

APES - Chapter 7 – The Human Population

Intro: Environmental Implications of China's Growing Population

- a) Current stats: pop, consumption, emissions
- b) Consequences of the “one-child” policy? How is it implemented, enforced?
- c) What problems await as consumerisms grows in the future?
- d) What is the good news for China?

I. Earth's Carrying Capacity

A. **Describe growth of human population** (see fig. 7.1, p. 180)

B. **Food Supply and Population Supply – Malthus vs. Technology**
(see fig. 7.2, p. 181)

II. Studying the Factors Driving Human Population Growth (Demography)

A. The system: (see fig. 7.3, p. 182)

Use data on Crude Birth Rate, Crude Death Rate, Immigration, Emigration to calculate Global Population Growth Rate

And National Population Growth Rate

B. Estimating Doubling Time

1. using the Rule of 70
2. using the natural log of 2

C. **Predictions for the future** – why is there uncertainty? (see fig. 7.4, p. 183)

D. Fertility

1. TFR = Total Fertility Rate
2. Replacement-Level Fertility

Considering Prereproductive Mortality (usually related to economic status)

3. Comparing Developed and Developing Countries – how do they differ?

E. **Life Expectancy** – 3 ways to report it, and what factors are important?
(see fig. 7.5, p. 184)

F. **Infant Mortality** (under 1 yr. old) and **Child Mortality** (under 5 yrs. old)?
(see fig. 7.6, p. 184)
List of key factors:

G. **Aging and Disease**

Comparing the US with developing countries in terms of age structure, diseases.

Where is HIV still a major influence on populations?

What are the other major global killers?

H. **Age Structure Diagrams** – clues to the past, present, and future
(see fig. 7.8, p. 186)

Identify the prereproductive population in each. What does it predict?

Identify past “baby booms” and “boomlets” in each? What do they predict?

I. **Migration** – effect of net migration rate on a country’s population

Explain how Canada and the US populations will be impacted by migration given the fact that US’s TFR is 2.1, and Canada’s is 1.6?

What does the future hold for the Asian nation of Georgia? Why?

DO THE MATH: Examine the example of New Zealand (p. 187).

Now, plug in the numbers for the US and determine its growth and doubling time.

III. **Demographic Transition (see fig. 7.9, p. 188)**

A. State the theory:

In what ways may this theory not accurately describe what is happening (or will happen) in some developing countries?

Describe the conditions for each phase:

Phase 1

Phase 2

Phase 3

Phase 4

Relate TFR to Per Capita Income: (see fig. 7.10, p. 189)

Relate TFR to Education Levels for Women:

C. **Family Planning** – what is it, how has it influenced TFR / population growth?

IV. **Population and Environmental Impact**

A. **Economic Development** – how do developed and developing nations differ?

Where is growth occurring? (see fig. 7.14, p. 192)

Compare the per capita ecological footprints for nations (see fig. 7.15, p. 192)

B. **The IPAT Equation** – know the variables and how each plays into the Impact:

Be able to compare developed and developing countries using $I = PAT$

C. Give examples of each of the following Impacts:

1. Local

2. Global

3. Urban

What are the challenges of urban living on the environment?

What are the trends for urbanized populations?

D. **The Impact of Affluence** – How important is GDP?

Describe trends as GDP increases:

E. **Why is sustainability elusive?** Give examples that illustrate this challenge:

WORKING TOWARD SUSTAINABILITY

Gender Equity and Population Control in Kerala

- a) in what ways has India tried to reduce its growth rate over the past 60 years?
- b) In Kerala, until the 70's, the rate of growth was very high. Why?
- c) Since then the rates have fallen. What has led to this decline?
- d) What are the 3 E's? How has each impacted growth?

SCIENCE APPLIED: How Can We Manage Overabundant Animal Populations?

- a) what conditions have led to explosion of white-tail deer populations?
- b) what are some other animals whose population growth has become a problem?
- c) how is are deer populations being managed locally?
- d) what methods have been employed with other species, in other areas?
- e) what are the drawbacks to aggressive management programs?

