Population Geography

Chapter 6

Population Geography vs. Demography

- **Population geography**
  - Focuses on the number, composition, and distribution of humans in relation to variations in the conditions of earth space
  - Spatial analysis – the relationship of numbers to area
- **Demography**
  - The statistical study of human population

Population

- How many people live on Long Island?
  - 283,288
- How many people live in New York?
  - 2010 Census – 19,378,102
- How many in the United States?
  - 2100 Census – 308,745,538
- How many live on earth?
  - 6.5 billion people + (estimate)
    - How many times around the globe would the world’s population extend if everyone held hands?
      - 162.5 times

Population Growth

- World population is about 6.7 billion
  - Annual increase of 74-75 million
    - Annual increases have been declining
- 2006 UN projections
  - 9.2 billion in 2050
  - 9.4-9.5 billion by 2100
- Future growth will occur in developing countries

Distribution of Population

- Clusters
  - East Asia – 1/5 of the world’s population
    - China, Japan, Korean Peninsula, Taiwan
  - South Asia – 1/5 of the world’s population
    - India, Pakistan, Bangladesh, Sri Lanka
  - Southeast Asia – 500 million people
    - Java, Sumatra, Borneo, Papua New Guinea, Philippines
  - Europe – most live in urban areas
    - Eastern/Western Europe, European Russia
Distribution of Population

- **Ecumene** – the portion of the earth that supports permanent settlement
  - Covers most of the planet excepts areas:
    - Too dry - deserts
    - Too wet - rainforests
    - Too Cold - poles
    - Too high – high mountains

Population Definitions

- Population measures are made more meaningful by rates and cohort measures
  - **Rates**
    - Frequency of occurrence during a specified time period
      - Marriages per 1000 population in the United States
  - **Cohort**
    - Population group unified by a common characteristic, such as age
      - Population aged 1-5 years

- **Crude Birth Rate (CBR)** – total number of births divided by the total population
  - world CBR is 22 per 1,000
  - Influenced by age and sex structure, customs and family size expectations, population policies
    - **High birth rates** (≥ 30)
      - Characteristic of agricultural, rural countries in which a high proportion of the female population is young
    - **Low birth rates** (< 18)
      - Characteristic of industrialized, urbanized countries
    - **Transitional birth rates** (18-30)
      - Some developing and newly industrializing countries

- **Crude Death Rate (CDR)**: total number of deaths divided by the total population
  - a figure per 1,000 of the population
  - world CDR is 9 per 1,000

World Health Threats

- **The Impact of AIDS on Africa**
  - Southern Africa is ground zero for the AIDS epidemic
  - 2/3 of world’s AIDS cases are found in Sub-Saharan Africa
  - Drugs are too expensive, so education is best way to stem epidemic
  - AIDS may reduce growth rate
  - 10% of world population
  - 20 million worldwide, 17 millions in Sub-Saharan Africa
  - 1999 – Infection rates:
    - Botswana & Zimbabwe – 1/3 of their populations
Population Definitions

- **Total fertility rate (TFR)** – the average number of children born by a statistically average woman
- Worldwide TFR in 2007: 2.7
  - More-developed countries: 1.6
  - Less-developed countries: 2.9
- **Percentage of population under age 15 – %** aged 15 years and younger
  - Signals future rapid population growth
- **Percentage of population over age 65 – %** aged 65 and older

Population Pyramids

- Population pyramids show the gender and percentage of the population in specific age groups
  
  - Rapid Growth = high percentage of population entering fertility years
  - Slow Growth = very narrow base, indicating few people of child bearing ages.
  - Zero/Declining Growth = very narrow base, narrower for the youngest children, indicating fewer people entering child bearing ages
  - Disrupted Growth = disruption to the pyramid – WWII pinched the population growth

What do population pyramids show us?

- **Dependency Ratio** – # of people to old or young to work vs. # of people in productive years

What do these tell us?

- Why are we concerned?
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Why are we concerned?

Natural Increase and Doubling Time

- **Rate of natural increase**
  - annual growth rate for a country or region as a percentage increase
    - annual number of births − annual number of deaths = RNI
    - Current world RNI is 1.2% per year

- **Doubling time**
  - Time it takes for a population to double if current growth rate remains constant
    - Rule of 72: divide 72 by rate of natural increase to determine doubling time

Natural Increase and Doubling Time

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<th>Doubling Time (Years)</th>
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Demographic Transition

- Explains the shift from high birth rates and high death rates → low birth rates and low death rates
- as part of the economic development of a country
- migrates from a pre-industrial → industrialized economy.

Demographic Transition

- **Stage 1: High Births – High Deaths**
  - Pre-industrial economy
  - All but the hunter gatherers have developed beyond stage one.

Demographic Transition

- **Stage 2: High Births – Declining Deaths**
  - Developing Country
  - Improving food and water supply
  - Improving sanitation
  - Improvements in farming technology
  - Improvements in education
  - Results in a large population increase
Demographic Transition

- **Stage 3: Declining Births**
  - Contraception
  - Urbanization
  - Reduction of subsistence agriculture
  - Increase in status and education of women
  - Reduction of child labor
  - Increase in parental investment in children
  - Population growth begins to level off

- **Preindustrial**
  - **Transitional**
  - **Industrialized**

Demographic Transition

- **Stage 4: Low Births – Low Death**
  - Stabilization of population
  - Idealized end point
  - Developed

- **Preindustrial**
  - **Transitional**
  - **Industrialized**
  - **Deindustrialization**

**Population Density**

- **Arithmetic Density**
  - Total number of people divided by total area (aka = population density)
  - Not always a good indicator of how densely populated an area is
  - Variation with a country
    - Manhattan ~ 89,000 square miles
    - Loving County TX ~ 0.08 / square mile

- **Physiological density**
  - Number of people per unit of arable land
  - Better indicator of overpopulation than crude population density

Population Density

- Egypt – 3% of land is arable –
  - Population: 81,713,517 (2008 est.)
  - 995,450 land area * .03 = 29,863.5 km² of arable land
  - **Arithmetic density** = 81,713,517 / 995,450 = 82 people / km²
  - **Physiological Density** = 81,713,517 / 29,863.5 = 2703 people / km²
  - Physiological densities are among the highest on Earth

- **Agricultural density** – the number of farmers per unit of arable land

What do these densities tell us?

- Netherlands vs. Bangladesh
  - Physiological → both high
  - Agricultural → Netherlands = very low

  - Geographers conclude – high food demands, but Netherlands are more efficient farmers, requiring fewer farmers
Overpopulation

- Not always a result of high population
- Carrying Capacity
  - The number of people the land can sustain and support
- Where is overpopulation on the planet?
  - Africa
- What problems exist with it?
  - Can’t feed people
  - Leads to malnutrition.

Urbanization

- Transformation from rural to urban status
- Rapid growth of cities in developing countries
  - Nearly all world population increase between 2000 and 2030 will be in urban areas of developing countries
- Consumes a great deal of cropland
- Problems in densely populated cities in developing countries
  - Lack of housing, jobs, education, health and social services