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

Sources
- CO₂—fossil fuels
- Methane
- CFCs
- NOx

Solutions
- Kyoto et al.
- Energy policy
- Individual actions

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*Edward Said (quoted by Joseph Massad, 2003, Al-Ahram)
GH gases—individual actions

- Transportation
- Energy

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


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*
- Water required to grow one pound of beef in the U.S.: 2,600-5,000 gal*

*Lester Brown (2003, Plan B) 
+ John Robbins (2001, Food Revolution)

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


Global food supply

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*

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military</td>
<td>&gt;$500 billion/yr</td>
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<tr>
<td>International aid</td>
<td>$10 billion/yr</td>
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<tr>
<td>Needed to reach basic social goals</td>
<td>$62 billion/yr</td>
</tr>
</tbody>
</table>

- Education
- Nutrition
- Health care
- Reproductive services


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### Envisioning the future

<table>
<thead>
<tr>
<th>Environmental protection</th>
<th>Building design, livable space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social justice</td>
<td></td>
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<tr>
<td>Human economy</td>
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<tr>
<td>Conservation biologists</td>
<td>Engineers</td>
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<td>Political scientists</td>
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<td>Urban planners</td>
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<td>Artists</td>
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<td>Economists</td>
<td>Philosophers</td>
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<tr>
<td>Environmental scientists</td>
<td></td>
</tr>
</tbody>
</table>

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### 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.*