

# *Integration of Economies*



Stock Markets are now accessible from anywhere in the world!

Source: edrod, <http://www.sxc.hu>

- ◻ The increasing reliance of economies on each other
- ◻ The opportunities to be able to buy and sell in any country in the world
- ◻ The opportunities for labour and capital to locate anywhere in the world
- ◻ The growth of global markets in finance

# *Integration of Economies*

## ⊕ **Made possible by:**

- ⊗ Technology
- ⊗ Communication networks
- ⊗ Internet access
- ⊗ Growth of economic cooperation – trading blocs (EU, NAFTA etc)
- ⊗ Collapse of 'communism'
- ⊗ Movement to free trade

# *Trade versus Aid?*

- ⊕ Benefits of Trade:
  - ❖ Increased choice
  - ❖ Greater potential for growth
  - ❖ Increase international economies of scale
  - ❖ Greater employment opportunities



Trade has led to massive increases in wealth for many countries.

Source: budgetstock, <http://www.sxc.hu/>

# *Trade versus Aid?*

## ❖ Disadvantages of Trade:

- ❖ Increase in gap between the rich and the poor
- ❖ Dominance of global trade by the rich, northern hemisphere countries
- ❖ Lack of opportunities for the poor to be able to have access to markets
- ❖ Exploitation of workers and growers



How far does trade help children like these?

Source: clesio, <http://www.sxc.hu/>

# *Corporate Expansion*



No matter where you go in the world, certain businesses will always have a presence.

Source: mkeky <http://www.sxc.hu/>

- ⊕ Multi-national or trans-national corporations
- ⊕ – businesses with a headquarters in one country but with business operations in a number of others.

# *Corporate Expansion*



- ✦ Characteristics:
  - ❖ Expanding revenue
  - ❖ Lowering costs
  - ❖ Sourcing raw materials
  - ❖ Controlling key supplies
  - ❖ Control of processing
  - ❖ Global economies of scale

Controlling supplies may be one reason for global expansion.

Source: rsvstks; <http://www.sxc.hu/>

# *Corporate Domination*

## ✦ Key Issues:

- ❖ Damage to the environment?
- ❖ Exploitation of labour?
- ❖ Monopoly power
- ❖ Economic degradation
- ❖ Non-renewable resources
- ❖ Damage to cultures



Shell and Nike's activities have come under severe criticism in some quarters.

Source: Homsel, <http://www.sxc.hu>

# *Other Issues:*



There are plenty of people who believe that globalisation is a negative development, protests at the G8 summits, pollution, poverty and concern over GM crops are just some of the issues.

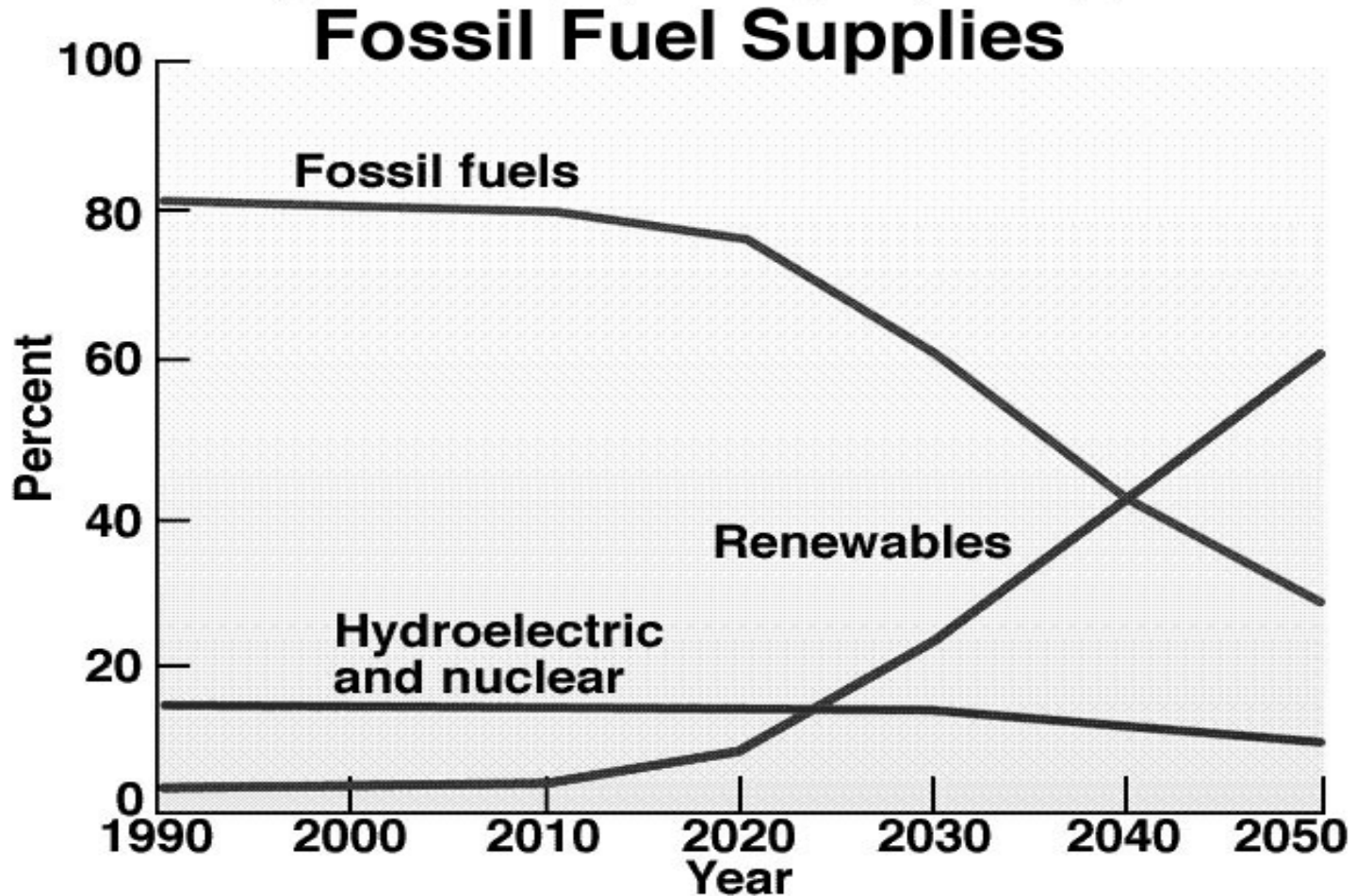
Source: <http://www.sxc.hu>

- ❖ Accountability of Global businesses?
- ❖ Increased gap between rich and poor fuels potential terrorist reaction
- ❖ Ethical responsibility of business?
- ❖ Efforts to remove trade barriers



# CURRENT ISSUES

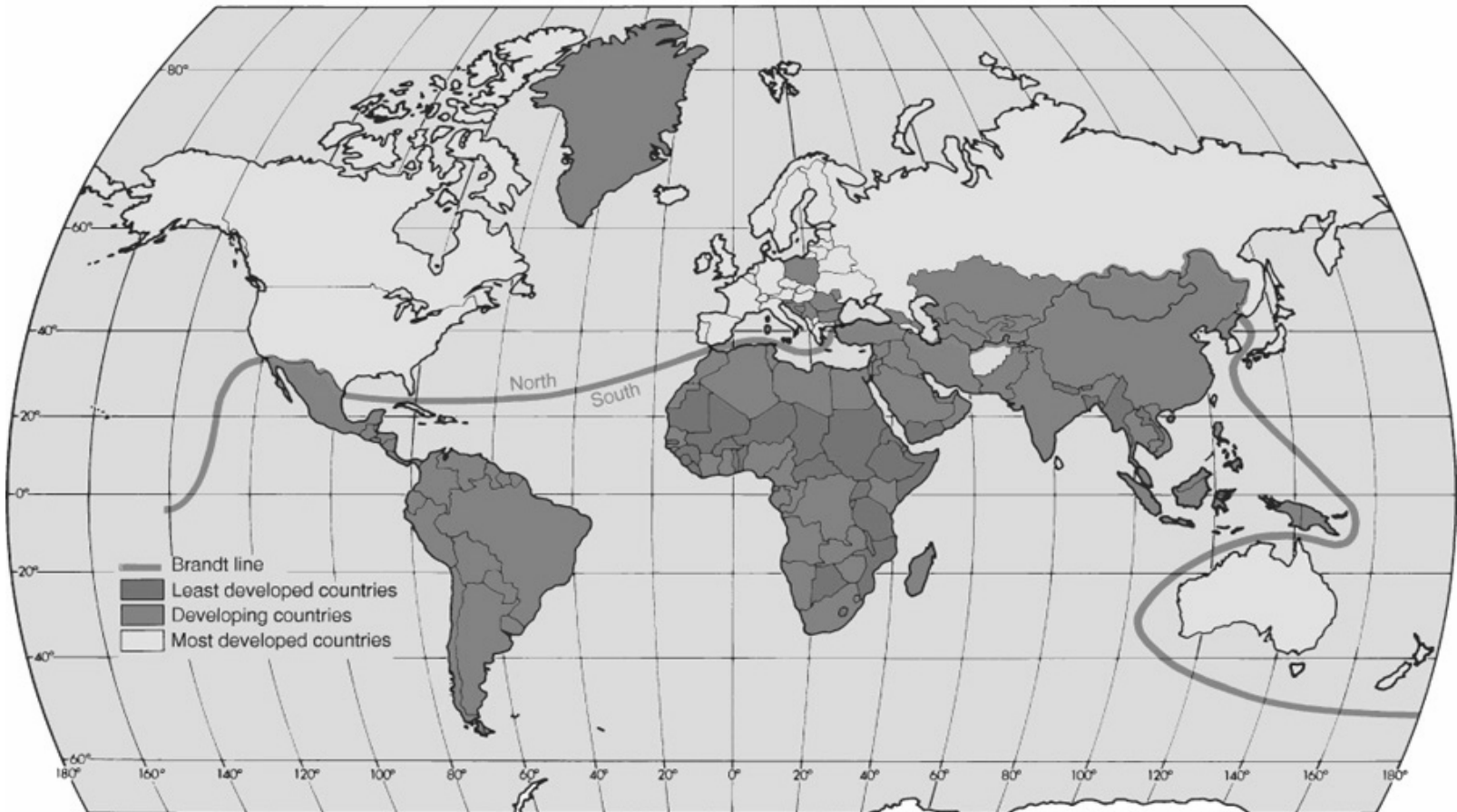
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# CURRENT ISSUES

## North and south or have and have not

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# CURRENT ISSUES

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**TABLE 1.1** Average Indicators of Quality of Life for the Ten Richest and Poorest Countries<sup>1</sup>

INDICATOR	POOR COUNTRIES	RICH COUNTRIES
GNP/capita	\$175	\$35,000
Life expectancy	46 years	77 years
Infant mortality <sup>2</sup>	102	6
Child deaths <sup>3</sup>	194	7.5
Safe drinking water	42%	NA <sup>4</sup>
Female literacy	38%	97%
Birth rate <sup>5</sup>	42	12

<sup>1</sup>Averaged as a group

<sup>2</sup>per 1,000 live births

<sup>3</sup>per 1,000 children before age 5

<sup>4</sup>not available, but close to 100 percent

<sup>5</sup>per 1,000 people

*Source:* Population Reference Bureau, 2000 World Data Sheet.

## TABLE 1.2 The United States, with 4.5 Percent of the World's Population

### CONSUMES

---

26 percent of all oil  
24 percent of aluminum  
20 percent of copper  
19 percent of nickel  
13 percent of steel

### PRODUCES

---

50 percent of all toxic wastes  
26 percent of nitrogen oxides  
25 percent of sulfur oxides  
22 percent of chlorofluorocarbons  
26 percent of carbon dioxide

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*Source:* Data from World Resources Institute 1998–99.



# ***POVERTY***

**1/5th live in so-called  
acute poverty**

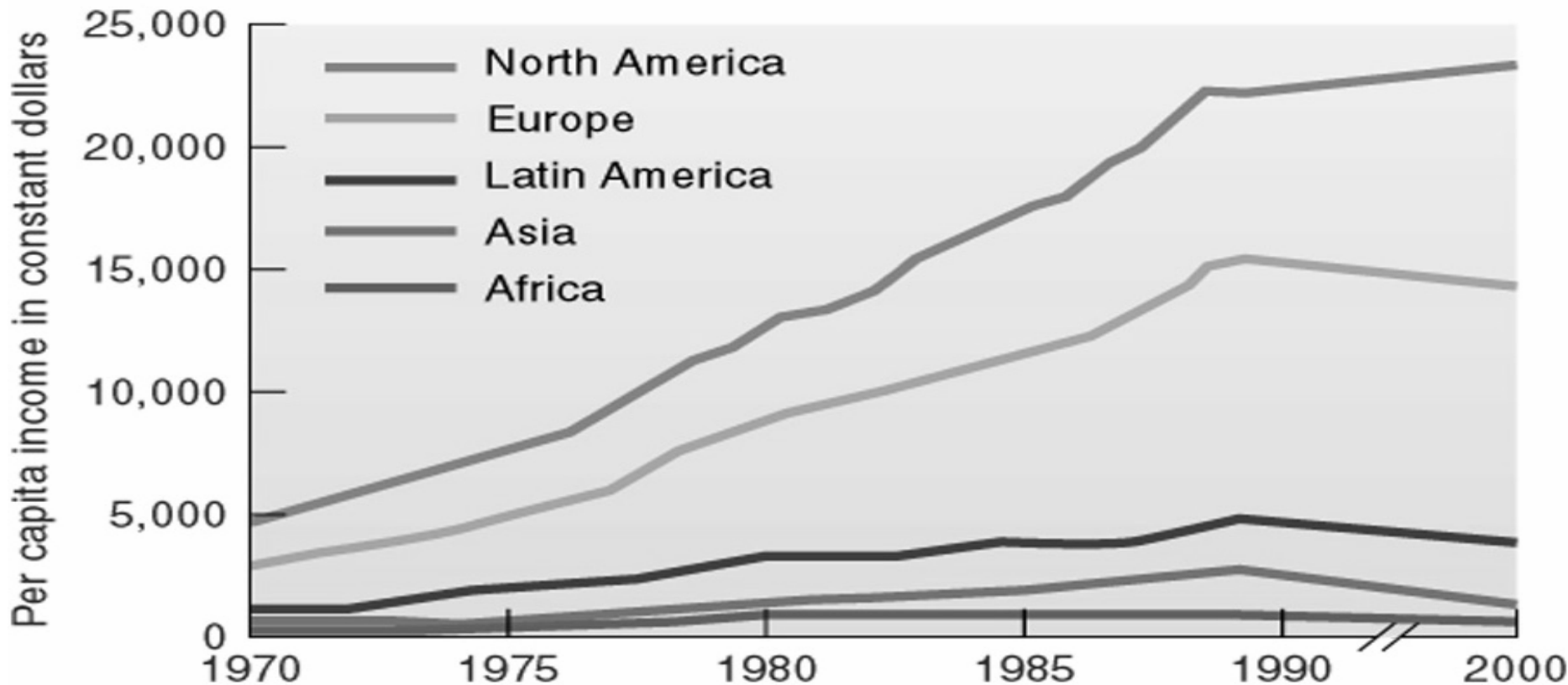
**4/5th live in poverty by  
North American  
standards**

# CURRENT ISSUES

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## Growing Disparities in Incomes among Regions

### Per Capita Income by Region, 1970–2000



Source: United Nations (U.N.), *Critical Trends: Global Change and Sustainable Development* (U.N., New York, 1997), p. 58.

# *National Security*



# *National Security*

- ⊕ Nazi Germany: 10 years  
(impact 50 years)
- ⊕ China ??
- ⊕ Rwanda ??
- ⊕ Mid- East ??

**-> Time scale of  
terrorism: 5-50 years**



# War

- ⊕ Wars last 2-5 years
- ⊕ Impact of WWII ~50-100 years

-> **Time scale of war 2-100 years**



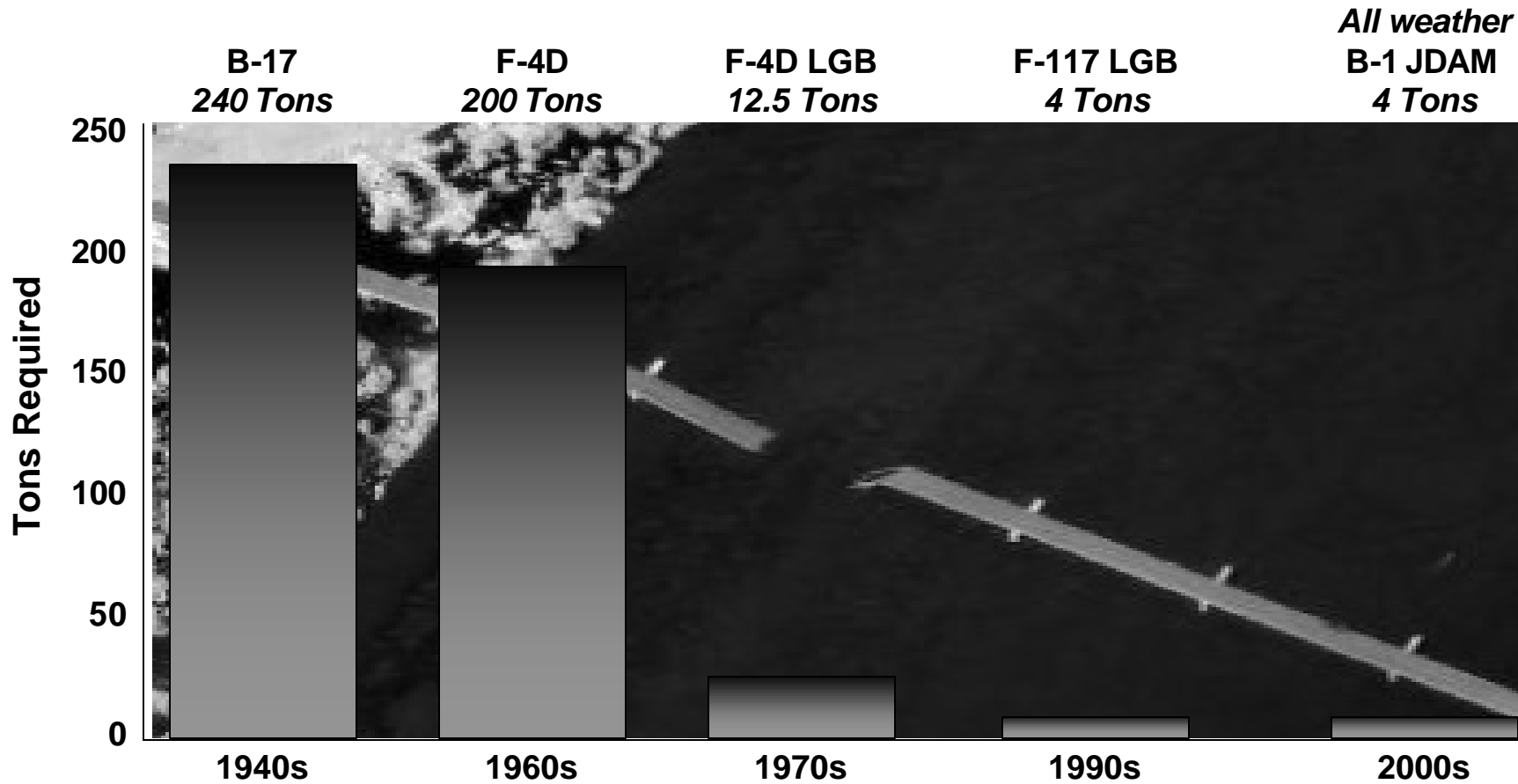
# Guided Weapons of Mass Destruction



# *Evolution of Precision Strike:*

*... Effectiveness against fixed targets*

**Then & Now: *One-sixtieth* the tonnage required to drop a bridge span**



**Tons of bombs required to drop a bridge span (90% confidence)**

# *Precision Deterrence*

*... Issues and Choices*

How do we balance local (tactical) deterrence and global (strategic) deterrence?

Can our intelligence community identify that which our adversaries hold most dear?

What are the new tools of deterrence that support our moral principles and strategic interests and how do they interact?

What are the new concepts for deterrence?

# *Hiroshima—before*



<http://www.aracnet.com/~pdxavets/1260a.gif>

# *Hiroshima—after*



Source: <http://www.aracnet.com/~pdxavets/1259a.gif>

*Oil or freedom (where is the Global Ethics*



# **RUSSIA and CHINA**

Do not have better records



# CHECHNYA



# ***TESTING LEADING HYPOTHESES***



- ❖ The public doesn't care about international issues.
- ❖ The public needs to see its self-interest.
- ❖ You can prime international interest through a domestic issue.
- ❖ The public has compassion fatigue.

# *Hypotheses all wrong; in fact...*

- ⊕ The public supports cooperative international engagement: work thru the UN, WHO, NATO, etc.
- ⊕ The general public responds more readily to moral arguments than utilitarian ones
- ⊕ The public believes we should continue addressing humanitarian concerns, and do more to uproot underlying causes of discontent
- ⊕ “Starting locally” is not as effective as “starting globally”

# *The Public After 9/11/01: Still supports cooperative engagement*

- ⊕ US should get UN Security Council approval for military action in Afghanistan “even if this means exercising more restraint” (54% very important; 30% important) --Harris poll Sept 19-24, 2001
- ⊕ Important “for the war on terrorism to be seen by the world as an effort of many countries working together, not just a US effort (95%, 82% very important) --PIPA/Steven Kull report 11/13/01; survey conducted Nov. 1-3,2001

## *If the US is “the daddy”...*

- ⊕ Then they are in charge...
- ⊕ And other countries are children...
- ⊕ And other countries need to “grow up” and stand on their own two feet...
- ⊕ Or at least help out around the house.

# *The Dominant Frame: Global Mayhem*

## Consequences of the Coverage

- ⊕ Since the US is typically the only actor covered in the media, the public assumes the US is doing it all.
- ⊕ The public does not know whom to blame for the world's apparent chaos and chronic problems, nor whom to hold accountable.
- ⊕ The “global mayhem” causes people to support humanitarian aid, but also induces a “refuge stance:” I pity them; but I’m glad we’re safe here at home

# *Challenging the dominant frame: the view from space...*

- ⊕ “From up there all the trouble spots in the world seemed rather small... The first day or two you try to recognize the countries... Then you keep missing the countries and look only at the continents. By the sixth day, the whole world becomes a beautiful blue and white and yellow painting. So fragile. Those boundaries really disappear.

--Prince Sultan ibn Salman al Saud of Saudi  
Arabia, astronaut

# *The Public Says: Play Fair*

- ⊕ “Why is it right for the US to have WMD and other countries not to?”
- ⊕ “How can we maintain world peace without trampling on the role, cultures, rights and values of other countries?”
- ⊕ “We need to get our own act together before we take it on the road.”
- ⊕ We’re one of the big problems, so we should set a good example.”

--Participants in “By the People” forum Jan. 2003



# *Talking about a new world*

- ⊕ What kind of world is better and safer?  
Long-term development is part of the public's response
- ⊕ Takes Maturity, Teamwork, Community Building, Relationship Building

# *Environment* *(Global Warming)*

**Time scale of environmental decisions  
on global warming:**

**200 - 2,000 years !!**

# UNDERSTANDING OUR ENVIRONMENT; ETHICS

Pragmatic resource conservation

George Perkins Marsh (1864)

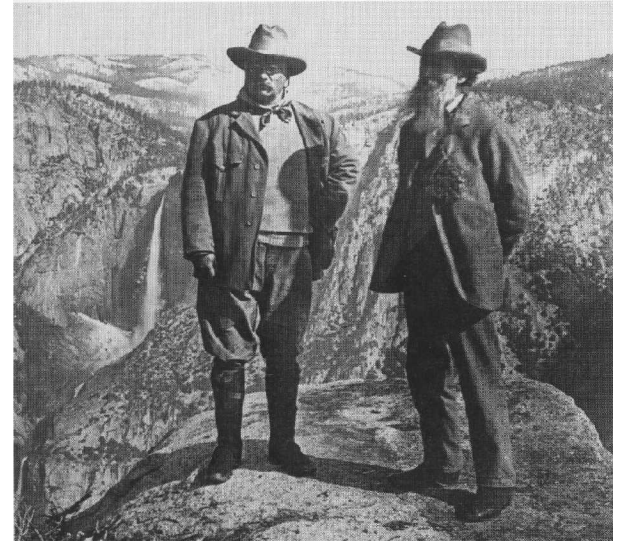
Utilitarian conservation:

*“Forests should be saved not because they are beautiful, but only to provide homes and jobs for people...resources should be used for the benefit of people who live here now.”*



# A BRIEF HISTORY

- ✦ Moral and Aesthetic Nature Preservation
- ✦ John Muir (Sierra Club)
- ✦ At the core: Spiritual values
- ✦ *“Nature’s object in making animals and plants might possibly be first of all the happiness of each of them”*



# A BRIEF HISTORY

- ⊕ Modern Environmentalism
- ⊕ The majority of North Americans
- ⊕ now consider themselves “environmentalists”

# ENVIRONMENTAL ETHICS

“McGill community is  
dedicated to learning,  
McGill hopes to educate  
individuals to think and act  
as ethical leaders and  
responsible citizens in the  
global community.”

# ENVIRONMENTAL ETHICS

- ⊕ Ethics: *morals* (distinction between right and wrong) *values* (ultimate worth)

- ⊕ Environmental ethics:

“Moral relationships between humans and the world around us”

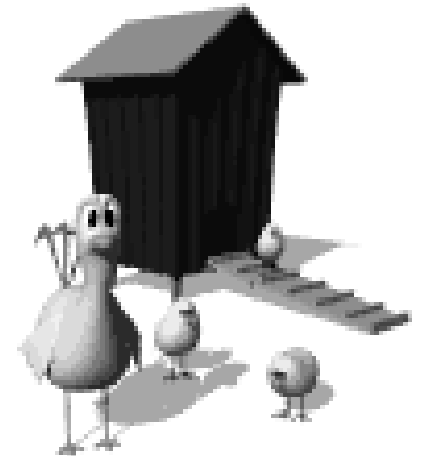
# ENVIRONMENTAL ETHICS

- ⊕ Do we have special duties, obligations, or responsibilities to other species or nature?
- ⊕ Are there ethical principles that constrain how we use resources or modify our environment?
- ⊕ How are our obligations and responsibilities to nature weighed against human values and interests?



# ENVIRONMENTAL ETHICS

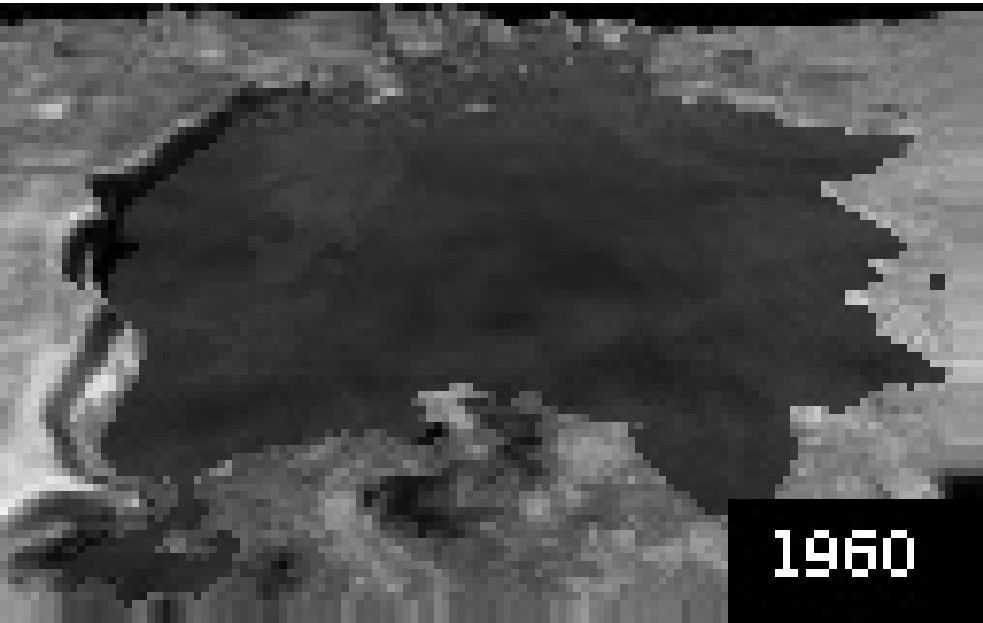
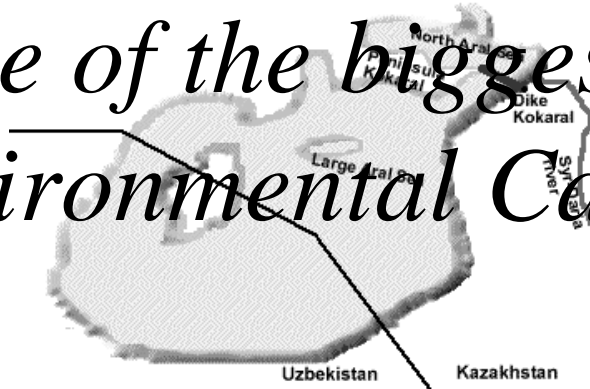
- ⊕ All humans certain inalienable rights  
-- life, liberty, and pursuit of happiness
- ⊕ Does moral extensionism encompass nonhumans?



# ARAL SEA

4<sup>th</sup> largest lake in the world

One of the biggest world environmental Catastrophes



# ENVIRONMENTAL ETHICS

*“How much is a scenic river worth?”*



# *Current Issues*

- ⊕ Jobs: 7-35 years
- ⊕ Economy: 5-50 years
- ⊕ National security, terrorism: 5-50 years
- ⊕ War: 2-100 years
- ⊕ Environment: 200-2,000 years

## *Predicting the Future - Be Careful*

- Don't assume it can not be done
- Leave room for the unknown
- Consider alternatives carefully
- Pursue all potential solutions

# *Technology's Roles*

- Detailed explicit information and understanding of what is occurring
  - Sensors, data processing, computers, models, predictions, communication, information.....
- Alternate technologies that mitigate and eliminate harmful effects
  - Energy, water, transportation, communication...
- Sustainable Development

# *Engineers are vital*

- Developing and applying
  - the means by which to measure, analyze and predict future conditions
  - the technologies by which to mitigate and eliminate undesired effects
- Describing, explaining and communicating
  - To policy makers
  - To the non-technical public
- Creating the framework for a sustainable environment



## *Summary*

- Major increases are occurring in human population and affluence.
- Major stresses are put on our society, natural environment, and ecology.
- **Technology and engineering are central to the creation and the mitigation of problems.**
- Predicting the future is difficult (17). The next twenty five to fifty years will be decisive.
- **You are going to be in charge!!!!!!!!!!!!!!**





*You as a responsible **Engineer** must  
make the difference*

END

# References

This presentation is put together from, course books , other presentations as well as various websites in the forms of text, photos, audio and video clips.

All the references will be given in the general reference section on the web Ct

Thank you

## *REFERENCES*

- ⦿ This presentation is modified from the Presentations by
- ⦿ E.S. Takle
- ⦿ J. Miller
- ⦿ Bill kastenberg
- ⦿ Michael Coleridge Slattery
- ⦿ David Devlin-Foltz
- ⦿ Paul Toyne

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