

CHAPTER 1: ENVIRONMENTAL ISSUES, THEIR CAUSES, AND SUSTAINABILITY

1-1 What Are Three Principles of Sustainability?

- Env. Science = Study of Connections in Nature

GOALS	<ul style="list-style-type: none"> • <u>environment</u> - everything we interact with (living and non-living) • <u>env. sci.</u> <ul style="list-style-type: none"> interdisciplinary • <i>natural sciences</i> (ecology, biol., chem., geology) • <i>social sciences</i> (economics, politics, geography) • <i>humanities</i> (philosophy, ethics) 	<p><u>ecology</u> - biol. sci.; relationships b/t living organisms & their env.</p> <p>species – group of orgs. w/ unique characteristics & can produce fertile offspring</p> <p>ecosystems – set of orgs. in defined area; interact w/ one another & their env.</p> <p>don't confuse <u>env. science</u> with <u>environmentalism</u>!</p>
	<p>(1) learn how nature works</p> <p>(2) understand our interactions w/ env.</p> <p>(3) deal w/ env. problems & live sustainably</p>	

- Nature's Survival Strategies Follow Three Principles..

<p>How did life on earth sustain itself through changes for 3.5 billion yrs? (meteorites, ice ages, rising sea levels)</p> <p>Human time vs. Earth timeline</p>	<div style="border: 1px solid black; width: 150px; height: 100px; margin: 0 auto; display: flex; align-items: center; justify-content: center;"> <p>DIAGRAM</p> </div>	<p>3 THEMES/PRINCIPLES OF LONG-TERM SUSTAINABILITY</p> <ol style="list-style-type: none"> 1) <u>Solar Energy</u> – reliance on the sun via photosynthesis & indirect forms of energy 2) <u>Biodiversity</u> – promote mult. options for life 3) <u>Chemical Cycling</u> – nutrient cycling through organisms and env., must be cycled indefinitely, reduce waste
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- Sustainability Has Certain Key Components

- Some Resources Are Renewable and Some Are Not

➤ Countries Differ in Levels of Unsustainability



1-2 How Are Ecological Footprints Affecting the Earth?

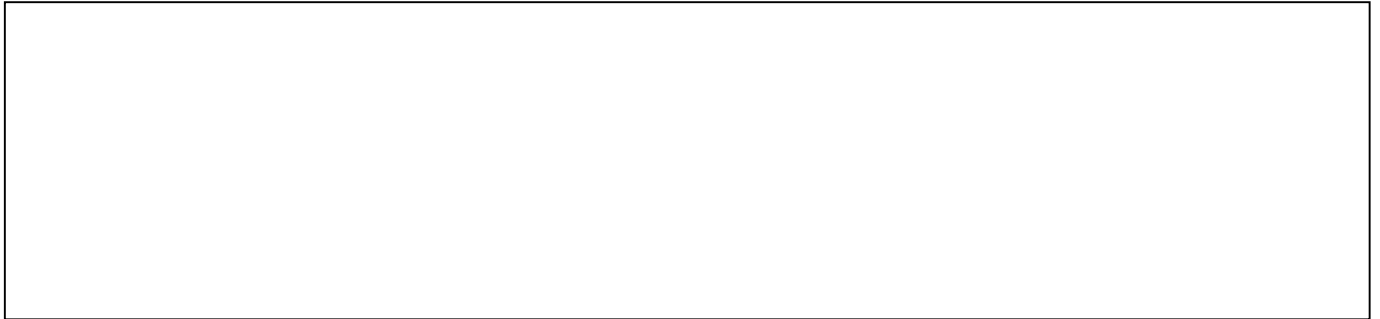
- We Are Living Unsustainably

- Pollution Comes From a Number of Sources

- The Tragedy of the Commons: Overexploiting Commonly Shared....

- Ecological Footprints: A Model of Unsustainable Use of Resources

➤ IPAT is Another Environmental Impact Model



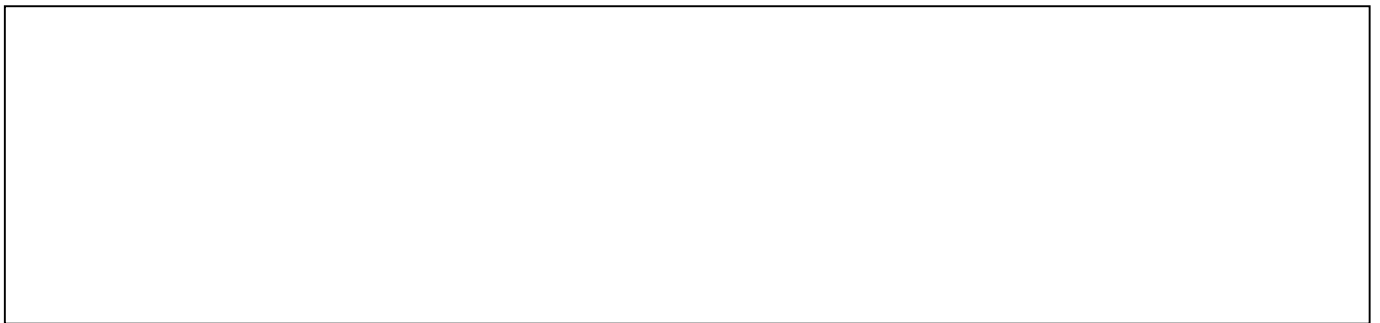
➤ China's New Affluent Consumers



➤ Natural Systems Have Tipping Points



➤ Cultural Changes Have Increased Our Ecological Footprints



1-3 Why Do We Have Environmental Problems?

- Experts Identify Four Basic Causes of Environmental Problems

- Human Population is Growing Exponentially at a Rapid Rate

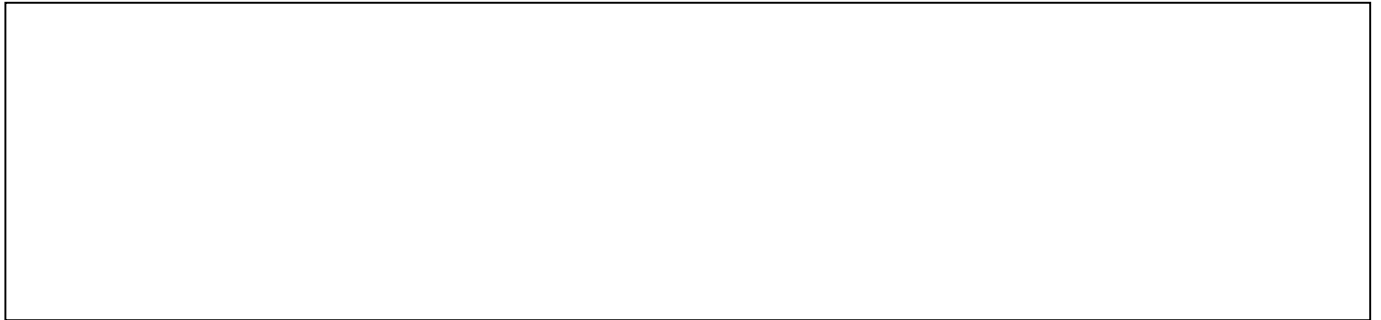
- Affluence Has Harmful and Beneficial Environmental Effects

- Poverty Has Harmful Environmental and Health Effects

➤ Prices Do Not Include the Value of Natural Capital

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➤ People Have Different View About Env. Problems and Their Solutions

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1-4 What Is An Environmentally Sustainable Society?

- Environmentally Sustainable Societies Protect Natural Capital and ...

- We Can Work Together to Solve Env. Problems

- The Environmental Transformation of Chattanooga, Tennessee

- Individuals Matter