

Living Sustainably

Chapter 1-1

First, a few defining terms...

Environment

All the external conditions (e.g. temp, soil type, drought).

Ecology

The study of the relationships between living organism and their environment.

Environmental Science

The study of how the Earth's systems work and how humans affect these systems.

Earth's Capital

- The Earth's systems provide **goods and services** that we benefit from everyday.
- These goods and services are provided **free of charge**.
- The \$ value of these goods and services can be estimated by:
 - the cost to replicate the good or service with technology
 - the cost of not having the good or service

Flood Control

- Napa restores 800 acres of wetlands.
- Estimated benefit = \$240 million over 30 years



Medicine

- 80% of the world's population uses natural medicinal products.
- Of the top 150 prescription drugs...
 - 87 originated from plants
 - 21 from fungi
 - 6 from bacteria
 - 3 from one species of snake

Clean Water

- The **Catskill Mtn** once provided NYC with the **cleanest drinking water in the country**.
- Over time, the water **became too polluted** to drink (nutrients and pathogens).
- Estimated cost for a water treatment plant was **\$6-8 billion**.
- NYC chose to pay **\$660 million** to buy development rights and restore the watershed.

Biodiversity and Gene Pool

- Wild-type and heirloom varieties of agricultural crops contain advantageous traits in changing environments (drought, flooding, pest resistance).



Your turn...

- Climate control
- Air resources and purification
- Soil formation and renewal
- Waste removal and detoxification
- Renewable matter (forests, grasslands)
- Non-renewable minerals (copper, lithium)
- Non-renewable energy (oil, coal, gas)
- Renewable energy (sun, wind, hydro, biomass)
- Nutrient Recycling

Total Economic Value

- **\$33 trillion per year**
- **Does this represent value or cost?**

Self-Check

1. What is the difference between living off of principle and living off of interest?
2. Give examples of where we (humans) are living off of principle and examples where we are living off of interest.