

HWC 201 -- UNIT II -- THE ENVIRONMENT
Human Population Growth -- *Outline for lecture 6*

I recognize the right and duty of this generation to develop and use our natural resources, but I do not recognize the right to waste them, or to rob by wasteful use, the generations that come after us.

– Theodore Roosevelt

Our numbers expand but Earth's natural systems do not.

– Lester Brown

I. Overview – Human Population Growth – the most pressing environmental problem – all other problems flow from this

If the present rate of increase continues, during your lifetime one of several things will happen:

- 1) the number of people on earth will double (with environmental and quality of life consequences)
- 2) the world will experience an unprecedented population crash, with large numbers dying prematurely
- 3) we can utilize humane methods to control the number of people

II. Historical Context

1650--500 million; 1850--1 billion; 1930--2 billion; 1960--3 billion; 1975--4 billion; today: **6.4 billion**
world population has more than doubled since 1960!

II. Current Rate of Increase: about 74 million people added per year = nearly 1 Los Angeles every 2 weeks or nearly 1 Mexico each year or 1 U.S. every 4 years; current rate of increase ca. 1.2%

III. Projections

Doubling Time = 70/growth rate: 5%=14 years; 3%=23 years; 2%=35 years; 1%=69 years

GOOD NEWS: The rate of growth has slowed (now 1.2%); however, still exponential growth; at the current rate, the world's population will double in **58 years**

U.N. projection of 8.9 billion by 2050 (based on present trends); can the earth support this many?
49 poorest countries have populations still increasing at 2.4% per year (doubling time of 29 years)

IV. Concept of Carrying Capacity; Consequences of Exceeding Carrying Capacity

Carrying Capacity – simple definition: the number of individuals that an environment can support

Ecological commandment: *Thou shalt not transgress the carrying capacity* – Garrett Hardin

Consequences: population crash

V. I = PABT Impact (environmental) = population X affluence X behavior X technology

Affluence – Poor parents in a developing country would need 70-200 children to have the same lifetime environmental impact as 2 children in a typical U.S. family; growing gap between rich and poor

Behavior – the choices people make

Technology – can decrease or increase impact; unintended consequences (e.g., CFCs, herbicides)

VI. Nutritional deficiencies: Undernutrition (below minimum caloric intake) and **malnutrition** (diets inadequate in various ways including protein, essential amino acids, vitamins, minerals); **overnutrition**; protein malnutrition = **kwashiorkor** ("displaced child"); caloric and protein deficiency = **marasmus** ("to waste away"). Each year 20 million people die of undernutrition, malnutrition, or other hunger related problems. Keep in mind that per capita grain production has decreased since the peak year of 1984; also that we're farming unsustainably. Since 1984, 1 in 4 Africans have been fed by imported grain; in Africa from 1960 to 1993 there was a 28% drop in per capita food production. What is **sustainability**? Sustainable agriculture? Are we "turning oil into food"?

VII. Bottom line: Quantity of Life versus Quality of Life. *Maximum versus cultural carrying capacity*; population is an example of where human aspirations meet physical reality; everyone cannot live in the way we do – physically impossible; **complex ethical and moral questions**; our slice of the pie; e.g., lifeboat ethic
Two widely accepted assumptions:

- 1) The right to produce children is a universal irrevocable right of every nation, irrespective of it's behavior
- 2) When human lives are in danger, rich countries have a moral obligation to save those lives

When both well-meaning doctrines are taken together: result is universal poverty and environmental ruin

VIII. What can be done? Strategies: 1) provide family planning services; 2) empower women (numerous levels: health, education, economic, and social); 3) reduce poverty—people make rational choices; 4) utilize economic rewards and penalties; Problems: cultural and religious traditions; What to do?

HWC 44 – Earth, Body, and Mind

Discussion of Population

1. In light of our knowledge of the consequences of continued population growth, how can we best address the complex issues surrounding cultural and religious traditions that prevent effective population control measures?
2. Discuss the lifeboat ethic, both as applied to other humans and to animals.
3. Discuss the various strategies that can be applied to controlling human population growth. Feel free to include both practical and ethical considerations regarding the strategies.