

Chapter 2

Economics and

Environmental Policy



Cleaning the tides of San Diego & Tijuana...

- Introduction into economics and environmental policy

Big Ideas Of Chapter 2

- How is sustainability affected by economics?
- How do environmental policies protect the environment?
- How can governments work together to form sound environmental policies?

Wal-Mart's Green Revolution

- <http://www.youtube.com/watch?v=eUCznRsf1-Y>
- Economics versus sustainability

Which car should you buy?



Which light bulb is the best choice?



Incandescent Light Bulbs



Compact
Fluorescent
Light Bulbs



LED
Light
Bulbs

How will planting this tree in my yard help?



If NJ is going to pay 1/3rd of the cost for solar panels on my roof is it worth it?



Subsidy
provided by
government
as an
incentive

How much extra would you be willing
to pay?



For Strawberries that are organic and picked
by farmers making a living wage?

Section 1 Economics

Economics is the study of how resources are converted into goods and services and how these goods and services are used

- What is a good?
(thing you buy)
- What is a service?
(work done for you)



Warren Gretz/NREL

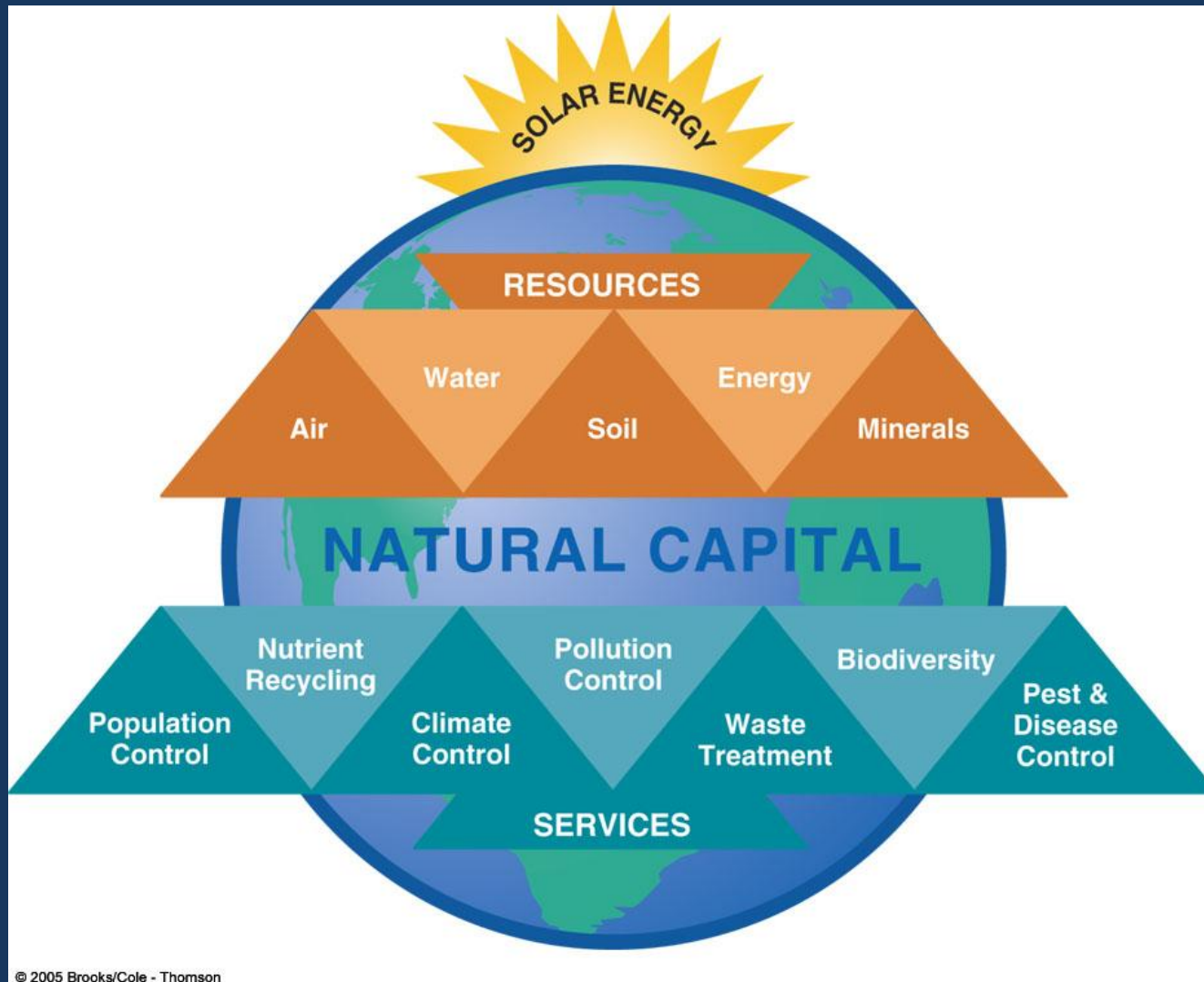
What is economics?



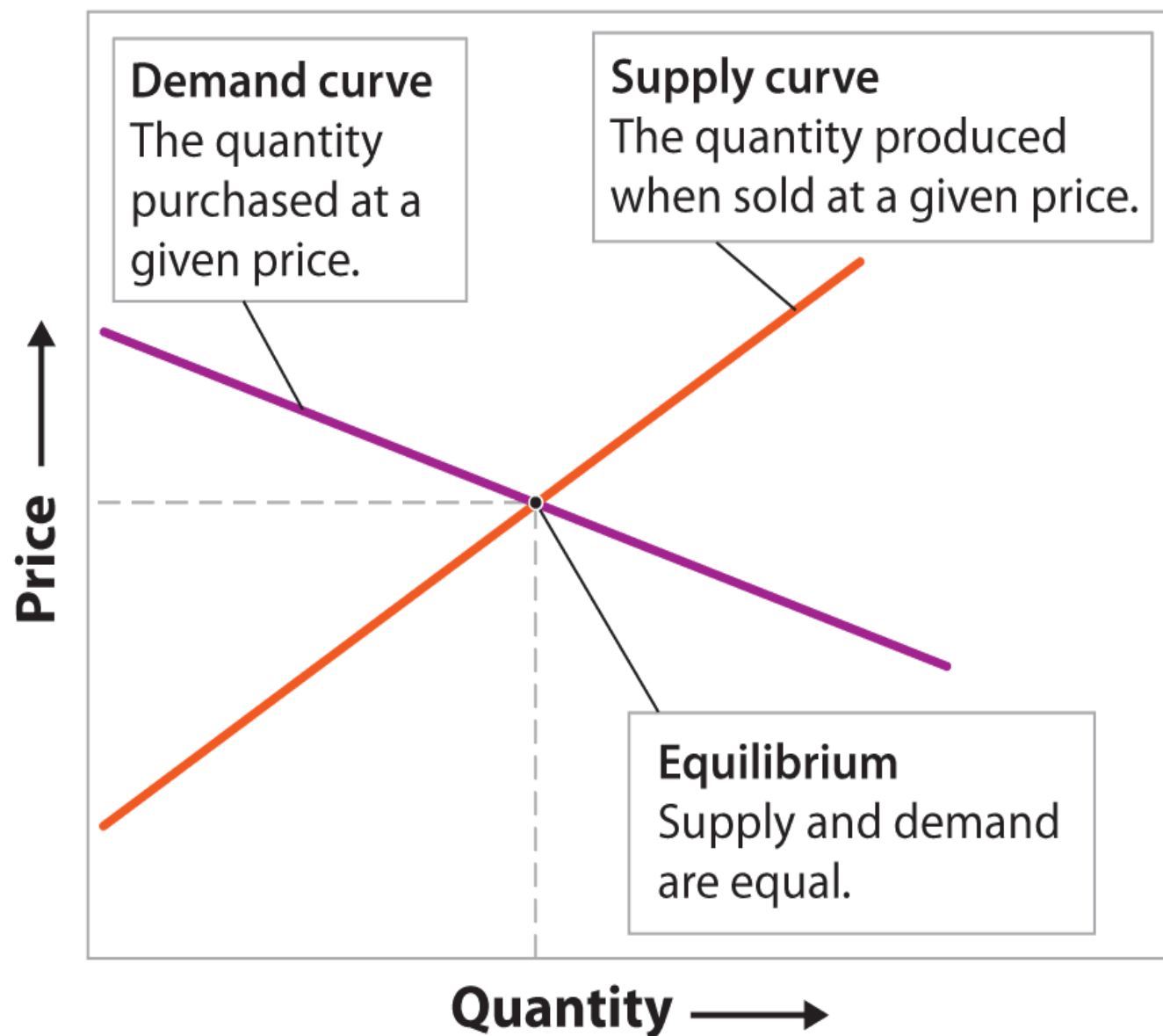
Economics:

- Closely tied to decisions made about **needs and wants**
- What factors influence decisions between buyers and sellers?

Environmental Services



Supply and Demand Curve



What would Apple do if at \$600 it sold quickly out of I pads?

What would Toyota do if at \$25,000 nobody was buying the Prius?

Cost-Benefit Analysis



Comparing what will be gained and what will be sacrificed

What are the costs and benefits of:

- a) Putting solar panels on your roof?
- b) Better insulating your home?
- c) Buying an ice cream cone for desert?

Why are cost-benefit analysis controversial?

Cost-Benefit Analysis

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Cost-Benefit Analysis

Maria finishes a jar of peanut butter while making a sandwich. She starts to rinse out the jar so that she can throw it in the recycling bin. But the remaining peanut butter is quite stuck to the inside of the jar. As more and more water flows down the drain, she thinks, “I know that recycling is important, but so is water conservation. At what point should I just throw this jar in the trash?”

Analyze and Conclude

1. **Explain** How is Maria’s decision similar to the cost-benefit analysis that a company might perform?
2. **Summarize** In a table, list the costs and benefits of Maria’s two choices: continuing to prepare the jar for the recycling bin or throwing it out.
3. **Pose Questions** Maria decides to research her question. List three questions that Maria should try to answer as she does her research.

Policy Costs-Benefits

- “Choose an Approach” handout

Economics and Environment

- Economies depend on the environment for goods and services. (ecosystem services)
 - Goods: Sunlight, fresh water, timber, and fossil fuels
 - Services: Nutrient cycling and purification of air and water
- Economic activity can negatively affect the environment, which in turn can negatively affect economies. (Examples?)



Economics and Environment

PROBLEMS:

1) Costs and Benefits: Often only assume between buyer and seller

“internal costs”

(who pays for the air pollution coming from your car, or the water pollution going down your toilet?)

“externalities”



2) Short term effects:
many environmental problems have long delays – future costs discounted

Problems Continued

3) Endless resources:
economics often
assumes resources will
not run out

4) Growth:

Assumptions →

- *growth is required to
maintain social order

- *nonstop economic
growth is not sustainable



Can we grow forever?

*Will technology solve
any problems?*

Economics and Sustainability

- Applies the principles of Earth's systems to economics = ecological economics
- Argues that economies cannot be sustainable unless environmental issues are addressed = environmental economics
- Assigns market values to ecosystem services



What is the value of the Grand Canyon?

Economics and Sustainability

- Ecosystem services provided by earth's systems have non-market values → values not included in the price of goods or services
- Ecosystem services are usually exploited due to no “value” associated with them

Types of Non-Market Values

- Aesthetic Value: how much is the beauty of the Grand Canyon worth?
- Cultural Value: how much are rock art painting from 800 years ago worth?
- Use value: how much would you pay to see a Redwood Tree?



Types of Non-Market Values

- Option value: how can we use this uncut forest later on?
- Existence value
- Scientific value
- Educational value



Ways to assign non-market value

- 1. surveys → ask people how much they would pay for specific non-market goods
 - Clean beaches, preservation of a beautiful view
- 2. compare transactions → of similar goods or services
 - Sale price of homes : some overlooking woodlot and some not overlooking woodlot
 - *value of woodlot would be determined

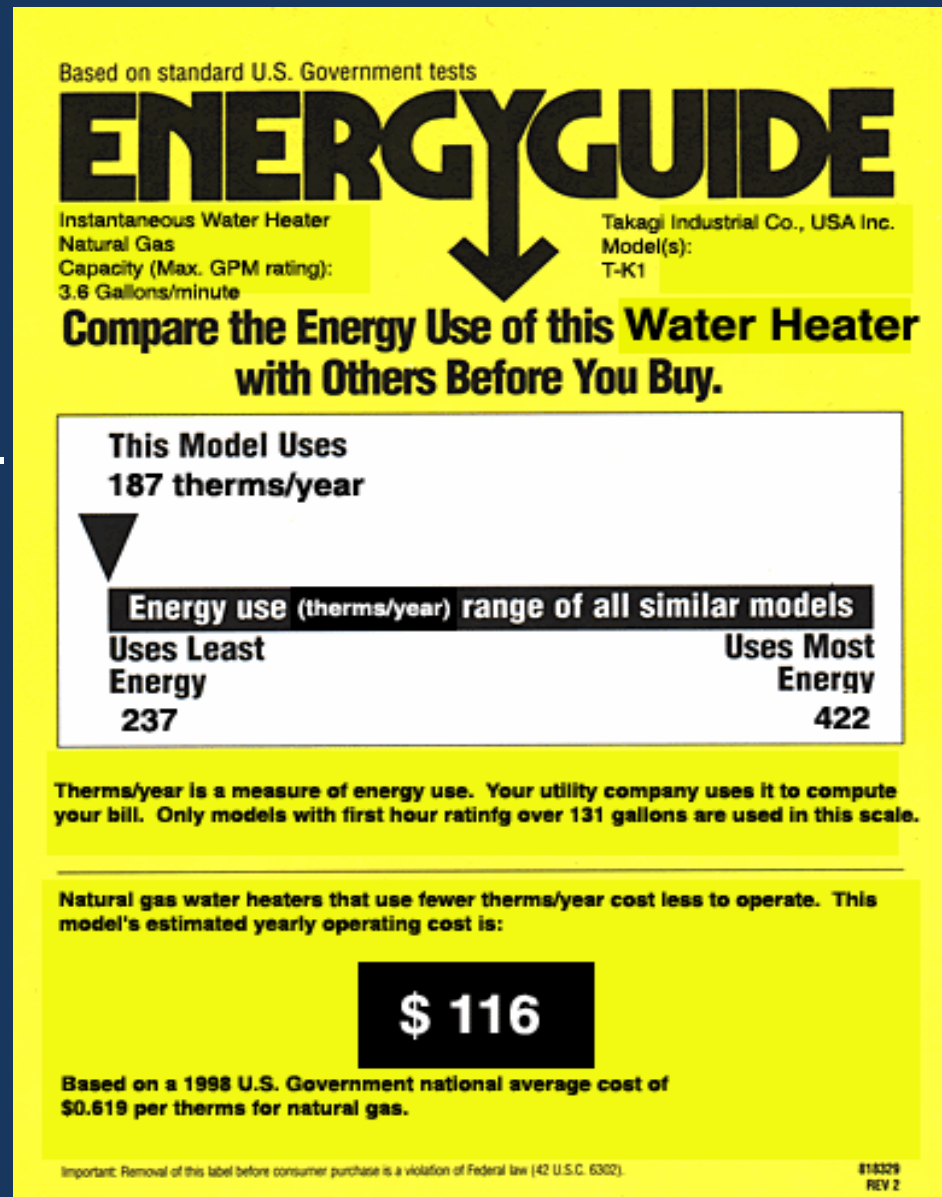
Market failure

- When markets do not reflect the full costs and benefits of actions
- Ex: smokestacks emit chemicals that may harm trees and pollute water
 - Company emitting chemicals not held responsible for lost resources/cleanup costs/effects of human health
 - Another party (usually taxpayers) pay for some costs related to company's activities
 - To counteract external costs → gov't policies
 - Subsidies, Local incentives, tax breaks, tax penalties

Changing Consumer Values

Changing consumer values can drive corporations to pursue sustainability.

- Ecolabels- show how item was grown/harvested/manufactured
- Education



Types of Labels

- Manufacture → generally name and logo
- Informative → characteristic information about product (ex: 50% cotton)
- Threshold → meet criteria or standards
- Warning → information like do not fill too full, consume in three days once open, etc.
- Environmentally friendly/green labels → recycling, energy label, ecolabel – help protect environment

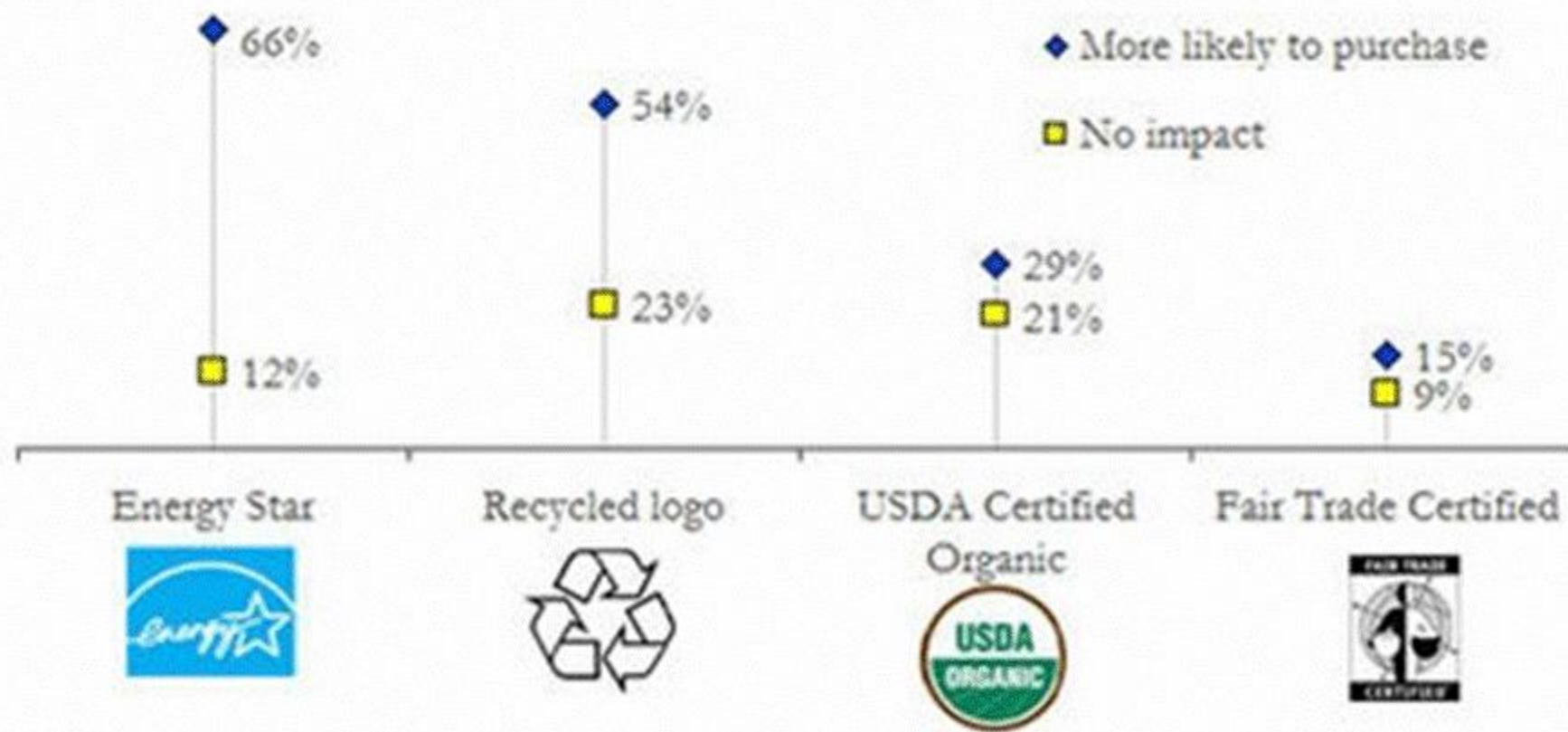
Types of Labels

- 1. classify each type of label
- 2. Explain what each label is showing (ex: informative – 50% cotton)
- 3. Find products that each label can be found on
- 4. create your own label
 - Which type of label did you create?
 - What is your label illustrating?
 - Where will this label be found? On what types of products?

Green Labels Positively Impact Purchase Behavior

% General population indicating the impact of label/certifications on product/services

High level of purchase impact



Source: Natural Marketing Institute's 2007 *LOHAS Consumer Trends Database*™
© Natural Marketing Institute (NMI), 2008

Ecolabel activities

- Classification of ecolabels
- Creating your own “ecolabel”

Section 1 Review

Terms: economics, supply, demand, cost-benefit analysis, environmental economics, non-market values, ecolabelling

- 1) What are often problems with our current economic system related to environmental problems?
- 2) List several “ecosystem services”

Lab: Working Trees

- In groups of 2-3 students
- Turn in ONE copy/group
- Answer questions below:
 - The leafy canopy of a tree slows the impact of raindrops and the root system of a tree absorbs water and holds soil in place. *What might be the environmental benefit of these characteristics?*
 - Studies have shown that people spend more money in shopping areas with trees than in shopping areas without trees. *Explain how this is a social or economic benefit of trees.*

HOMEWORK

- Page 57: media literacy → Pending Legislation handout
- By tomorrow → MUST HAVE A PENDING ENVIRONMENTAL LAW CHOSEN!!!
- Work Day Tomorrow!

Section 2: U.S. Environmental Policy

How do environmental policies protect the environment?



Basic Question: Why do we make laws?

Once upon a time...little or no need for
environmental policy?



Environmental Policy

A set of general plans and principles for interactions between humans and the environment

Effective environmental policy involves input from science, ethics, and economics.

- What is the role of science in policy?
Ethics? Economics?



State and local governments

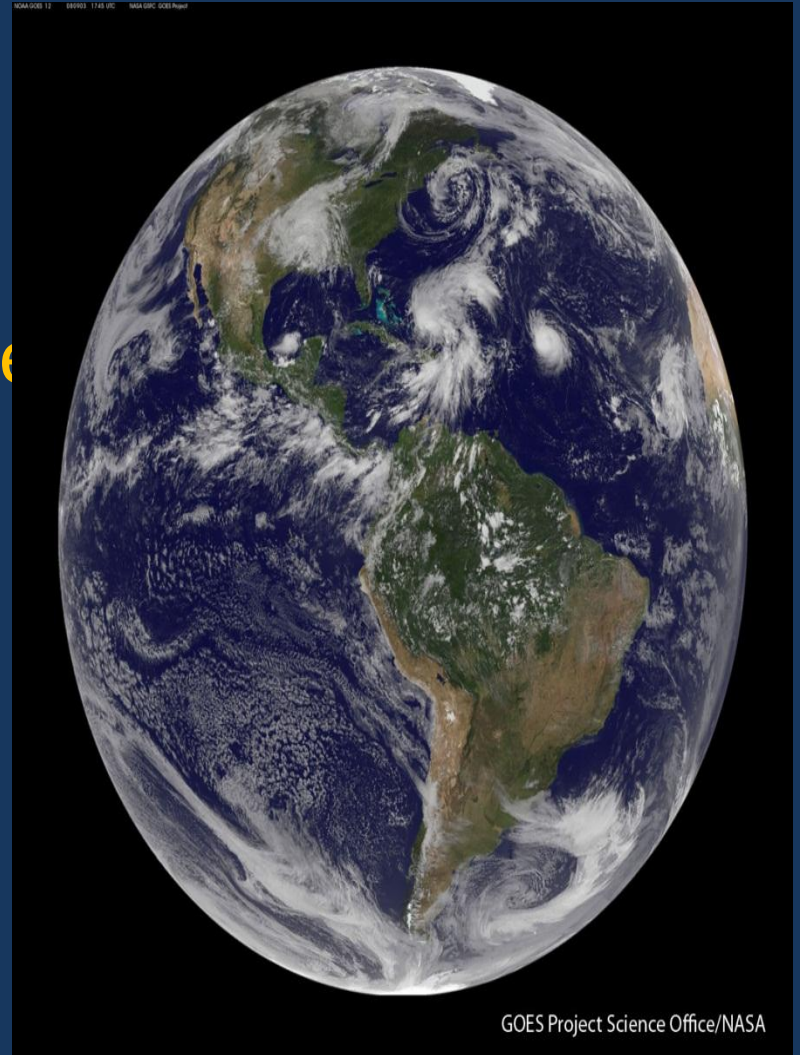
- State and local environmental policies cannot violate the U.S. Constitution.
- The strength of environmental policy differs from state to state.
- Which states do you think are most “progressive” with environmental policy



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Why do we need international agreements?

- We all live together on “Spaceship Earth”
- Never have we been so connected to the rest of the world
- Pollution does not know boundaries
- Resources are limited and shared
- Animals and plants do not follow boundaries



What are international laws?

- Arise from multinational conventions or treaties
- Enforcement often difficult



Approaches to Environmental Policy

How Can we change behaviors?

Command-and-Control: government sets rules and punishes for violations

- Common approach
- Can you think of a law like this?
- What may be downside to this approach?
 - Restriction on freedom? Not well informed, so unexpected circumstances



National Ocean Service/NOAA

Approaches to Environmental Policy

How Can we change behaviors?

Tax Breaks and Subsidies: government gives a tax break for actions it deems good
Subsidy: a giveaway by government to promote a certain behavior

- Can you think of any?
- Can you think of any problems?



Approaches to Environmental Policy

How Can we change behaviors?

Green Taxes: taxes on companies that harm environment

*common in Europe

Company X pays an extra tax depending upon how much they pollute the air or water

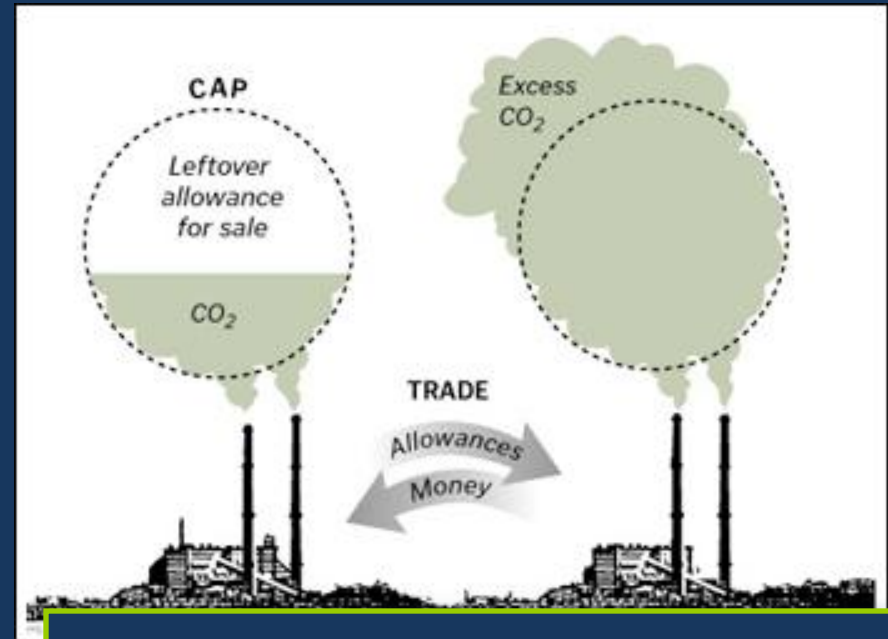


Approaches to Environmental Policy

How Can we change behaviors?

Cap-and-Trade:
government determines
overall amount of pollution
it accepts and issues
permits to pollute a
fraction of that amount

- Permits: bought, sold and traded in market
- Problems?



Cap = limit gov't puts on amount of pollution generated
Trade = permit that can be traded

Did You Know? The cap-and-trade approach in the U.S. has helped reduce sulfur dioxide emissions that cause acid rain by 35%.

Approaches to Environmental Policy

How Can we change behaviors?

Rebates: for buying environmentally friendlier products

- Heaters/ ac
- Hybrid vehicles
- Water saving toilets

Education:
information can lead to changes



PHOTO: JUSTIN SULLIVAN/GETTY IMAGES

Approaches to Environmental Policy

How Can we change behaviors?

Which approach do you think works best? WHY?

Command-and-control

Tax breaks and subsidies

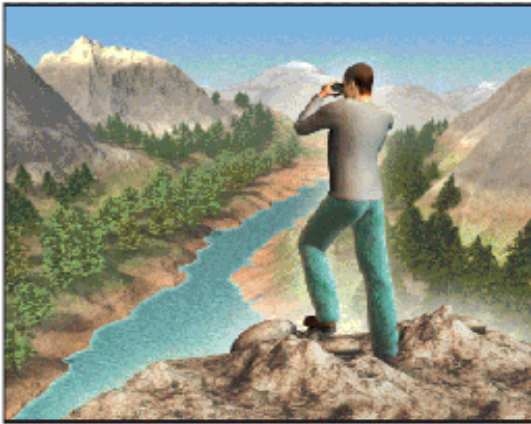
Green taxes

Cap-and-trade

Local incentives



Environmental Policy Process



1 Identify the problem.



2 Identify specific causes of the problem.



3 Envision a solution and set goals.



4 Get organized.



5 Gain access to influential people.



6 Manage drafting of bill and development of policy.

Section 3 Review

- 1)How are international laws made?
- 2)What are some organizations that deal with international environmental laws?
- 3)Describe 3 types approaches to environmental policy.



Think about it: What impacts the decisions you make in life? Laws, Ethics, Economics???

