

CHAPTER 1

SCIENCE AND THE ENVIRONMENT



Environmental Wha????

▣ What is Environmental Science?

- It is the study of the environment that includes the physical, biological, and social sciences
- Has a focus on humans and their impact and relationship with nature

Goals of Environmental Science

FACT: People influence the environment and the environment influences people

Goal: Understanding environmental problems

1) focusing on how we use natural resources

2) how our actions alter the environment



Fields of Study

▣ Contributing Fields of study that play a role in Environmental Science

- Biology
- Earth Science
- Physics
- Chemistry
- Social Sciences
- Etc...



Environmental science is an interdisciplinary science

Environmental Science Throughout History

- ▣ Our impact on the environment has changed throughout our history.
- 3 Major Societal Time Periods
 - ▣ Hunter Gather
 - ▣ Agricultural
 - ▣ Industrial

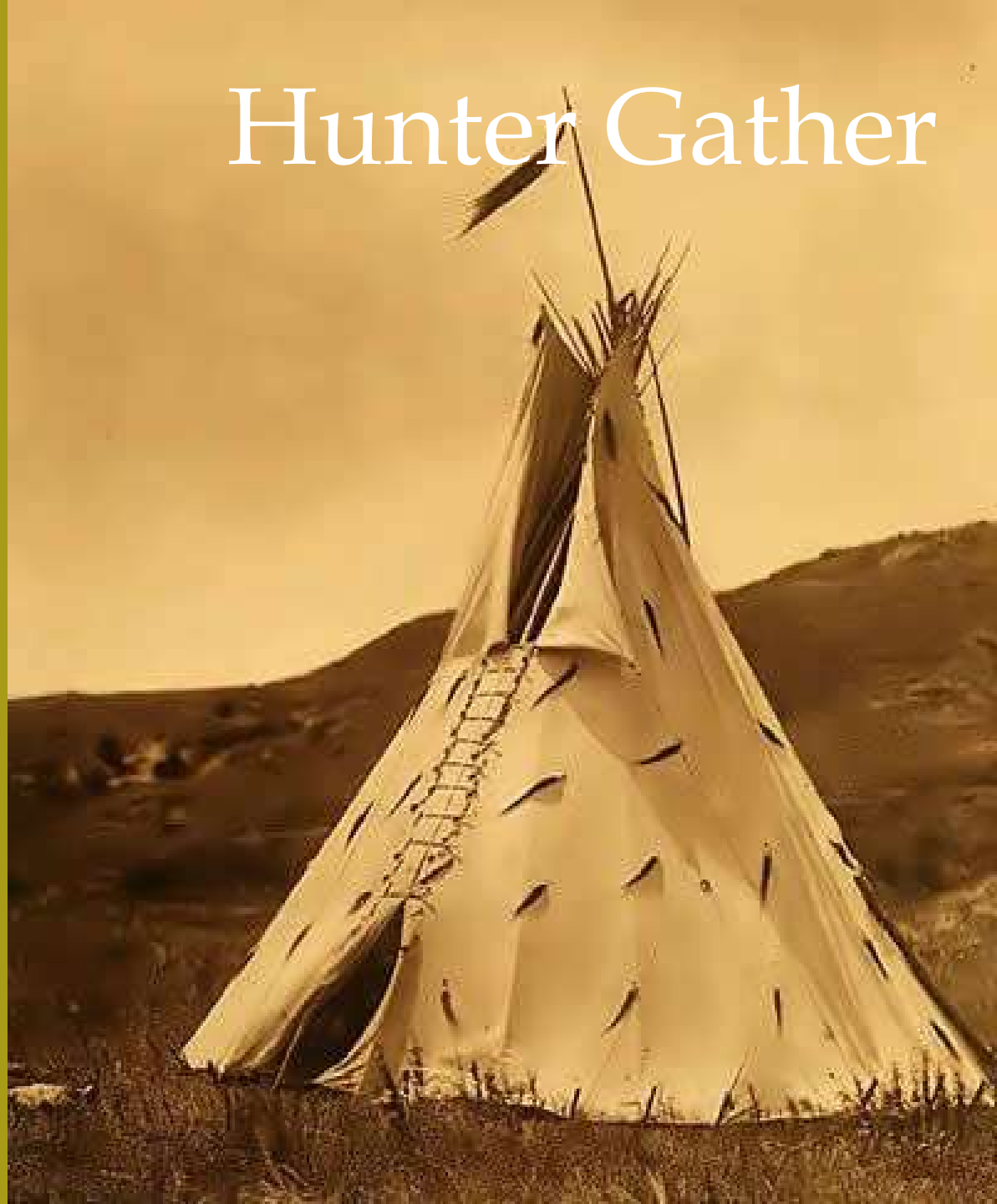
▣ Life Style:

- Obtained food by hunting animals and gathering plants
- Small groups

▣ Impact:

- Hunting effected populations of large mammals
- Smaller impact then other societies because of smaller population and less dependence on nonrenewable resources.

Hunter Gather





Agricultural

▣ Life Style:

- The practice of growing, breeding, and caring for plants and animals that are used for food, clothing, housing, transportation and other purposes
- Allowed human population to grow at an unprecedented growth

▣ Impact:

- Grassland and Forreast conversion to farmland

▣ Life Style:

- The involved a shift from energy sources such as animal muscle and running water to fossil fuels, such as coal and oil.
- Improved quality of life: agricultural and product productivity, medical, communication and other technological advances
- Allowed human population to grow at an unprecedented growth

▣ Impact:

- Pollution, non biodegradable materials, resource depletion, greater environmental impact.

Industrial



Spaceship Earth



▣ People began to realize the uniqueness of the planet that we all share.

- We are not unaffected by the changes that we make to the Earth

Environmental Problems

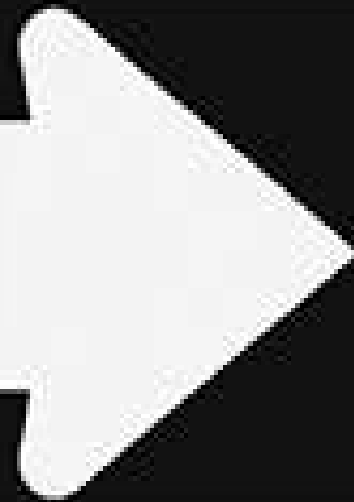
▣ Resource Depletion –

▣ Pollution –

▣ Loss of Biodiversity –



LONG-TERM



SHORT-TERM



Short Term vs. Long Term

LONG TERM

- ▣ The Tragedy of the Commons: group land was used faster than it could replenish itself while the exact same land was used more “responsibly” when it was divided and owned individually.
- ▣ People’s individual short term benefit may sometimes have to be over ridden by what is in the best interest of society in the long term

This isn't an economics course is it?

- Economic forces influence how we use resources. Which in turn has a direct influence on environmental science.
- Supply and Demand
- Cost and Benefit
- Risk Assessment



Developing and Developed Countries

▣ Population Pressures

- When populations rise local natural resources are strained
 - ▣ Malnutrition
 - ▣ Disease
 - ▣ Energy
 - ▣ Raw Materials

▣ Consumption Trends

- When standard of living rises demand for resources often increase
 - ▣ Developed nations make up 20% of the population but use 75% of the resources

▣ Ecological Footprint

- Represents the area of the Earth needed to support 1 person in a particular country

Sustainability

- ▣ The condition in which human needs are met in a way that the human population can survive indefinitely into the future.



!!This is a key component of Environmental Science!!