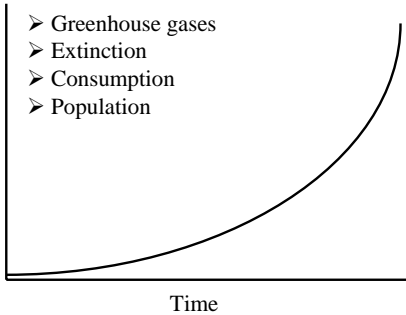


## Four spikes\*

- Greenhouse gases
- Extinction
- Consumption
- Population



\*Ed Ayres (1999, *God's Last Offer*)

---

---

---

---

---

---

---

---

## Pessimism?

“There is no point to intellectual and political work if one were a pessimist. Intellectual and political work require, nay, demand, optimism.”\*

- Air pollution
- Water pollution
- Ozone depletion
- Veal consumption

\*Edward Said (quoted by Joseph Massad, 2003, *Al-Ahram*)

---

---

---

---

---

---

---

---

## Greenhouse gases

### Outcomes

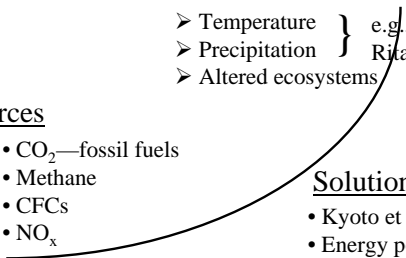
- Temperature
  - Precipitation
  - Altered ecosystems
- } e.g., Katrina, Rita

### Sources

- CO<sub>2</sub>—fossil fuels
- Methane
- CFCs
- NO<sub>x</sub>

### Solutions

- Kyoto et al.
- Energy policy
- Individual actions



---

---

---

---

---

---

---

---

## GH gases—individual actions

- Transportation
- Energy

*g*ermensch

Selbstüberwindung



---

---

---

---

---

---

---

---

## Extinction

### Outcomes

- Reduced ecosystem services (valued at \$33 trillion/year)
- Reduced inspiration
- Reduced flexibility
- Reduced beauty

### Drivers

- Loss of habitat
- Ecological footprint
- Homogenization

### Solutions

- \$30 billion\* (~70%)
- Individual actions

\*E.O. Wilson (2002, *The Future of Life*)

---

---

---

---

---

---

---

---

## Extinction—individual actions

- Support conservation organizations
- Reduce ecological footprint (1% → 40%)
- Lifestyle change (as if lives depended on it)



---

---

---

---

---

---

---

---

## Consumption

### Consume:

1. To do away with completely; destroy
- 2a. To spend wastefully; squander
- 2b. Use up
3. To waste or burn away; perish

---

---

---

---

---

---

---

---

## Consumption

### Outcomes

- Intergenerational inequity
- Distinct social classes
- Economic "growth"

### Drivers

- Neoclassical economics
- Marketing
- Human desire

### Solutions

- Steady-state economy
- Shift subsidies
- Individual actions

---

---

---

---

---

---

---

---

## Hard-wired for simplicity

Flight or fight (i.e., survival)

Procreation

Acquisition

---

---

---

---

---

---

---

---

## Neoclassical economics

“It’s the economy, stupid”\*

Goal of economic growth  
is never questioned

Positive discount rate  
devalues future

\*James Carville (Clinton administration)

---

---

---

---

---

---

---

---

## Consumption

- Enough paved roads in U.S. to circle globe 157 times\*
- U.S. military expenditures to protect Mideast oil: \$30-60 billion/year\*
- Value of Mideast oil: \$20 billion\*
- Water consumed by showering once/day for one year: 5,000 gal<sup>+</sup>
- Water required to grow one pound of beef in the U.S.: 2,600-5,000 gal<sup>+</sup>



---

---

---

---

---

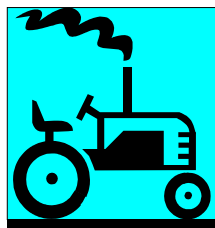
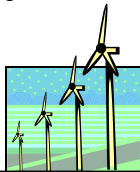
---

---

---

## Consumption—shift subsidies

- Prices reflect total cost (e.g., gasoline > \$8/gal; coal ~ \$0.60/Kwh vs. solar ~ \$0.05/Kwh)
- Stop subsidizing destructive practices
- Begin subsidizing constructive practices



ANWR oil vs.  
North Dakota wind

---

---

---

---

---

---

---

---

## Consumption—individual actions

- Reduce/Reuse/Recycle
- Think globally, eat locally
- Re-connect with nature



---

---

---

---

---

---

---

---

## Human population

### Outcomes

- Increased demands on ecosystem services
- Reduced quality of life
- Underlies other forces

### Drivers

- Natural selection
- Individualist ethic
- Denial

### Solutions

- Socioeconomic policies
- Revised worldview
- Individual actions

---

---

---

---

---

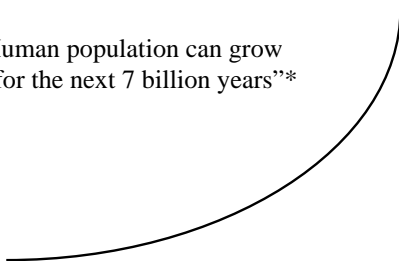
---

---

---

## Denial?

Human population can grow  
“for the next 7 billion years”\*



\*Myers & Simon (1994, *Scarcity or Abundance: A Debate on the Environment*)

---

---

---

---

---

---

---

---

## The energy myth

Biosphere II – unlimited energy, human carrying capacity of 6-8\*

Global carrying capacity of 6-9 billion hard-working vegetarians

\*Odum and Odum (2001, *A Prosperous Way Down*)

---

---

---

---

---

---

---

---

## Global food supply

Year	Production (kg)
1961	265
1966	285
1971	295
1976	315
1981	325
1984	345
1986	335
1991	315
1996	325
2001	305

Per Capita Grain Production\*

\*Worldwatch Institute (2003, *Vital Signs*)

---

---

---

---

---

---

---

---

## Individualistic ethic

Formalized in our founding documents:

e.g., *unalienable* right to life, liberty, and the pursuit of happiness

---

---

---

---

---

---

---

---

## Population—individual actions

- Minimize reproductive output
- Support alternative lifestyles
- Find community




---

---

---

---

---

---

---

---

## Population—two paths

Stabilizing population

- Decrease fertility
- Increase mortality




---

---

---

---

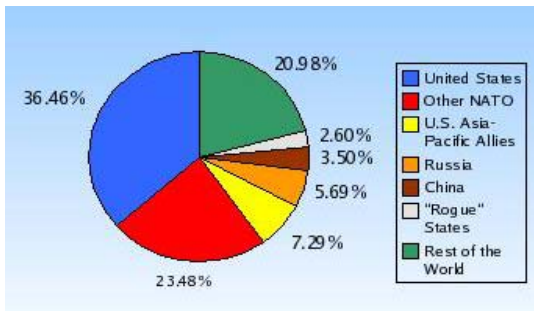
---

---

---

---

## Military expenditures\*



\*Worldwatch Institute (2003, *Vital Signs*; 2001 data)

---

---

---

---

---

---

---

---

## U.S. expenditures, world needs\*

Military: >\$500 billion/yr

International aid: \$10 billion/yr

Needed to reach basic social goals:  
\$62 billion/yr

- Education
- Nutrition
- Health care
- Reproductive services

\*Lester Brown (2003, *Plan B*)

---

---

---

---

---

---

---

---

## Envisioning the future

- Environmental protection
- Social justice
- Human economy
- Building design, livable space

Conservation biologists	Engineers
Political scientists	Architects
Sociologists	Urban planners
Anthropologists	
Economists	Artists
Environmental scientists	Philosophers

---

---

---

---

---

---

---

---

## Envisioning the future

Suppose you had had the revolution ..., and you had the kind of society you wanted. How would you live, you personally, in that society? Start living that way now! Whatever you would do then, do it now. When you run up against obstacles, people, or things that won't let you live that way, then begin to think about how to get over or around or under that obstacle, or how to push it out of the way, and your politics will be concrete and practical.\*

\*Paul Goodman (1970, quoted by John Holt, *What Do I Do Monday?*)

---

---

---

---

---

---

---

---