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Protecting the Commons

Eight Annual Edward and Nancy Dodge Lecture
Johns Hopkins Bloomberg School of Public Health

Robert Costanza

Gordon and Lulie Gund Professor of Ecological Economics
and Director, Gund Institute of Ecological Economics
Rubenstein School of Environment and Natural Resources
The University of Vermont
Burlington, VT 05405





Practical Problem Solving Requires the *Integration* of:

- Vision
 - a. How the world works
 - b. How we would like the world to be
- Tools and Analysis
 - appropriate to the vision
- Implementation
 - appropriate to the vision

The Commons

“ refers to all the gifts we inherit or create together. This notion of the commons designates a set of assets that have two characteristics:

they're all **gifts**, and
they're all **shared**.

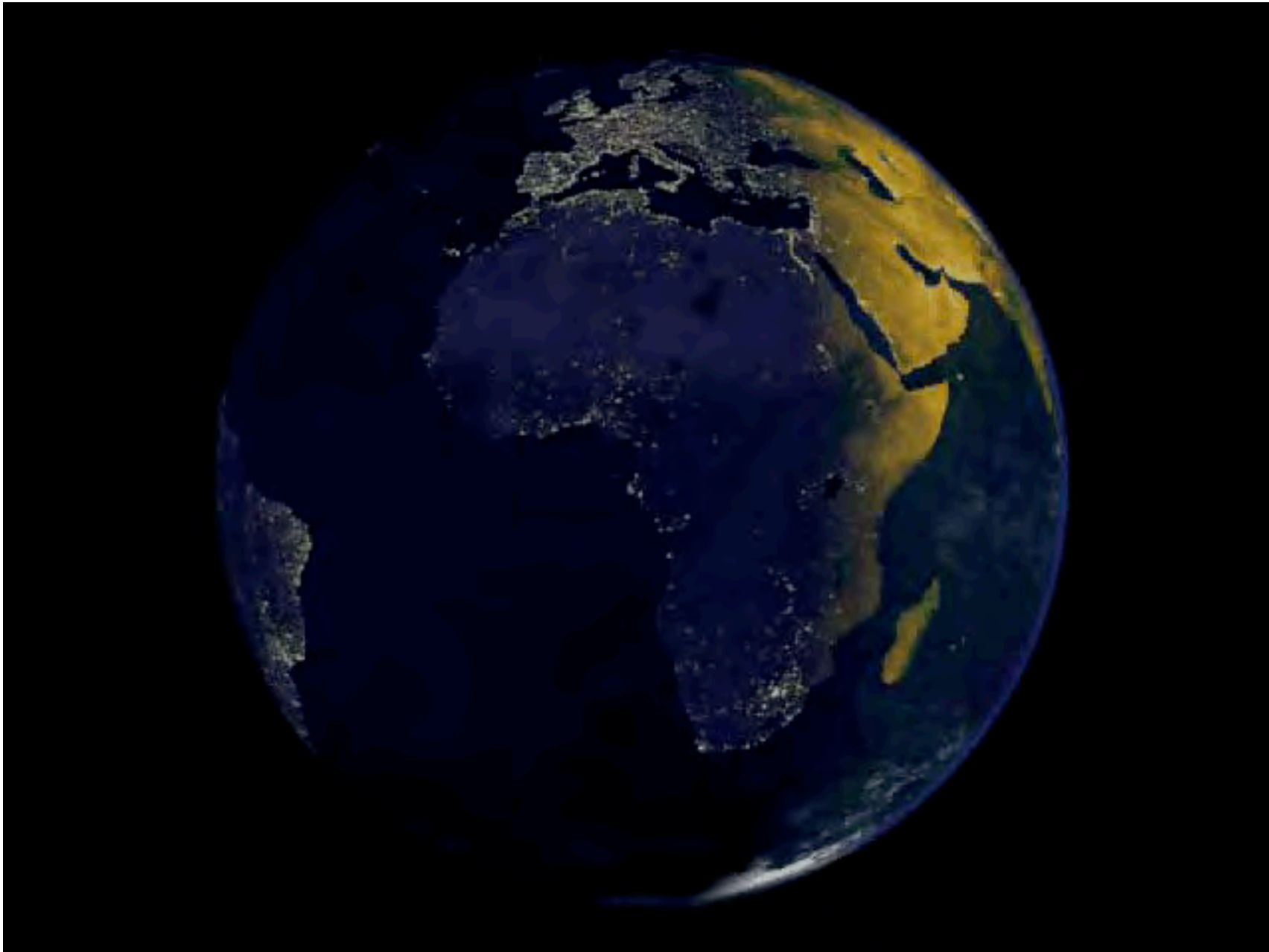
A gift is something we receive, as opposed to something we earn.

A shared gift is one we receive as members of a community, as opposed to individually.

Examples of such gifts include air, water, ecosystems, languages, music, holidays, money, law, mathematics, parks, the Internet, and much more”.

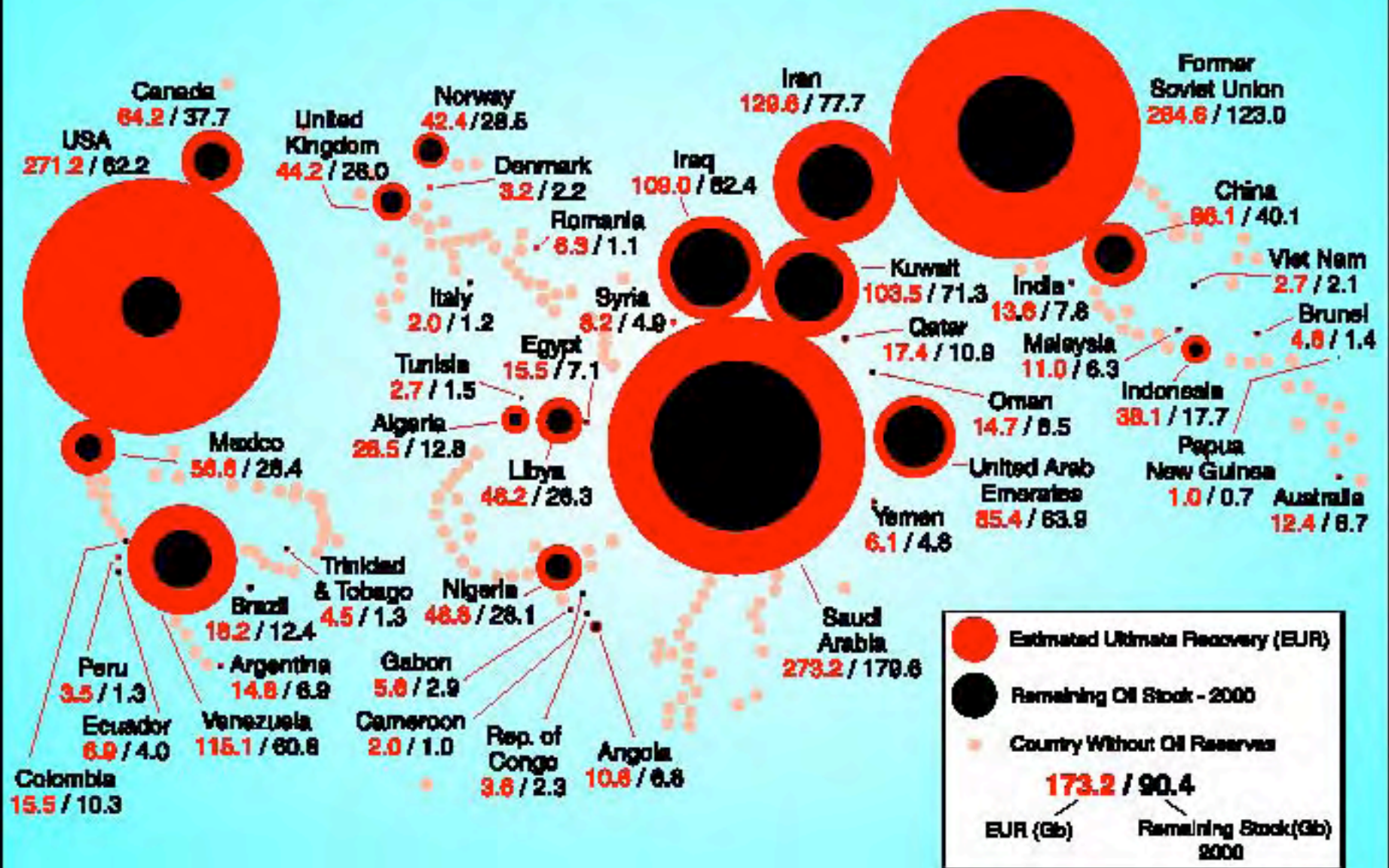
Peter Barnes, *Capitalism 3.0*

Full World Anthroposphere

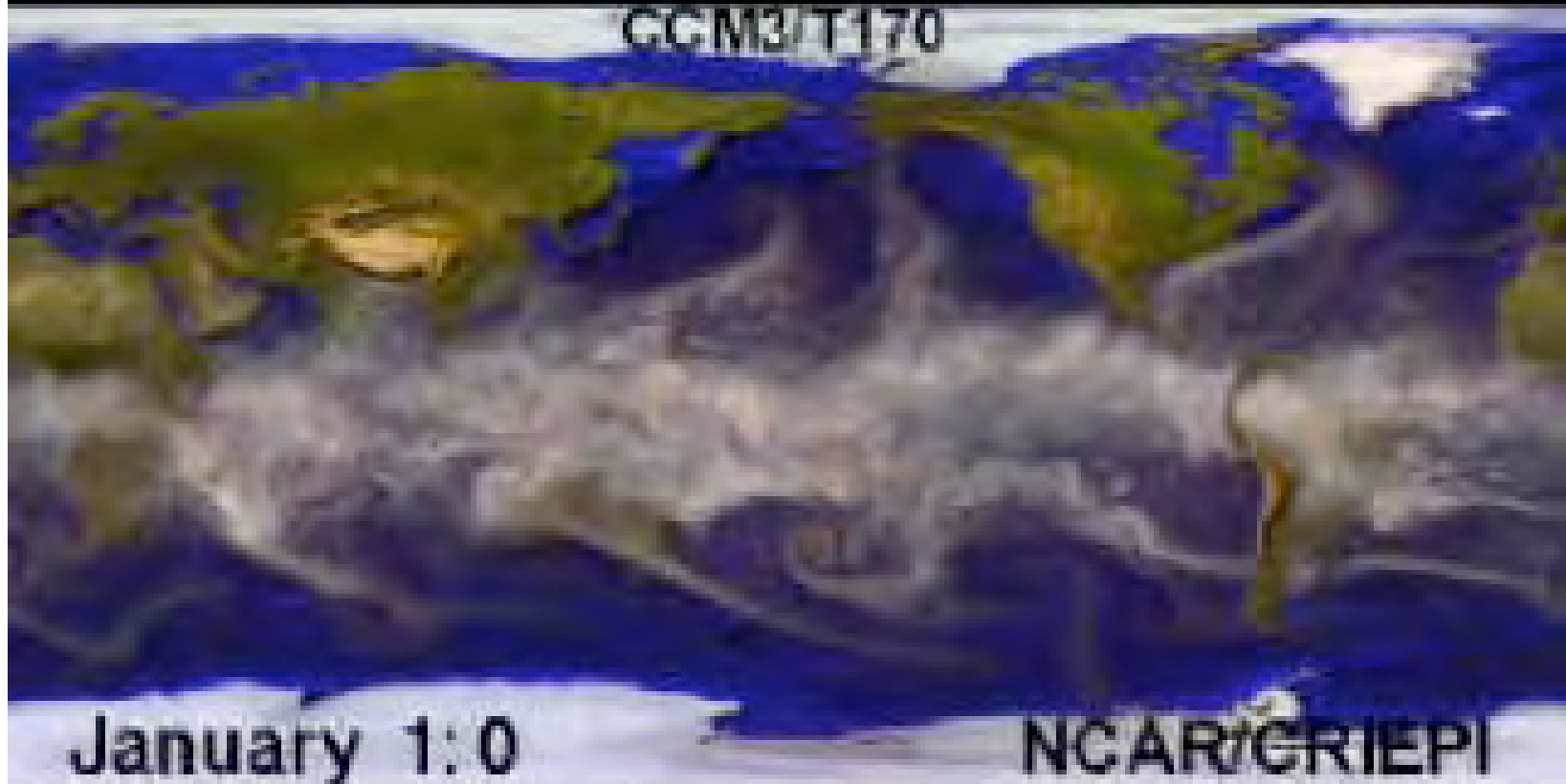


Marc
Imhoff
Biospheric
Sciences
Branch
NASA

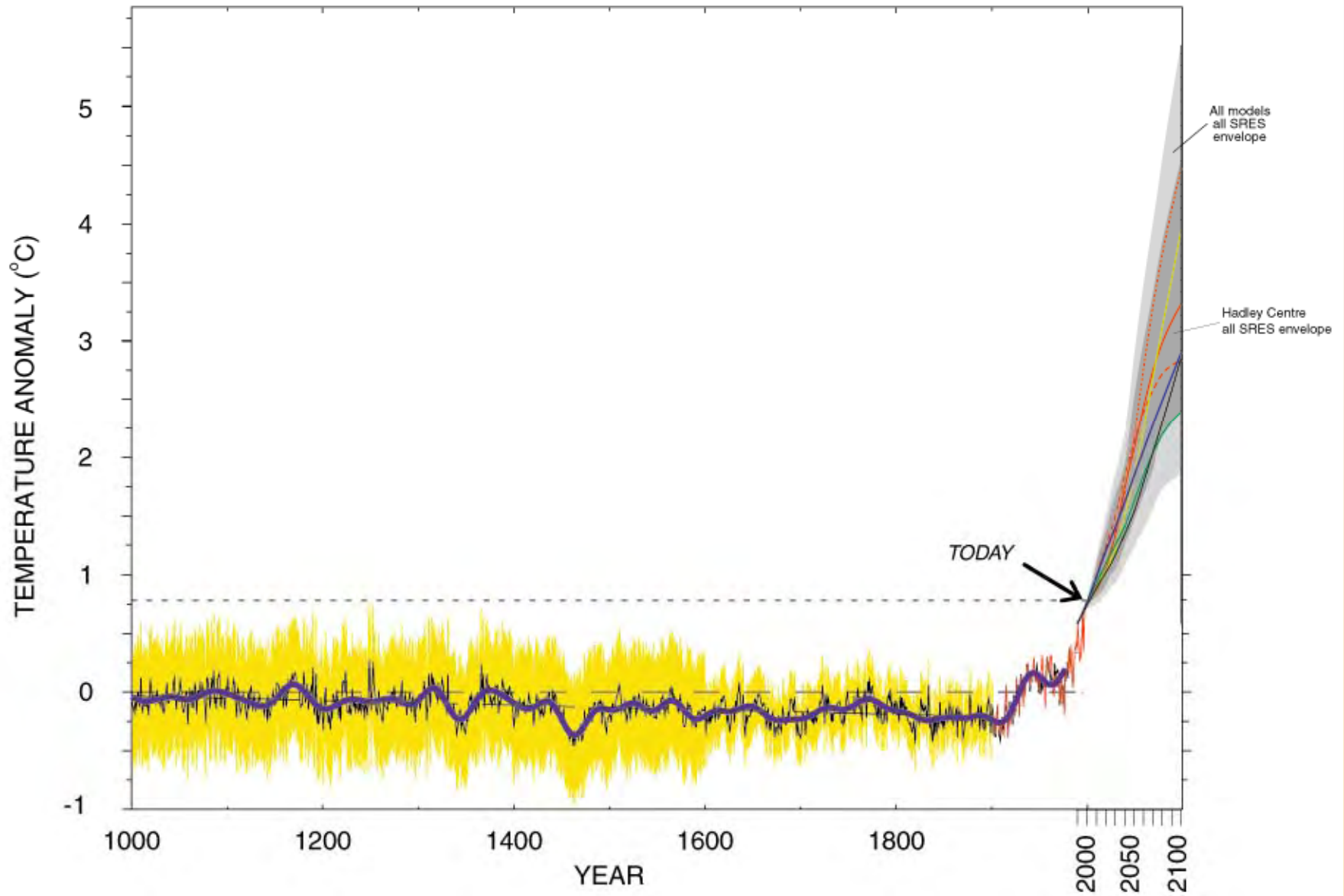
Estimated World Oil Ultimate Recovery (EUR) and Remaining Stocks - 2000



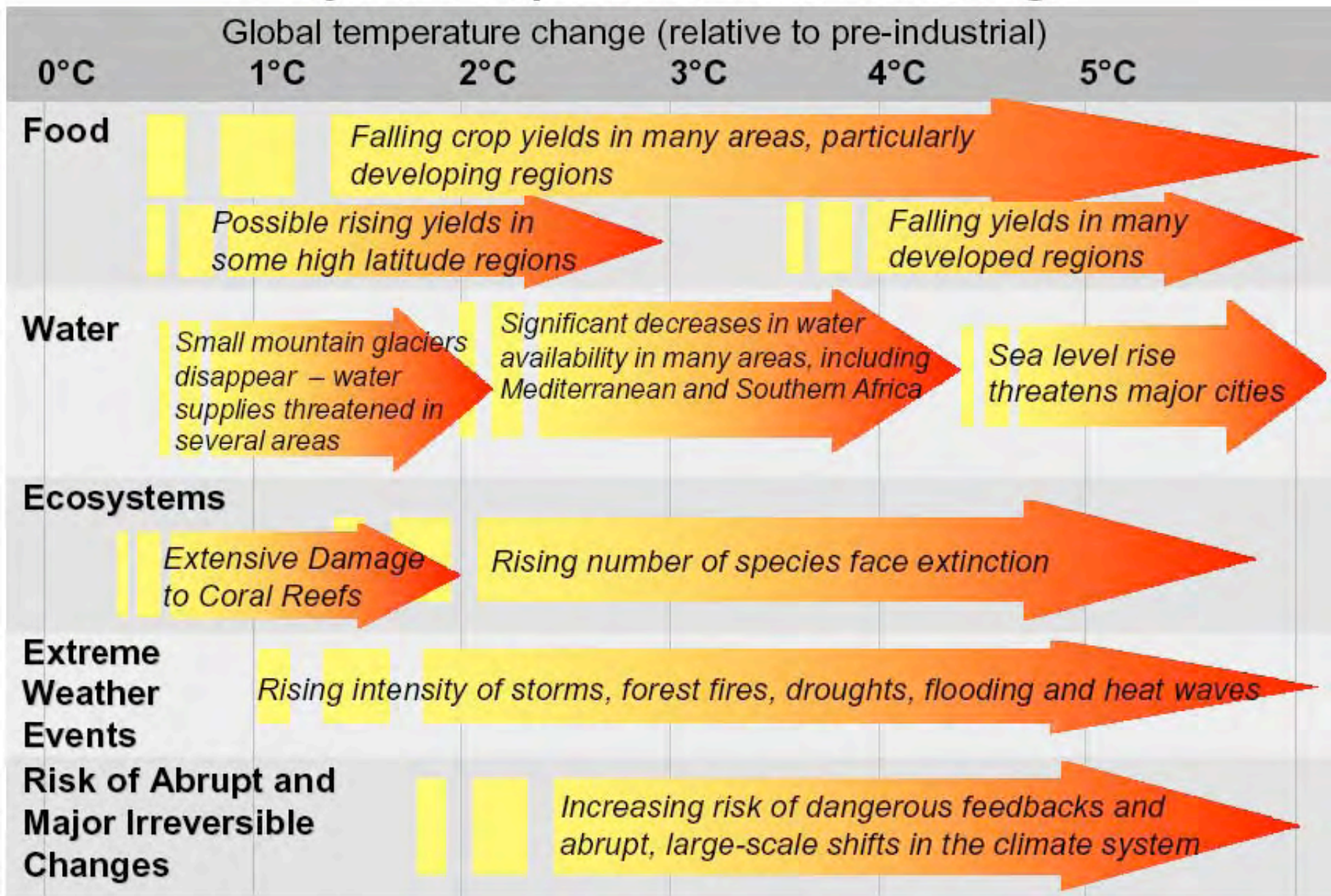
Atmosphere



Temperature, past and future



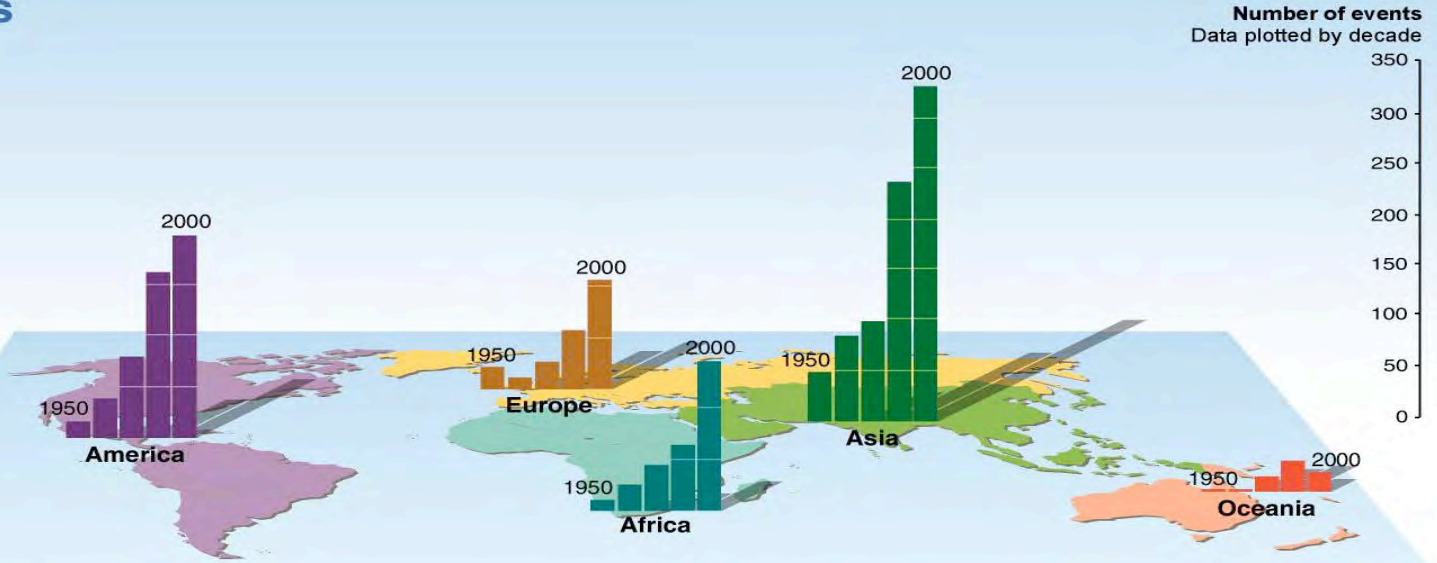
Projected Impacts of Climate Change



Source: Stern review on the economics of climate change, 2006



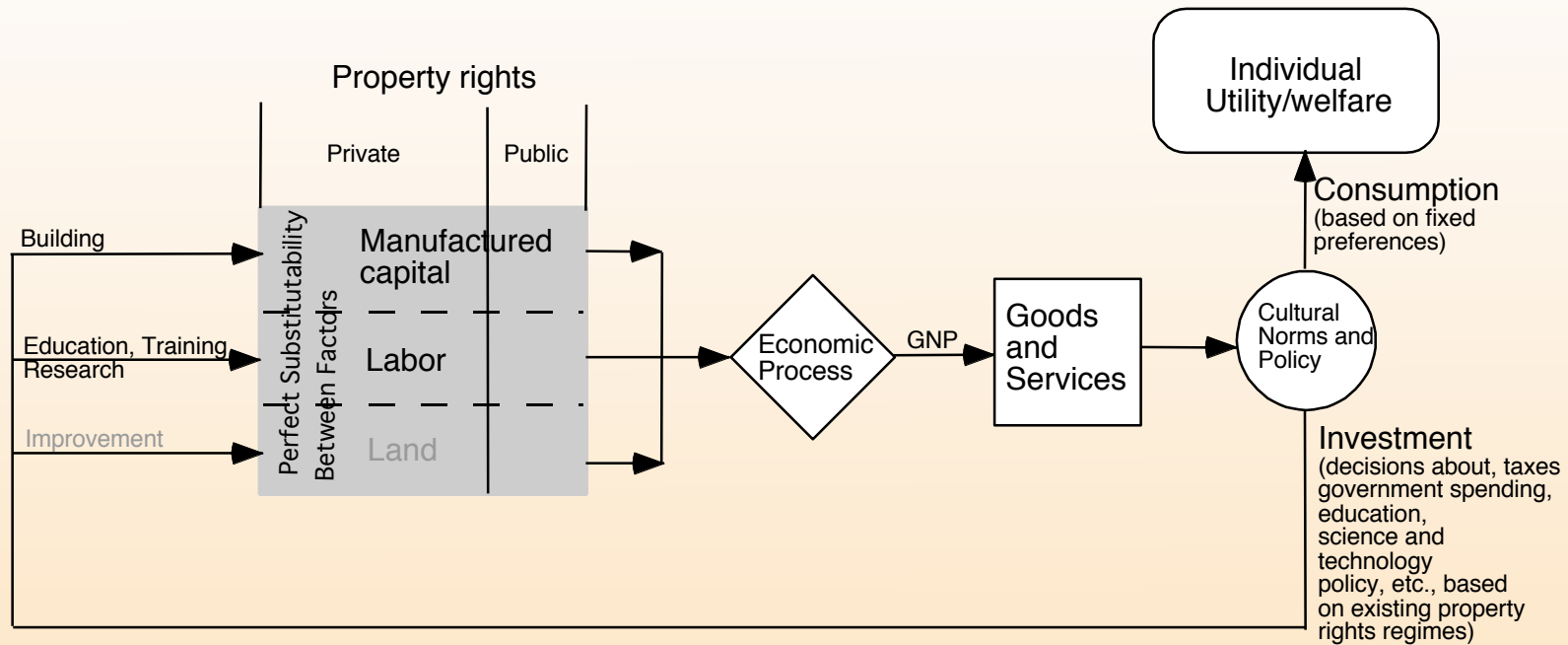
Floods



Source: Millennium Ecosystem Assessment

What is “the
economy” and
what is it for?

"Empty World" Model of the Economy



©2005 Alabama Power Company



With electricity prices at least 15% below the national average, why not?

ALABAMA
POWER
A SCOTCHMAN COMPANY

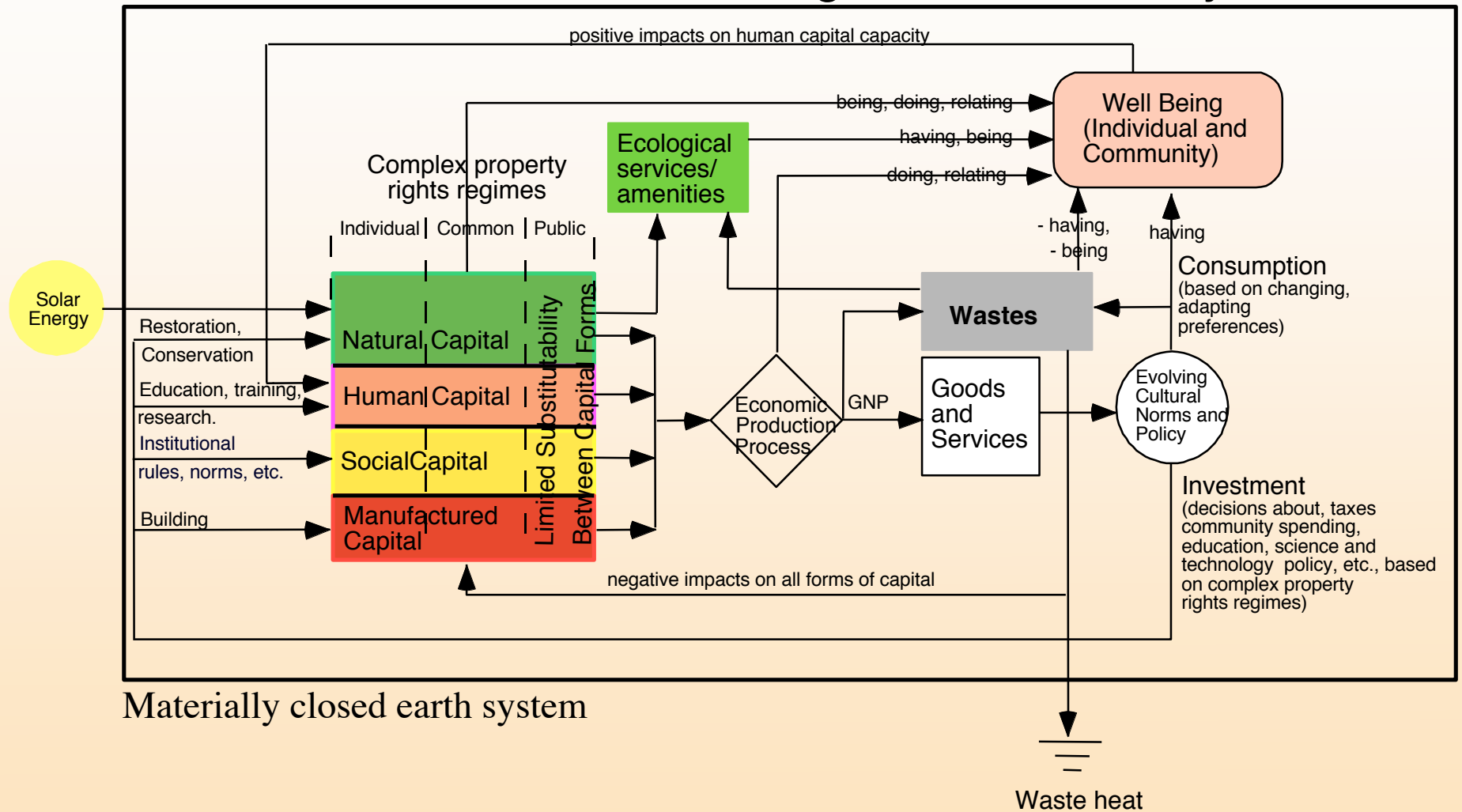
Always on.™

Empty World Energy Planning?

Alabama Power's motto:
"Always on"

"With Electricity prices
at least 15% below the
national average, why
not?"

“Full World” Model of the Ecological Economic System



From: Costanza, R., J. C. Cumberland, H. E. Daly, R. Goodland, and R. Norgaard. 1997. *An Introduction to Ecological Economics*. St. Lucie Press, Boca Raton, 275 pp.

The Commons:

- Non-marketed natural and social capital assets
- Public goods (non-excludable, non-rival)

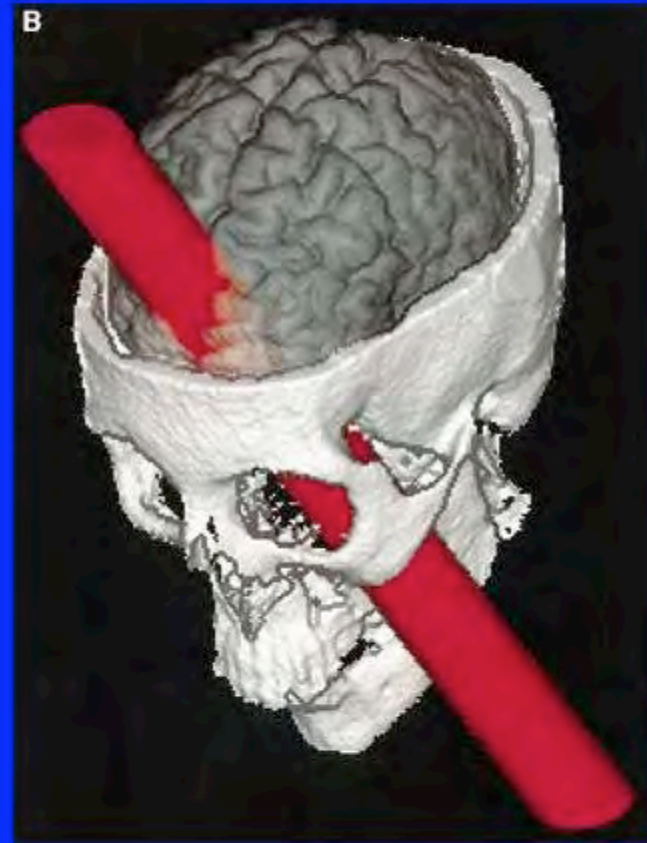
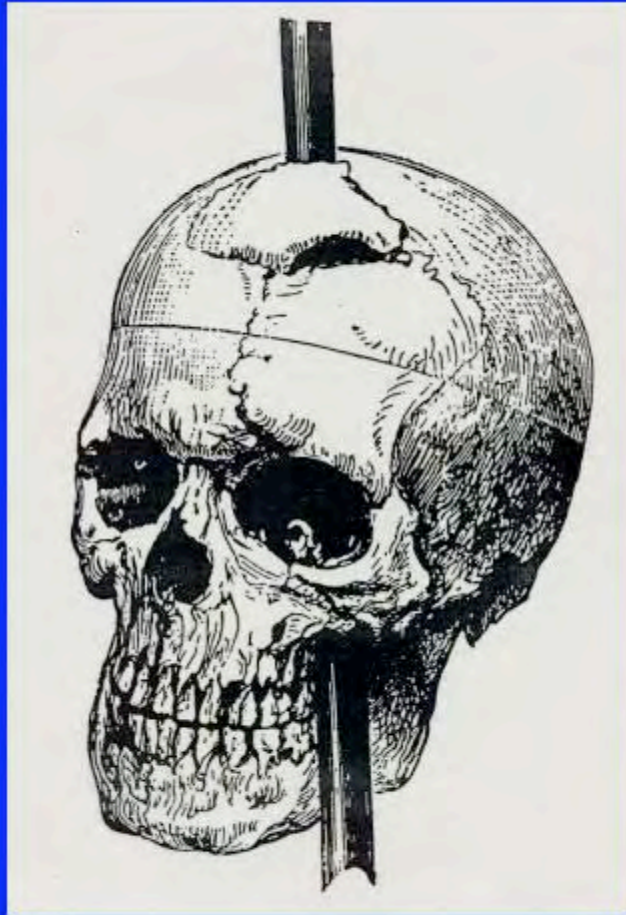


Goods and Services Classified According to Rivalness and Excludability

	Excludable	Non-Excludable
Rival	Market Goods and Services (most provisioning services)	Open Access Resources (some provisioning services)
Non-rival	Club Goods (some recreation services)	Public Goods and Services (most regulatory and cultural services)

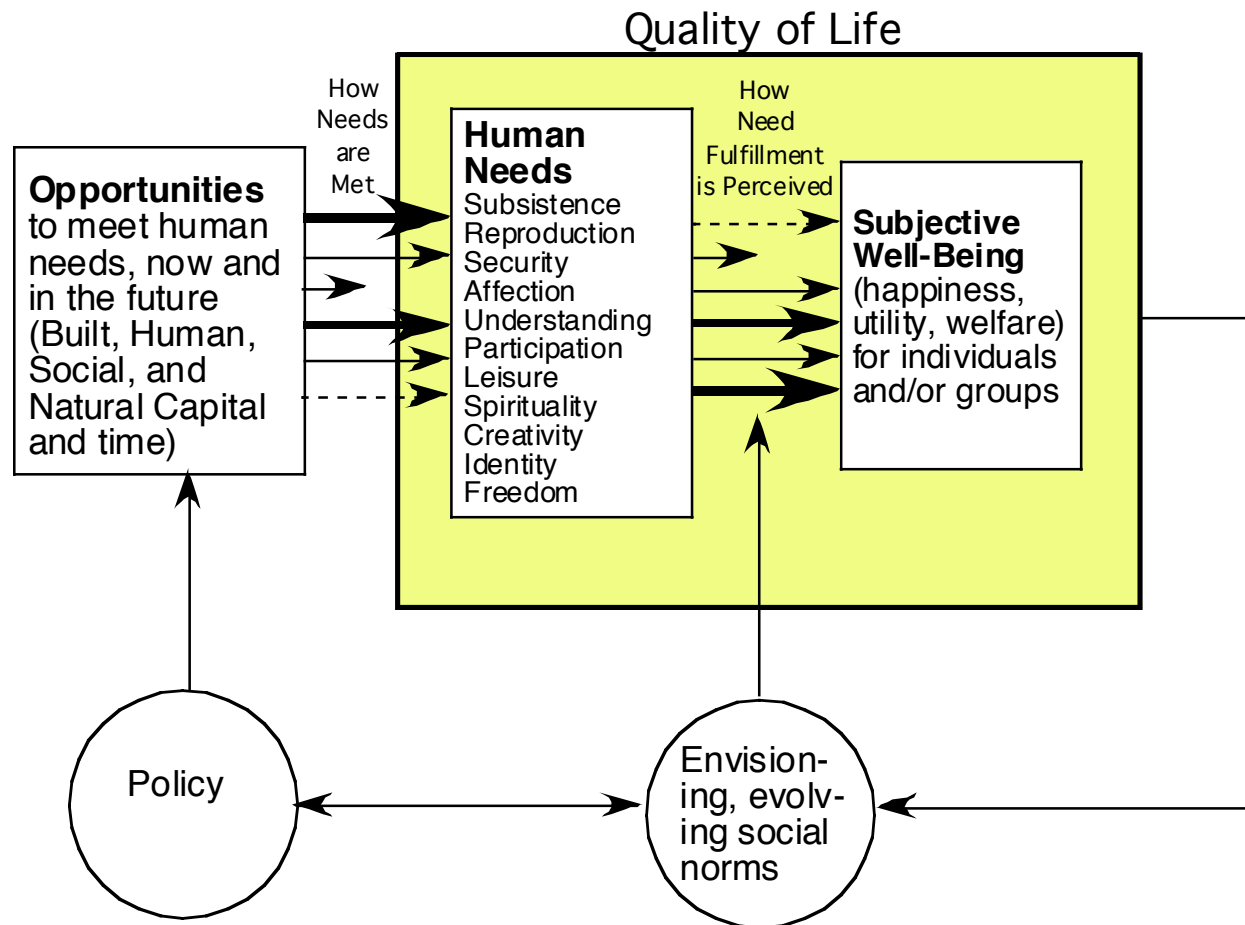
More realistic vision of human behavior

- Multiple motivations (personality types, culture, etc.)
- Limited knowledge and “rationality”
- Evolving preferences
- Satisfaction based on relative, rather than absolute, consumption, plus a host of “non-consumption” factors
- Central role of emotions in decision-making and evading social traps
- Embedded in multiscale, complex, adaptive, systems



Phineas Gage

Quality of Life (QOL) as the interaction of human needs and the subjective perception of their fulfillment, as mediated by the opportunities available to meet the needs.



From: Costanza, R., B. Fisher, S. Ali, C. Beer, L. Bond, R. Boumans, N. L. Danigelis, J. Dickinson, C. Elliott, J. Farley, D. E. Gayer, L. MacDonald Glenn, T. Hudspeth, D. Mahoney, L. McCahill, B. McIntosh, B. Reed, S. A. T. Rizvi, D. M. Rizzo, T. Simpatico, and R. Snapp. 2006. Quality of Life: An Approach Integrating Opportunities, Human Needs, and Subjective Well-Being. *Ecological Economics* (in press).



Ecological Economics

oikos = “house”

logy = “study or knowledge”

nomics = “management”

Literally: *management of the house (earth) based on study and knowledge of same*

Integrated Questions/Goals:

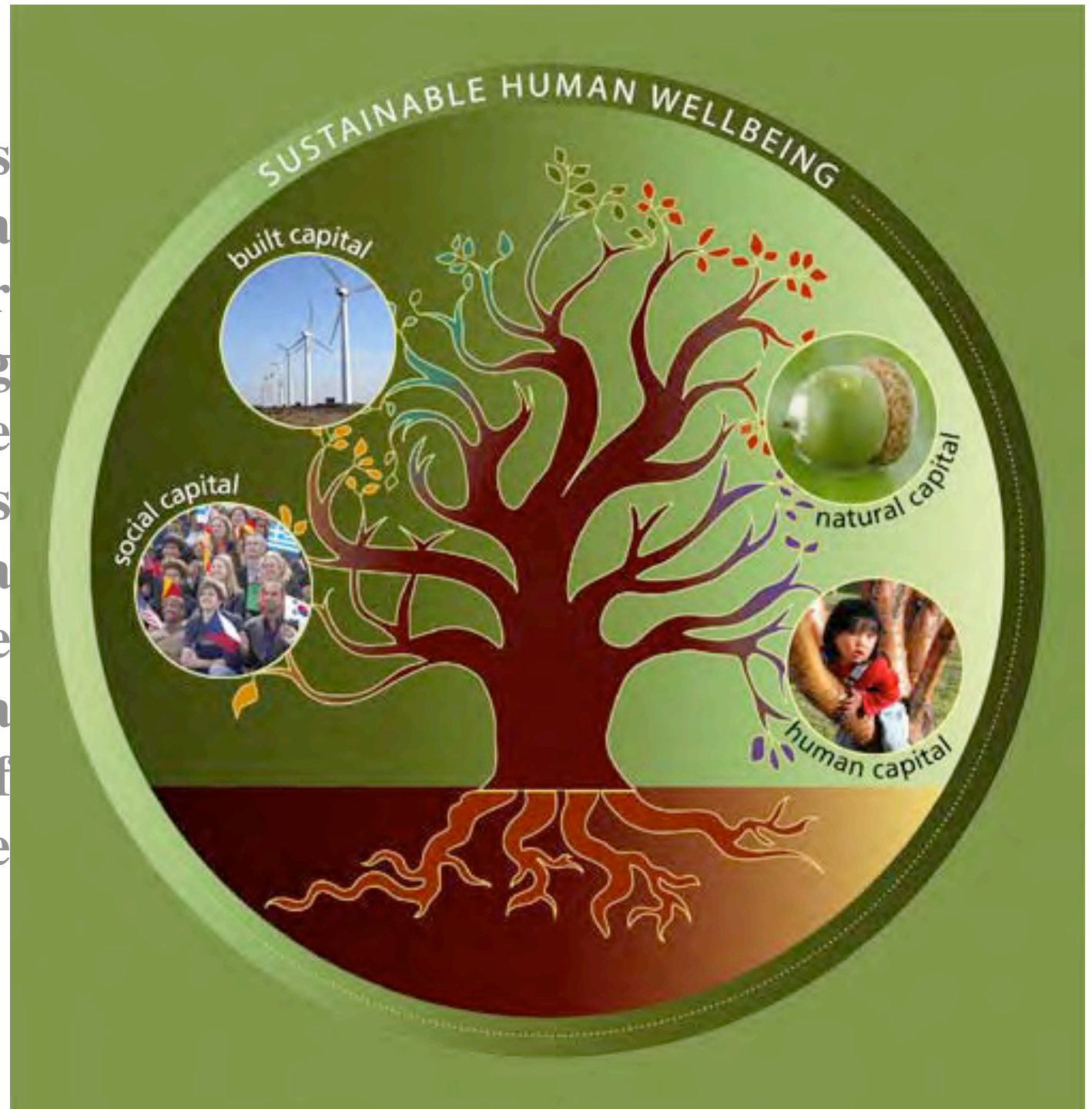
- Ecologically Sustainable **Scale**
- Socially Fair **Distribution**
- Economically Efficient **Allocation**

Methods:

- Transdisciplinary **Dialogue**
- **Problem** (rather than tools) **Focus**
- **Integrated Science** (balanced synthesis & analysis)
- Effective and adaptive **Institutions**

See: Costanza, R., J. C. Cumberland, H. E. Daly, R. Goodland, and R. Norgaard. 1997. An Introduction to Ecological Economics. St. Lucie Press, Boca Raton, 275 pp.

The key is developing a better understanding of the opportunities to create a sustainable future with a high quality of life



Well-being vs. GDP

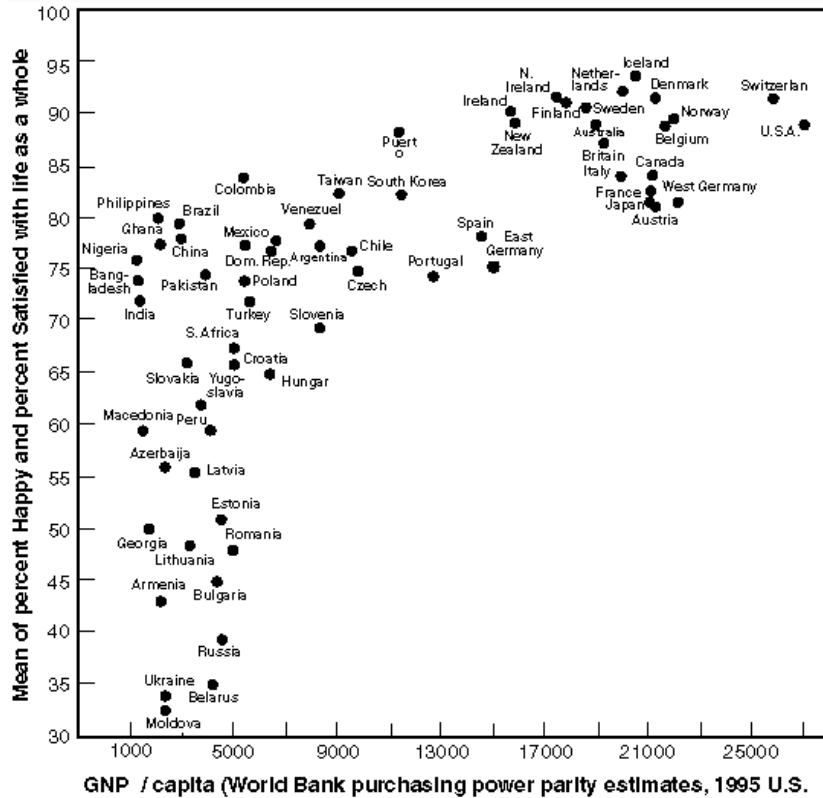
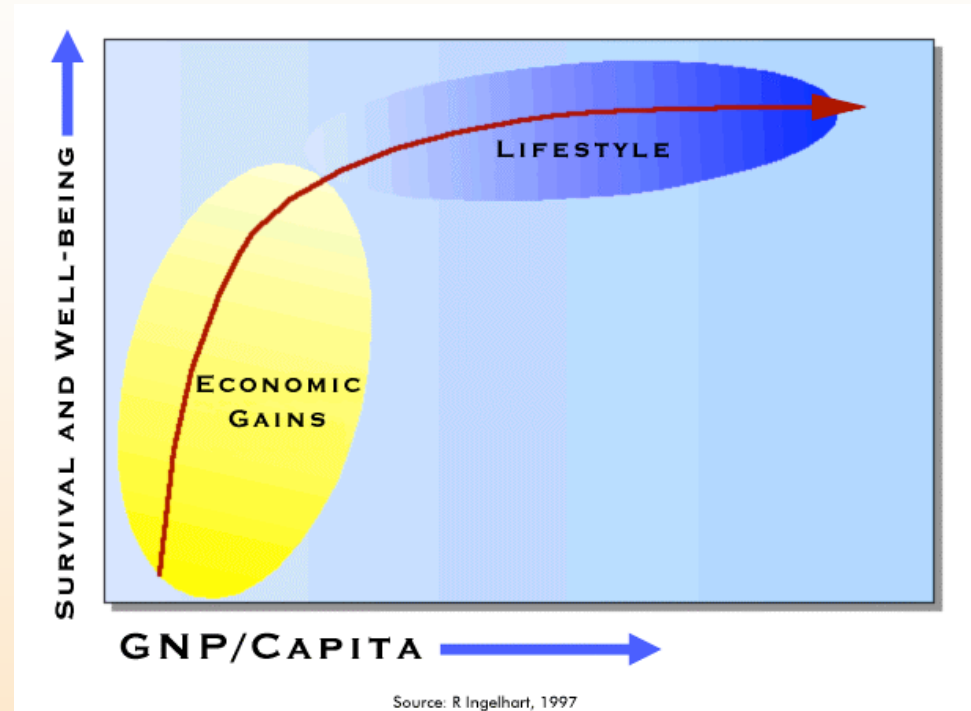


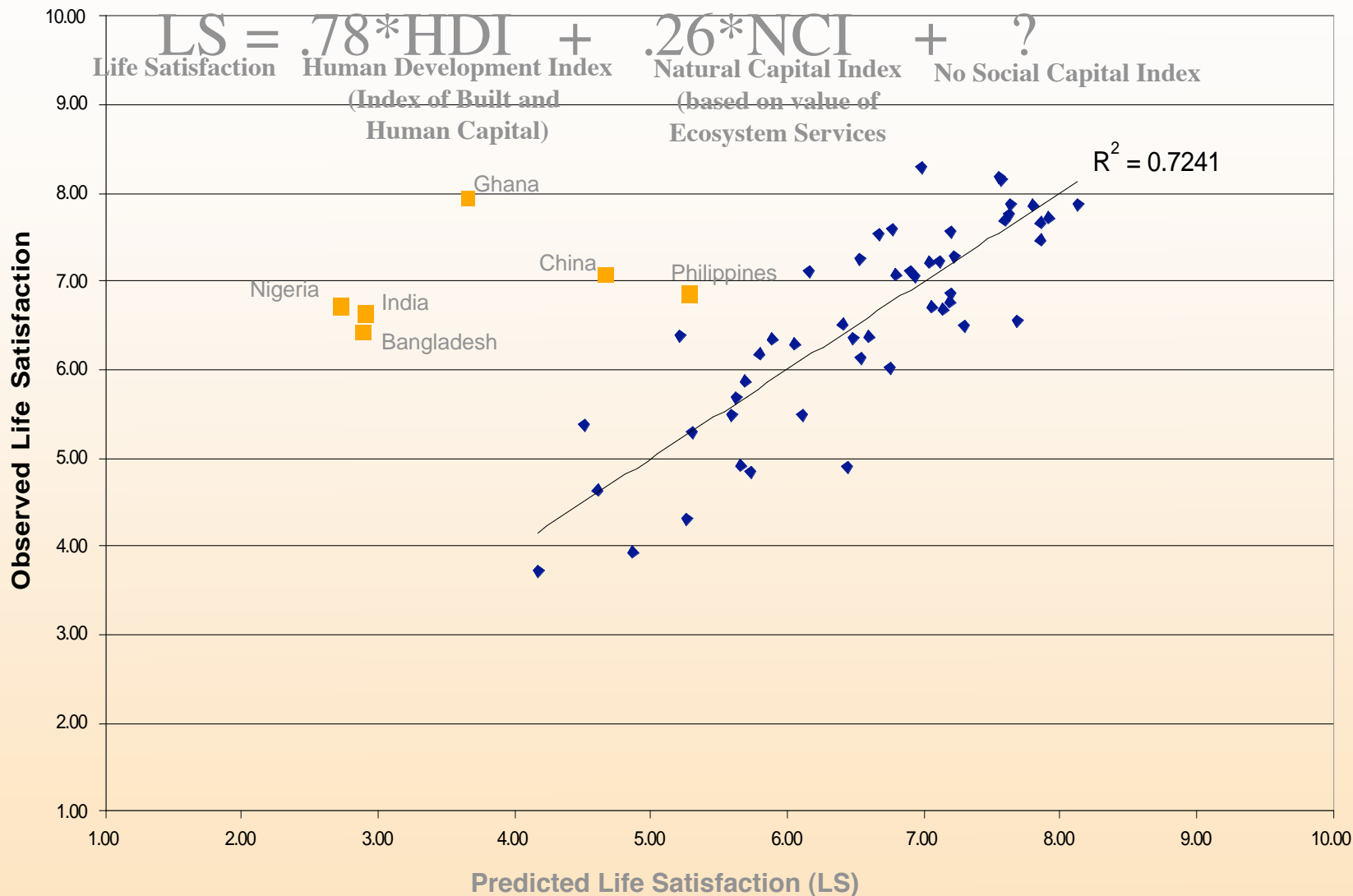
Figure 2. Subjective well-being by level of economic development.

Source: World Values Surveys; GNP/capita purchasing power estimates from World Bank, World Development Report, 1997.

$R = .70$ $N = 65$ $p < .0000$



Observed Life Satisfaction versus Predicted Life Satisfaction



From: Vemuri, A. W. and R. Costanza. 2006. The Role of Human, Social, Built, and Natural Capital in Explaining Life Satisfaction at the Country Level: Toward a National Well-Being Index (NWI). *Ecological Economics* (in press).

A range of goals for national accounting and their corresponding frameworks, measures, and valuation methods

Goal	Economic Income		Economic Welfare	Human Welfare	
	Marketed	Weak Sustainability			Strong Sustainability
Basic Framework	value of marketed goods and services produced and consumed in an economy	1 + non-marketed goods and services consumption	2 + preserve essential natural capital	value of the welfare effects of income and other factors (including distribution, household work, loss of natural capital etc.)	assessment of the degree to which human needs are fulfilled
Non-environmentally adjusted measures	GNP (Gross National Product) GDP (Gross Domestic Product) NNP (Net National Product)			MEW (Measure of Economic Welfare)	HDI (Human Development Index)
Environmentally adjusted measures	NNP' (Net National Product including non-produced assets)	ENNP (Environmental Net National Product) SEEA (System of Environmental Economic Accounts)	SNI (Sustainable National Income) SEEA (System of Environmental Economic Accounts)	ISEW (Index of Sustainable Economic Welfare)	HNA (Human Needs Assessment)
Appropriate Valuation Methods	Market values	1 + Willingness to Pay Based Values (see Table 2)	2 + Replacement Costs,+ Production Values	3 + Constructed Preferences	4 + Consensus Building Dialogue

From: Costanza, R., S. Farber, B. Castaneda and M. Grasso. 2001. Green national accounting: goals and methods. Pp. 262-282 in: Cleveland, C. J., D. I. Stern and R. Costanza (eds.) The economics of nature and the nature of economics. Edward Elgar Publishing, Cheltenham, England

Genuine Progress Indicator (or ISEW) by Column

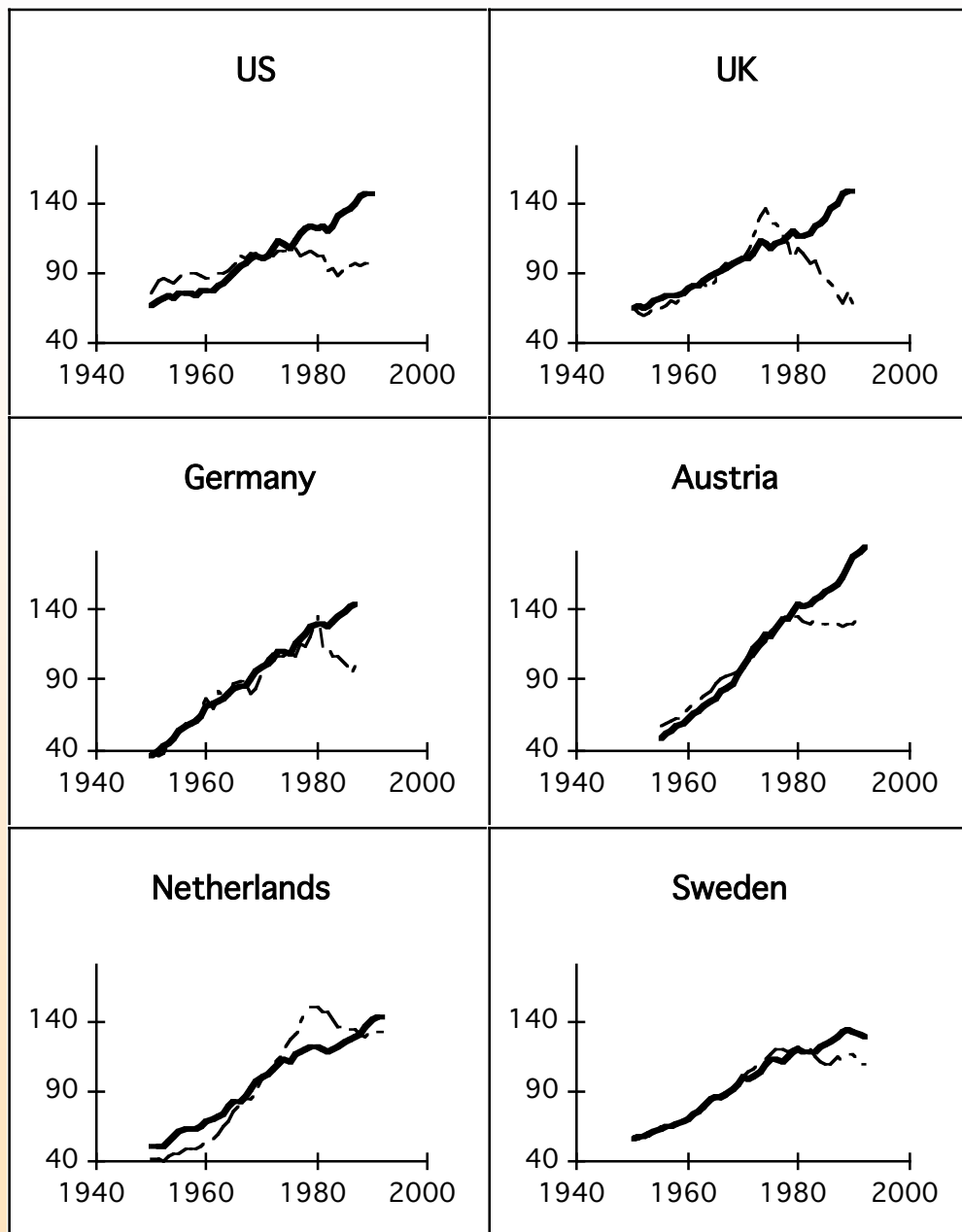
Additions

Column A: Personal Consumption Expenditures
Column B: Income Distribution
Column C: Personal Consumption Adjusted for Income Inequality
Column D: Value of Household Labor
Column E: Value of Volunteer Work
Column F: Services of Household Capital
Column G: Services Highways and Street

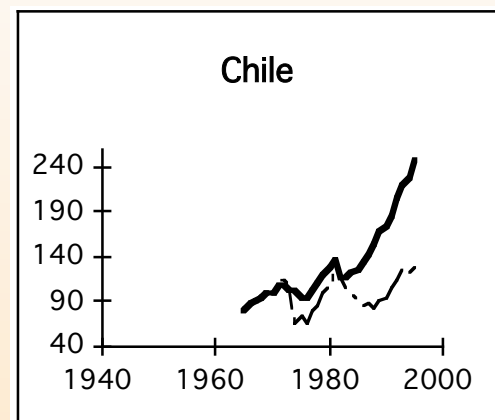
Column H: Cost of Crime
Column I: Cost of Family Breakdown
Column J: Loss of Leisure Time
Column K: Cost of Underemployment
Column L: Cost of Consumer Durables
Column M: Cost of Commuting
Column N: Cost of Household Pollution Abatement
Column O: Cost of Automobile Accidents
Column P: Cost of Water Pollution
Column Q: Cost of Air Pollution
Column R: Cost of Noise Pollution
Column S: Loss of Wetlands
Column T: Loss of Farmland
Column U: Depletion of Nonrenewable Resources
Column V: Long-Term Environmental Damage
Column W: Cost of Ozone Depletion
Column X: Loss of Forest Cover
Column Y: Net Capital Investment
Column Z: Net Foreign Lending and Borrowing

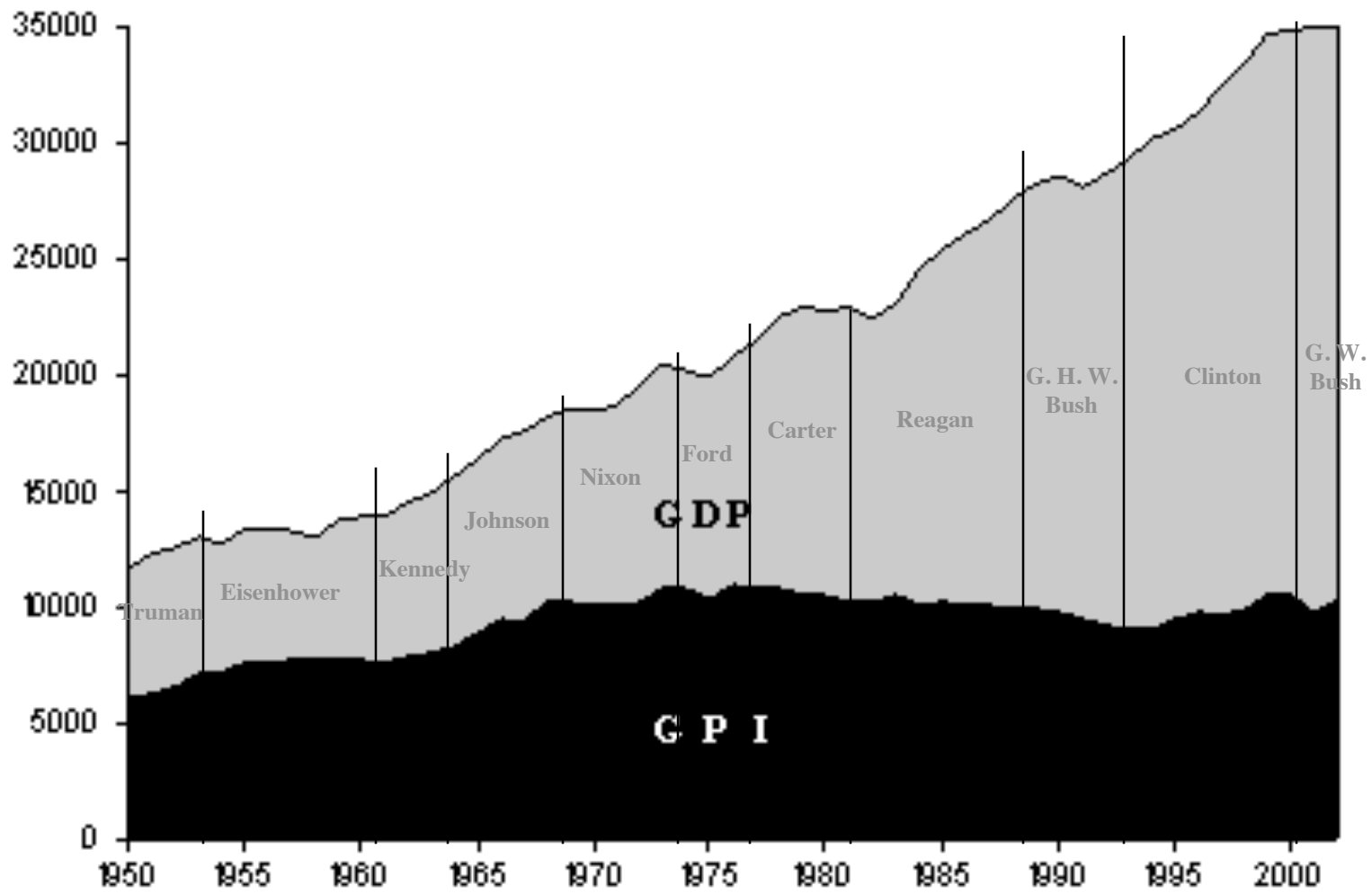
■ Built Capital
■ Human Capital
■ Social Capital
■ Natural Capital

Subtractions



Indices of ISEW – –
 (Index of Sustainable
 Economic Welfare)
 and GDP —
 (1970 = 100)





Gross Production vs. Genuine Progress for the US, 1950 to 2002

(source: Redefining Progress - <http://www.rprogress.org>)

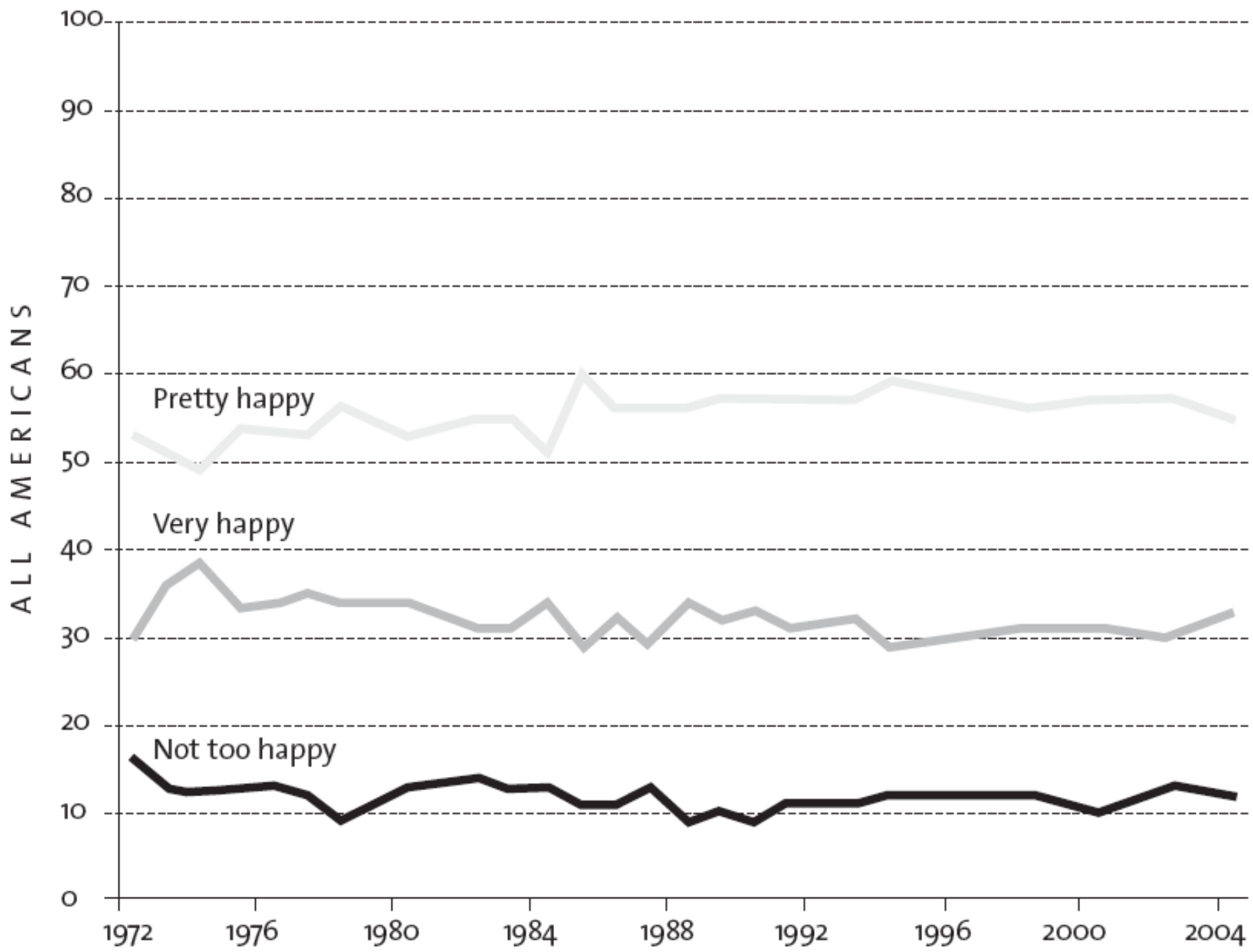
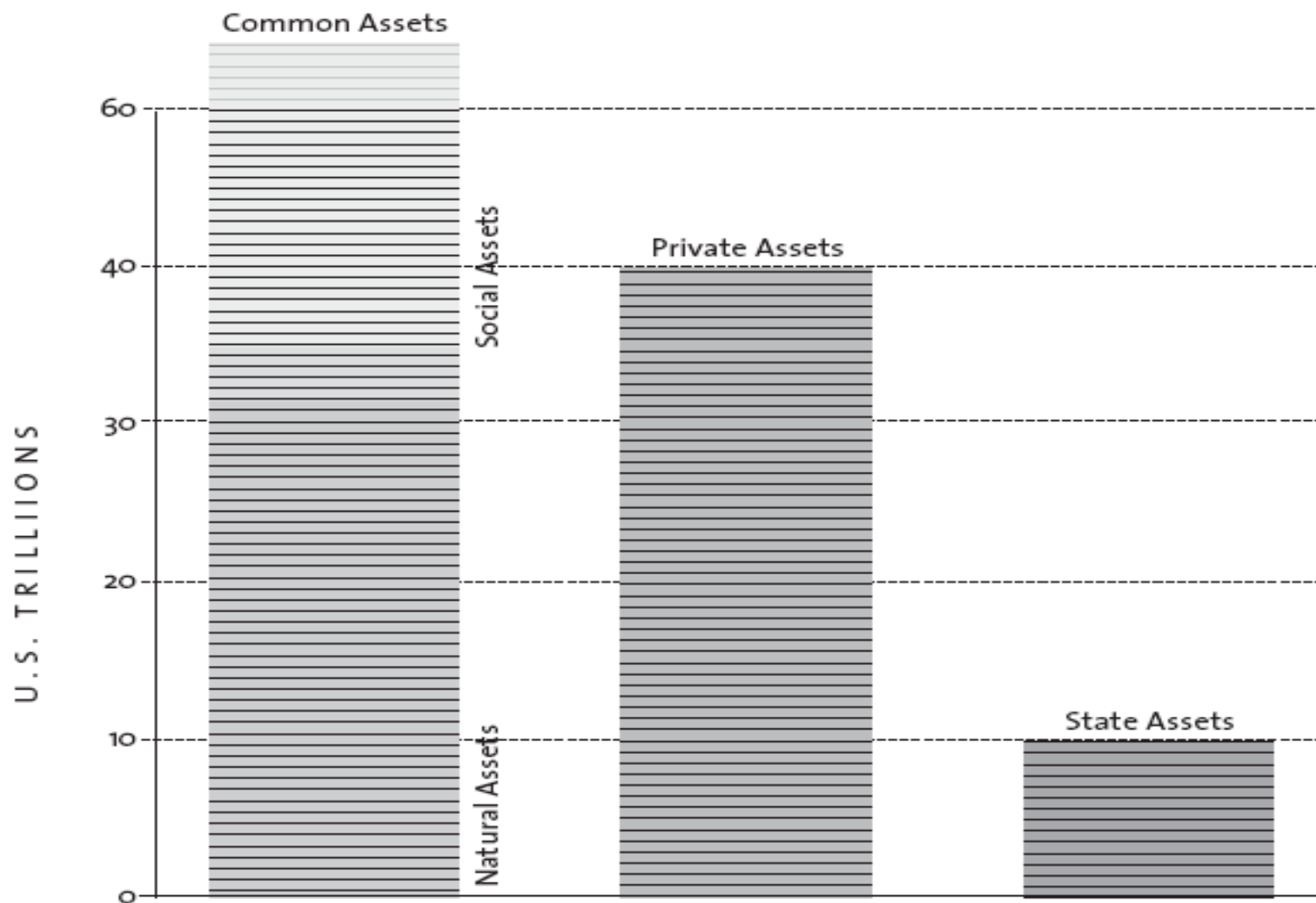


Figure 5.1
APPROXIMATE VALUE OF COMMON, PRIVATE, AND
STATE ASSETS, 2001 (\$ TRILLIONS)

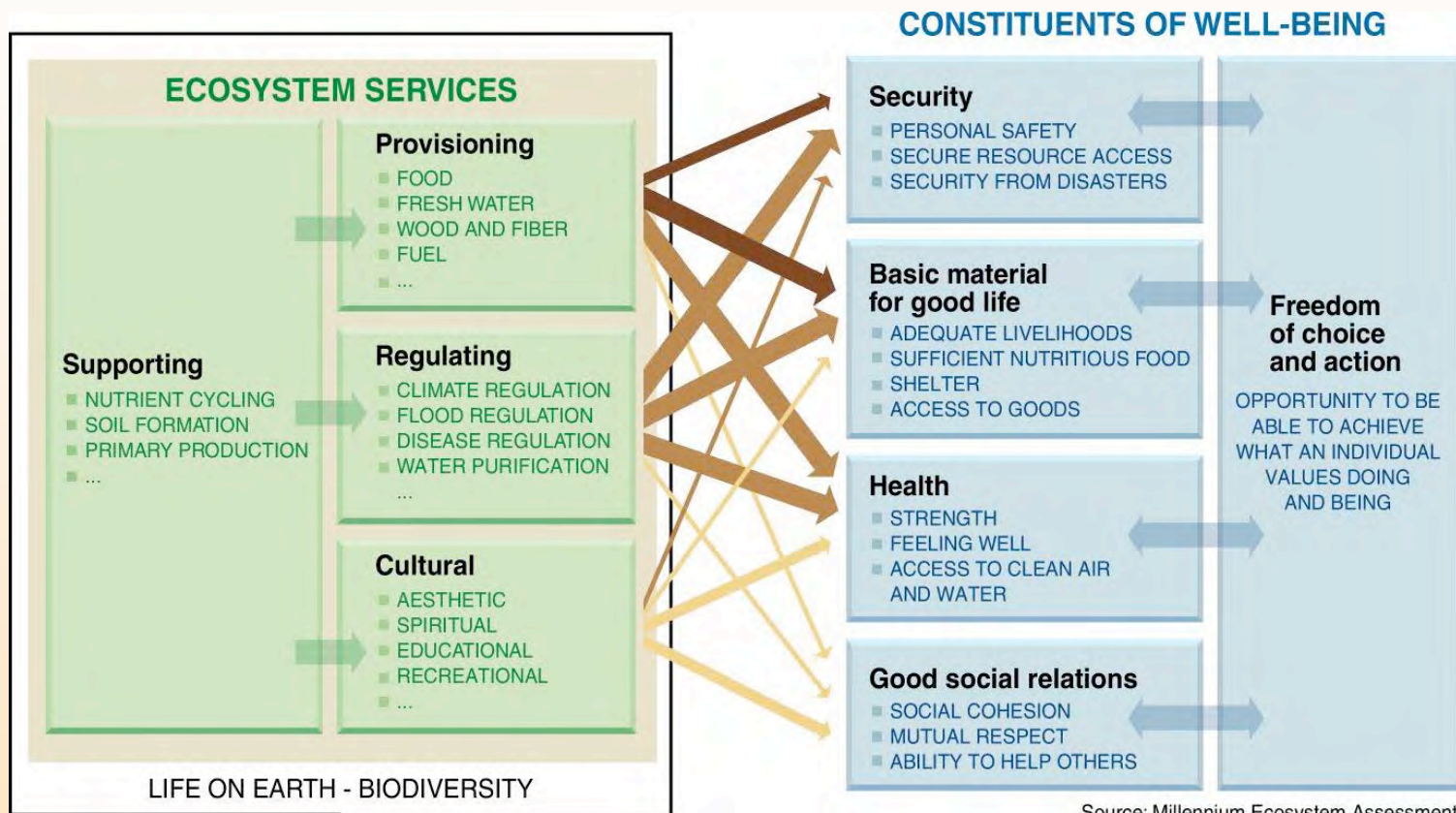


Reflects only quantifiable assets.

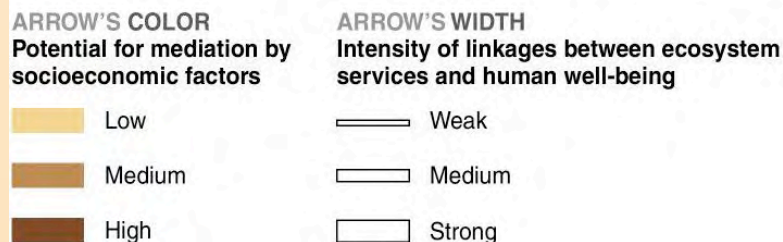
Source: Friends of the Commons, *State of the Commons 2003–04*.

<http://friendsofthecommons.org/understanding/worth.html>. Reprinted with permission.

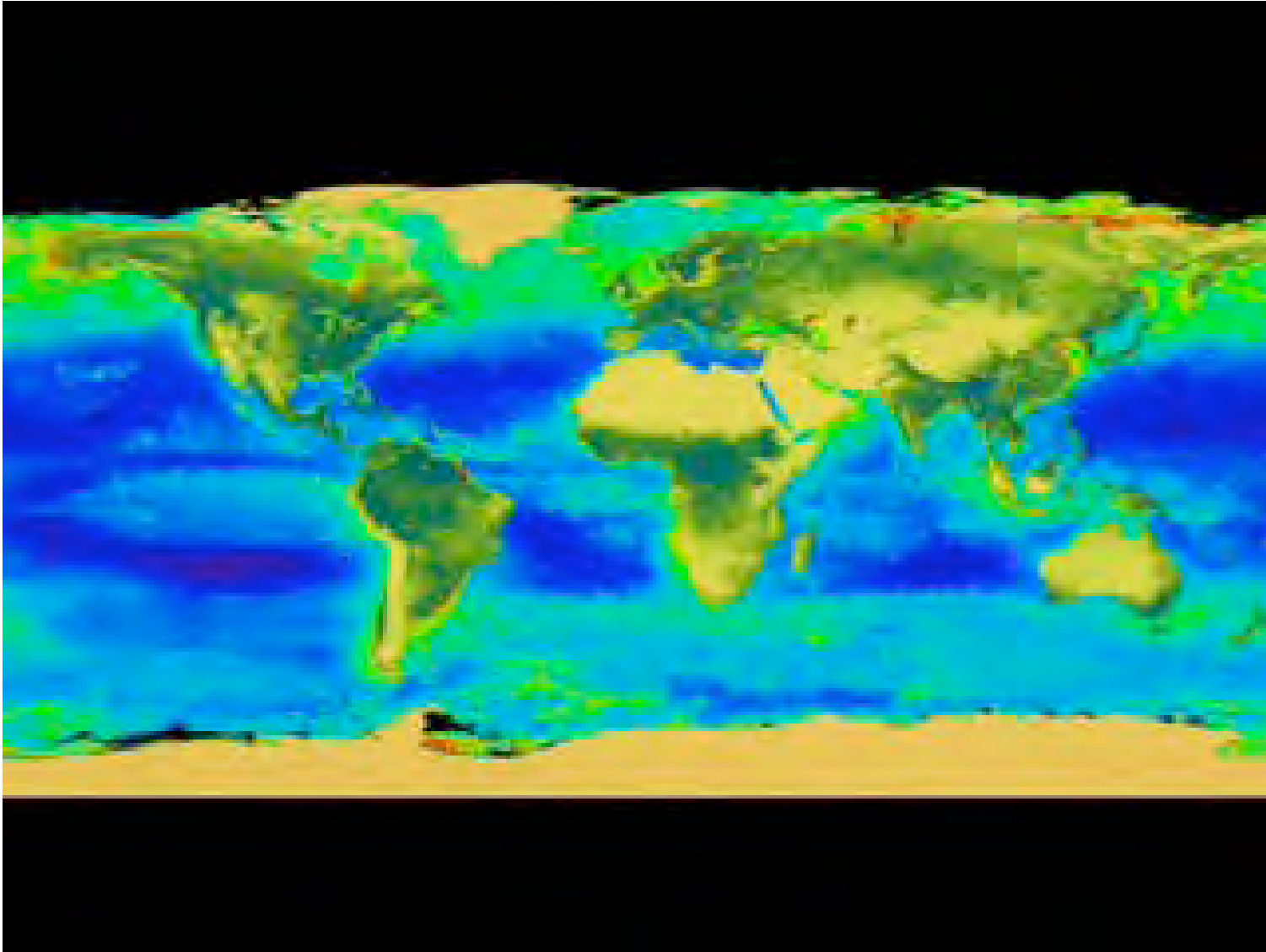
Ecosystem Services: the benefits humans derive from ecosystems



Source: Millennium Ecosystem Assessment



Biosphere



Sea-viewing Wide Field-of-View Sensor (SeaWiFS)
data on marine and terrestrial plant productivity



2nd most cited article in the last 10 years in the Ecology/Environment area according to the ISI Web of Science.

NATURE | VOL 387 | 15 MAY 1997 | 253

article

The value of the world's ecosystem services and natural capital

Robert Costanza*†, Ralph d'Arge‡, Rudolf de Groot§, Stephen Farberk, Monica Grasso†, Bruce Hannon¶, Karin Limburg#, Shahid Naeem**, Robert V. O'Neill††, Jose Paruelo‡‡, Robert G. Raskin§§, Paul Suttonkk & Marjan van den Belt¶¶

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Institute of Ecosystem Studies, Millbrook, New York, USA

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§§ Jet Propulsion Laboratory, Pasadena, California 91109, USA

kkNational Center for Geographic Information and Analysis, Department of Geography, University of California at Santa Barbara, Santa Barbara, California 93106, USA

¶¶ Ecological Economics Research and Applications Inc., PO Box 1589, Solomons, Maryland 20688, USA

The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system. They contribute to human welfare, both directly and indirectly, and therefore represent part of the total economic value of the planet. We have estimated the current economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US\$16–54 trillion (10¹²) per year, with an average of US\$33 trillion per year. Because of the nature of the uncertainties, this must be considered a minimum estimate. Global gross national product total is around US\$18 trillion per year.

Summary of global values of annual ecosystem services (From: Costanza et al. 1997)

Biome	Area (e6 ha)	Value per ha (\$/ha/yr)	Global Flow Value (e12 \$/yr)
Marine	36,302	577	20.9
Open Ocean	33,200	252	8.4
Coastal	3,102	4052	12.6
Estuaries	180	22832	4.1
Seagrass/Algae Beds	200	19004	3.8
Coral Reefs	62	6075	0.3
Shelf	2,660	1610	4.3
Terrestrial	15,323	804	12.3
Forest	4,855	969	4.7
Tropical	1,900	2007	3.8
Temperate/Boreal	2,955	302	0.9
Grass/Rangelands	3,898	232	0.9
Wetlands	330	14785	4.9
Tidal Marsh/Mangroves	165	9990	1.6
Swamps/Floodplains	165	19580	3.2
Lakes/Rivers	200	8498	1.7
Desert	1,925		
Tundra	743		
Ice/Rock	1,640		
Cropland	1,400	92	0.1
Urban	332		
Total	51,625		33.3

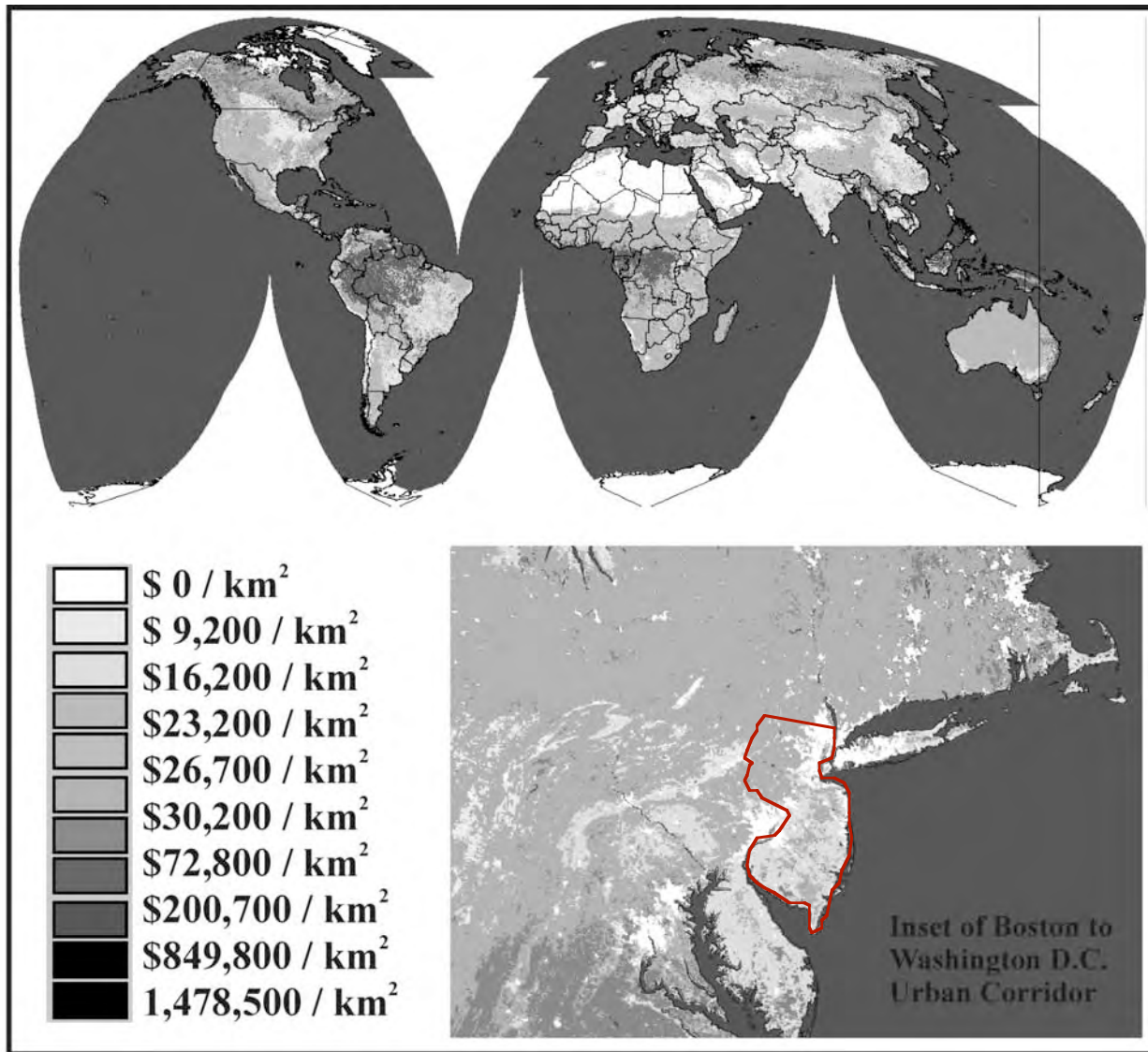


Figure 3: Global Map of Non-Marketed Economic Activity (ESP) arising from Ecosystem Services and derived from Land Cover at 1 km² (For National Totals See Table 1)

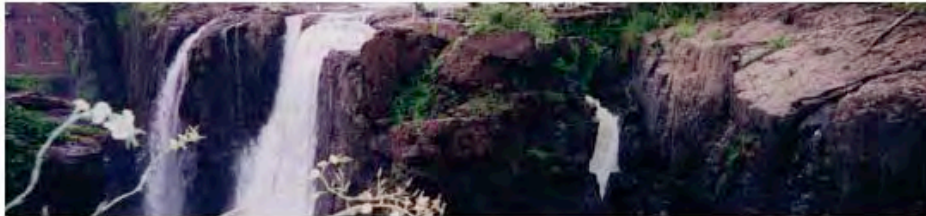
<http://www.nj.gov/dep/dsr/naturalcap/>



Valuing New Jersey's Natural Capital:

An Assessment of the Economic Value of the State's Natural Resources

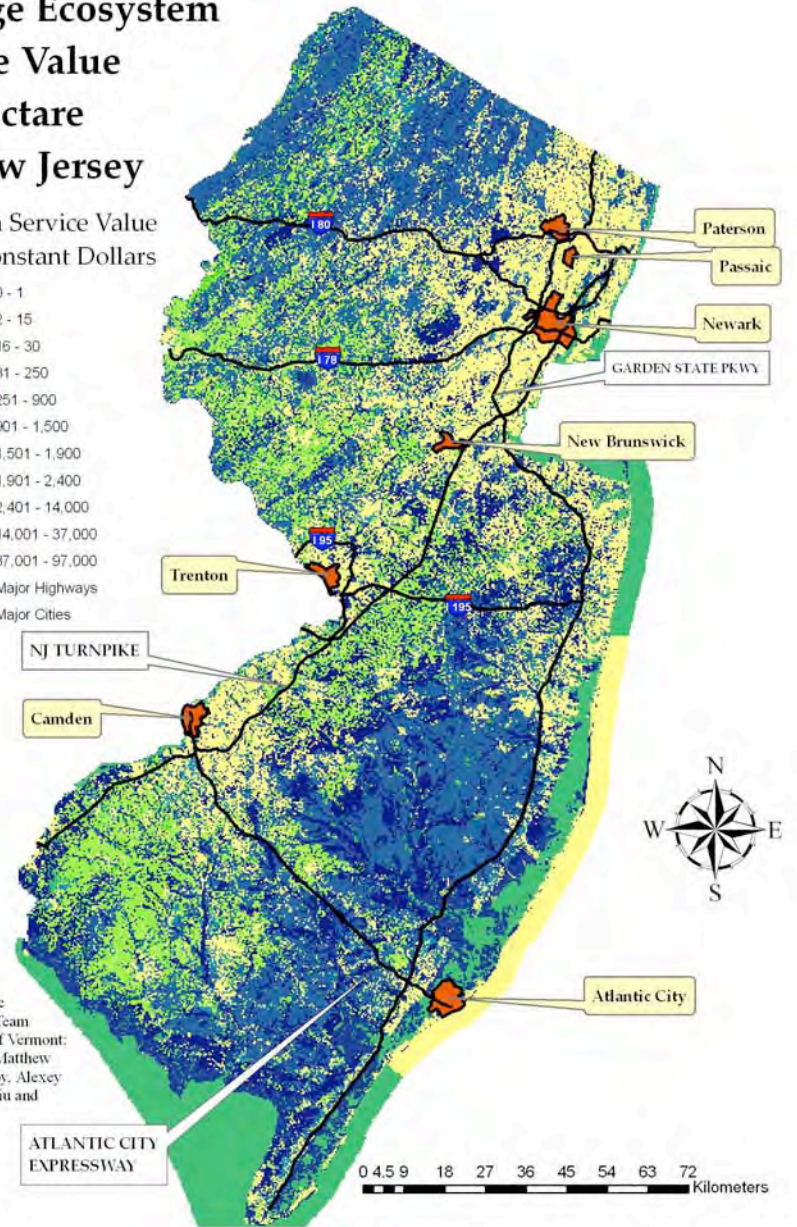
April 2007



State of New Jersey
New Jersey Department of Environmental Protection
Jon S. Corzine, Governor
Lisa P. Jackson, Commissioner

Average Ecosystem Service Value per Hectare for New Jersey

Ecosystem Service Value in 2001 Constant Dollars

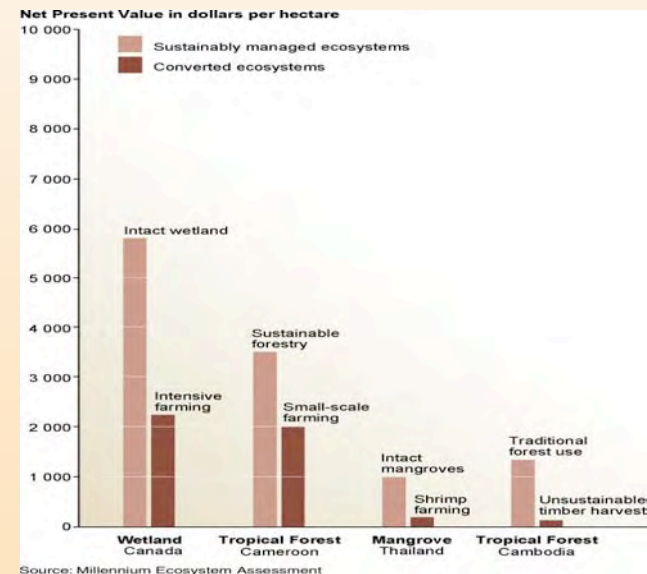


The New Jersey Ecosystem Service Valuation Project Team at the University of Vermont: Robert Costanza, Matthew Wilson, Austin Troy, Alexey Voinov, Shuang Liu and John D'Agostino

Map Produced by Austin Troy and John D'Agostino

Degradation of ecosystem services often causes significant harm to human well-being

- The total economic value associated with managing ecosystems more sustainably is often higher than the value associated with conversion
- Conversion may still occur because private economic benefits are often greater for the converted system



Economic Reasons for Conserving Wild Nature

Costs of expanding and maintaining the current global reserve network to one covering 15% of the terrestrial biosphere and 30% of the marine biosphere = \$US 45 Billion/yr

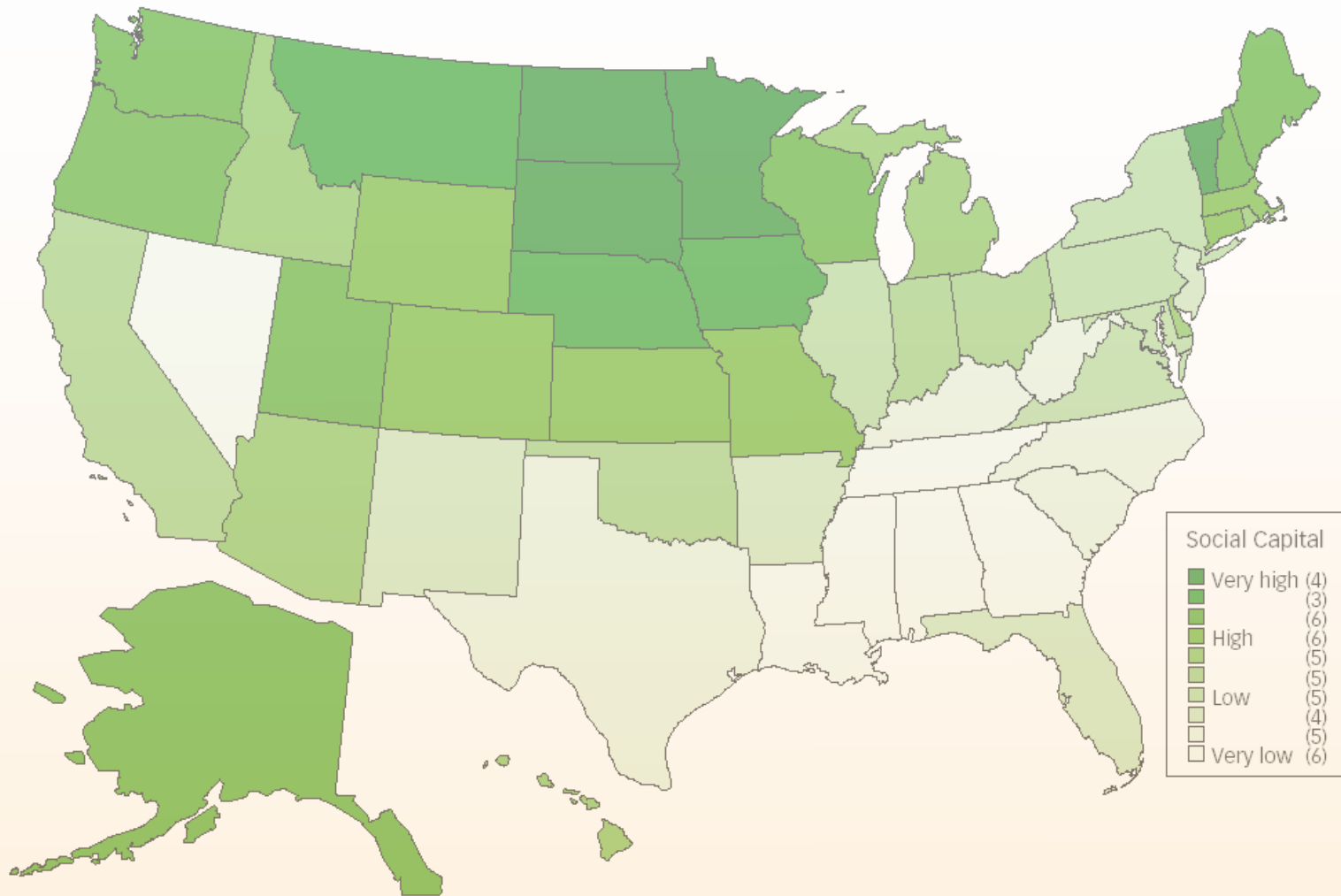
Benefits (Net value* of ecosystem services from the global reserve network) = \$US 4,400-5,200 Billion/yr

*Net value is the difference between the value of services in a “wild” state and the value in the most likely human-dominated alternative

Benefit/Cost Ratio = 100:1

(From: Balmford, A., A. Bruner, P. Cooper, R. Costanza, S. Farber, R. E. Green, M. Jenkins, P. Jefferiss, V. Jessamy, J. Madden, K. Munro, N. Myers, S. Naeem, J. Paavola, M. Rayment, S. Rosendo, J. Roughgarden, K. Trumper, and R. K. Turner 2002. Economic reasons for conserving wild nature. *Science* 297: 950-953)

Social Capital index by State



From: R. Putnam, *Bowling Alone: The Collapse and Revival of American Community* New York: Simon and Schuster, 2000).

FIGURE 7.4

Violent crime is rarer in high social capital states

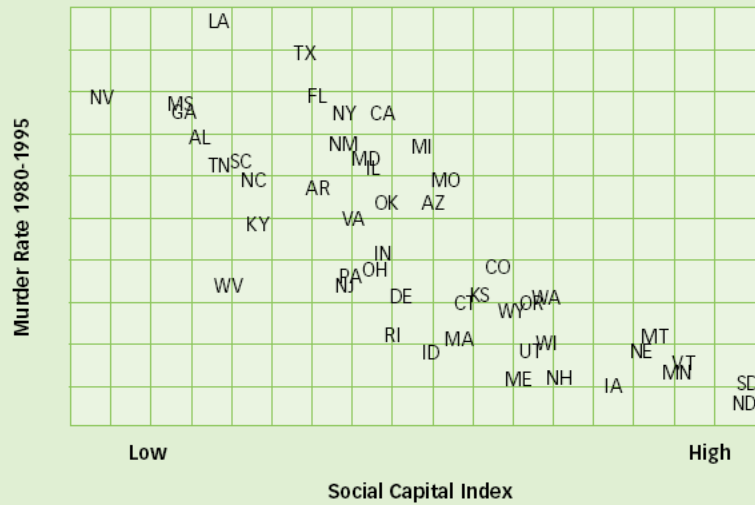


FIGURE 7.3

Kids watch less TV in high social capital states

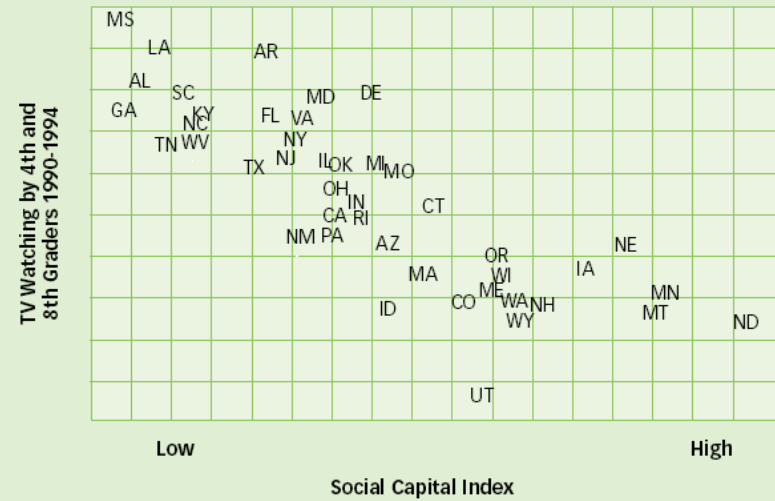


FIGURE 7.1

Schools work better in high social capital states

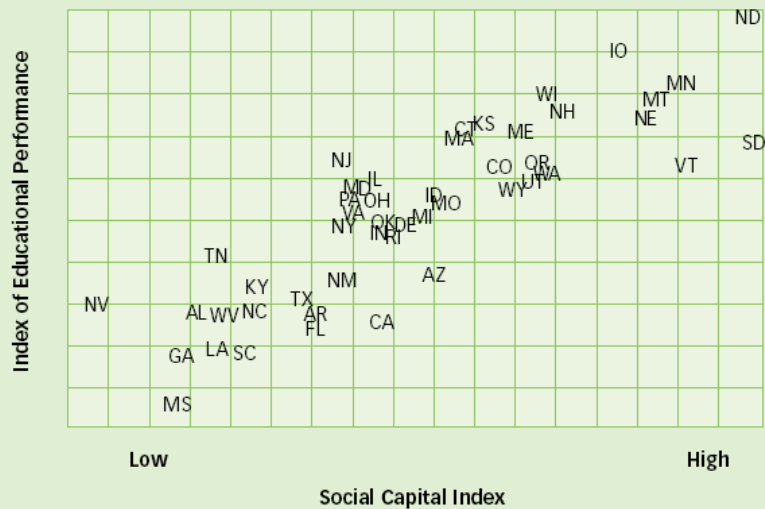
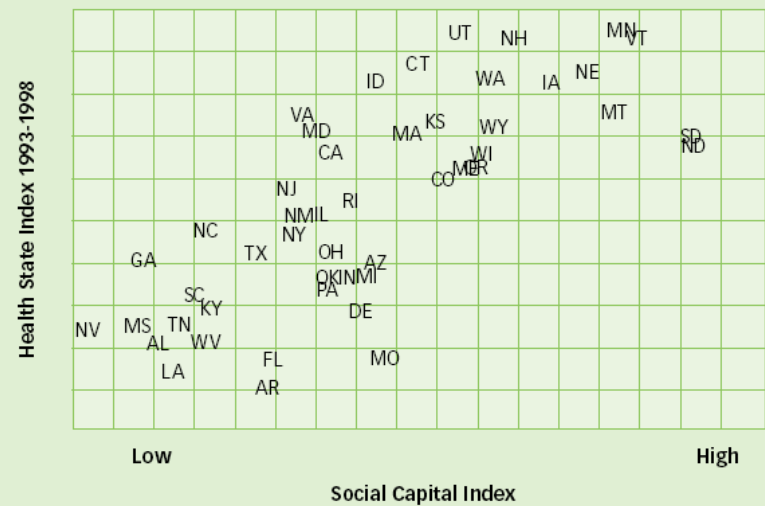


FIGURE 7.6

Health is better in high social capital states



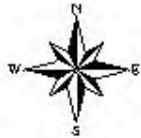
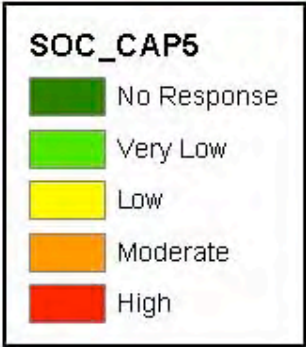
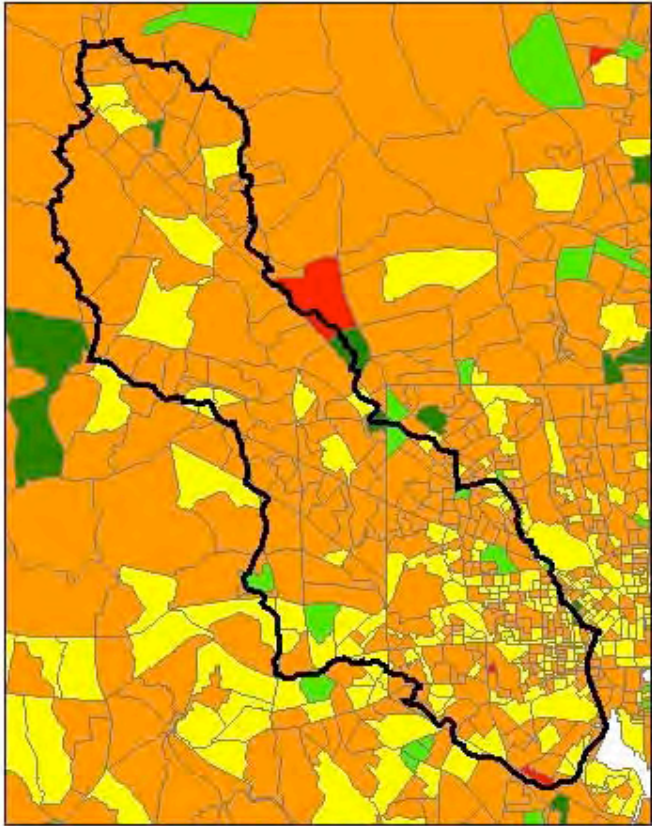
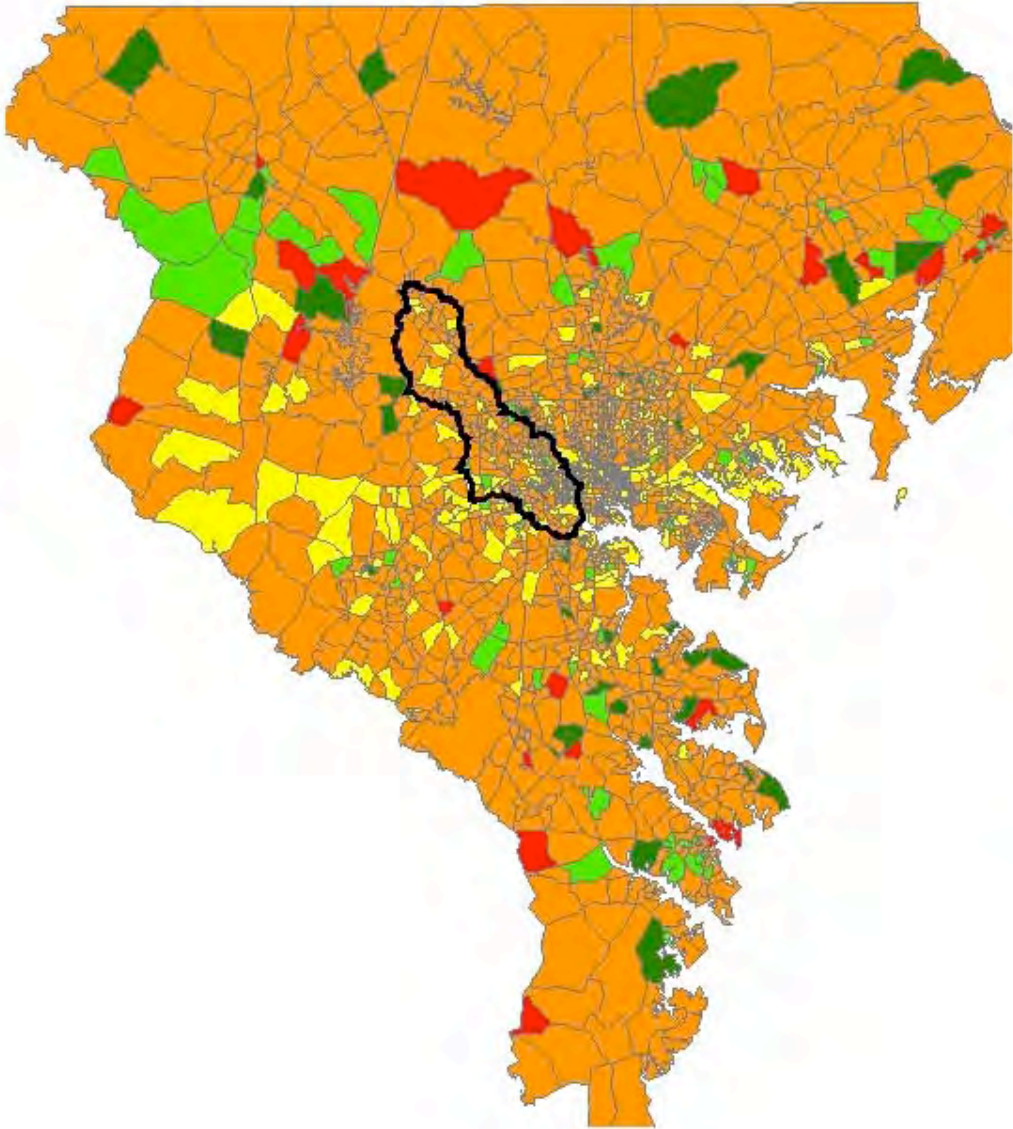
Social Capital Survey Questions

work by: Morgan Grove, Bill Burch, Matt Wilson, and Amanda Vermuri
as part of the Baltimore Ecosystem Study: <http://www.ecostudies.org/bes/>

- People in the neighborhood are willing to help one another*
- This is a close knit neighborhood*
- People in this neighborhood can be trusted*
- There are many opportunities to meet neighbors and work on solving community problems*
- Churches or temples and other volunteer groups are actively supportive of the neighborhood*
- There is an active neighborhood association
- Municipal (local) government services (such as sanitation, police, fire, health & housing dept) are adequately provided and support the neighborhood's quality

* Included in Social Capital Index; Cronbachs alpha = .7758

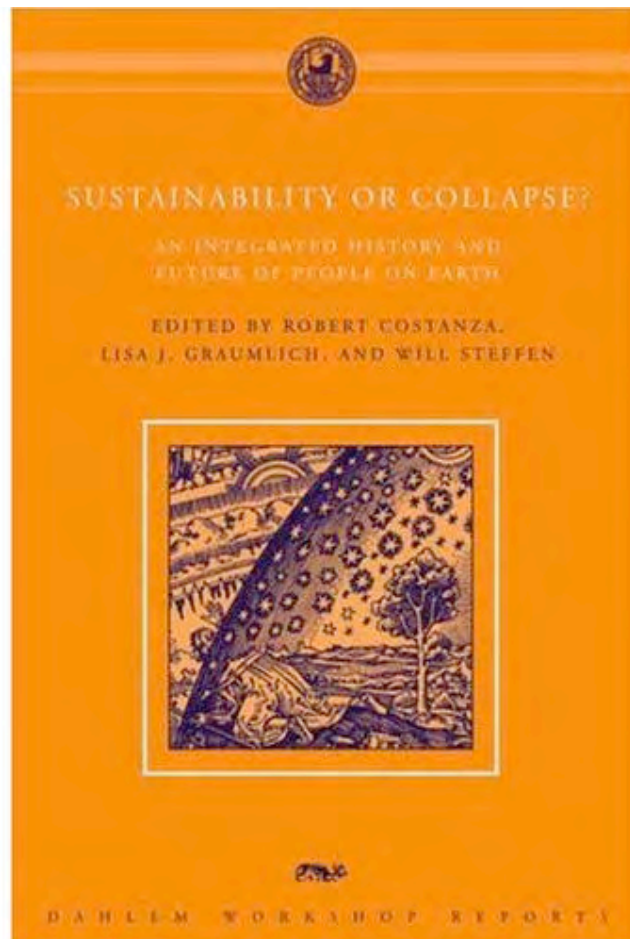
Social Capital Index by Census Block Group



SUSTAINABILITY OR COLLAPSE?

AN INTEGRATED HISTORY AND FUTURE OF PEOPLE ON EARTH

EDITED BY ROBERT COSTANZA, LISA J. GRAUMLICH, AND WILL STEFFEN

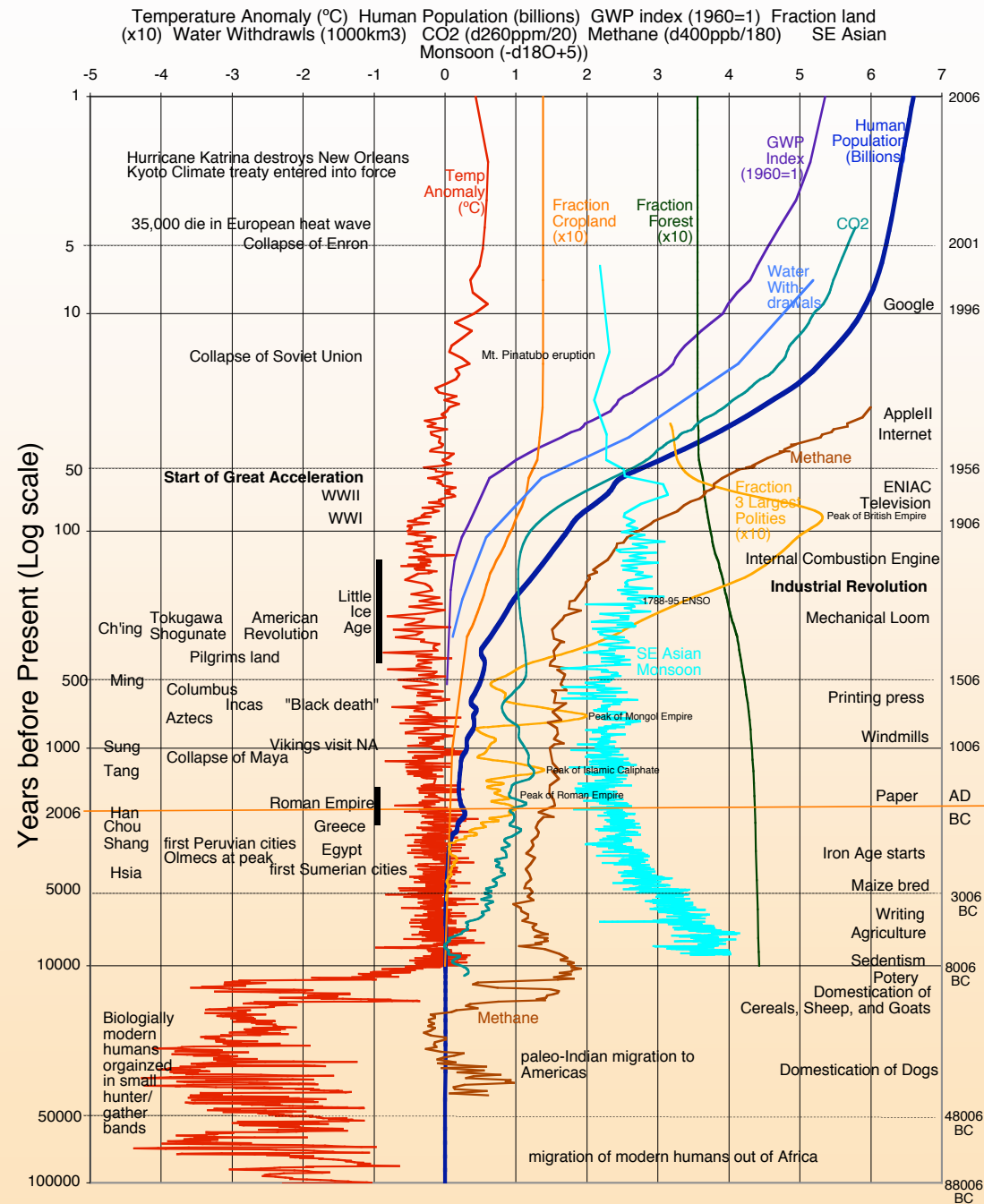


Human history, as written traditionally, leaves out the important ecological and climate context of historical events. But the capability to integrate the history of human beings with the natural history of the Earth now exists, and we are finding that human-environmental systems are intimately linked in ways we are only beginning to appreciate. In *Sustainability or Collapse?*, researchers from a range of scholarly disciplines develop an integrated human and environmental history over millennial, centennial, and decadal time scales and make projections for the future. The contributors focus on the human-environment interactions that have shaped historical forces since ancient times and discuss such key methodological issues as data quality. Topics highlighted include the political ecology of the Mayans; the effect of climate on the Roman Empire; the "revolutionary weather" of El Niño from 1788 to 1795; twentieth-century social, economic, and political forces in environmental change; scenarios for the future; and the accuracy of such past forecasts as *The Limits to Growth*.

"Costanza, Graumlich, and Steffen have assembled an amazing group of scholars from the biophysical and social sciences and the humanities; together, they take a long look back so as to take a better look forward. The resulting book offers a deep understanding of what the future has to offer—both the risks and the opportunities that face humanity."

EJINOR OSTROM
ARTHUR F. BENTLEY PROFESSOR OF POLITICAL SCIENCE AND
CO-DIRECTOR OF THE WORKSHOP IN POLITICAL THEORY AND
POLICY ANALYSIS, INDIANA UNIVERSITY

ROBERT COSTANZA is Gordon Gund Professor of Ecological Economics and Director of the Gund Institute for Ecological Economics at the Rubenstein School of Environment and Natural Resources at the University of Vermont. **LISA J. GRAUMLICH** is Executive Director of the Big Sky Institute for Science and Natural History and Professor of Land Resources and Environmental Sciences at Montana State University. **WILL STEFFEN** is Director of the Center for Resource and Environmental Studies and Director of the ANU Institute of Environment at the Australian National University and Chief Scientist at the International Geosphere-Biosphere Programme, Stockholm.



Integrated History and future Of People on Earth

From: Costanza, R. L. Graumlich, W. Steffen, C. Crumley, J. Dearing, K. Hibbard, R. Leemans, C. Redman, and D. Schimel. 2007. Sustainability or Collapse: What Can We Learn from Integrating the History of Humans and the Rest of Nature? *Ambio* (in press).

Table 1. Basic characteristics of the current development model and the emerging sustainable and desirable “ecological economics” development model

	Current Development Model: the “Washington Consensus”	Sustainable and Desirable Development Model: an emerging “Green Consensus”
Primary policy goal	More: economic growth in the conventional sense, as measured by GDP. The assumption is that growth will ultimately allow the solution of all other problems. More is always better.	Better: Focus must shift from merely growth to “development” in the real sense of improvement in quality of life, recognizing that growth has negative by-products and more is not always better.
Primary measure of progress	GDP	GPI (or similar)
Scale/carrying capacity	Not an issue since markets are assumed to be able to overcome any resource limits via new technology and substitutes for resources are always available	A primary concern as a determinant of ecological sustainability. Natural capital and ecosystem services are not infinitely substitutable and real limits exist
Distribution/poverty	Lip service, but relegated to “politics” and a “trickle down” policy: a rising tide lifts all boats	A primary concern since it directly affects quality of life and social capital and in some very real senses is often exacerbated by growth: a too rapidly rising tide only lifts yachts, while swamping small boats
Economic efficiency/allocation	The primary concern, but generally including only marketed goods and services (GDP) and institutions	A primary concern, but including both market and non-market goods and services and effects. Emphasizes the need to incorporate the value of natural and social capital to achieve true allocative efficiency
Property rights	Emphasis on private property and conventional markets	Emphasis on a balance of property rights regimes appropriate to the nature and scale of the system, and a linking of rights with responsibilities. A larger role for common property institutions in addition to private and state property
Role of Government	To be minimized and replaced with private and market institutions	A central role, including new functions as referee, facilitator and broker in a new suite of common asset institutions
Principles of Governance	<i>Laissez faire</i> market capitalism	Lisbon principles of sustainable governance

Making the market tell the truth

In general, privatization is NOT the answer, because most ecosystem services are public goods. But we do need to adjust market incentives to send the right signals to the market. These methods include:

- Full cost accounting (i.e. www.trucost.org, www.earthinc.org)
- Ecological tax reform (tax bads not goods, remove perverse subsidies)
- Ecosystem service payments (a la Costa Rica)
- Impact fees for development tied to real impacts
- Environmental Assurance bonds to incorporate uncertainty about impacts (i.e. the Precautionary Polluter Pays Principle - 4P)
- Expand the “Commons Sector”

See:

Bernow, S., R. Costanza, H. Daly, et. Al.. 1998. Ecological tax reform. *BioScience* 48:193-196.

Costanza, R. and L. Cornwell. 1992. The 4P approach to dealing with scientific uncertainty. *Environment* 34:12-20,42.



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 Environment Agency
Environmental Disclosures

Latest week reading

Carbon Disclosure Project Report 2006 FTSE 350




Carbon Footprint Ranking of UK Investment Funds



Welcome

Trucost is an environmental research organisation working with companies, investors and government agencies to understand the impacts companies have on the environment. Trucost is an independent organisation founded in 2000.



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News

22nd February 2007

Trucost is delighted to have won the Sustainable and Ethical Investment and Asset Management Category at the City of London Corporation's Sustainable City Awards 2006/7.

19th February 2007

GLG Partners have launched a long-only fund filtering the greenest companies from its \$1.5bn European Equity Strategy. The fund uses Trucost data to find the companies in each sector with lighter environmental footprints.

19th February 2007

French sustainability research centre Novethic's most recent newsletter 'L'essentiel de l'ISR' examines Trucost. It talks about the company as a global resource for investors wanting to integrate the environment into the investment process.

29th January 2007

Trucost research reveals that less than half of the world's largest electric utilities disclose their carbon emissions to investors.

17th January 2007

Trucost announces a major upgrade to Trucost Online for 2007

15th January 2007

Trucost is to release an updated briefing on the carbon efficiency of European airlines and the implications of their inclusion in the EU ETS. The announcement follows the appearance of Simon Thomas, Chief Executive,

Adaptive Institutions Consistent with the Vision

Lisbon Principles of Sustainable Governance:

- 1. Responsibility**
- 2. Scale-Matching**
- 3. Precaution**
- 4. Adaptive Management**
- 5. Full Cost Allocation**
- 6. Participation**

From: Costanza, R. F. Andrade, P. Antunes, M. van den Belt, D. Boersma, D. F. Boesch, F. Catarino, S. Hanna, K. Limburg, B. Low, M. Molitor, G. Pereira, S. Rayner, R. Santos, J. Wilson, M. Young. 1998. Principles for sustainable governance of the oceans. *Science* 281:198-199.

THE NEW COMMONS SECTOR

Global

- Earth Atmospheric Trust

National

- American Permanent Fund
- Children's start-up trust
- Universal health insurance
- Copyright royalty fund
- Spectrum trust
- Commons tax credit...

Regional

- Regional watershed trusts
- Regional airshed trusts
- Mississippi basin trust
- Buffalo commons
- Vermont Common Asset Trust...

Local

- Land trusts
- Municipal wi-fi
- Community gardens
- Farmers' markets
- Public spaces
- Car-free zones
- Time banks...

Key Features of Corporate, State, and Commons Sectors

	CORPORATIONS	STATE	COMMONS
Key functions	Making things; seeking short-term profit	Defining, assigning, balancing rights	Sharing gifts and preserving them for future generations
Key institutions	Corporations; labor unions	Legislature Executive Judiciary	Ecosystem trusts, permanent funds, open access commons, intergenerational pacts, community commons
Key human actors	Directors	Politicians	Trustees
Accountable to	Share owners	Voters (donors)	Future generations, living citizens equally, nonhuman species, communities
Algorithms	Maximize profit; distribute earnings to existing shareholders	Win most votes (raise most money)	Preserve asset; live off income, not principal; follow the precautionary principle; the more beneficiaries the better
Time horizon	Next quarter	Next election	Next generation
Ownership regime	One dollar, one share	One person, one vote (one dollar, one vote)	One person, one share
Transferable ownership	Yes	Voting rights: No Property: Yes	Beneficial rights: No Usage rights: Yes
<i>From each according to . . .</i>	Voluntary purchases	Taxes	Voluntary usage
<i>To each according to . . .</i>	Share ownership	Political power	Equal ownership



REDEFINING PROFIT
Natural+Social+Human+Built



www.
earthinc.
org

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- About Earth, Inc.
- Our Work
- Earth Shareholder Report
- Claim Your Share
- Earth Commons Collaborative
- Participate

Earth Inc.

The Earth is our business and your business too. Most people have a basic understanding of how a business works. If you own part of the business, then you're entitled to a share of the profits. As an owner you'll want to take good care of the assets of the business and to plan for the future so your business doesn't collapse. You'll also want to maximize your profit, or in other words, the benefit you receive from the business. Imagine the Earth as a business and you're a shareholder. We're all shareholders. Future generations are entitled to a share too. How do we maximize the benefit every shareholder receives from the Earth? How do we maximize human wellbeing? Earth, Inc. helps answer this most important question.

Board of Directors

- Robert Costanza
- Crea Lintilhac
- Shuang Liu
- Matt Sayre

Advisory Board

- Peter Barnes
- Paul Hawken
- John Kassel
- David Orr



The amount of water impounded behind dams quadrupled since 1960, and three to six times as much water is held in reservoirs as in natural rivers.

Earth News

Protecting our common asset: The Earth

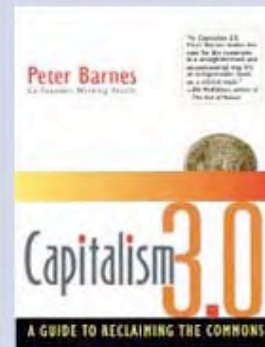
an article by Dr. Robert Costanza in the Rutland Herald. [More >](#)

An Earth Atmospheric Trust: A proposal to stop global warming and end poverty

Internationally renowned experts call for the creation of the Earth Atmospheric Trust. [More >](#)

Ecosystem Goods and Services Series: Valuation 101

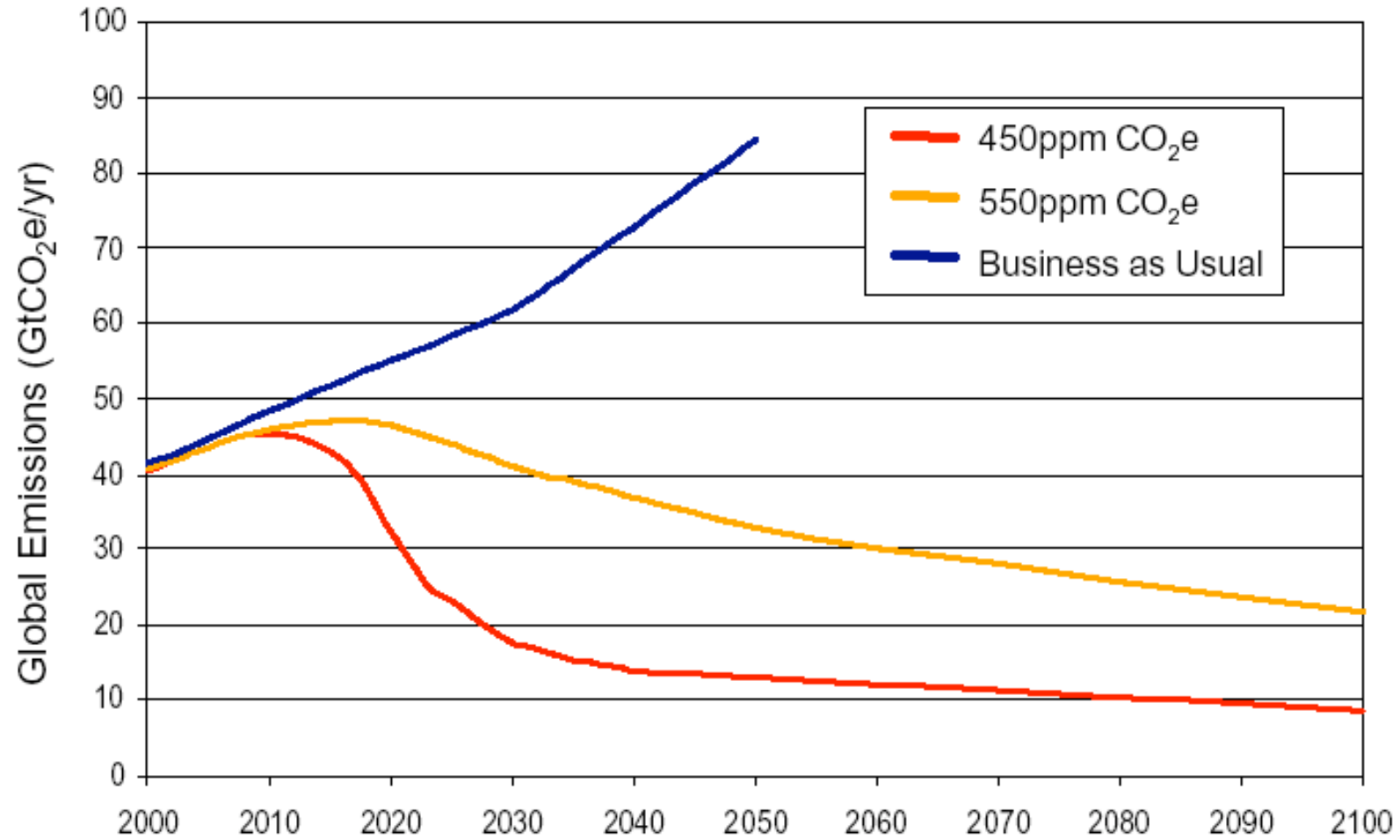
How much is a pristine lake worth? A clean atmosphere? An oil field? [More >](#)



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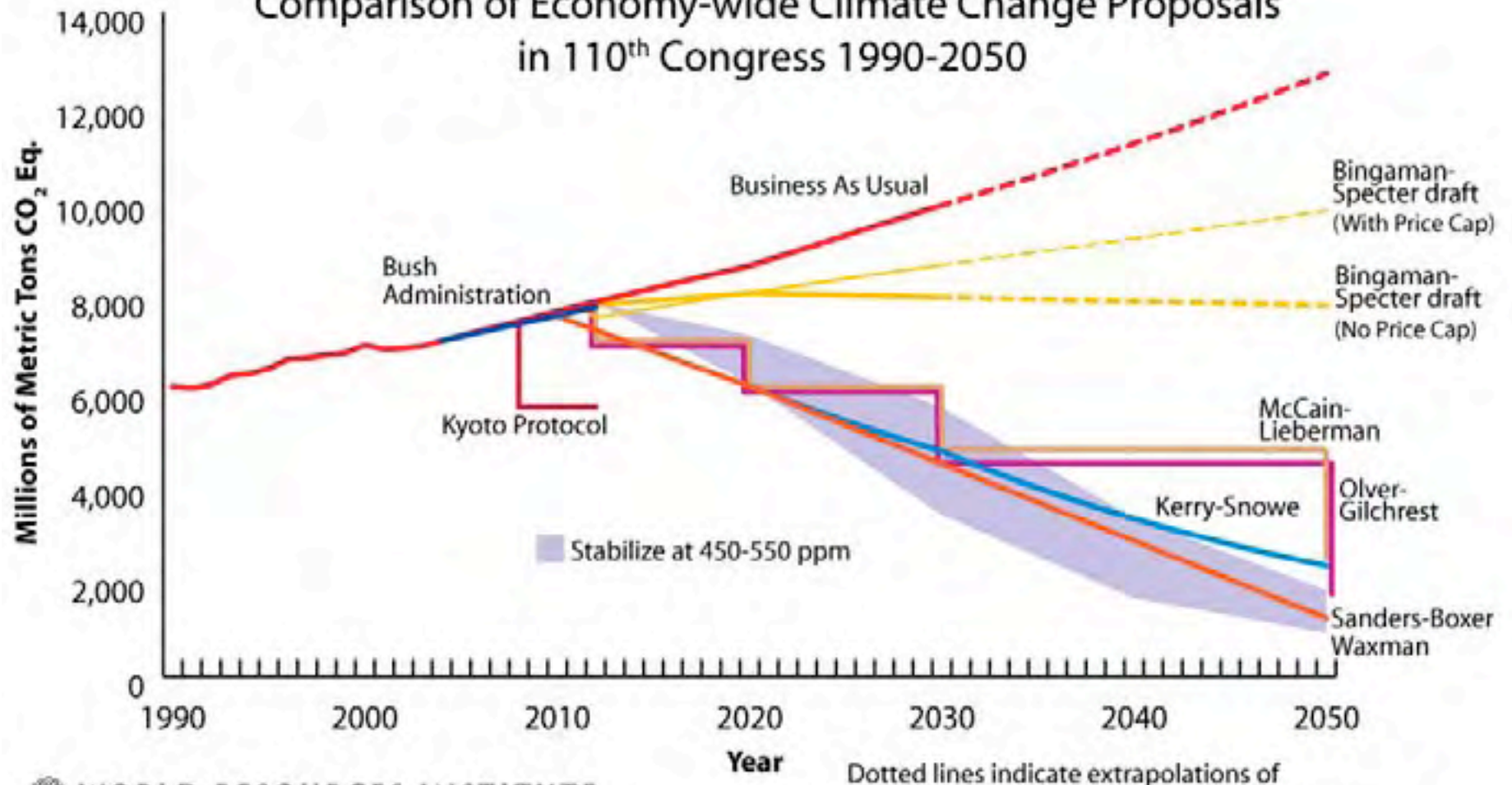
participate!

Emissions Paths to Stabilisation



Source: Stern review on the economics of climate change, 2006

Comparison of Economy-wide Climate Change Proposals in 110th Congress 1990-2050



WORLD RESOURCES INSTITUTE

Dotted lines indicate extrapolations of Energy Information Administration projections
Modified: May 10, 2007

Creating An Earth Atmospheric Trust:

A system to stop global warming *and* reduce poverty

Peter Barnes, Robert Costanza, Paul Hawken, David Orr, Elinor Ostrom, Alvaro Umaña, and Oran Young

- 1) **Set up a global cap and trade system** for greenhouse gas emissions – all greenhouse gas emissions from all sources.
- 2) **Auction off all emission permits** – and allow trading of permits
- 3) **Gradually reduce the cap to follow the 450 ppm target** (or better). The price of permits will go up and total revenues will increase as the cap is reduced.
- 4) **Deposit the revenues into a trust fund**, managed by trustees appointed with long terms and a mandate to protect the asset (the climate and atmosphere)
- 5) **Return a fraction of the revenues to everyone on earth on a per capita basis.** This amount will be insignificant to the rich, and much smaller than their per capita contribution to the fund, but will be enough to lift all the world's poor out of poverty.
- 6) **Use the remainder of the revenues to enhance and restore the asset.** They could be used to fund renewable energy projects, research and development on renewable energy, payments for ecosystem services such as carbon sequestration, etc.

Special features and cautions

- 1) Do not allow revenues to go into the general fund of any government
- 2) Appoint trustees based on their qualifications and understanding of the purposes and details of the trust, not their political affiliations
- 3) Make all operations and transactions of the trust transparent by posting them open access on the internet
- 4) Make trustees accountable for their actions and decisions and subject to removal if they are not managing the trust for the benefit of the beneficiaries (all current and future people)



Thank You

Sign on to the Earth Atmospheric Trust at:
www.earthinc.org