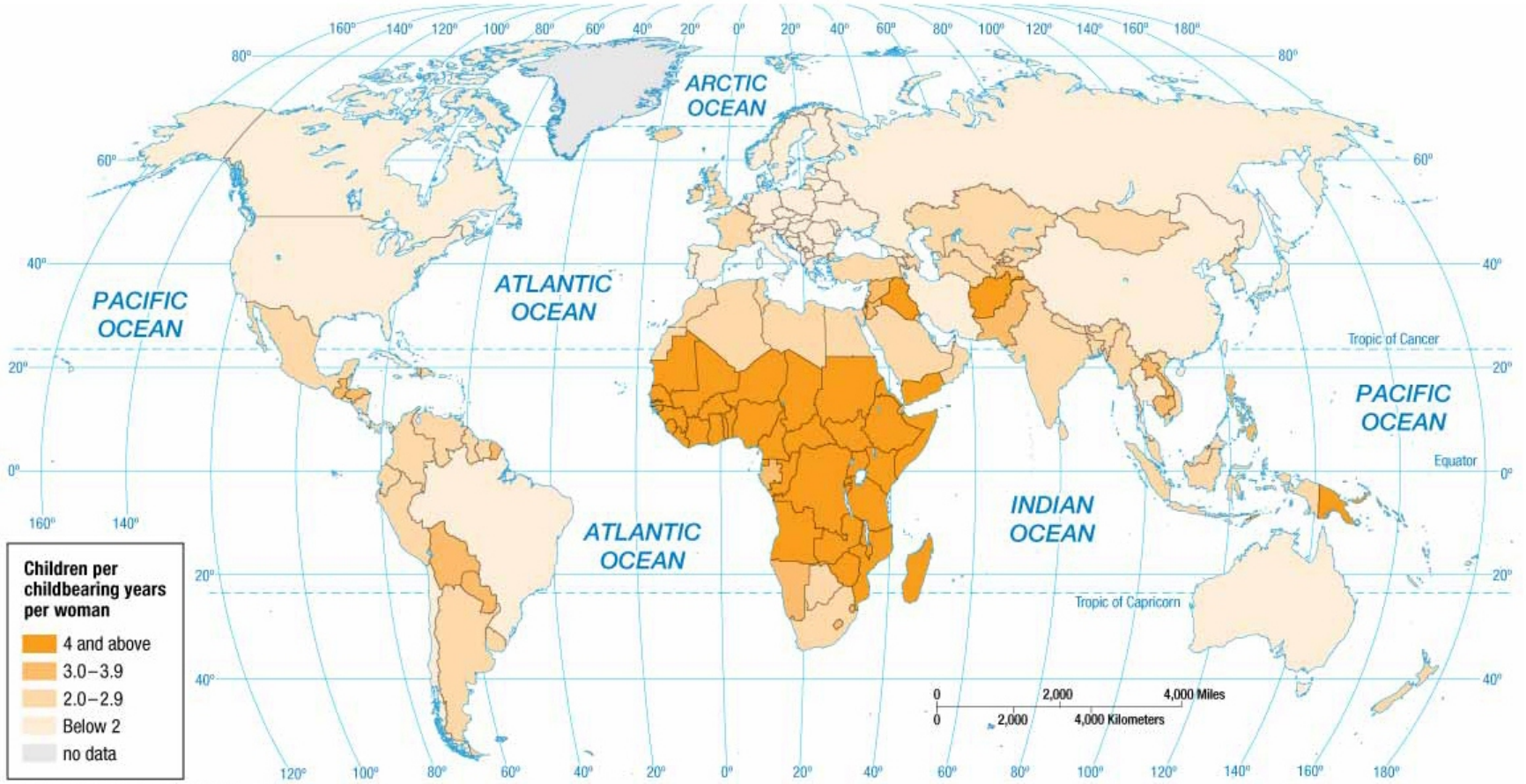
Why Is Global Population Increasing?

- Components of Population Growth
  - Fertility
    - *Total Fertility Rate (TFR)*
      - Measure also used by geographers to measure number of births in a society.
      - Defined as the average number of children a woman will have throughout her childbearing years (15–49)
      - TFR for world is 2.5.
      - TFR exceeds 5 in sub-Saharan Africa, while 2 or less in nearly all European countries.

Why Is Global Population Increasing?

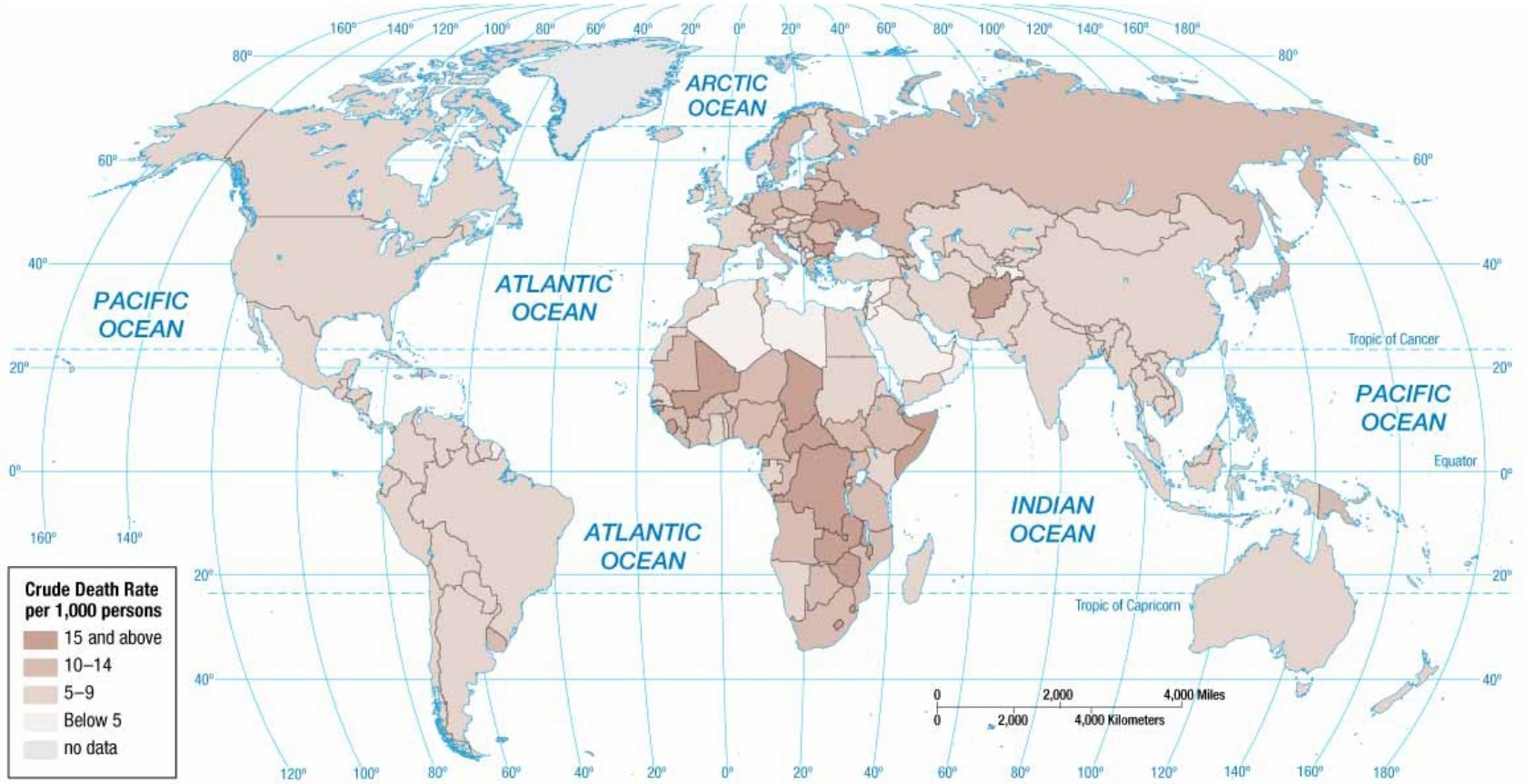
- Components of Population Growth
  - Mortality
    - *Infant Mortality Rate (IMR)*
      - Measure used by geographers to better understand death rates in a society
      - Defined as the annual number of deaths of infants under one year of age, compared with total live births
      - Usually expressed per 1,000 births rather than a percentage
      - IMR is 5 in developed countries and 80 in sub-Saharan Africa.





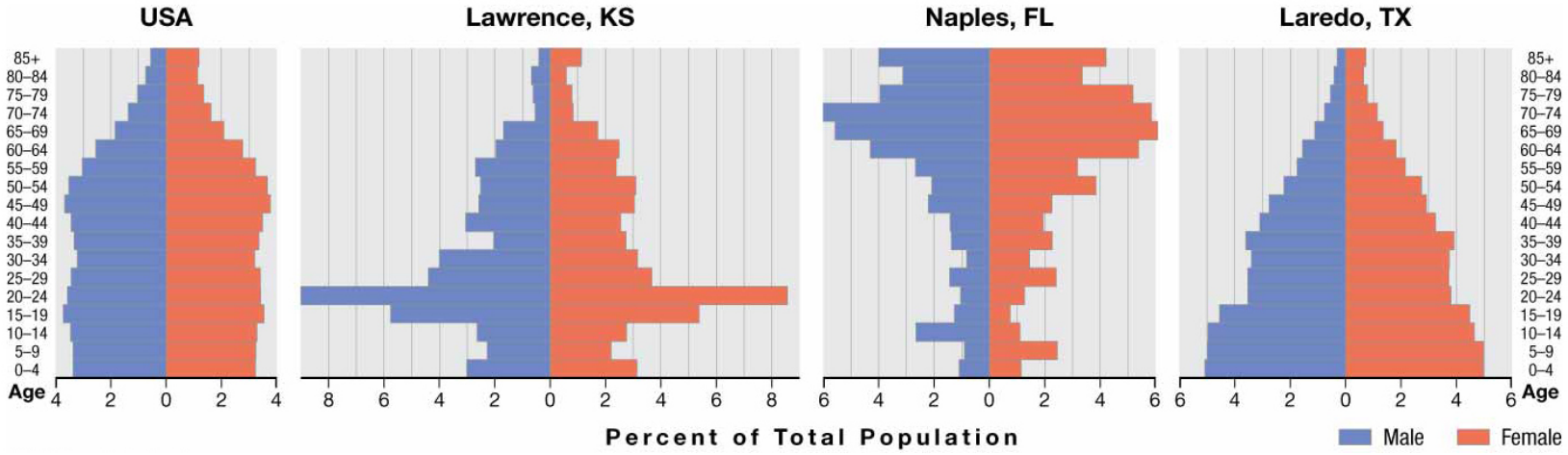
Why Is Global Population Increasing?

- Summary of Spatial Patterns
  - Developed Countries
    - Lower rates of…
      - Natural increase
      - Crude birth
      - Total fertility
      - Infant mortality
  - Developing Countries
    - Higher rates of…
      - Natural increase
      - Crude birth
      - Total fertility
      - Infant mortality



Why Is Global Population Increasing?

- Population Structure
  - Fertility and mortality vary not only spatially but also temporally within a country.
  - A special bar graph known as a *population pyramid* can visually display a country's distinctive population structure.
    - *X*-axis
      - Percent male displayed to the left of zero
      - Percent female displayed to the right of zero
    - *Y*-axis
      - Age cohorts typically grouped in 5-year intervals
      - Youngest displayed at bottom and oldest at top

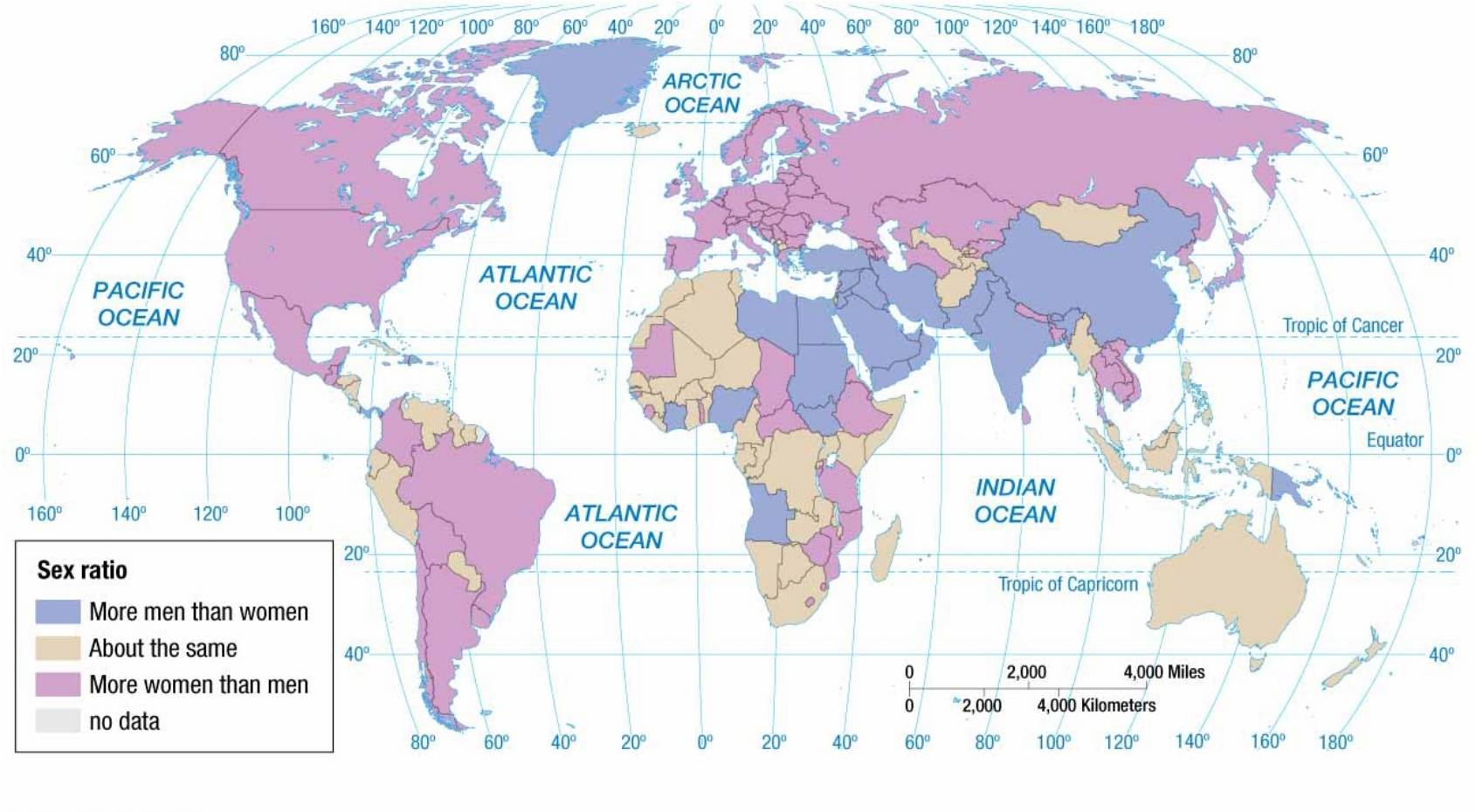


Why Is Global Population Increasing?

- Population Structure
  - Dependency Ratio
    - Defined as the number of people who are too young or too old to work, compared to the number of people in their productive years.
      - People aged 0 to 14 and over 65 years old are considered dependents.
      - Larger dependency ratios imply greater financial burden on the working class.
        - » 85 percent in sub-Saharan Africa, while 47 percent in Europe.

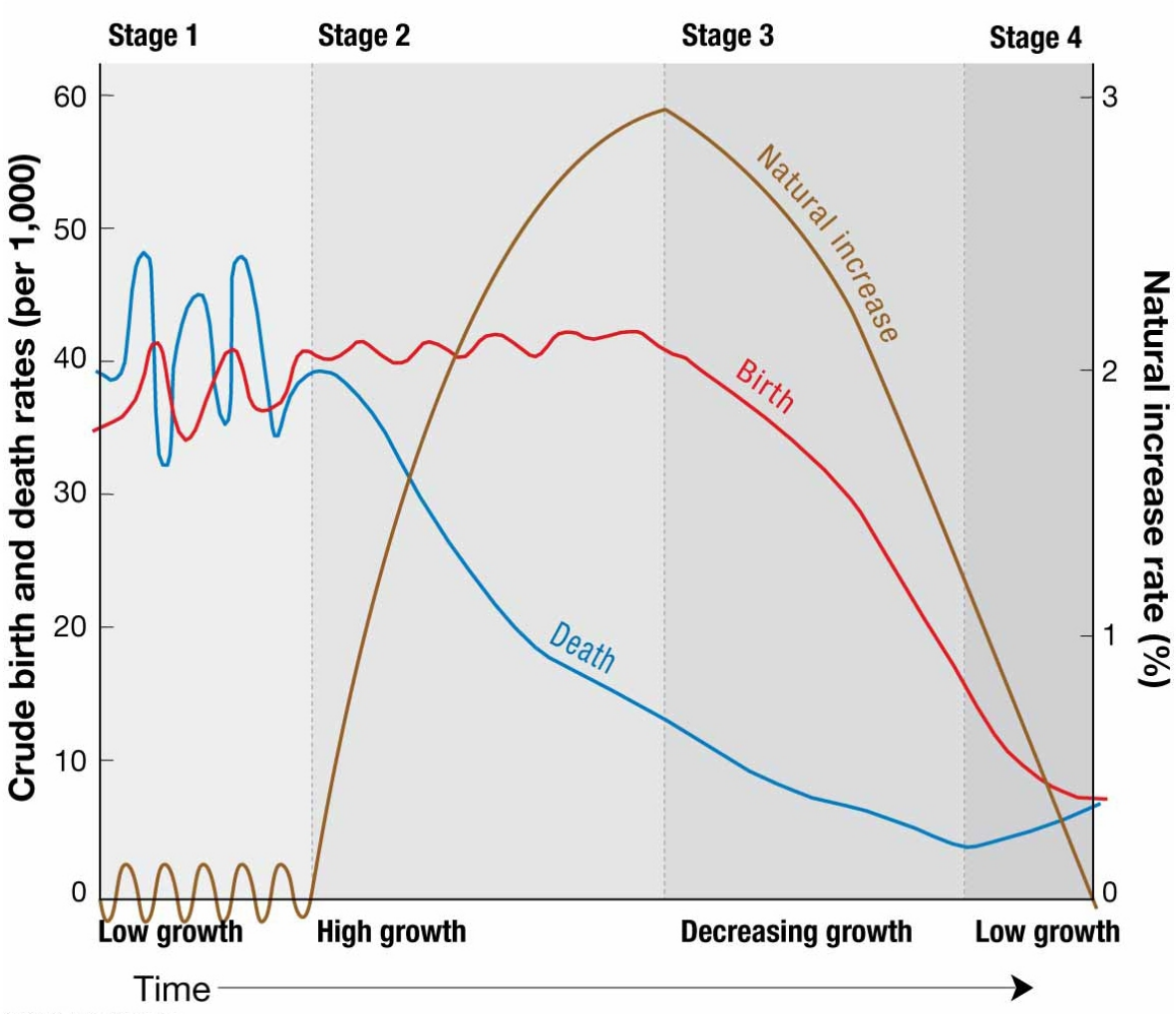
Why Is Global Population Increasing?

- Population Structure
  - Sex Ratio
    - Defined as the number of males per 100 females in the population
      - Developed countries have more females than males, because they tend to live 7 years longer.



Why Does Population Growth Vary among Regions?

- The Demographic Transition
  - It is a model consisting of four stages that helps to explain the rising and falling of natural increase over time in a country.
  - Historically, no country has ever reverted back to a previous stage.
    - Thus, the model can be thought to have a beginning, middle, and an end.



Why Does Population Growth Vary among Regions?

- The Demographic Transition
  - Stage 1: Low Growth
    - Marked by very high birth and death rates.
      - No long-term natural increase
      - No country presently is in Stage 1
  - Stage 2: High Growth
    - Marked by rapidly declining death rates and very high birth rates
      - High natural increase
      - Europe and North America entered stage 2, as a result of the *industrial revolution* (~1750).
      - Africa, Asia, and Latin America entered stage 2 around 1950, as a result of *medical revolution*-improved medical care.

Why Does Population Growth Vary among Regions?

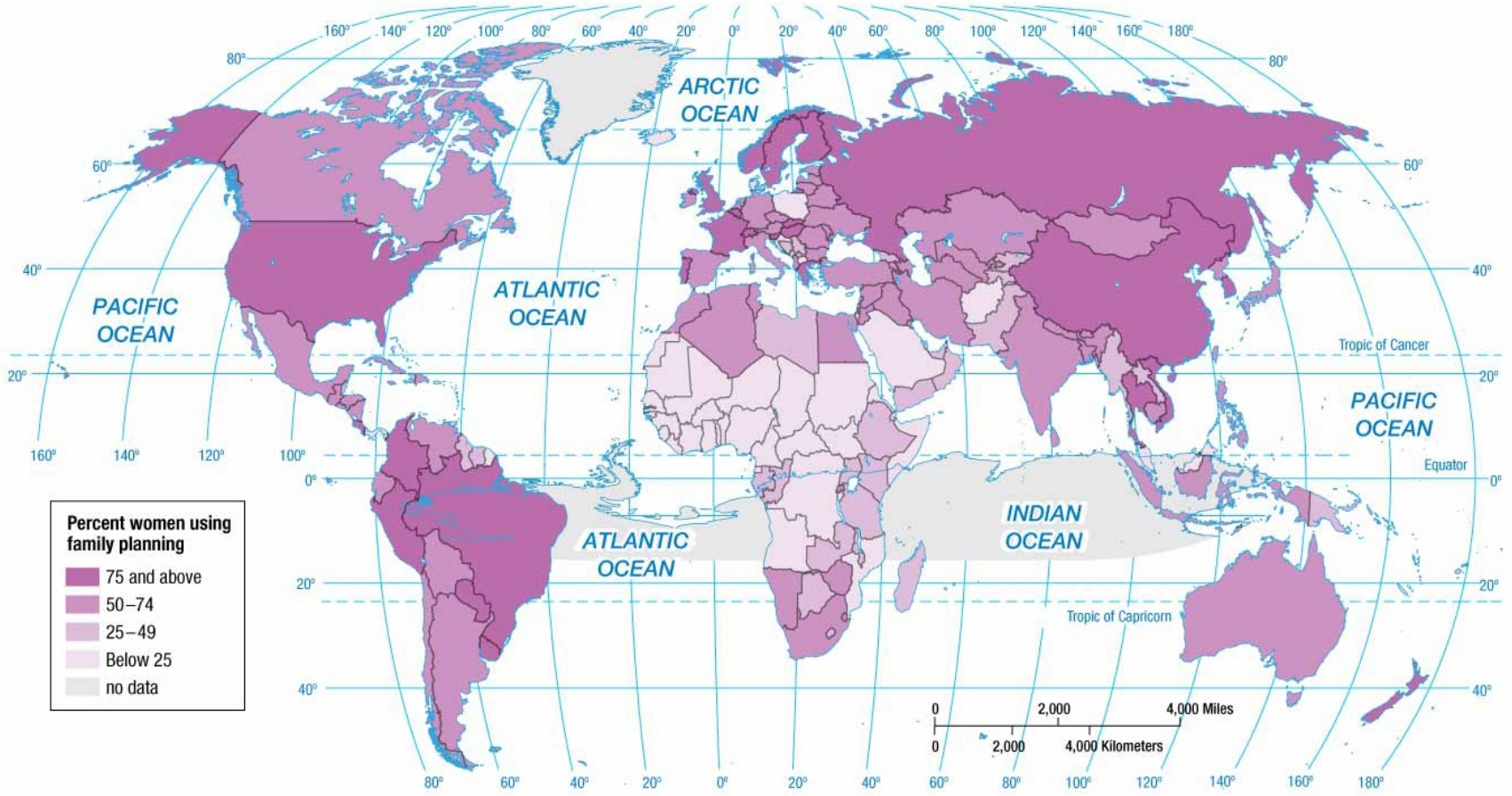
- The Demographic Transition
  - Stage 3: Moderate Growth
    - Marked by rapid decline in birth rates and steady decline in death rates
      - Natural increase is moderate.
        - » Gap between CBR and CDR is narrower in stage 3 countries than stage 2 countries.
    - Population grows, because CBR is still greater than CDR.
    - Most European countries and North America transitioned to stage 3, during first half of twentieth century.

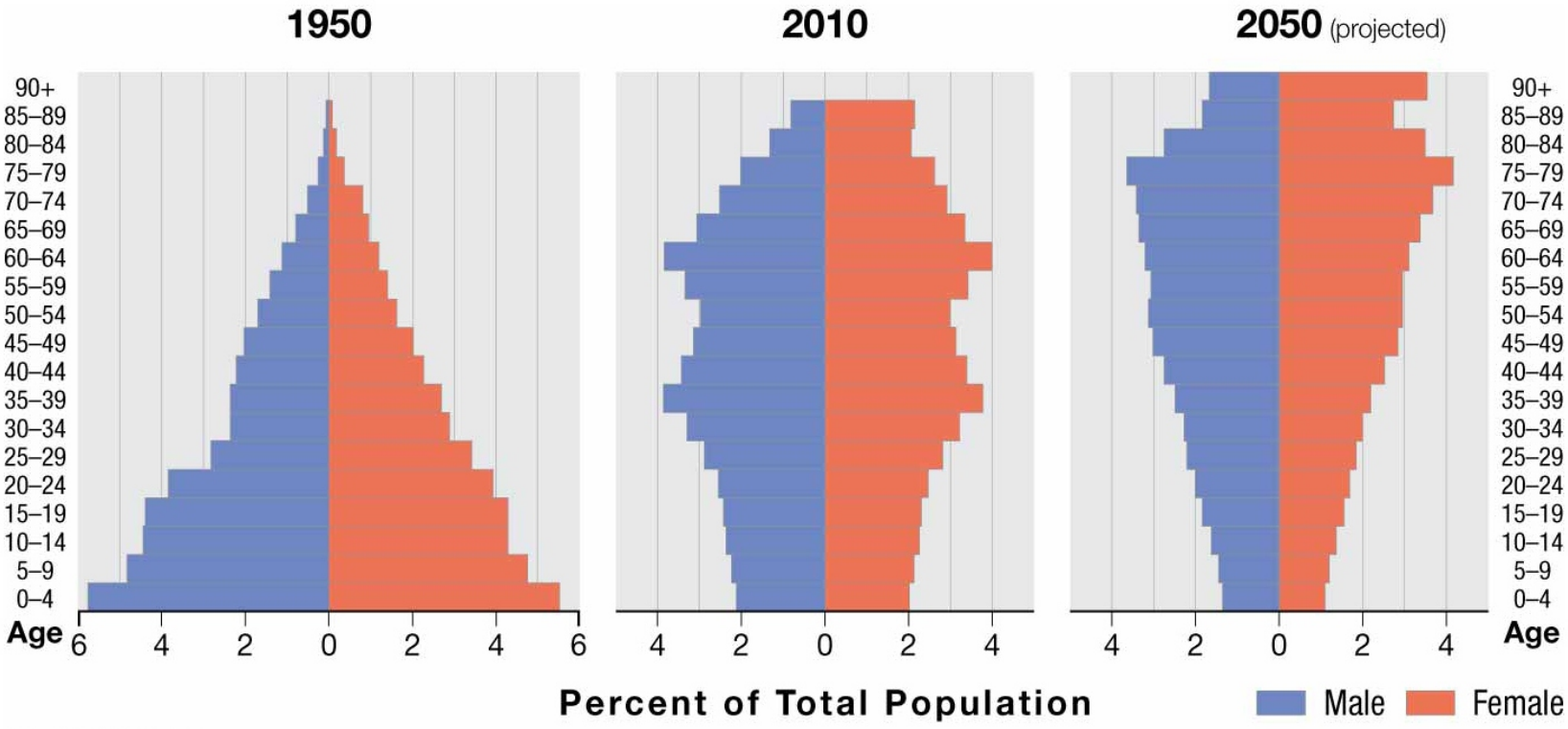
Why Does Population Growth Vary among Regions?

- The Demographic Transition
  - Stage 4: Low Growth
    - Marked by very low birth and death rates
      - No long-term natural increase and possibly a decrease
    - Country reaches stage 4 when population gains by CBR are diminished by losses because of CDR.
      - Condition known as *zero population growth (ZPG)*
        - » Demographers more precisely define ZPG as the TFR that produces no population change.
    - Population change results from immigration.

Why Does Population Growth Vary among Regions?

- Declining Birth Rates
  - Two Successful Strategies for Lowering Birth Rates
    1. Improving Education and Health Care
       - Emphasizes improving local economic conditions so that increased wealth is allocated to education and health programs seeking to lower birth rates.
    2. Contraception
       - More immediate results reaped than previous approach
       - Met with greater resistance, because it goes against cultural or religious beliefs of some.
         - » Roman Catholics, fundamentalist Protestants, Muslims, and Hindus.



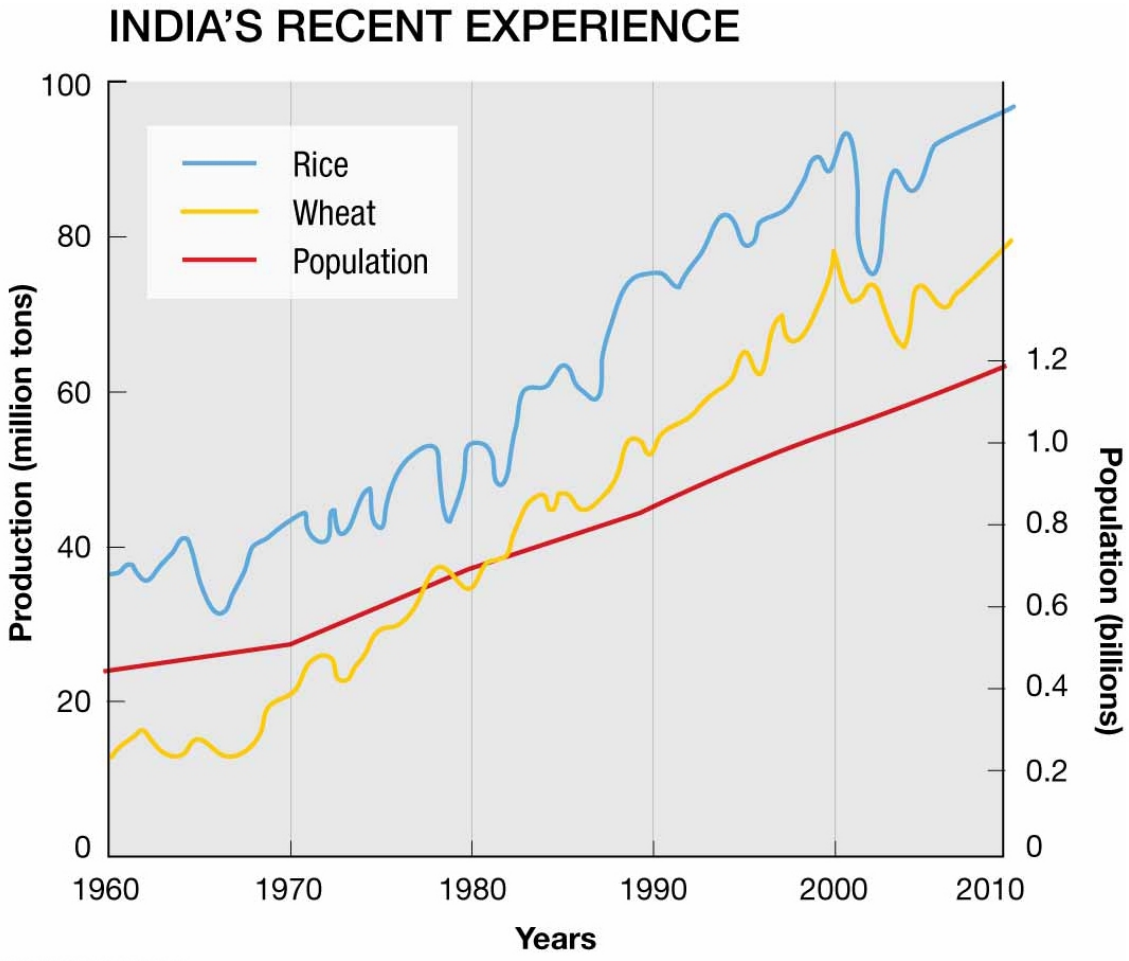


Why Does Population Growth Vary among Regions?

- Malthus on Overpopulation
  - He claimed the population was growing faster than the increase in food supply.
  - Malthus's Critics
    - Many geographers consider his beliefs too pessimistic.
      - Malthus's theory based on idea that world's supply of resources is fixed rather than expanding.
    - Many disagree that population increase is not a problem.
      - Larger populations could stimulate economic growth, and therefore, production of more food.

Why Does Population Growth Vary among Regions?

- Malthus on Overpopulation
  - Theory and Reality
    - Food production has increased over last 50 years faster than Malthus predicted.
    - His model predicted world population to quadruple over the course of 50 years.
      - Not even in India has population growth outpaced food production.



Why Does Population Growth Vary among Regions?

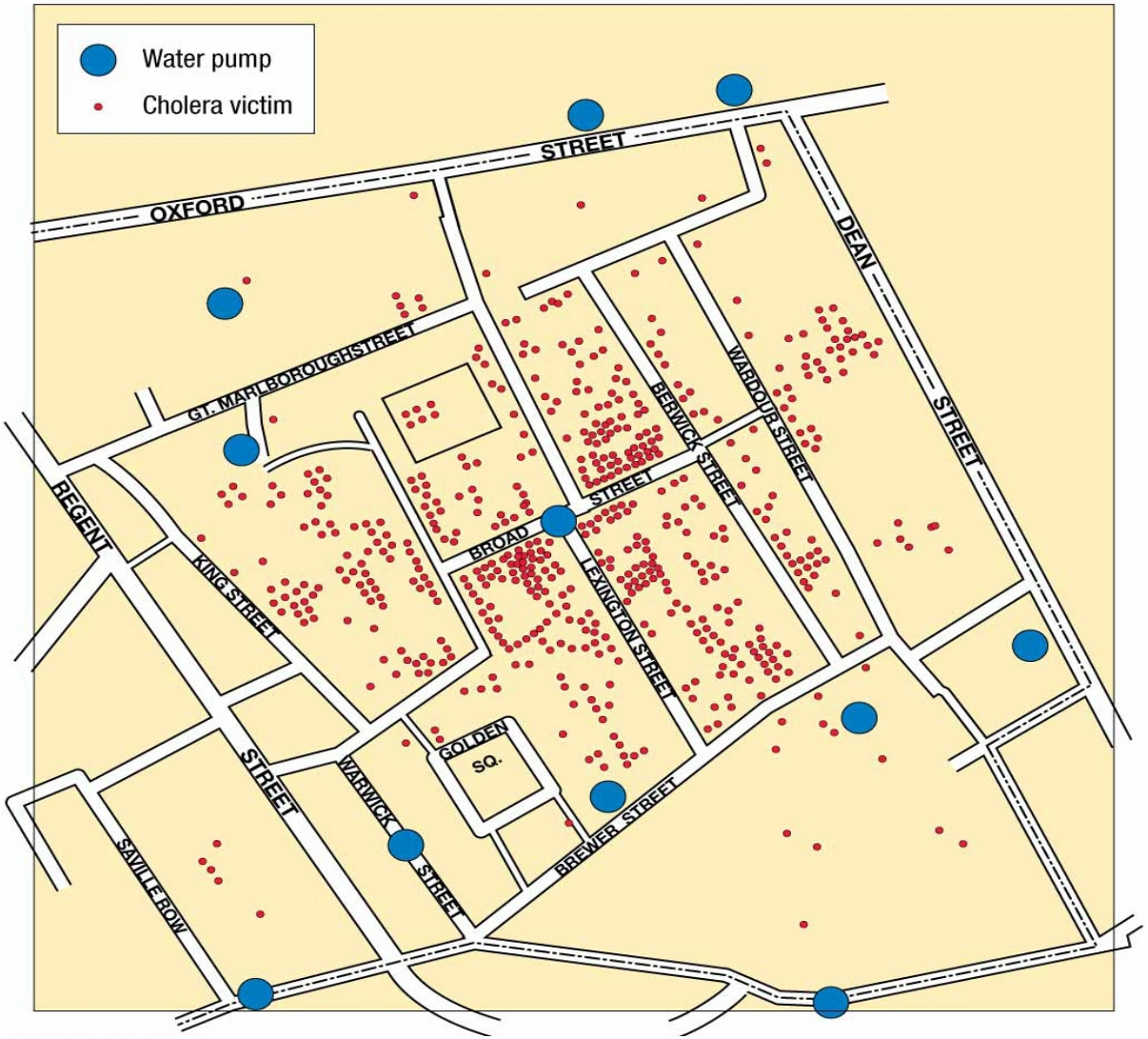
- Population Futures
  - Demographic Transition Possible Stage 5: Decline
    - Characterized by…
      - Very low CBR
      - Increasing CDR
        - » More elderly people than young persons
      - Negative NIR
      - Over time, few young women in child-bearing years
        - » Contributing to ever falling CBR
    - Several European countries already have negative NIR.
      - Russia is most notable hosting a negative NIR for 50 years.

Why Do Some Regions Face Health Threats?

- Epidemiologic Transition
  - Medical researches have identified an *epidemiologic transition* that focuses on distinct health threats in each stage of the demographic transition.
  - Stage 1: Pestilence and Famine (High CDR)
    - Principal cause of death: infectious and parasitic diseases
      - Ex. black plague (bubonic plague)

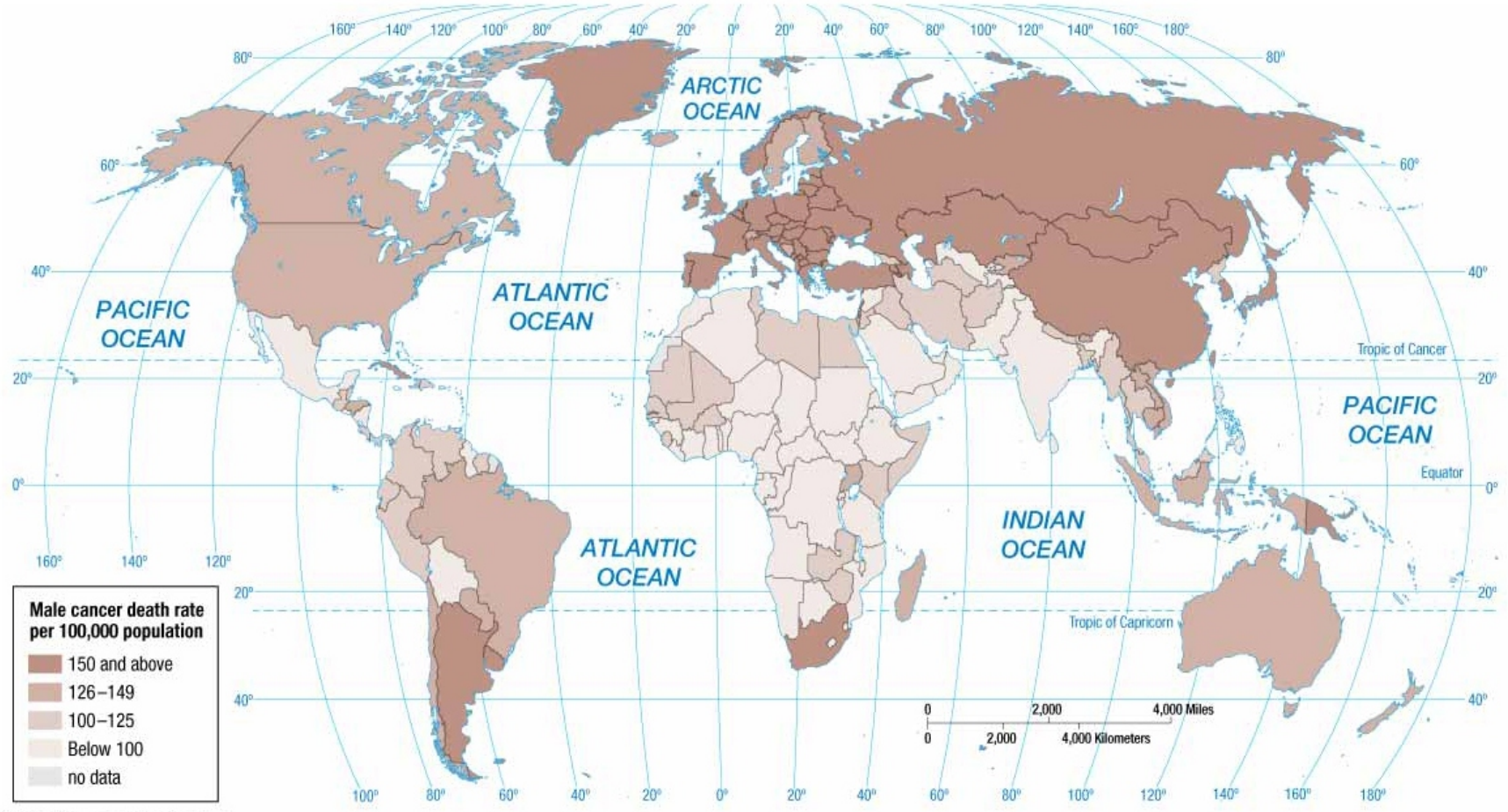
Why Do Some Regions Face Health Threats?

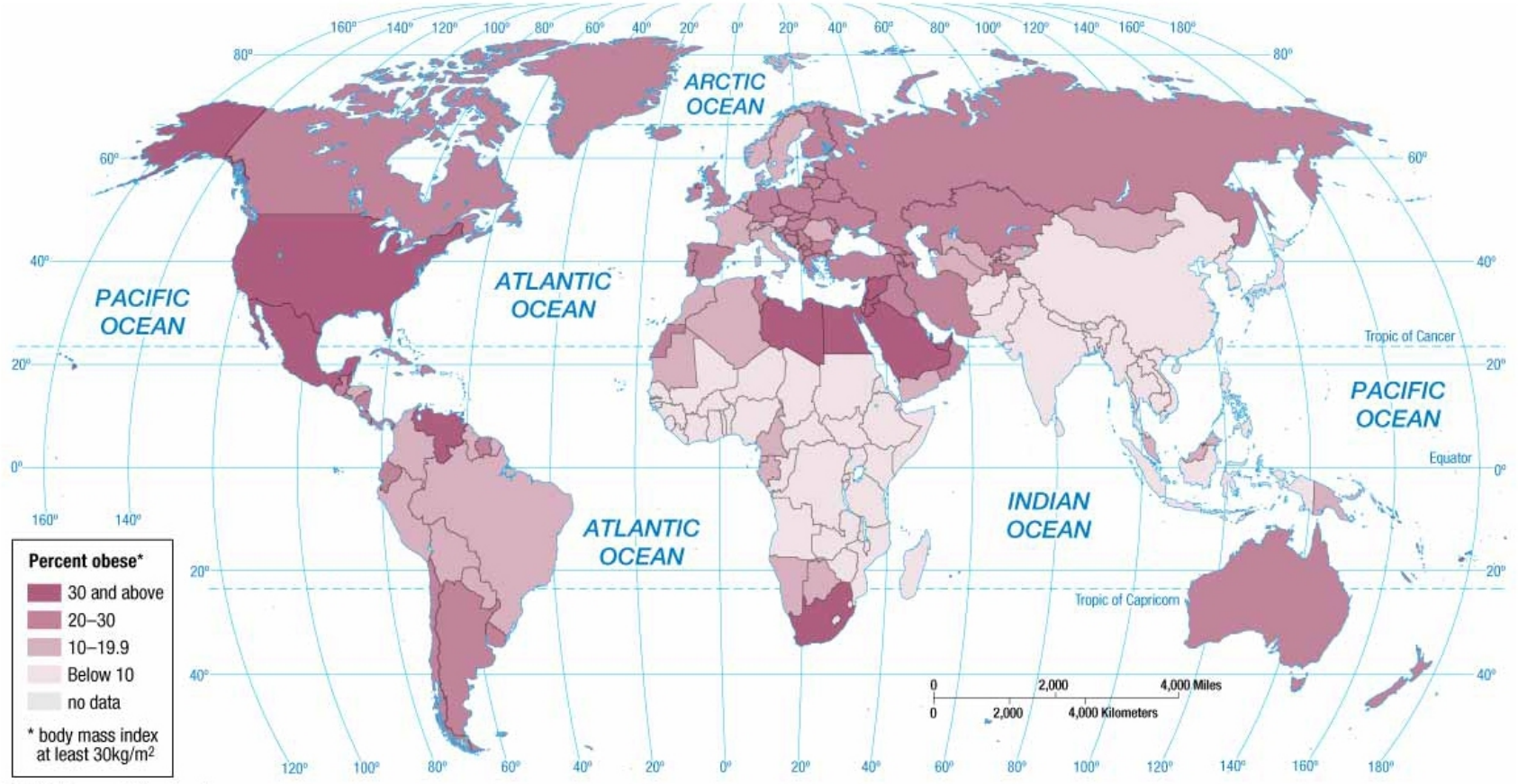
- Epidemiologic Transition
  - Stage 2: Receding Pandemic (Rapidly Declining CDR)
    - *Pandemic* is a disease that occurs over a wide geographic area and affects a very high proportion of the population.
    - Factors that reduced spread of disease, during the industrial revolution
      - Improved sanitation
      - Improved nutrition
      - Improved medicine
    - Famous cholera pandemic in London in mid nineteenth century.



Why Do Some Regions Face Health Threats?

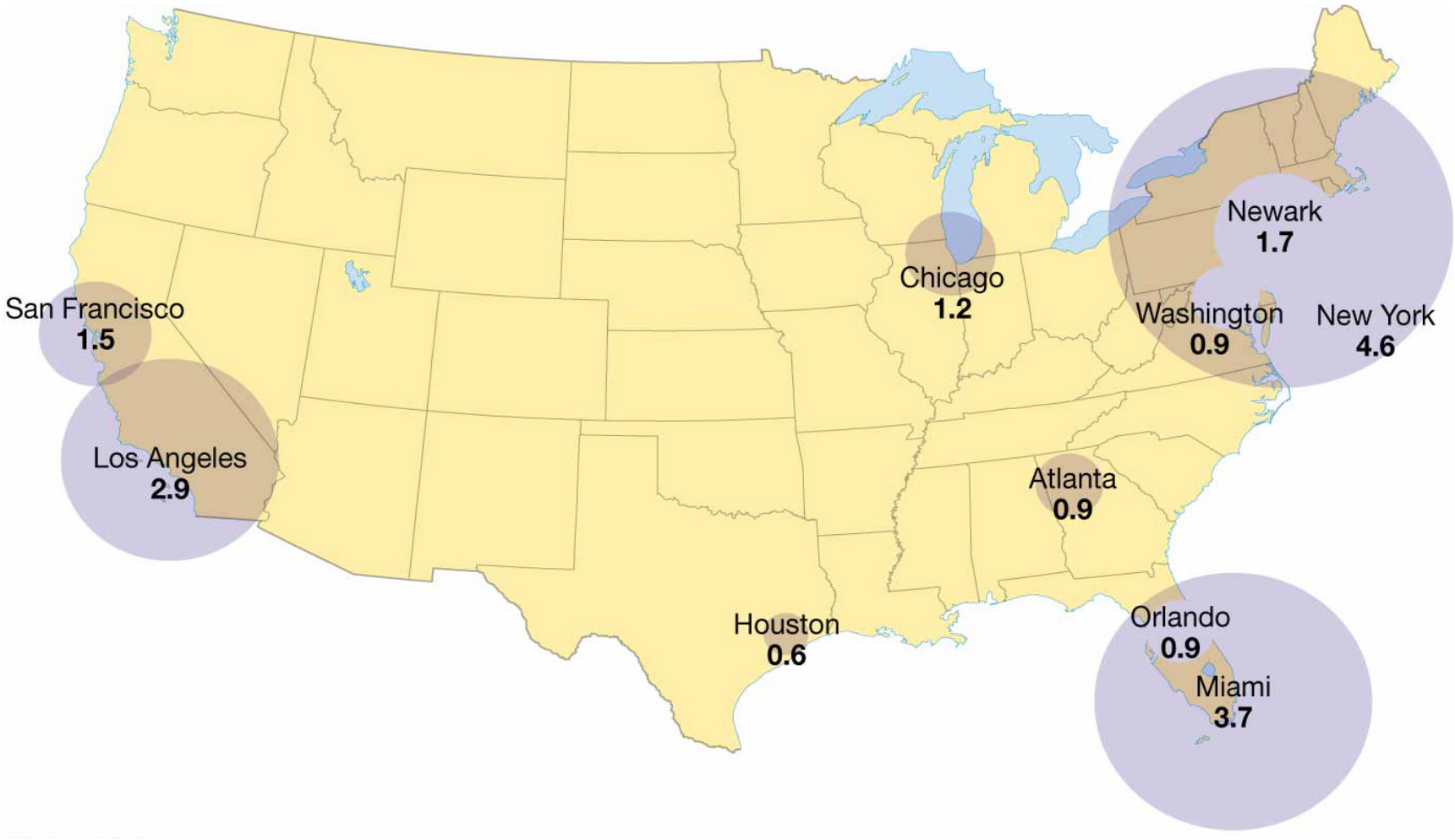
- Epidemiologic Transition
  - Stage 3: Degenerative Diseases (Moderately Declining CDR)
    - Characterized by…
      - Decrease in deaths from infectious diseases.
      - Increase in chronic disorders associated with aging.
        - » Cardiovascular diseases
        - » Cancer
  - Stage 4: Delayed Degenerative Diseases (Low but Increasing CDR)
    - Characterized by…
      - Deaths caused by cardiovascular diseases and cancer delayed because of modern medicine treatments.





Why Do Some Regions Face Health Threats?

- Infectious Diseases
  - Reasons for Possible Stage 5
    - Evolution
      - Infectious disease microbes evolve and establish a resistance to drugs and insecticides.
      - Antibiotics and genetic engineering contributes to the emergence of new strains of viruses and bacteria.
    - Poverty
      - Infectious diseases are more prevalent in poor areas because of presence of unsanitary conditions and inability to afford drugs needed for treatment.
    - Increased Connections
      - Advancements in modes of transportation, especially air travel, makes it easier for an individual infected in one country to be in another country before exhibiting symptoms.

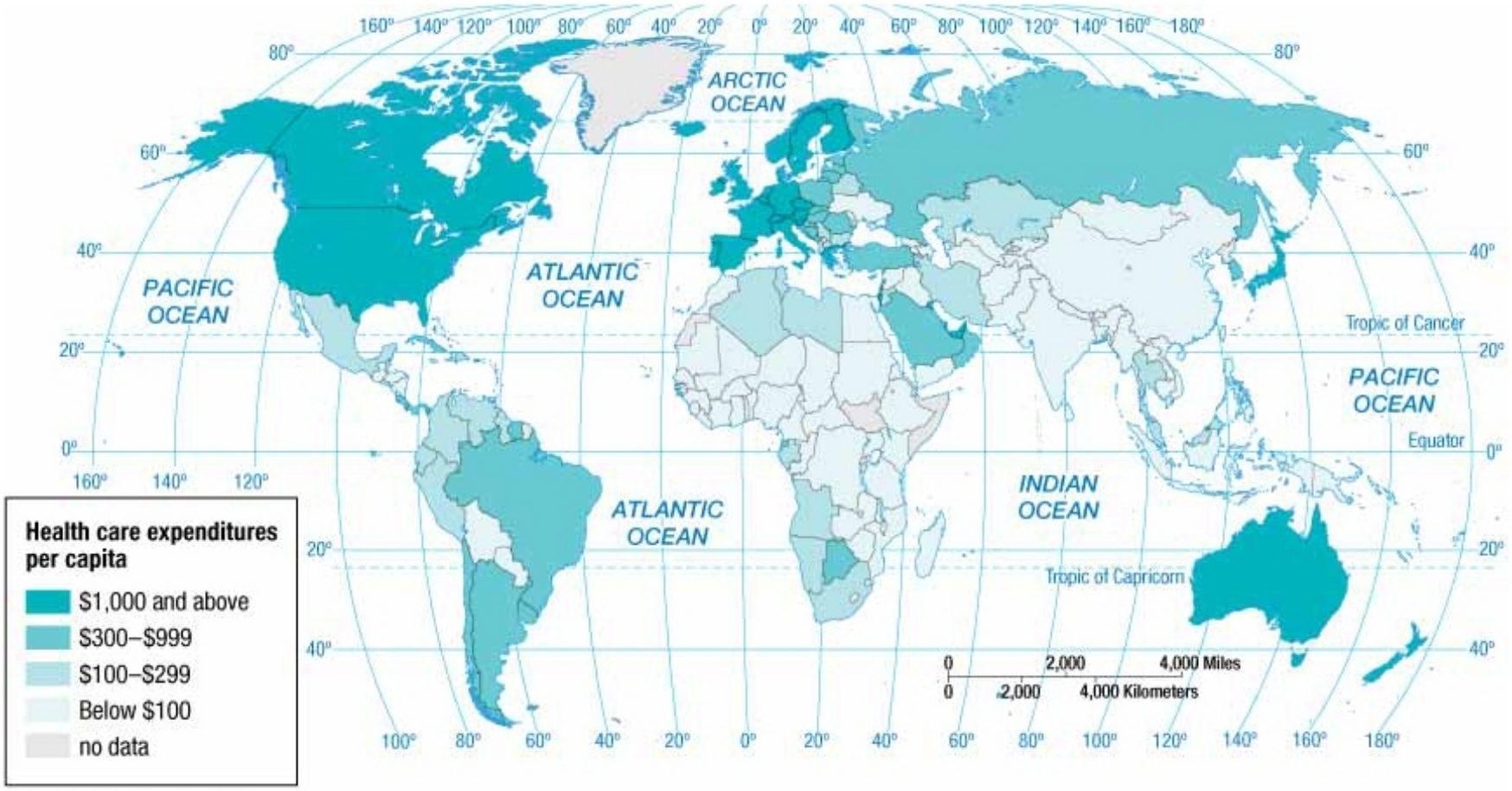


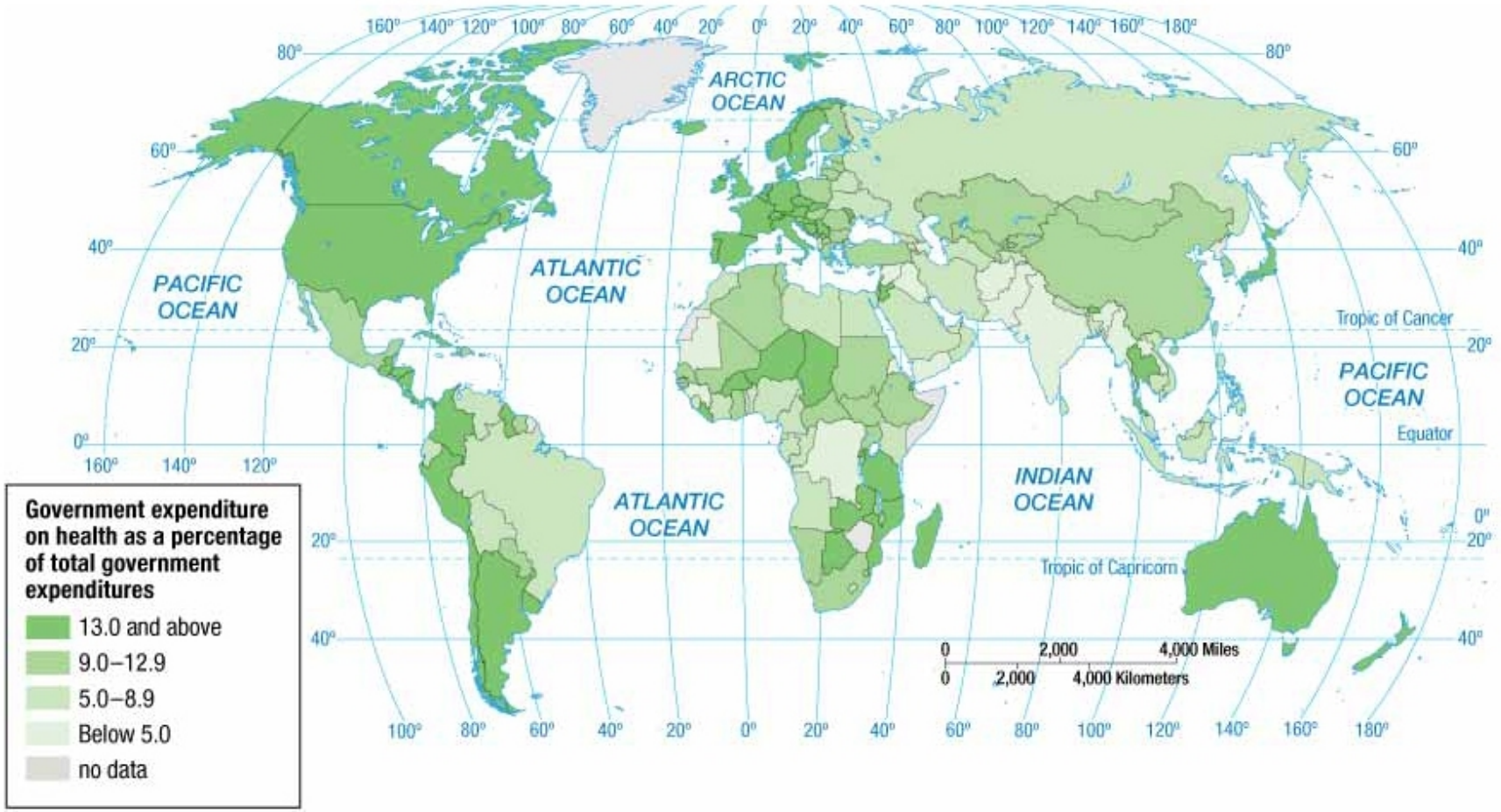
Why Do Some Regions Face Health Threats?

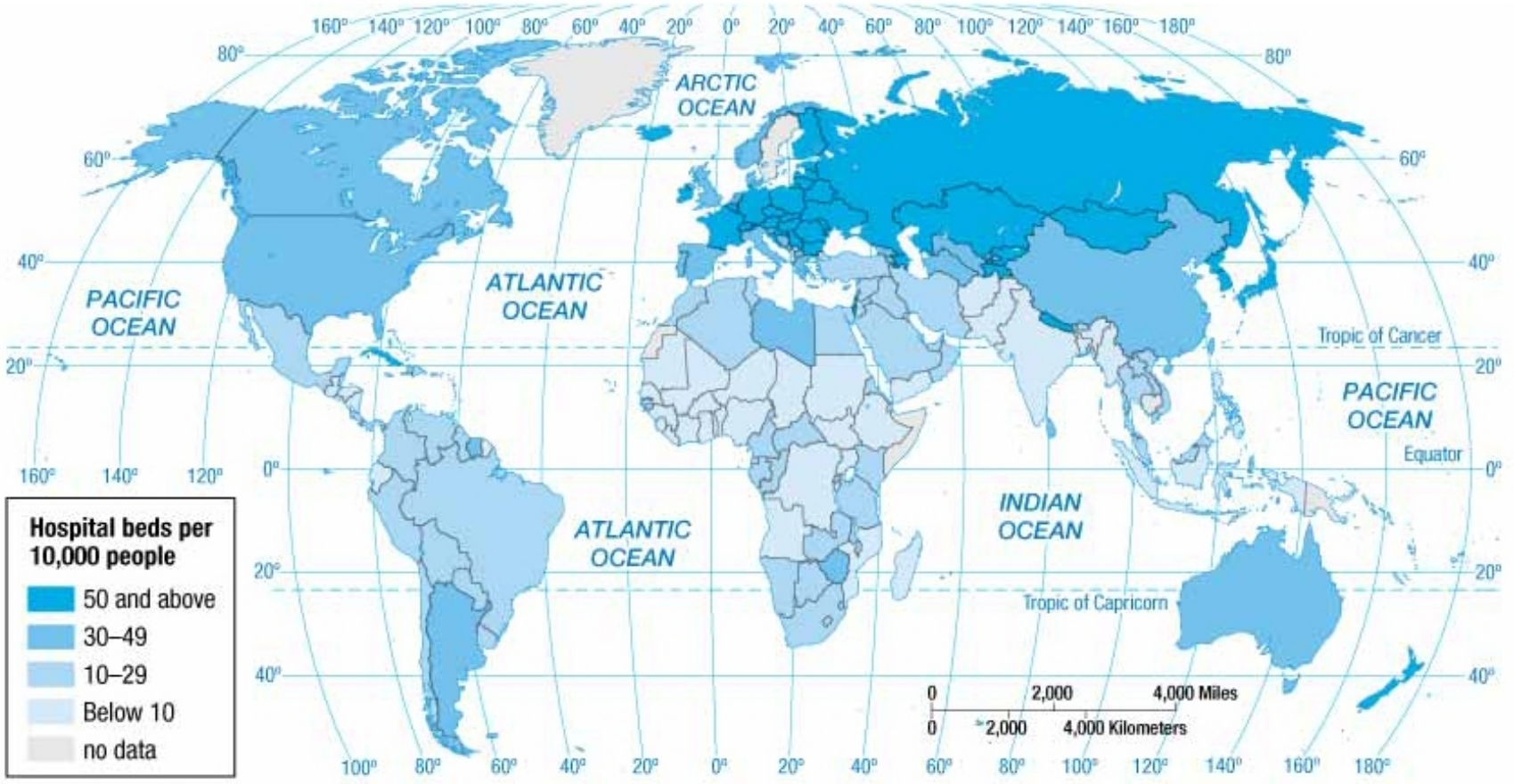
- Health Care
  - Health conditions vary around the world, primarily, because countries possess different resources to care for people who are sick.
    - Expenditures on Health Care
      - More than 15 percent of total government expenditures in Europe and North America.
      - Less than 5 percent in sub-Saharan Africa and South Asia.

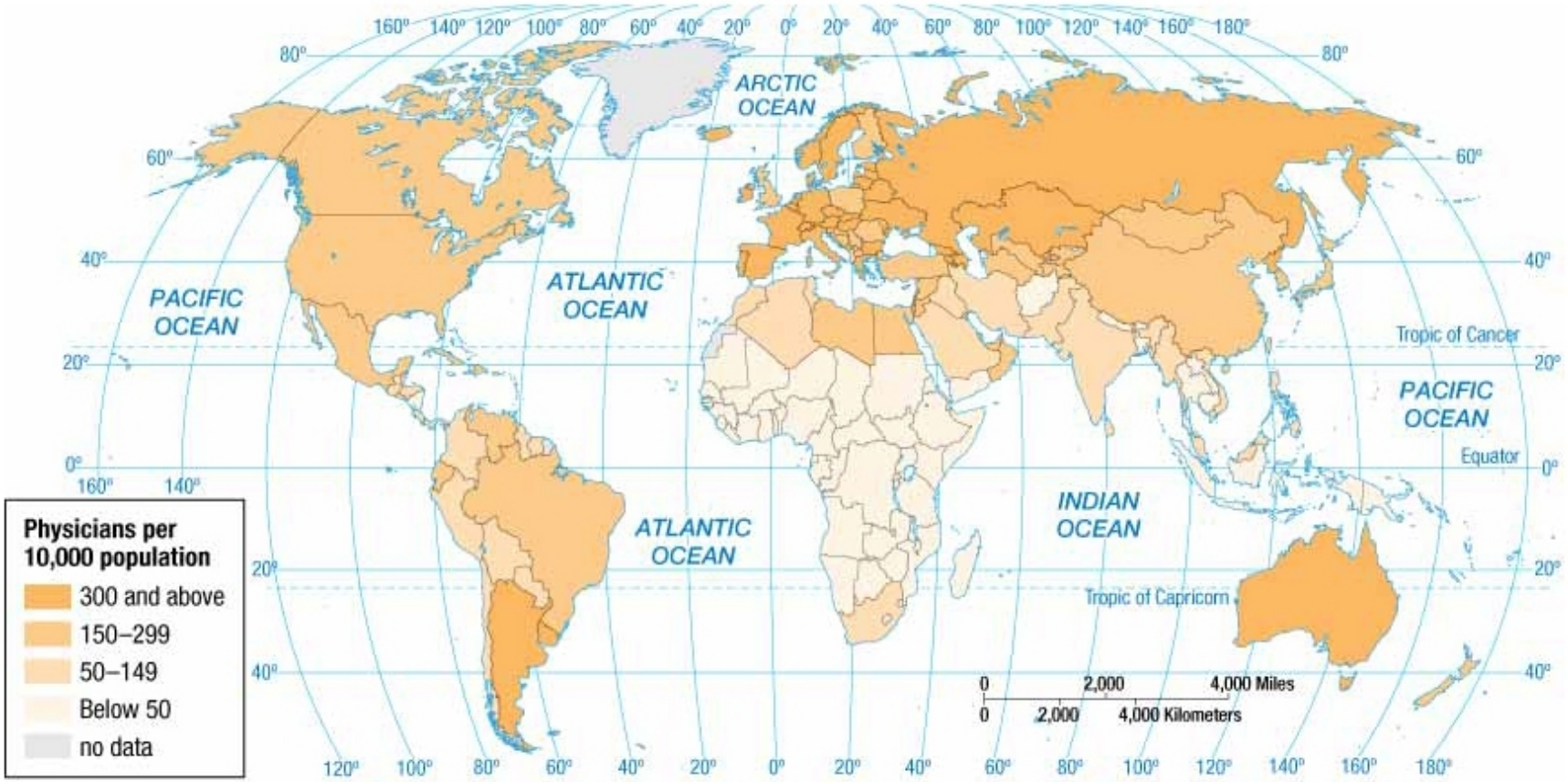
Why Do Some Regions Face Health Threats?

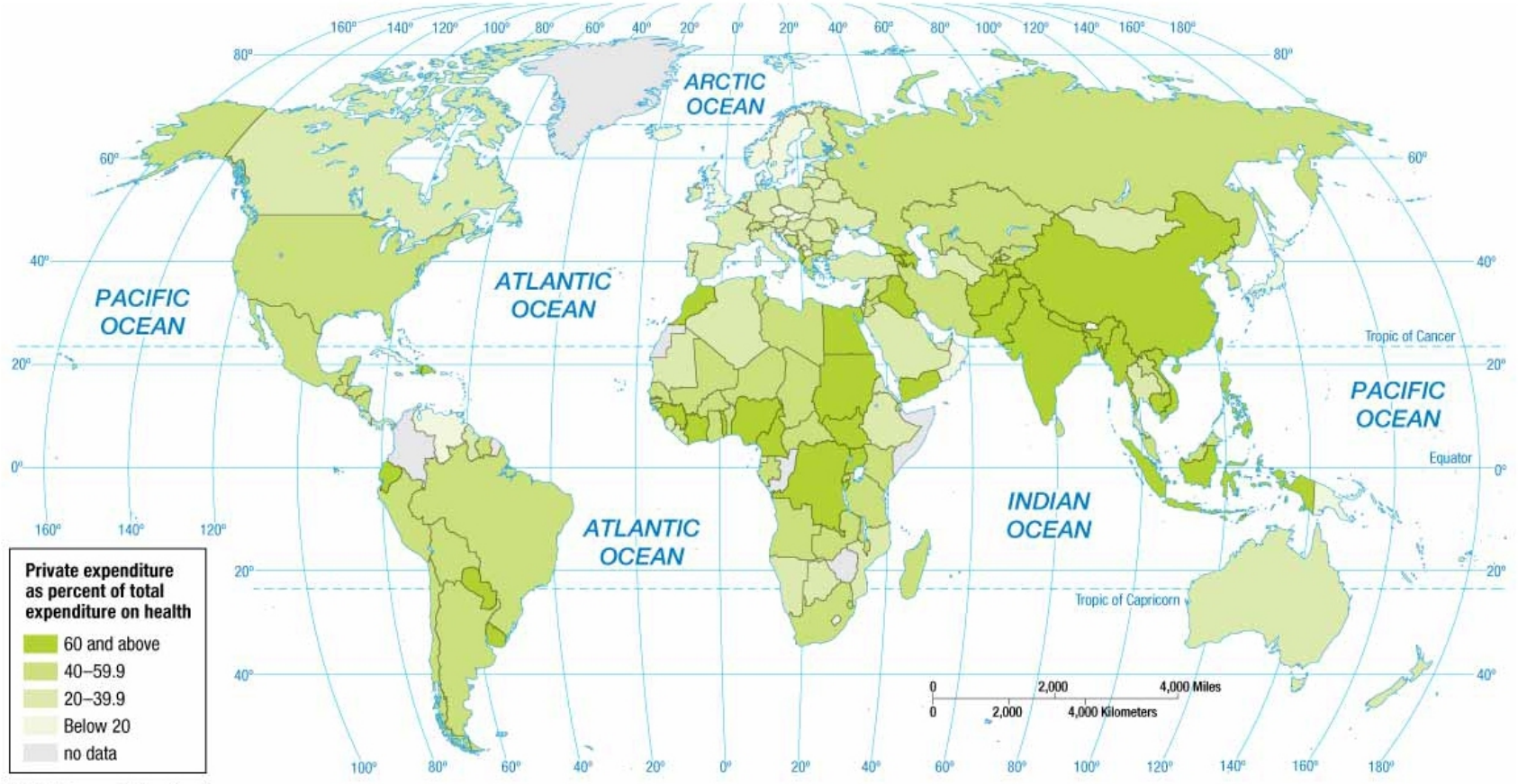
- Health Care
  - Health Care Systems
    - Developed Countries
      - Public service available at little or no cost.
      - Government pays more than 70 percent of health-care costs in most European countries, and private individuals pay about 30 percent of the expense.
    - Developing Countries
      - Private individuals must pay more than half of the cost of health care.
        - » U.S. is an exception to these generalizations, because private individuals are required to pay about 55 percent of health care costs making it more closely resemble a developing country, in regards to health care.











Summary

- Global population is concentrated in a few places that are not too wet, too dry, too cold, or too mountainous.
- Nearly all NIR is concentrated in developing countries.
- Developed countries have a stable population, if not slightly declining.
- Population growth varies among regions, because not all countries are in the same stage of the demographic transition model.

Summary

- Intimately connected to the demographic transition model is the epidemiologic transition model that helps to explain why different regions face varying health threats.