

Lecture 22, 17 Nov 2003

Student Presentations

Conservation Biology

ECOL 406R/506R

University of Arizona

Fall 2003

Kevin Bonine

1. Thank Bob Steidl

2. Campus Ecology Fellowship Program

<http://www.nwf.org/campusEcology/dspFellowships.cfm>

Monday 4pm seminar: Nov. 17, John McKay -- job candidate -- "Logical Adaptation in Plants: Conservation, Physiological Ecology and Genetics" in BSW 208

3. Exam Wednesday

- Covers lectures and readings since Exam 2
- Lots of questions stemming from Steidl lecture

4. Lots of publications for general Conservation Biology promotion

- A. Lorax by Dr. Seuss
- B. 50 Simple Things You Can Do to Save the Earth
- C. Environmental Research Foundation
P.O. Box 160, New Brunswick, N.J. 08903
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Competent before radical...

Data and science before fingerprinting



Photo by Carlie Collier

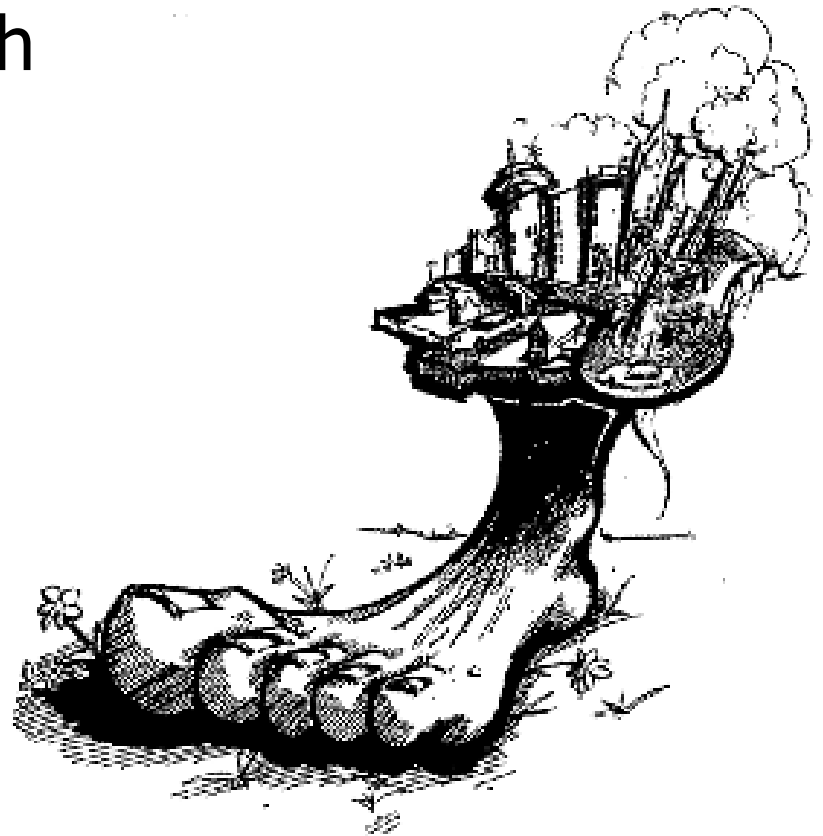
Mary Ann Brandt

Four Spikes



- 1 Consumption
- 2 Human Population Growth
- 3 Extinctions
- 4 Global Change

What should we do?



NYTimes 04 Nov 2003



As Earth Warms,
The Hottest Issue
Is Energy

Student Presentation Assignment for 17 Nov.

LESS is MORE

How do we reduce ecological footprint, reduce consumption, and fight global warming?

Please be as specific as possible and cite more than your opinion.

Each group will have 15 minutes (suggest: 12 plus 3 min for questions).

1. PERSONAL

Amy Tendick, Galia Bobman, Aurora Fabry-Wood, Erica Sontz, Justin Dodds

2. FRIENDS AND FAMILY

Ben Joslin, Andrea Vasquez, Bridget Barker, Louise Misztal, Meghan Jarvie

3. COMMUNITY

Christopher Deegan, Michael Gilliland, JD Friedrichs, Ginny Newsome, Lauren Merin, Jenna Ramsey

4. COUNTRY (AND WORLD)

Dana Backer, Cori Carveth, Sarah Hartwell, Linh Nguyen, Maeveen Behan, Leonides Corral

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1. PERSONAL

Amy Tendick, Galia Bobman, Aurora Fabry-Wood, Erica Sontz, Justin Dodds

Reducing Ecological Impacts The Individual

An Introduction

Simplify

- Our basic needs with wants inevitably mixed in
 - » Food
 - » Shelter
 - » Transportation
 - » Goods and Services

Taken from the ecological foot print quiz

A significant difference between Wants and Needs

Needs- a
physiological or
psychological
requirement for
the well-being of
an organism

Wants – any commodity
which does not
directly affect the
survival of an
individual

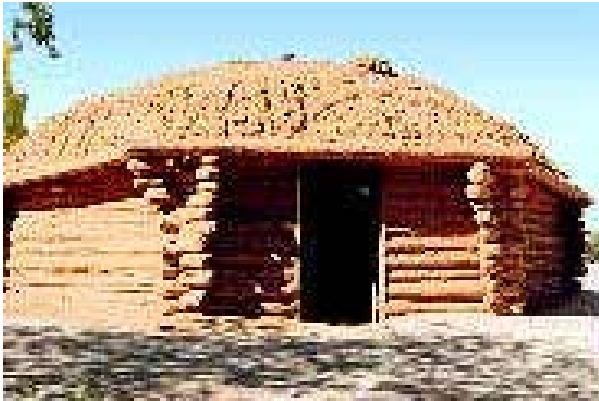
Food

- Need
 - Mother's milk
 - Fruits n' veggies
 - Nuts
 - Minimal meats
- Want
 - Need I say more



Shelter

- Need



- Want



Transportation

- Need



- Want
- For only \$100,000



Goods and Services

Needs- Clothing for warmth and cover

Wants- Most recreational activities and all those accessories

Making food decisions

- Often what's healthy for you, is also better for the Earth
- Shop for food consciously: Be aware of what your money is supporting
- Avoid supporting grocery-store monopolies: Walmart
- Buy meats and fruits/vegetables where you have organic choices: Trader Joes, Wild Oats, etc.

Fruits and Vegetables

- Grow a garden and orchard
- Join a garden club?
- Support farmer's markets and/or buy more locally grown and in-season
- Buy organic (95% organic ingredients), not GMO, pesticide-free



Meat and Dairy

- Bioaccumulation
- Limit (red) meat intake to 1-2 days/week
- Buy organic= Hormone-free, antibiotic-free (Coleman), not fed GMO's, free-range
- Fish= Be wary of buying those that are environmentally destructive (shrimp)
Farm-raised (less healthy) vs. native?



THE ESSENTIAL ELEMENTS OF CERTIFIED ORGANIC MEAT

- 1)NO PESTICIDES OR CHEMICAL FERTILIZERS ARE PERMITTED IN THE GROWING OF THE ANIMALS' FEED
- 2)THE ANIMALS MUST BE FED FROM CROPS GROWN ON LAND WHICH HAS NOT BEEN SPRAYED FOR A MINIMUM OF THREE YEARS
- 3)NO GENETICALLY MODIFIED ORGANISMS (GMO'S) ARE PERMITTED IN THE ANIMALS' FEED
- 4)NO ANTI-BIOTICS OR GROWTH HORMONES (IMPLANTS) ARE PERMITTED
- 5)THIRD PARTY VERIFICATION AND INSPECTION ARE REQUIRED BY AN ACCREDITED CERTIFYING BODY
- 6)A THOROUGH AUDIT TRAIL IS REQUIRED TO TRACE ALL CERTIFIED ORGANIC PRODUCTS BACK TO THE FARM OF ORIGIN
- 7)THE ORGANIC PROCESSOR MUST MAINTAIN AND UPDATE AN ORGANIC PROCESSING AND HANDLING PLAN
- 8)THE FARM MUST MONITOR SOIL AND WATER QUALITY AT ALL TIMES

Other Tips

- When eating out, avoid fast food
- Less processed
- Less packaging. When possible, buy bulk (avoid single-serving portion). Types of packaging- which is easier to recycle? Bring own bags or reuse.
- Be aware of brands, try to support those that are smaller businesses with a better environmental track record

Shelter

Our houses need to be small and efficient. We tend to build big houses with big dining rooms or living rooms and we rarely use them.

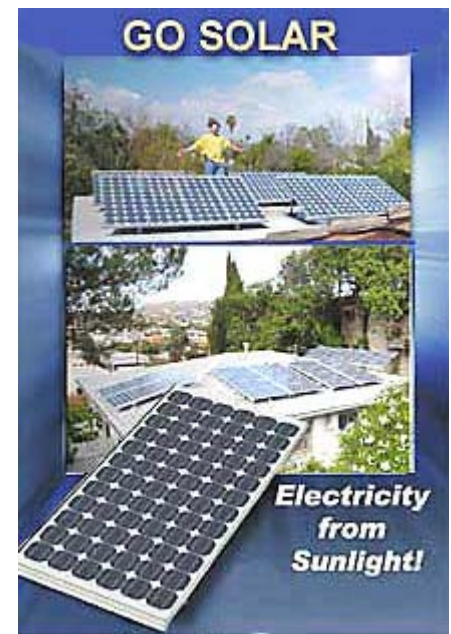
One of the most important things to think of when we build or buy a house, is that it is well insulated. Good insulation will save a lot of electrical energy, or other ways to keep the house cool or warm.

Alternative Housing Options

In warm areas especially, like Tucson, we should put solar heating systems on our houses. This system is easy to assemble and it can save a lot of money in heating water. There are some solar systems that can provide the electricity for lighting.

In dry areas we could built a water recycling system. Bath and sink water can be used as they are with very few filtering to water our gardens.

Apartments vs. Houses with yards
Buying old vs. building new

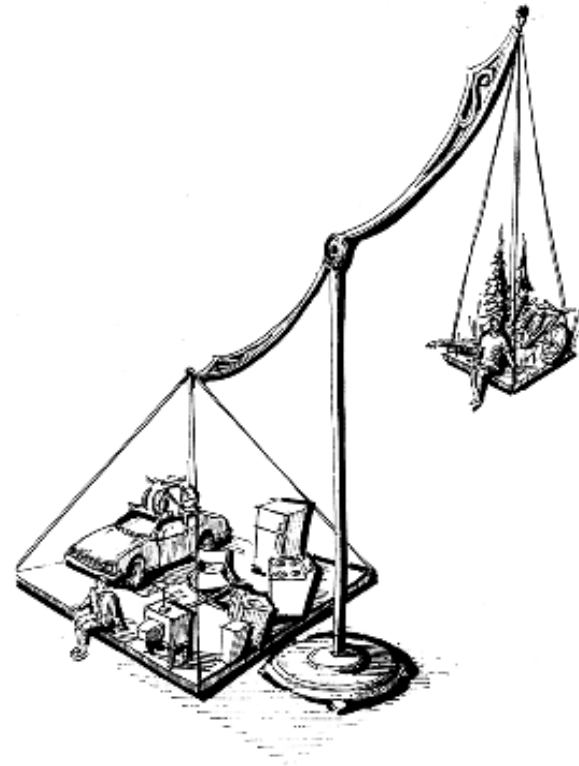


Personal footprint

- Goods
 - Clothing
 - Furnishings
 - Electronics
 - Appliances
 - Paper
 - Medicine and hygiene
- Services
 - Postal
 - Utilities
 - Laundry/dry cleaning
 - Medical
 - Entertainment
 - Education

Sustainability?

- Conflict of interest:
the “American Dream”
vs. ecological
sustainability
- The U.S. as a model
- Teaching future
generations



Conspicuous Consumption

Correction Factors for the US	FOSSIL ENERGY	CROPLAND	PASTURE	FOREST	BUILT-UP LAND	FISHERIES
FOOD	1.03	1.35	1.75			2.88
HOUSING	0.98			1.60	0.78	
TRANSPORTATION	0.73				1.19	
GOODS	4.73	4.30	2.16	2.91	0.33	
SERVICES	4.21			3.52	0.33	
WASTE	4.73			2.91	0.33	
U.S. average fossil fuel area of goods:	1903	services:	1652	waste:	1283	

Equivalence and Yield Factors & Footprint [m2]	Equivalence Factors [gm2/m2]
FOSSIL ENERGY	1.3
CROPLAND	2.2
PASTURE	0.5
FOREST	1.3
BUILT-UP LAND	2.2
FISHERIES	0.4
TOTAL	0

Reducing your footprint



- Needs vs. wants
- Buying new vs. buying used
- Donating or recycling old-but-serviceable goods
- Use vs. waste
- Personal lifestyle goals

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2. FRIENDS AND FAMILY

Ben Joslin, Andrea Vasquez, Bridget Barker, Louise Misztal, Meghan Jarvie

Helping Friends and Family
Understand Biodiversity, Global
Warming and Ecological
Footprints

Introduction

- Bridget- communication/e-mail
- Meghan- children
- Ben- gatherings
- Louise- appreciation

Family

- Parents
- Siblings
- Children
- Close Relatives
 - Grandparents
 - Uncles, Aunts, Cousins

Friends

- Close Friends and Kindred Spirits
- Colleagues
- Co-Workers
- Acquaintances

Understand Arguments

- All environmentalists are socialists or communists that want to take away our rights, land and money (Ron Arnold, often seen on Fox Noise Network)
- All “viro” hate humans, and human progress
- Viro exaggerate the problems of global warming and are just trying to scare people to get them to turn into communists
- “...rhetoric misleads a gullible public into thinking that every barren, forsaken area they want to preserve from man’s ‘artificial tampering’ is the Grand Canyon. To their anti-human, nature-worshipping minds, everything is the Grand Canyon, not to be touched except by wilderness hikers.” Copyright © 2003 Erich Veyhl, All Rights Reserved

Refute Arguments

- You are the model, show your F&F that “viroso” are not fringe group people
- Biodiversity is an indicator of the health of the planet (healthy planet=healthy people)
- Get your F&F to calculate their footprint
- Share information about global warming, and ways to reduce individual output

Communication

- e-mail, phone, face to face
- Keep info pertinent
- Give them tools
- Lead by example: Do as I do!
- Avoid Hypocrisy
- Follow-up “So, what did you think about...”
“Did you get through to McCain’s office?”

Good (effective) e-mail

- Timely- action can happen that day, important for legislation, calling your congress person
- Ability to reach a lot of people
- Accurate and to the point
- Don't forward, copy and edit
- BCC recipients

Bad (ineffective and ANNOYING) e-mail

- Multiple forwards (hmm, I wonder how spammers got my email?)
- Petitions (DO NOT FORWARD!!!)
- Incorrect info (poor research)
- SPAM
- Millions of recipients
- Avoid graphic intensive or large file size
 - slow download, crowded mailbox

Good Sources

- Library (don't have to buy books, less waste. I know, it's hard, I love books too.)
- Internet
 - Alternative news (commondreams.org)
 - Shopping- Keep it Local! Buy used items. (ecomall.com, natural products expo)
 - Information/Data (biodiv.org, World Resources Institute, wri.org and United Nations, un.org)

Helping Children to Fight Global Warming

- Model recycling & teach kids about what materials can be recycled.
- Find internet & other resources that promote environmentally healthy habits (WWF, Nat. Geographic, Discovery Ch.).
- Help classroom teachers plan activities for Earth Day. (ex. plant a tree)

Helping Children to Fight Global Warming

- Show kids how to compost and teach them the about the environmental impacts it has.
- Have children help you organize car pools to school and to their activities.
- Promote intrinsic value by taking kids to national parks, zoos, hiking, camping, etc.

Friends and Family Spread the Word!

"Textbooks do not perform conservation;
people do."

"Human interaction is the primary source of
achieving the mission of
conservation. . . so interpersonal skills are
important." -VanDyke

The 'Gathering'

- Remember: friends and family have as much pull as a police officer on a person-you can make a difference
- Be open but not preachy!
"McKibben asks us these questions, and, more important, he asks them of himself. Environmentalists are sometimes accused of telling others how to live while themselves living otherwise. By placing himself at the center of his argument, McKibben diffuses some of this potential criticism. We hear about his family, friends, and the Sunday school class he teaches. We hear about his daughter Sophie. We hear about his vasectomy."
Ummm, maybe not THAT open. . . . but be yourself, and a good example.

Gatherings

- Be emotional! Motivate like Maeveen!
- Ideas: A party! (like a tupperware party...but without the burps) A fundraiser? Lots of food!! (NO SHRIMP!!) Lots of info!! Let them be the judge!
- Other family/friend group activities: Go to the park, Hikes, Con Bio Lectures, TV shows/documentaries, intellectual discussion

...NOW GET THEM TO SPREAD THE WORD!!

- Enthusiasm ("Are you going to recycle that? If not, I sure will!!")
- Give them examples of how you live, and how to inform others
- Emphasis on fact not force!
- Conservation conversations "So Kevin, what did you do this weekend?" "I went out with some students and sexed snakes." "WHAT DID YOU DO?!?!?" --Then you could describe what you were doing and why! ! (Hopefully their interest will be peaked enough to ask why!)

Fostering Appreciation of Nature



- Take family/Friends with you on hikes, camping trips etc.
- Share your enthusiasm for the outdoors and knowledge of how to sustainably enjoy them

Outdoor Activities



- Many people don't know what is really out there and haven't had the chance to see it/like it
- You can be the catalyst

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4. COUNTRY (AND WORLD)

Dana Backer, Cori Carveth, Sarah Hartwell, Linh Nguyen, Maeveen Behan,
Leonides Corral

National contributions to reducing ecological footprint

- Kyoto Protocol
 - Participating countries implementation
 - Non-participants
- Alternative Energy
- Other

The Kyoto Protocol

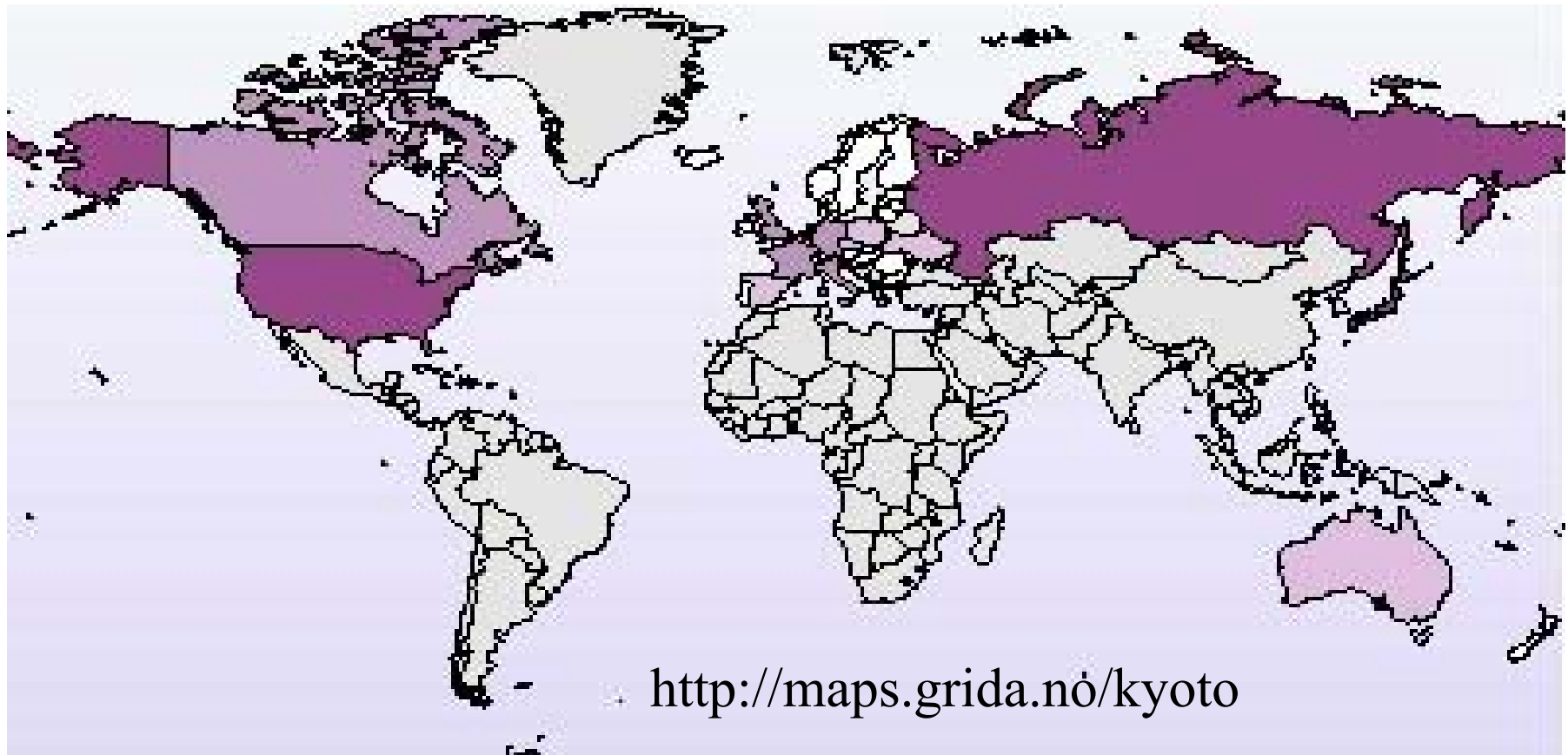
- Adopted at UN Headquarters (NY) May 9, 1992
- Currently 188 nations have signed on
- Commits nations to reduce emissions of 6 greenhouse gases (3 natural, 3 man-made)

Background on Kyoto Protocol

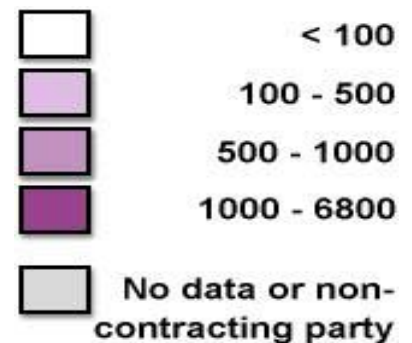
By 2012...

- Each nation would have to reduce emissions by at least 5% below 1990 levels.
- Each country would emit 30% less greenhouse gasses than without the protocol.
- Monitor and publish their progress
- Emissions trading: If a country can't meet their reduction requirement, they can receive "credit" from another nation that has reduced more than it was required to.

1999 GHG Emissions (in millions of tons)



119 countries have ratified, accepted, or accessed to the Kyoto Protocol as of Sept. 29, 2003 with the main exceptions of the US, Australia, and the Russian Federation (for a complete listing, see <http://unfccc.int/resource/kpstats.pdf>)



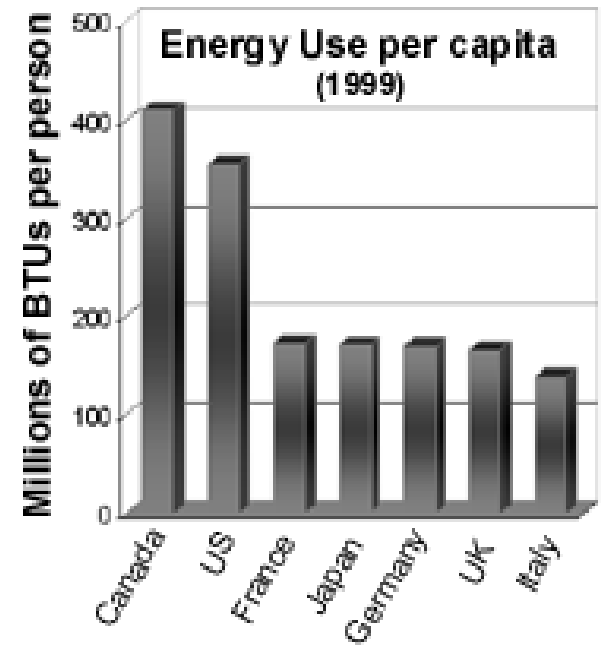
Japan

- Accounted for 8.5% of CO₂ emissions in 1990
- Required by Kyoto Protocol to reduce GHG emissions by 6% from 1990 levels during 2008-2012 period
- Plans to accomplish this
 - by adding 20 new nuclear reactors over next decade to replace existing electric plants, which produce 25% of all CO₂ emissions in Japan
 - by using its existing forests as CO₂ “sinks”, to account for 3.7% of the proposed reduction
 - by offering aid packages in the form of joint-research projects and training in anti-pollution measures for developing countries such as China, India, Vietnam, the Phillipines, Thailand, Indonesia and Malaysia

Germany

- Accounted for 7.4% of CO₂ emissions in 1990
- Kyoto Protocol commitment to reduce emissions by 21% by 2008-2012 period
- As of 12/2000, one of only three countries to reduce emissions through shutdown of coal-fired plants
- Plans to accomplish further reductions by
 - Setting min. fixed prices for renewable energy, which has boosted utilization of wind energy to 5000 megawatts
 - spending 2 billion euros per year on revamping building insulation
 - Eco-tax, motor vehicle tax and gas tax exemption promote using renewable energy sources, fuel efficient cars and cogeneration plants
 - \$3B investment in rail infrastructure

- The average Canadian produces four times the global average level of emissions – 23.6 tonnes/person/year
- Transportation accounts for half of all greenhouse emissions and energy use in the home accounts for the other half



- But, the good news is that Canadians are eager to adopt clean, renewable energy technologies



So, What Are We Doing???

- Ratified Kyoto Protocol in December 2002
- Reduce GHG 6% below 1990 levels by 2008-2012
- Climate Change Action Fund (CCAF)
- Mandatory emission cuts and emission trading for large factories and power plants
- Updated standards for energy efficient buildings
- Financial incentives for small businesses to cut emissions
- Tax breaks for use of alternative fuels

Wind Energy

- What it is....
 - wind turbine
 - wind speed
- Major challenge to using wind power
- Wind energy industry
- As an alternative
 - in the U.S.
 - in Europe

Nuclear Energy

“...if we limit the amount of energy we have, we lose our freedom and our democratic society”

- PROS
- CONS
- Status in U.S.

“...lack of energy will not stop material progress”

Alternative Energy

- solar, hydrogen (fuel cells), hydro-electric, geothermal, methane, & fusion

Other measures:

- Incentives
- Legislation and Policy (standards)

END