



## Population and The Environment

Context and Resolution of  
Environmental Issues

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## Historical Perspectives

- ❖ We have always criticized the choices we have made as societies
- ❖ Social averaging and drift
- ❖ Malthus
- ❖ Marx
- ❖ Tension between the individual and the societal interests

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## Perspectives

- ❖ Boomsters (Simon)
- ❖ Doomsters (Ehrlich)
- ❖ Sustainable development (pragmatic)
- ❖ Need measured and open debate based ONLY PARTIALLY on ideology and mostly on factual evidence

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### Economic Development

- ❖ One perspective of development includes and is dominated by economic concerns
- ❖ Can we meet the needs AND desires of increasing populations
- ❖ Economic growth means rise in average income and wealth per capita— a social average with wide range
- ❖ Is this the best measure?

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### Economic Development

- ❖ Starts with investment
- ❖ Infrastructure
- ❖ Rate of investment must keep up with the growth in population
- ❖ Distinguished from economic growth— productivity and growth of national income in gross (GDP)

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### Purchasing Power Parity

- ❖ Measured compared to US buying power as standard
- ❖ What money would it take to buy same amount per dollar of the same goods and services to meet basic needs in other countries
- ❖ Can be compared by GNP/PPP measures—page 497

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### Population and Development

- ❖ Tension between need in gross and resources to meet the need
- ❖ Population can be a two-edged sword to development
- ❖ Demographic overhead—each additional person adds expenses of that person to the societal load
- ❖ If resources outstrip need then additional population is good, issue of gobalization and stratification

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### Relation between Development and Environment

- ❖ Food--security
- ❖ Land—intensive versus extensive use
- ❖ Water
- ❖ Pollution
- ❖ Resources
- ❖ Density and quality of life

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### Environmental Terms

- ❖ Ecosystem
- ❖ Atmosphere, Hydrosphere, Lithosphere
- ❖ We all need a] resources, b] space to live,and c] a place to “dump” our waste

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## Lithosphere Issues

- ❖ Soil erosion
- ❖ Degradation of soil
- ❖ Desertification—interaction of water and soil
- ❖ Deforestation—interaction of soil and air
- ❖ Biodiversity
- ❖ Mining
- ❖ Waste disposal

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## Trees

- ❖ Hydrologic cycle—converting water from one status to the other to help preserve status of other cycle participants (air, ocean and animal/plant)
- ❖ Carbon cycle—fixing carbon so that the air doesn't have too much, poisoning life
- ❖ Narrow range of safety for all living things

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## Atmosphere Issues

- ❖ Warming
- ❖ Greenhouse Gases
- ❖ Ozone depletion

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## Hydrosphere Issues

- ❖ Only 3% of the water on the planet is fresh
- ❖ Distributional issues
- ❖ Pollution decreases the usable amount of the resource
- ❖ Interaction with the weather/biodiversity

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## Assessing the damage

- ❖ IPAT equation
- ❖  $\text{Impact} = \text{Population} \times \text{Affluence} \times \text{Technology}$
- ❖ Should there be any other factors? Resources?
- ❖  $\text{Pollution} = \text{population} \times \text{good of Pop} \times \text{good of pollution} (?)$
- ❖ Technology must completely counteract the effects of pollution to make population growth a non-factor in development and sustainability

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## Sustainable Development

- ❖ Continue to improve the lot of humans on the planet and still maintain ecologic balance and resource availability
- ❖ Involves issues of equity
- ❖ Goals– page 526

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## Transitions and their Impact

- ❖ Demographic transition causes a greater pressure on the resources and their allocation, may increase inequity
- ❖ Economic benefits to fertility decline, not mortality
- ❖ Age transition—dependency transition
- ❖ Family Transition—generally detrimental to environment because the resource uses are not as “shared” WITH SPLIT UNITS

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## Migration and Environment

- ❖ Urbanization makes environmental degradation more focal and obvious
- ❖ Needs of urbanites are greater with less positive soil and water interactions, direct stewardship

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## Population Overshoot

- ❖ Carrying capacity
- ❖ Ecological footprint (pgs 532-533)
- ❖ Distributional issues—NA can carry many more people (2 billion) with sustainable technological approaches

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## Political Implications

- ❖ Kyoto
- ❖ Interconnectedness
- ❖ Global control
- ❖ Use versus misuse
- ❖ Social responsibility

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