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 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

Population Growth

- 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

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

Distribution of Population
Distribution of Population

**Ecumene** – the portion of the earth that supports permanent settlement
- Covers most of the planet excepts areas:
  - Too dry (North Africa, central Asia, Australia)
  - Too wet (SE Asia, C Africa, interior SA)
  - Too Cold (poles)
  - Too high (Central Asia)

Population Definitions

- **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

Death Rates

- Modern medicine and sanitation have increased life expectancy
- Regional variation in benefits
- **HIV/AIDS**
  - Sub-Saharan Africa has been hit hardest
  - Average life expectancy has been cut
  - Food insecurity

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
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
- Percentage of population over age 65 – % aged 65 and older

Population Pyramids

- Graphic depiction of the age and sex composition of a population
- Types of population profiles
  - Rapid growth
  - Slow growth
  - Decline
  - Disrupted growth
- Population profile influences demands on a country’s social and economic systems
  - Dependency ratio
    - Number of economic dependents that each 100 persons in the productive years must support

Population Pyramids show us?

- 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?
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?

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
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
  - Improving 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 – Low Death
  - Contraception
  - Wage increases
  - Urbanization
  - Reduction of subsistence agriculture
  - Increase in status and education of women
  - Reduced child labor
  - Increased parental investment in children
  - Population growth begins to level off

Demographic Transition

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

Demographic Transition

- Stage 5: Deaths higher than Births
  - Shrinking population
  - Threat to industrial societies
  - Norm in post-industrial/deindustrialized societies
  - Mitigated through immigration
World Population Distribution

- Uneven population distribution
- Where do people live and why?
  - Uneven distribution
  - Not every place is livable!
  - 90% North of Equator
  - 2/3 between 20-60 degrees
  - Half live on only 5% of land
  - Crops require large sections of land
  - Most live in lowlands, sharp decrease with increase in elevation
  - Not habitable at higher elevation
- 60% live within 60 miles of ocean
- 200 people per square mile

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 – 68,000 square mile
    - Loving County TX – 0.08 / square mile
- **Physiological density** – number of people per unit of arable land
  - Arable land - Land fit to be cultivated
  - 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

<table>
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<tr>
<th>Country</th>
<th>Arithmetic Density</th>
<th>Physiological Density</th>
<th>Agricultural Density</th>
<th>Percent Farmers</th>
<th>Percent Arable</th>
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<td>698</td>
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<td>67</td>
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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

The Power of Place

- Delhi: Bursting at the Seams