

Crawford School Seminar Series April 16, 2013

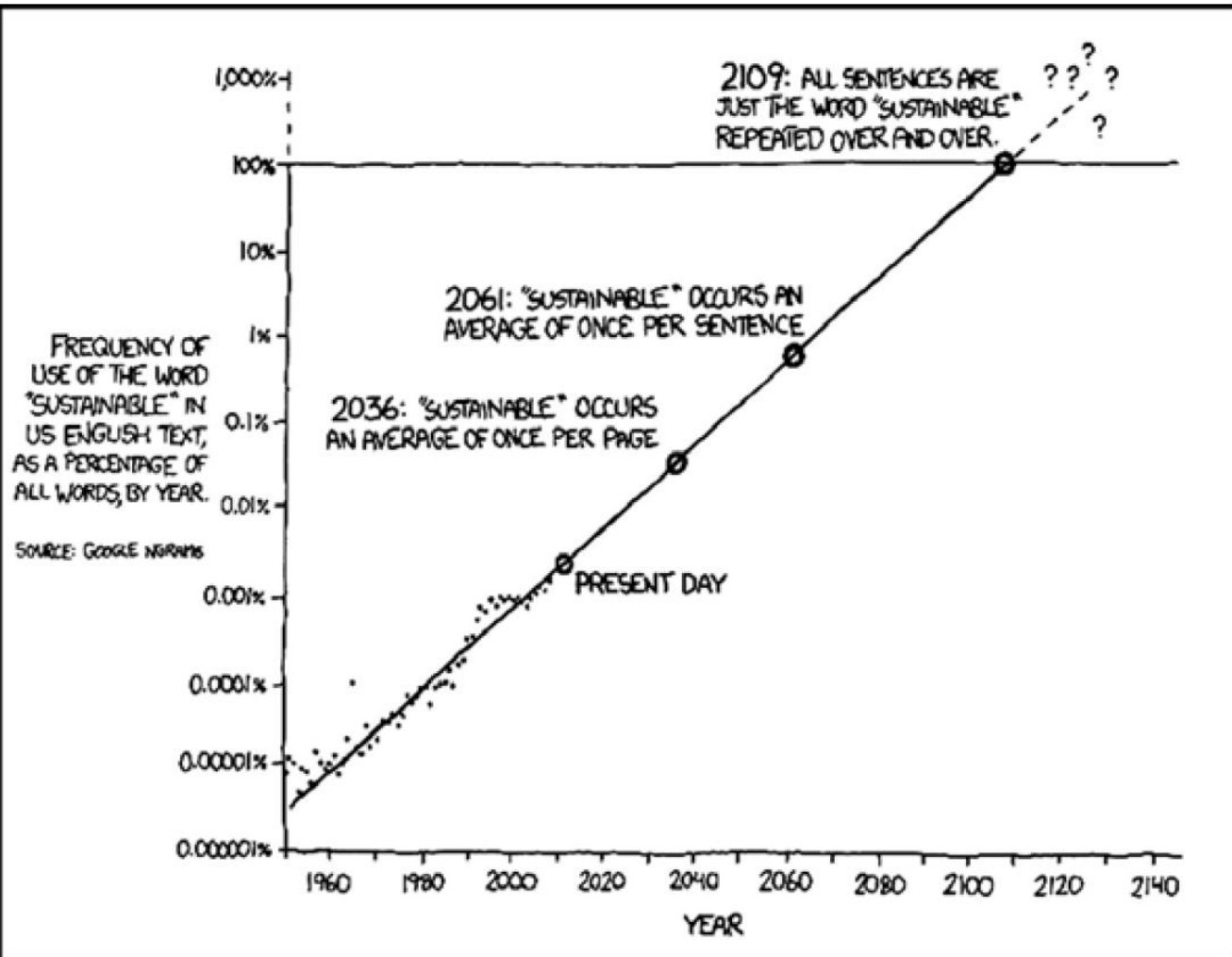
Solutions for a Sustainable and Desirable Future

Robert Costanza

- Chair in Public Policy
Crawford School of Public Policy
Australian National University
Canberra ACT 0200, Australia
- Editor in Chief, *Solutions* (www.thesolutionsjournal.org)



Australian
National
University



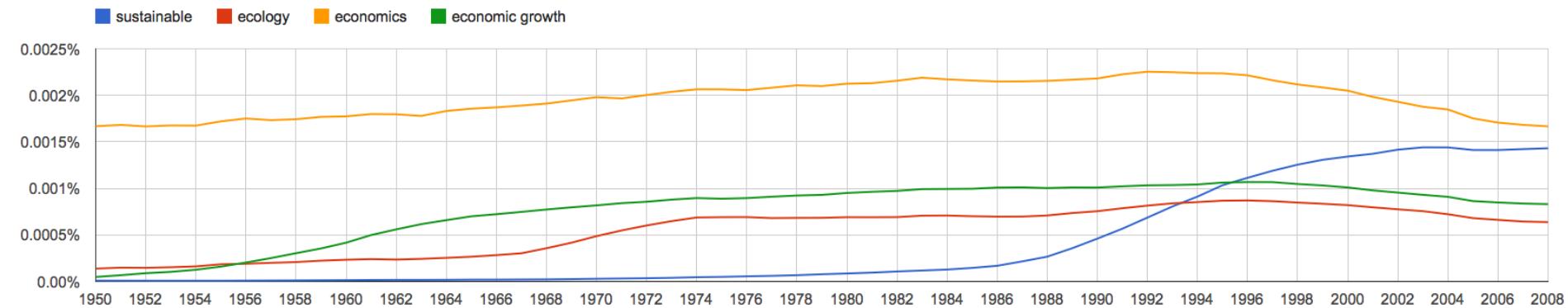
THE WORD "SUSTAINABLE" IS UNSUSTAINABLE.

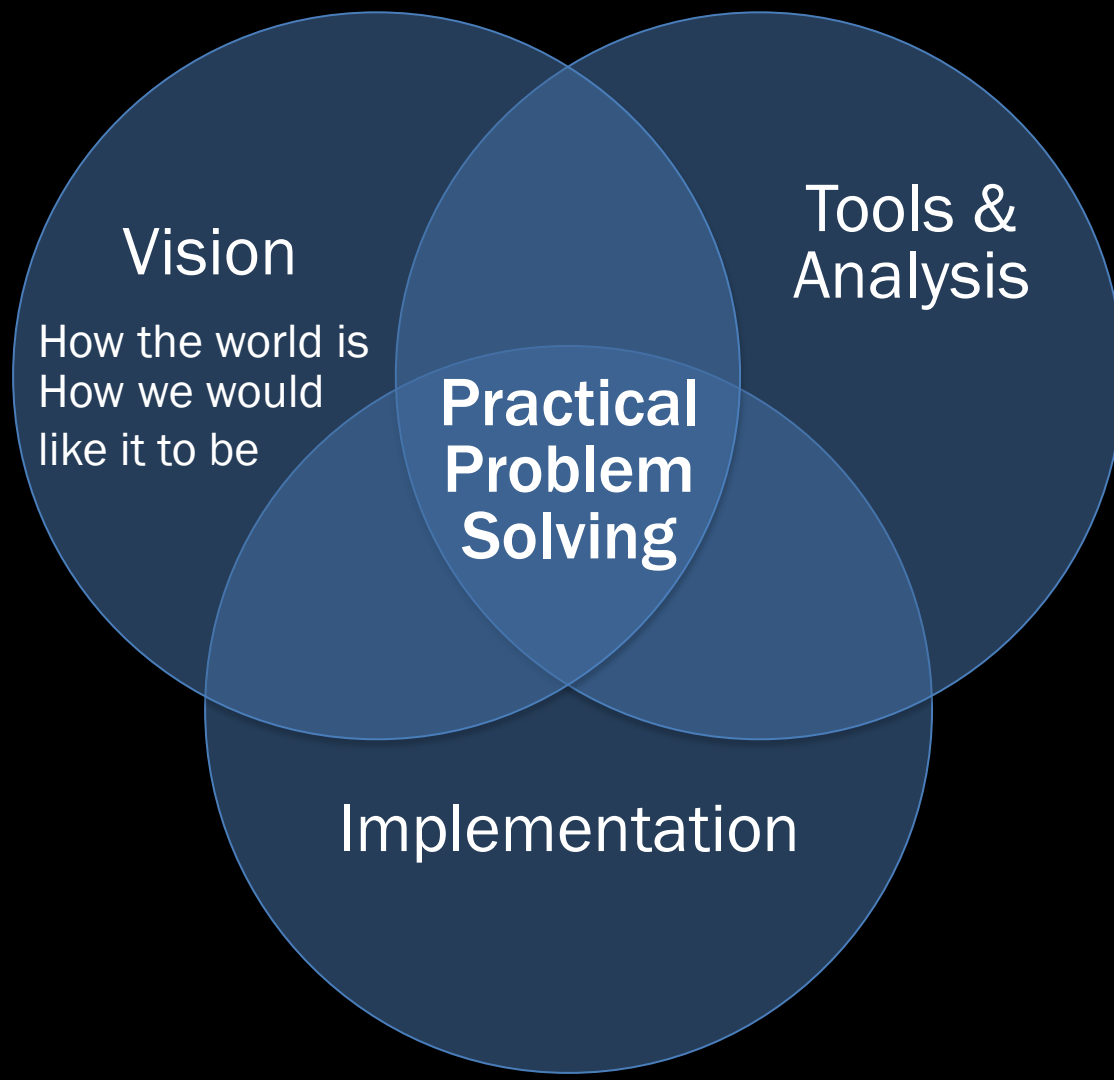
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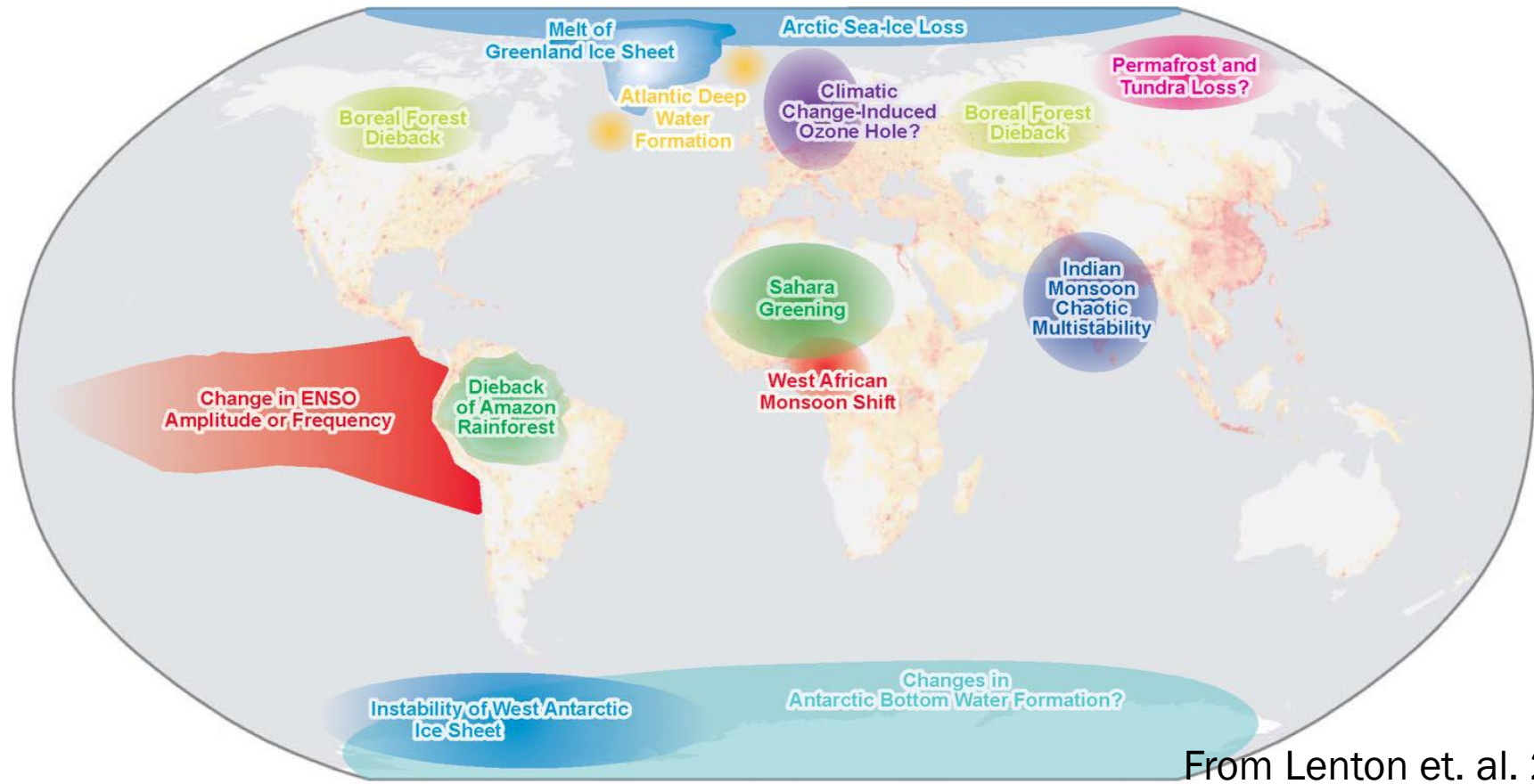
between and from the corpus with smoothing of

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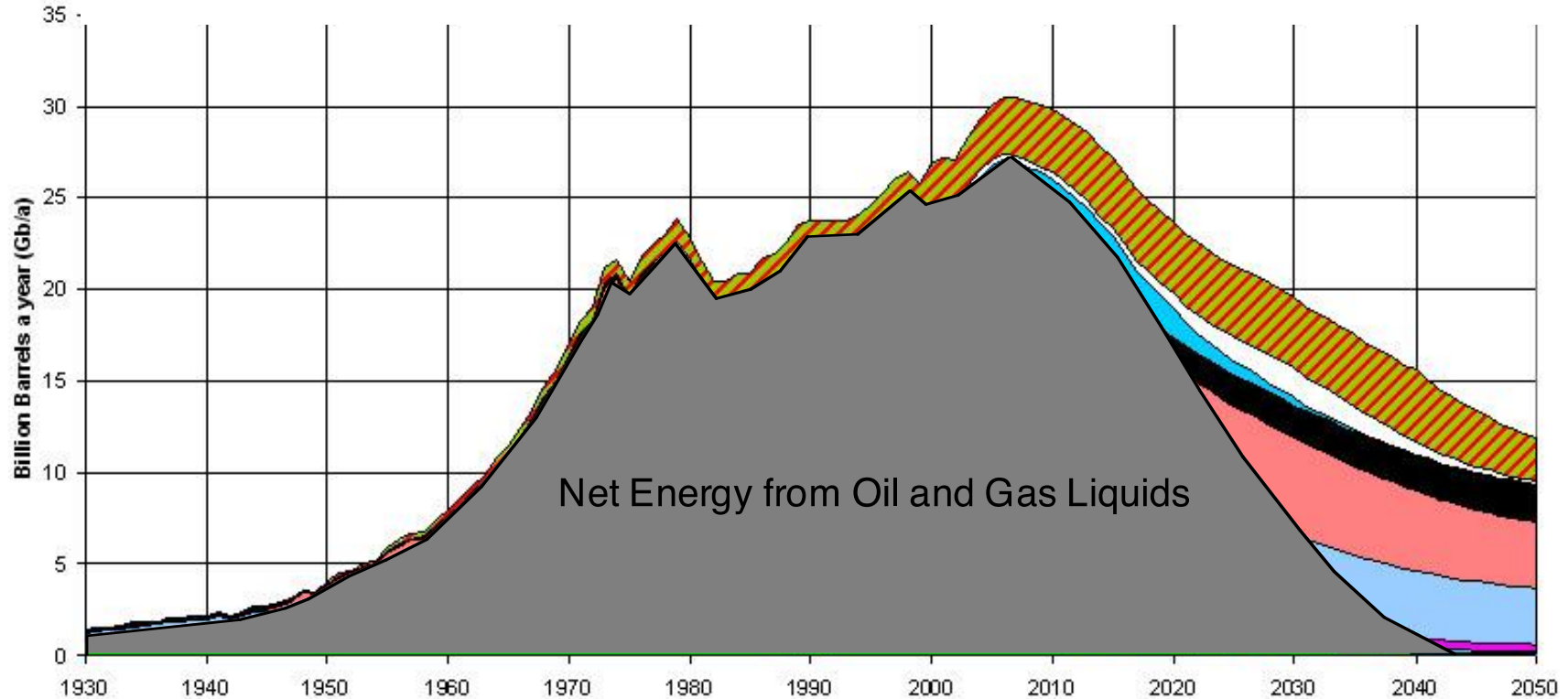


The world is a complex, non-linear, adaptive system, with thresholds, tipping points, and surprises



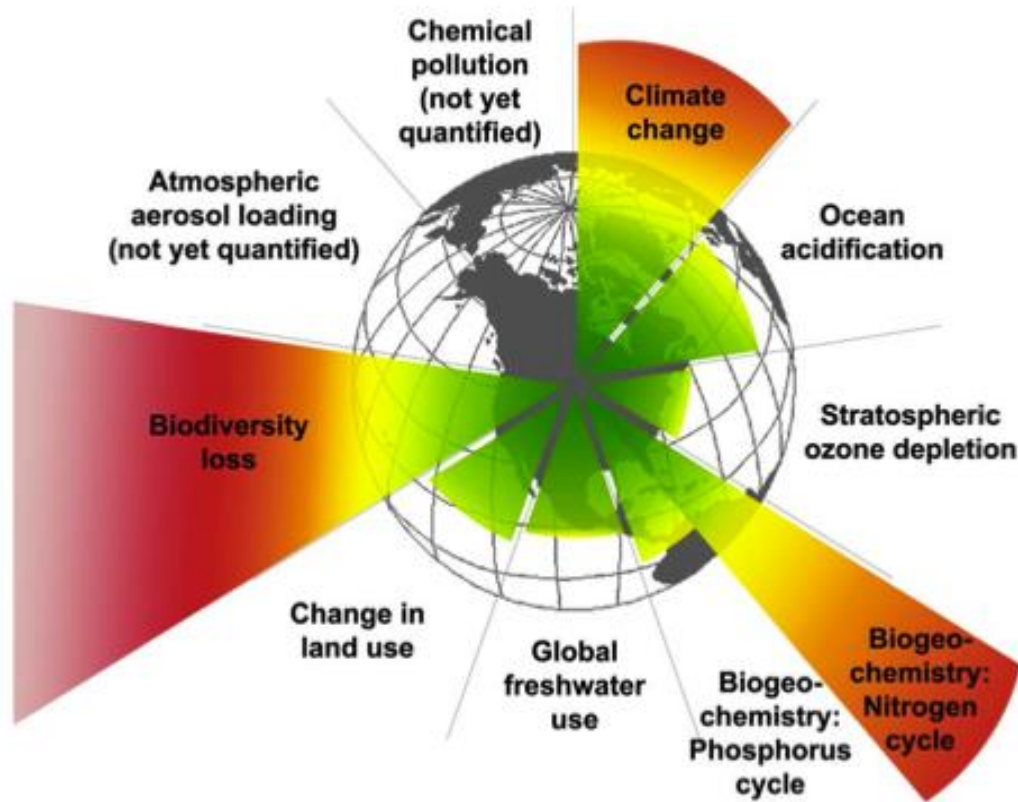
From Lenton et. al. 2008

PEAK OIL: THERE ARE FUNDAMENTAL *RESOURCE CONSTRAINTS*



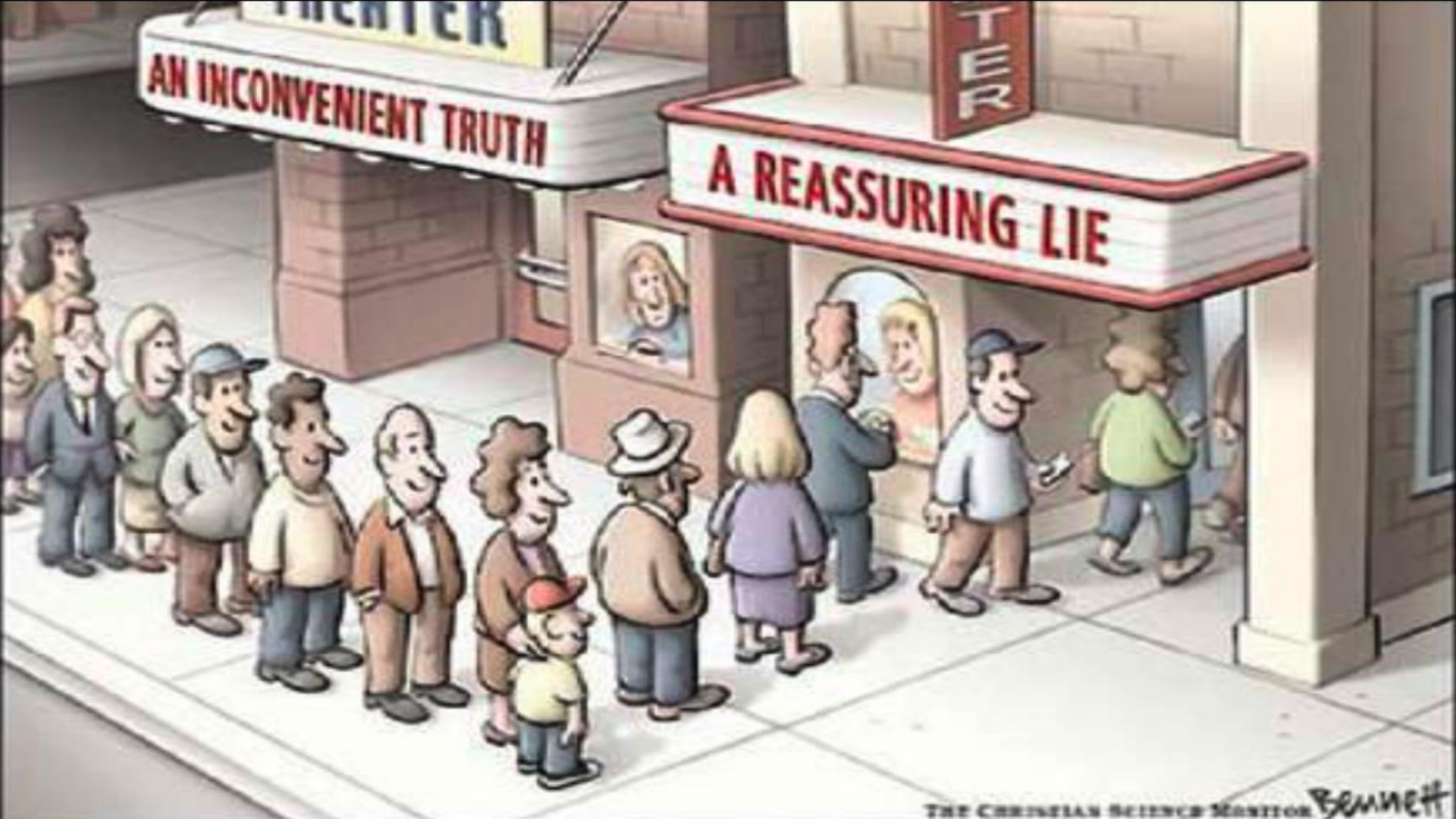
From Campbell 2004

PLANETARY BOUNDARIES: THERE ARE FUNDAMENTAL *ECOLOGICAL* CONSTRAINTS



Rockström, J., et al. 2009.
A safe operating space for
humanity. *Nature* 461:472-
475

Steffen, W., J. Rockström,
and R. Costanza. 2011.
How Defining Planetary
Boundaries Can Transform
Our Approach to Growth.
Solutions. Vol 2, No. 3, May
2011



THEATER
AN INCONVENIENT TRUTH

THEATER
A REASSURING LIE

*We need a **third** movie...*



*We need a **third** movie...*

**A sustainable and desirable
economy-in-society-in-nature**



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21st century \(SD21\)](#)[Options for a technology
facilitation mechanism - follow-up
to the UNCSD outcome](#)

Building a Sustainable and Desirable Economy-in-Society-in-Nature,

by: *United Nations Department of Economic and Social Affairs (UNDESA)*

This report is a synthesis of ideas about what a new economy-in-society-in-nature might look and how we might get there. The report argues that now is the right time for the transition to a new economic paradigm. It lays out a vision, objectives and concrete policies that could underpin a new model of the economy based on the worldview and principles of "ecological economics," including sustainable scale, equitable distribution and efficient allocation ? a model where GDP growth is not the ultimate goal. The report makes a case for a greatly expanded commons sector of the economy and new common asset institutions to adequately deal with natural and social capital assets.

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**Building a Sustainable and Desirable
Economy-in-Society-in-Nature**

Robert Costanza, Gar Alperovitz, Herman Daly, Joshua Farley, Carol Franco, Tim Jackson, Ida Kubiszewski, Juliet Schor, and Peter Victor

<http://sustainabledevelopment.un.org/index.php?page=view&nr=627&type=400&menu=35>

State of the World 2013

IS
SUSTAINABILITY
Still Possible?



THE WORLDWATCH INSTITUTE

State of the World 2013

Is Sustainability Still Possible?

Erik Assadourian and Tom Prugh, *Project Directors*

Rebecca Adamson
Gar Alperovitz
Olivia Arnow
David Christian
Dwight E. Collins
Robert Costanza
Larry Crowder
Herman Daly
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Antonia Sohns
Pavan Sukhdev
Bron Taylor
Peter Victor
Eric Zencey

Linda Starke, *Editor*



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WELLBEING & HAPPINESS DEFINING A NEW ECONOMIC PARADIGM

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WELLBEING & HAPPINESS: DEFINING A NEW ECONOMIC PARADIGM



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On 19 July last year, 68 countries joined the Kingdom of Bhutan in co-sponsoring a resolution titled "Happiness: Towards a holistic approach to development," which was adopted by consensus by the 193-member UN General Assembly.

In follow up to the resolution, the Royal Government of Bhutan is convening a High Level Meeting on "Happiness and Well Being: Defining a New Economic Paradigm" on 2nd April 2012 at the United Nations headquarters in New York.

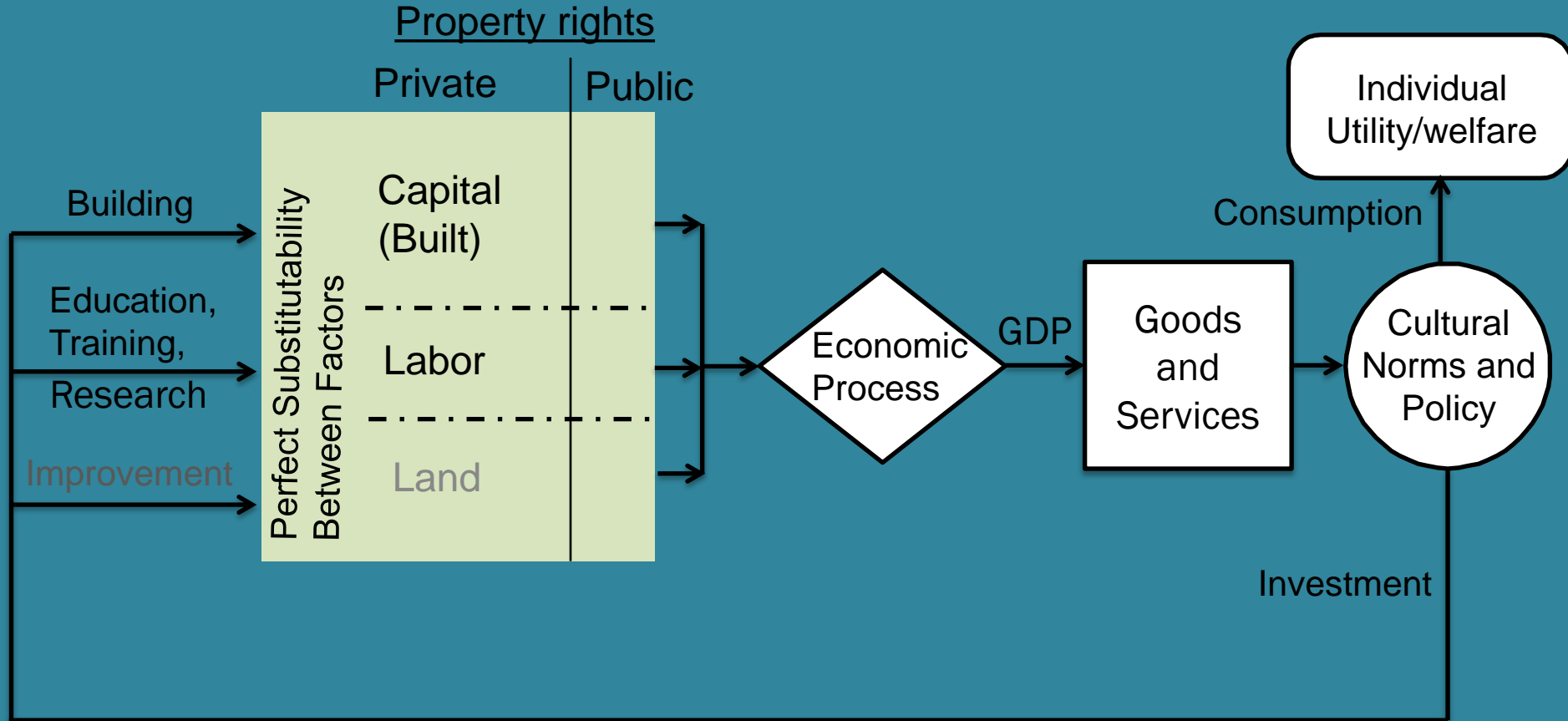
**Statements by Head of States,
Head of Governments
and Special Envoys.**



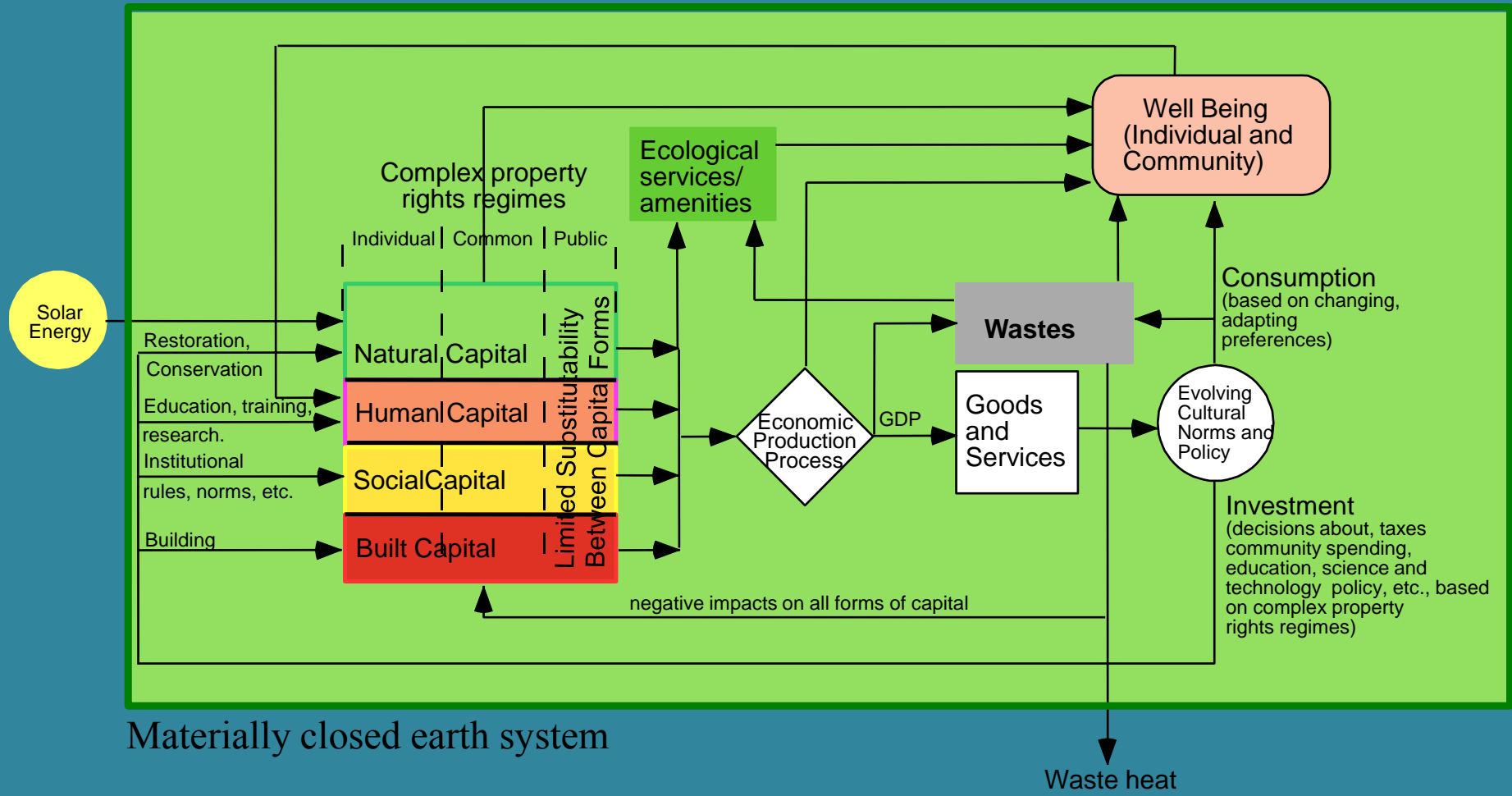




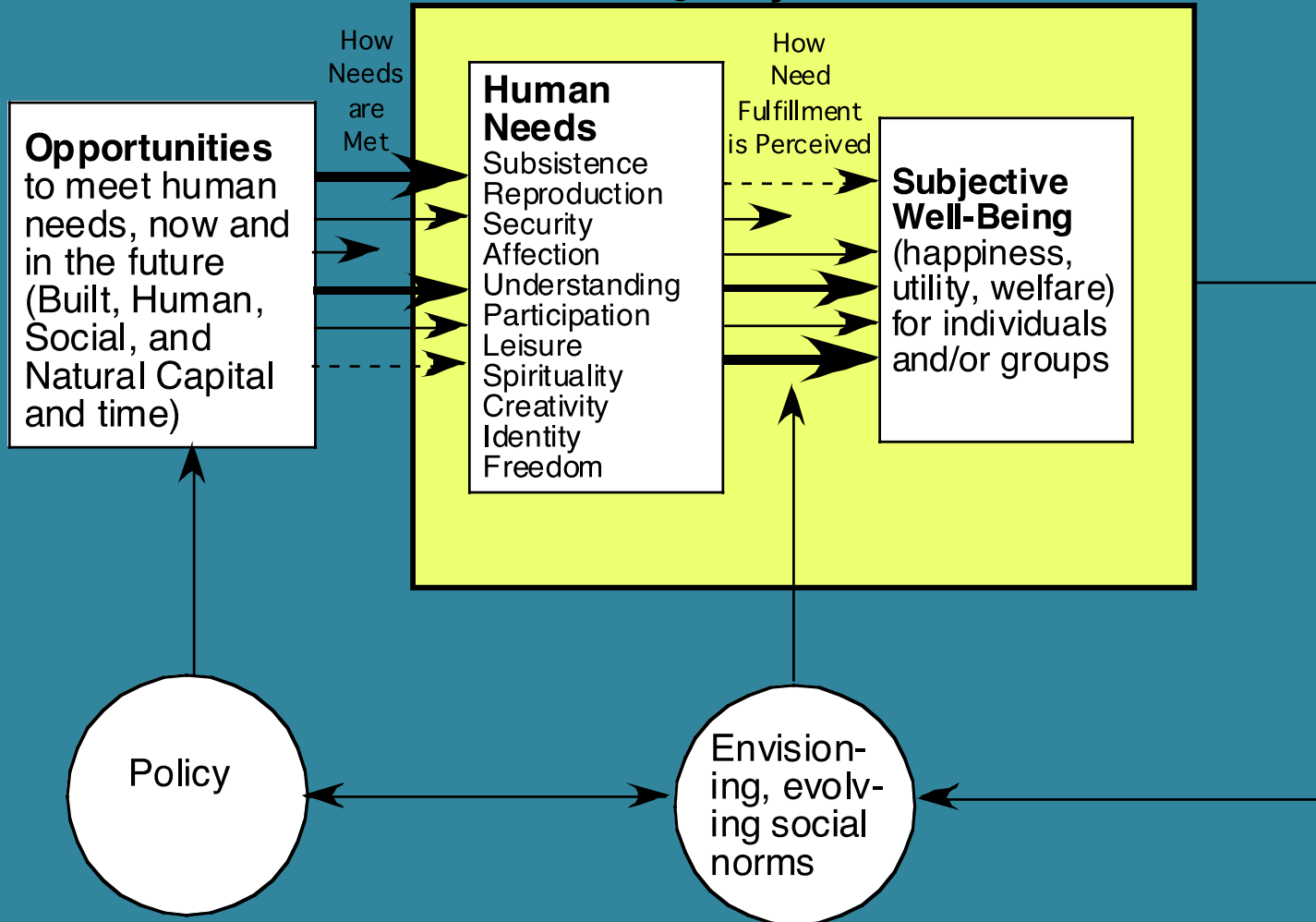
“Empty World” Vision of the Economy

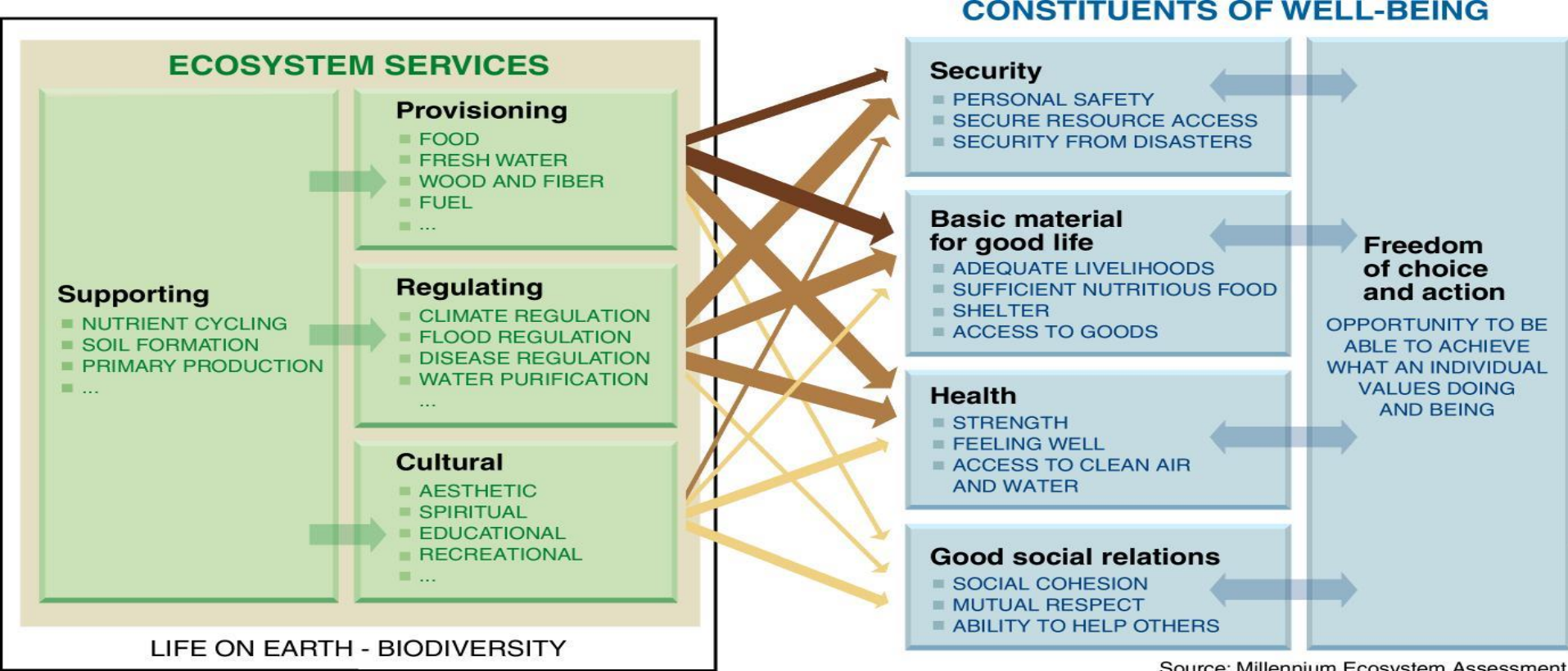


“Full World” Vision of the Whole System



Quality of Life





Source: Millennium Ecosystem Assessment

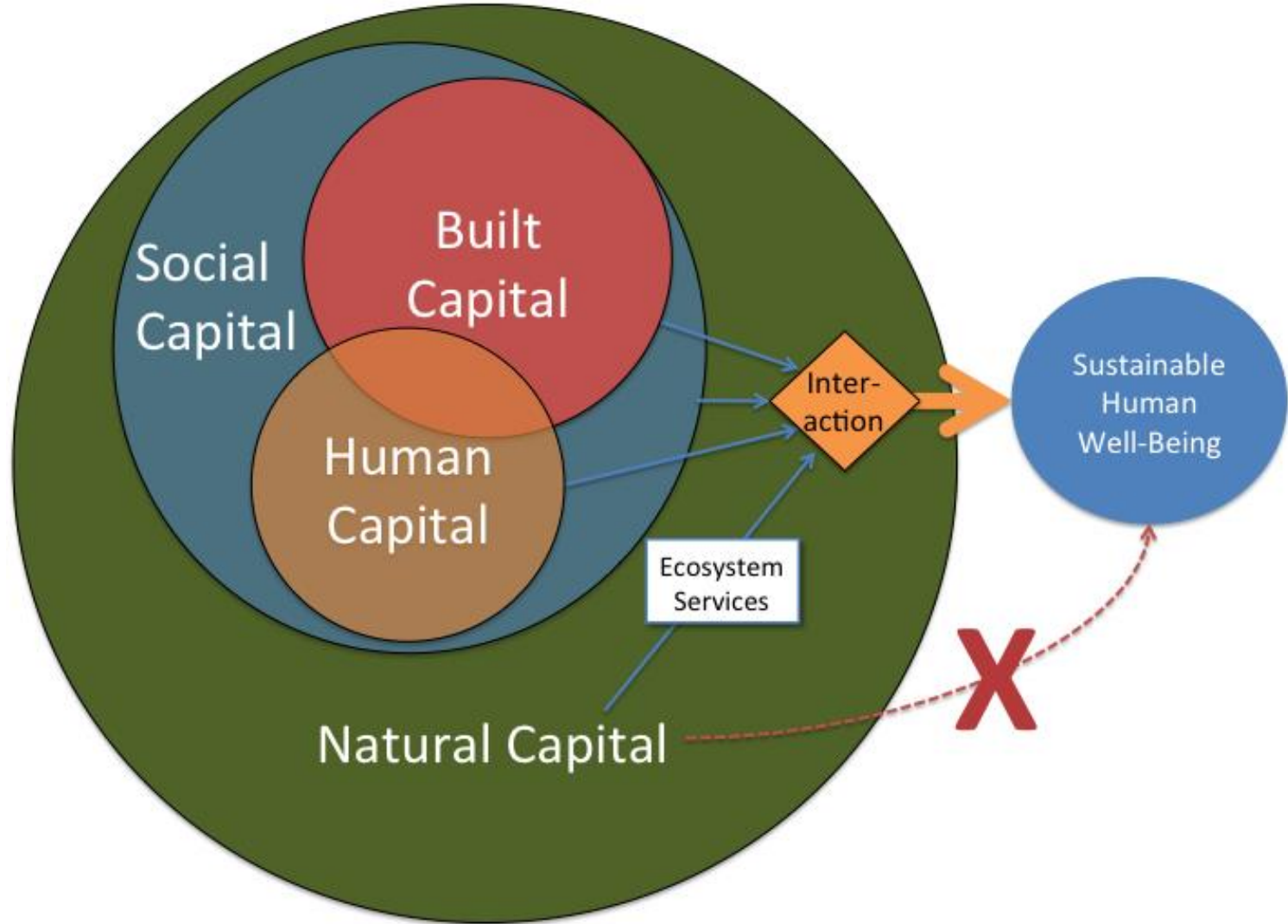
ARROW'S COLOR
Potential for mediation by socioeconomic factors

Low
Medium
High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

Weak
Medium
Strong

Ecosystem Services: the benefits humans derive from functioning



ESP

The Ecosystem Services Partnership

Worldwide Network to enhance the Science and practical Application of ecosystem services assessment



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Welcome to the new ESP website

Several pages and functionalities are still under construction or are being updated. If you have any suggestions please contact [ESP Support Team](#).

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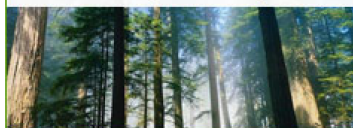
- Networking & Outreach
- Case studies & Showcases
- Data & Knowledge sharing
- Training and Education
- Guidelines & Toolkits
- Funding/Cooperation calls
- Contact
- Support & FAQ
- Members & Partners
- **Become a Member**

ESP Activities and Networks

● Thematic Working Groups



● Biome Expert Groups



● National ESP Networks



Table 1. Range of Uses for Ecosystem Service Valuation

Use of Valuation	Appropriate values	Appropriate spatial scales	Precision Needed
Raising Awareness and interest	Total values, macro aggregates	Regional to global	low
National Income and Well-Being Accounts	Total values by sector and macro aggregates	National	medium
Specific Policy Analyses	Changes by policy	Multiple depending on policy	medium to high
Urban and Regional Land Use Planning	Changes by land use scenario	Regional	low to medium
Payment for Ecosystem Services	Changes by actions due payment	Multiple depending on system	medium to high
Full Cost Accounting	Total values by business, product, or activity and changes by business, product, or activity	Regional to global, given the scale of international corporations	medium to high
Common Asset Trusts	Totals to assess capital and changes to assess income and loss	Regional to global	medium



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What we do

Trucost has been helping companies, investors, governments, academics and thought leaders to understand the economic consequences of natural capital dependency for over 12 years.

Our world leading data and insight enables our clients to identify natural capital dependency across companies, products, supply chains and investments; manage risk from volatile commodity prices and increasing environmental costs; and ultimately build more sustainable business models and brands.

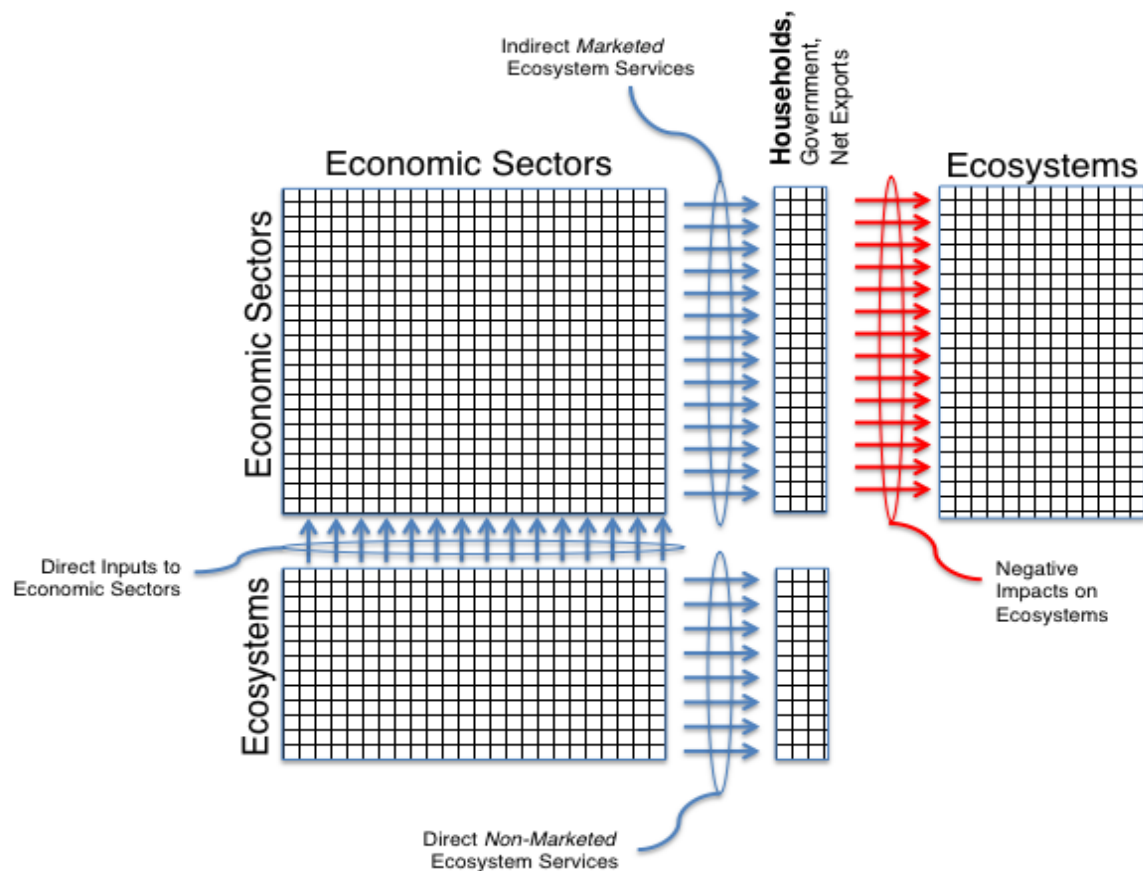
Key to our approach is that we not only quantify natural capital dependency, we also put a price on it, helping our clients understand environmental risk in business terms.

It isn't "all about carbon"; it's about water; land use; waste and pollutants. It's about which raw materials are used and where they are sourced, from energy and water to metals, minerals and agricultural products. And it's about how those materials are extracted, processed and distributed.

"Trucost has calculated that more than a quarter of profits across the world's largest companies would be wiped out if water was priced to reflect its availability, as it must be."



Input-Output Framework for Classifying, Measuring and Valuing Ecosystem Services



ISI WEB OF KNOWLEDGESM

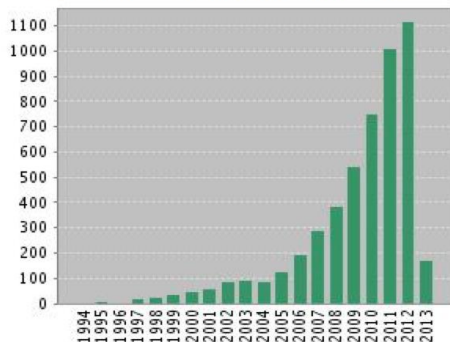
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Timespan=All Years.

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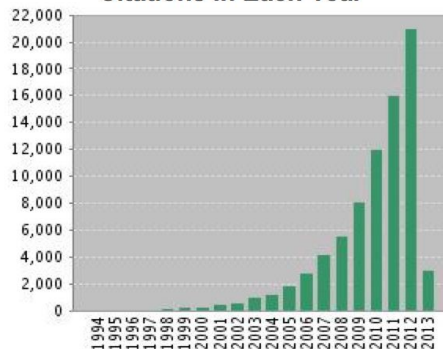
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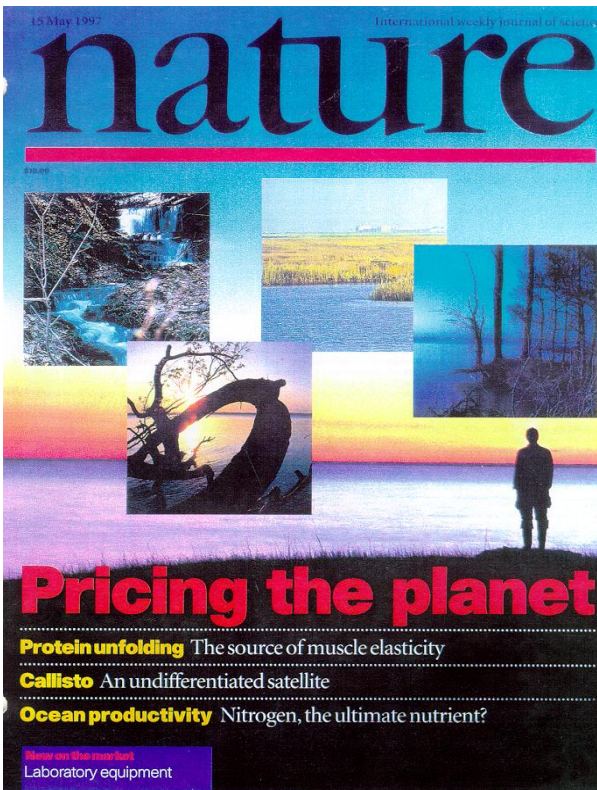
h-index [?] : 113

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

Robert Costanza, Ralph d' Arge, Rudolf de Groot, Stephen Farber, Monica Grasso, Bruce Hannon, Karin Limburg, Shahid Naeem, Robert V. O' Neill, Jose Paruelo, Robert G. Raskin, Paul Sutton & Marjan van den Belt

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\$33trillion 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.

2nd most cited article in the last 15 years in the Ecology/Environment area according to the ISI Web of Knowledge.
Almost 4000 citations as of 3/13



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



Global estimates of the value of ecosystems and their services in monetary units

Rudolf de Groot^{a,*}, Luke Brander^{b,1}, Sander van der Ploeg^a, Robert Costanza^c, Florence Bernard^d, Leon Braat^e, Mike Christie^f, Neville Crossman^{g,h}, Andrea Ghermandiⁱ, Lars Hein^a, Salman Hussain^j, Pushpam Kumar^k, Alistair McVittie^j, Rosimeiry Portela^l, Luis C. Rodriguez^{g,h}, Patrick ten Brink^m, Pieter van Beukering^b

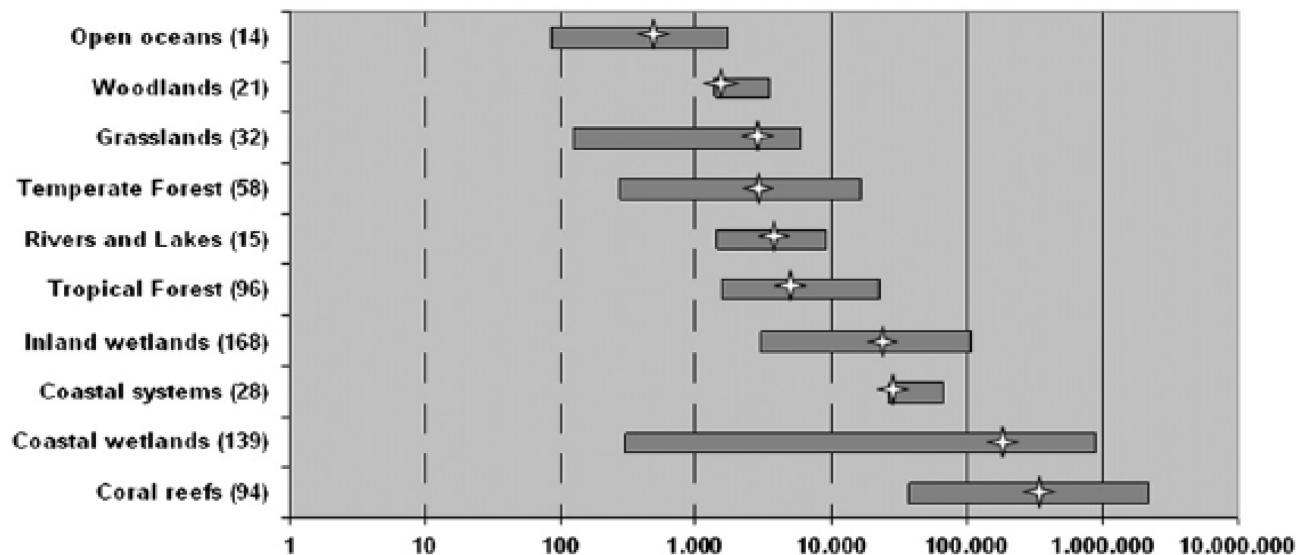
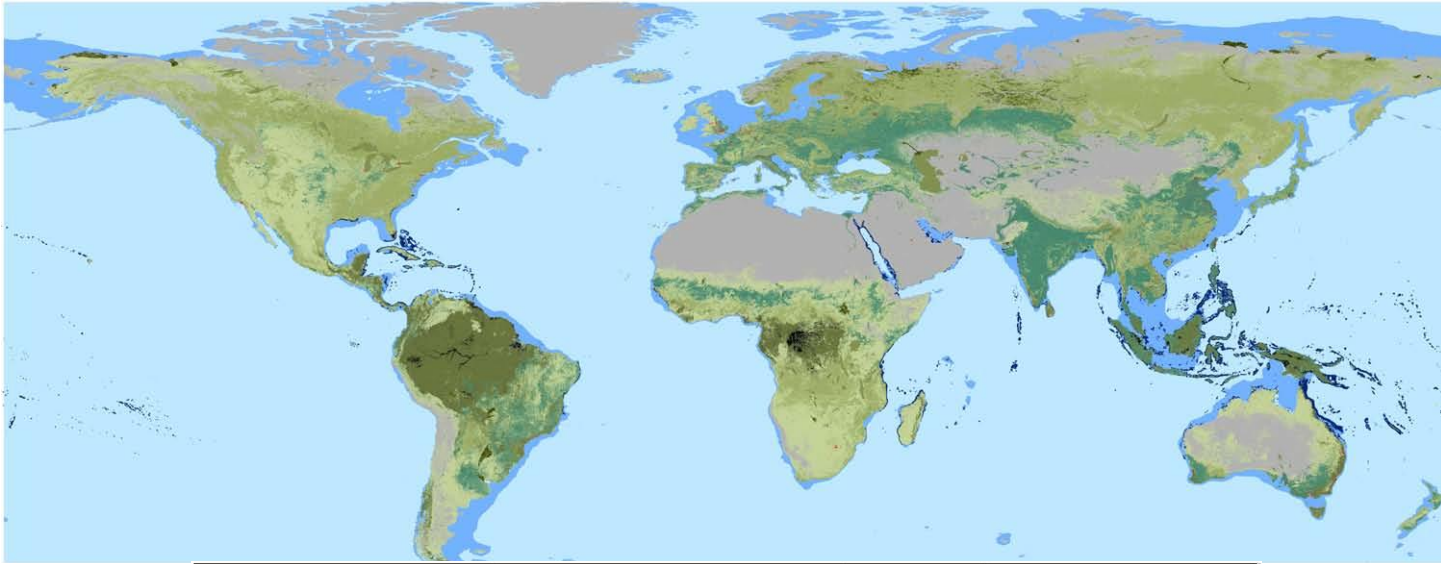


Figure S1. Map of global annual ecosystem services based on 2011 land areas and 2011 unit values



LandCover	Flow Value per Hectare per year	Legend	Area (millions of hectares)
Desert	\$0		2159
Tundra	\$0		433
Ice/Rock	\$0		1640
Open Ocean	\$491		33200
Marine Shelf	\$2,222		2660
Grass/Rangelands	\$2,871		4418
Temperate/Boreal Forest	\$3,013		3003
Lakes/Rivers	\$4,267		200
Tropical Forest	\$5,264		1258
Cropland	\$5,567		1672
Urban	\$6,661		352
Swamps/Floodplains	\$25,682		60
Tidal Marsh/Mangroves	\$193,845		128
Coral Reefs	\$352,249		28

Table 3. Changes in area, unit values and aggregate global flow values from 1997 to 2011 (green are values that have increased, red are values that have decreased)

Biome	Area			Unit values			Aggregate Global Flow Value			
	(e6 ha)		Change 2011-1997	2007\$/ha/yr		Change 2011-1997	e12 2007\$/yr			
	1997	2011		1997	2011		1997	2011	2011	2011
Marine	36,302	36,302	0	796	1,368	572	28.9	60.5	29.5	49.7
Open Ocean	33,200	33,200	0	348	660	312	11.6	21.9	11.6	21.9
Coastal	3,102	3,102	0	5,592	8,944	3,352	17.3	38.6	18.0	27.7
Estuaries	180	180	0	31,509	28,916	-2,593	5.7	5.2	5.7	5.2
Seagrass/Algae Beds	200	234	34	26,226	28,916	2,690	5.2	5.8	6.1	6.8
Coral Reefs	62	28	-34	8,384	352,249	343,865	0.5	21.7	0.2	9.9
Shelf	2,660	2,660	0	2,222	2,222	0	5.9	5.9	5.9	5.9
Terrestrial	15,323	15,323	0	1,109	4,901	3,792	17.0	84.5	12.1	75.1
Forest	4,855	4,261	-594	1,338	3,800	2,462	6.5	19.5	4.7	16.2
Tropical	1,900	1,258	-642	2,769	5,382	2,613	5.3	10.2	3.5	6.8
Temperate/Boreal	2,955	3,003	48	417	3,137	2,720	1.2	9.3	1.3	9.4
Grass/Rangelands	3,898	4,418	520	321	4,166	3,845	1.2	16.2	1.4	18.4
Wetlands	330	188	-142	20,404	140,174	119,770	6.7	36.2	3.4	26.4
Tidal Marsh/Mangroves	165	128	-37	13,786	193,843	180,057	2.3	32.0	1.8	24.8
Swamps/Floodplains	165	60	-105	27,021	25,681	-1,340	4.5	4.2	1.6	1.5
Lakes/Rivers	200	200	0	11,727	12,512	785	2.3	2.5	2.3	2.5
Desert	1,925	2,159	234	-	-	0	-	-	-	-
Tundra	743	433	-310	-	-	0	-	-	-	-
Ice/Rock	1,640	1,640	0	-	-	0	-	-	-	-
Cropland	1,400	1,672	272	126	5,567	5,441	0.2	7.8	0.2	9.3
Urban	332	352	20	-	6,661	6,661	-	2.2	-	2.3
Total	51,625	51,625	0				45.9	145.0	41.6	124.8

A. Original
Assuming 1997 area and 1997 unit values

B. Change unit values only
Assuming 1997 area and 2011 unit values

C. Change area only
Assuming 2011 area and 1997 unit values

D. Change both unit values and area
Assuming 2011 area and 2011 unit values

Table 3. Changes in area, unit values and aggregate global flow values from 1997 to 2011 (green are values that have increased, red are values that have decreased)

Biome										
	Area		Change 2011-1997	Unit values		Change 2011-1997	Aggregate Global Flow Value			
	(e6 ha)			2007\$/ha/yr			e12 2007\$/yr			
	1997	2011		1997	2011		1997	2011	2011	2011
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Shelf	2,660	2,660	0	2,222	2,222	0	5.9	5.9	5.9	5.9
Terrestrial	15,323	15,323	0	1,109	4,901	3,792	17.0	84.5	12.1	75.1
Forest	4,855	4,261	-594	1,338	3,800	2,462	6.5	19.5	4.7	16.2
Tropical	1,900	1,258	-642	2,769	5,382	2,613	5.3	10.2	3.5	6.8
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Wetlands	330	188	-142	20,404	140,174	119,770	6.7	36.2	3.4	26.4
Tidal Marsh/Mangroves	165	128	-37	13,786	193,843	180,057	2.3	32.0	1.8	24.8
Swamps/Floodplains	165	60	-105	27,021	25,681	-1,340	4.5	4.2	1.6	1.5
Lakes/Rivers	200	200	0	11,727	12,512	785	2.3	2.5	2.3	2.5
Desert	1,925	2,159	234	-	-	0	-	-	-	-
Tundra	743	433	-310	-	-	0	-	-	-	-
Ice/Rock	1,640	1,640	0	-	-	0	-	-	-	-
Cropland	1,400	1,672	272	126	5,567	5,441	0.2	7.8	0.2	9.3
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-4.3

-20.2

A. Original
Assuming 1997 area and 1997 unit values

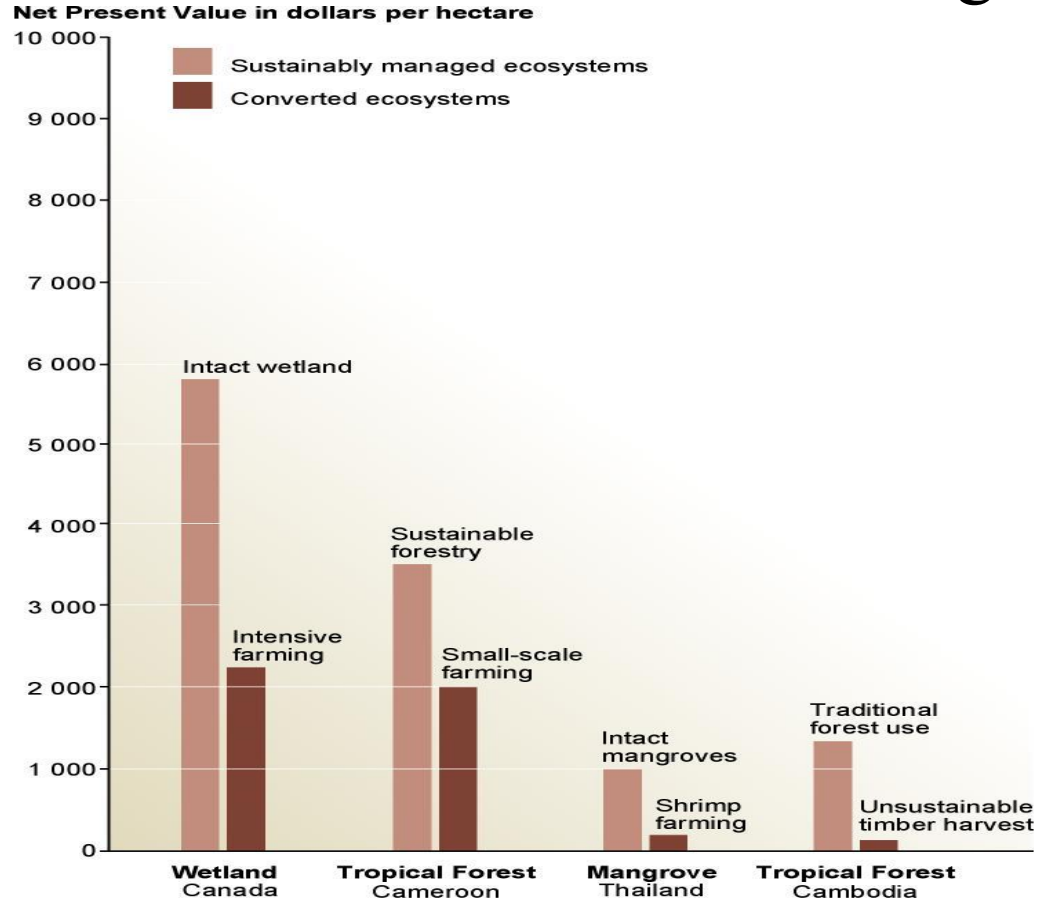
B. Change unit values only
Assuming 1997 area and 2011 unit values

C. Change area only
Assuming 2011 area and 1997 unit values

D. Change both unit values and area
Assuming 2011 area and 2011 unit values

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



Source: Millennium Ecosystem Assessment

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 □

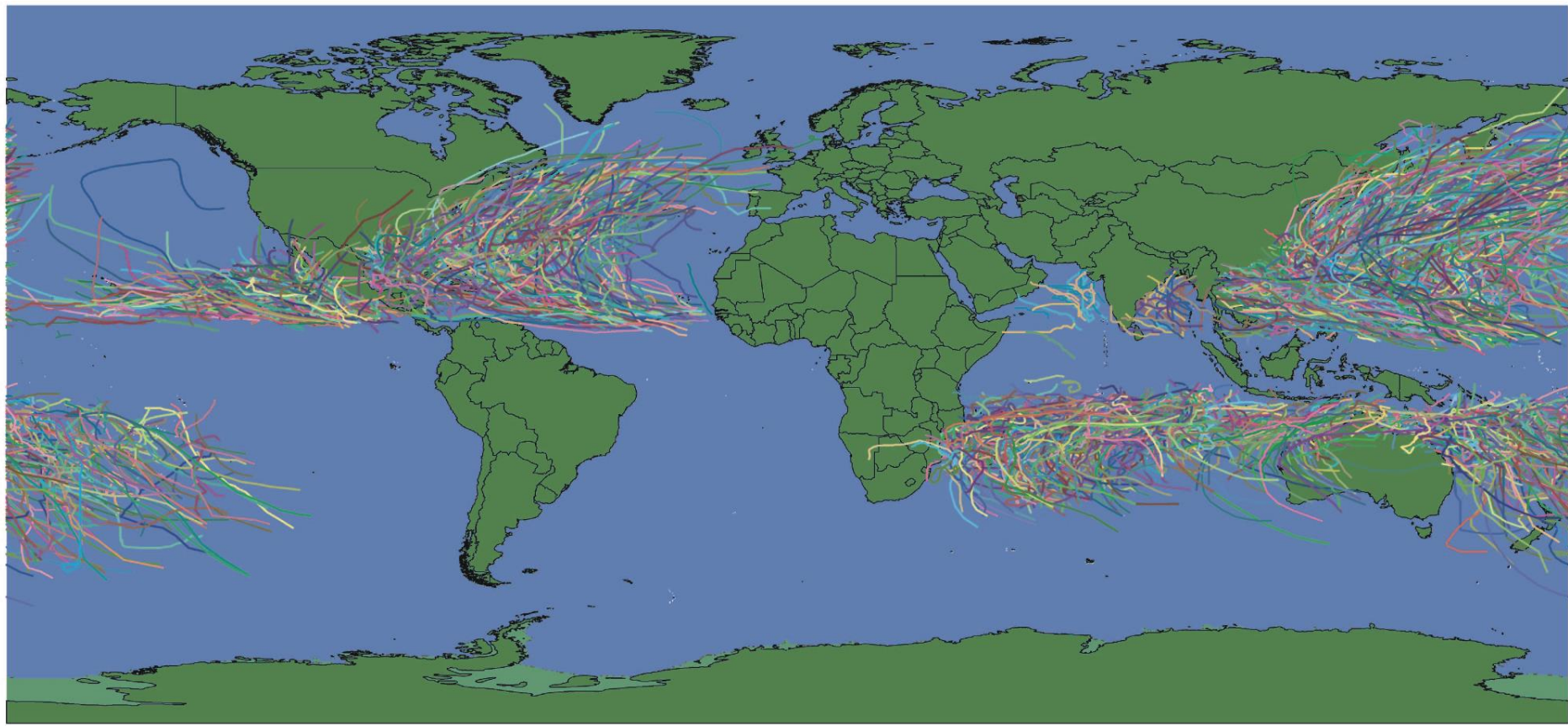
Benefit/Cost Ratio = 100:1 □

(**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)

Table 2. Four levels of ecosystem service value aggregation (Kubiszewski and Costanza 2013)

Aggregation method	Assumptions/approach	Examples
1. Basic value transfer -	assumes values constant over ecosystem types	Costanza et al. 1997, Liu et al. 2010
2. Expert modified value transfer	adjusts values for local ecosystem conditions using expert opinion surveys	Batker et al. 2010,
3. Statistical value transfer	builds statistical model of spatial and other dependencies	Liu and Stern 2008
4. Spatially Explicit Functional Modeling	Builds spatially explicit statistical or dynamic systems models incorporating valuation	Boumans et al. 2002 Costanza et al. 2008 Nelson et al. 2009

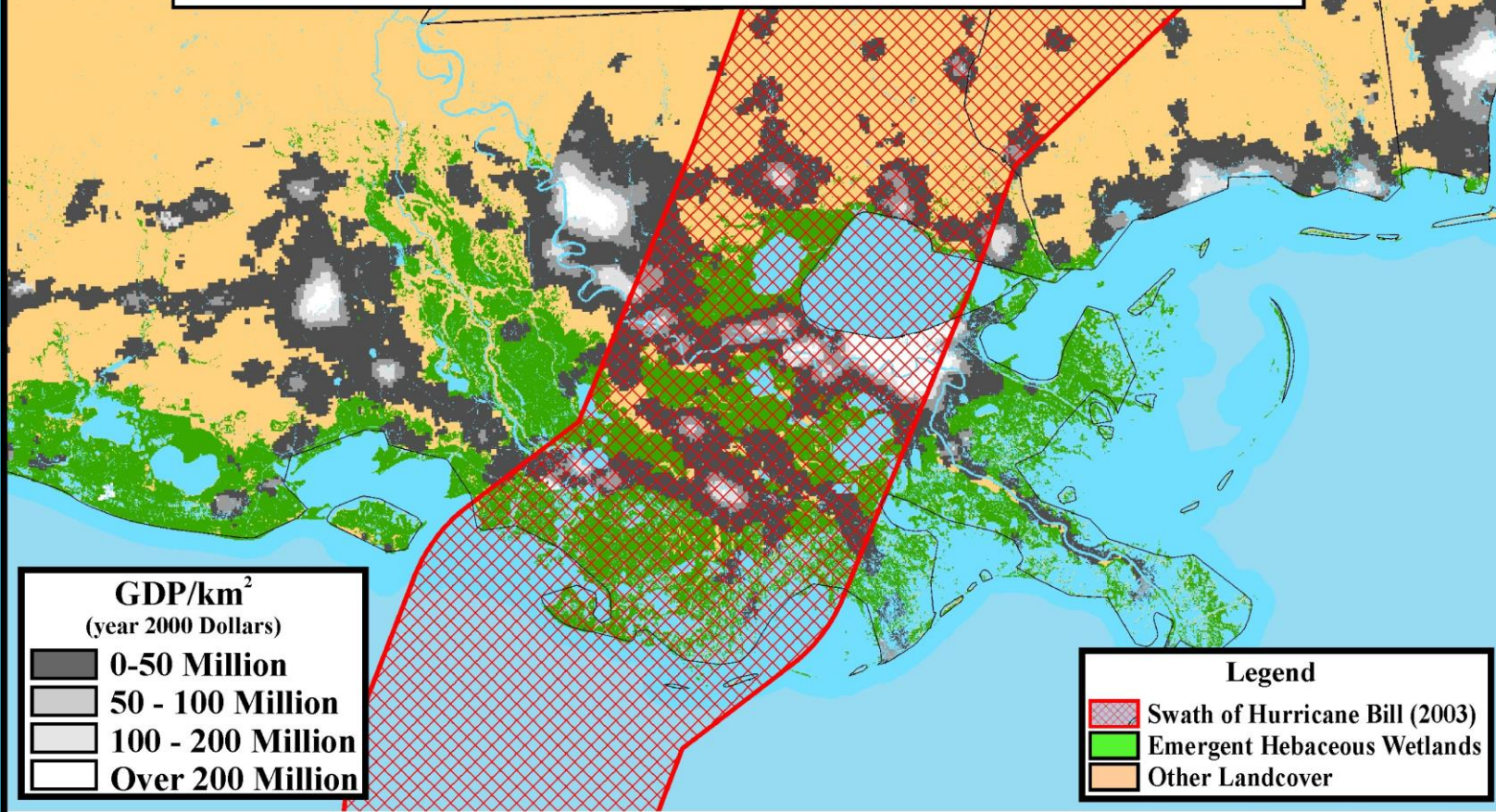




Global Storm Tracks 1980 - 2006

Data for Hurricane Bill (2003)

Name	Year	Population in Swath	GDP (2004) in Swath	Herb Wets in Swath (Hect)	Total Damage (2004 Dollars)	Max Wind Speed
Bill	2003	5,170,620	6,073,836,979	687,415	16 Million	25.72



The value of coastal wetlands for hurricane protection

$$\ln (TD_i / GDP_i) = \alpha + \beta_1 \ln(g_i) + \beta_2 \ln(w_i) + u_i \quad (1)$$

Where:

TD_i = total damages from storm i (in constant 2004 \$US);

GDP_i = Gross Domestic Product in the swath of storm i (in constant 2004 \$US). The swath was considered to be 100 km wide by 100 km inland.

g_i = maximum wind speed of storm i (in m/sec)

w_i = area of herbaceous wetlands in the storm swath (in ha).

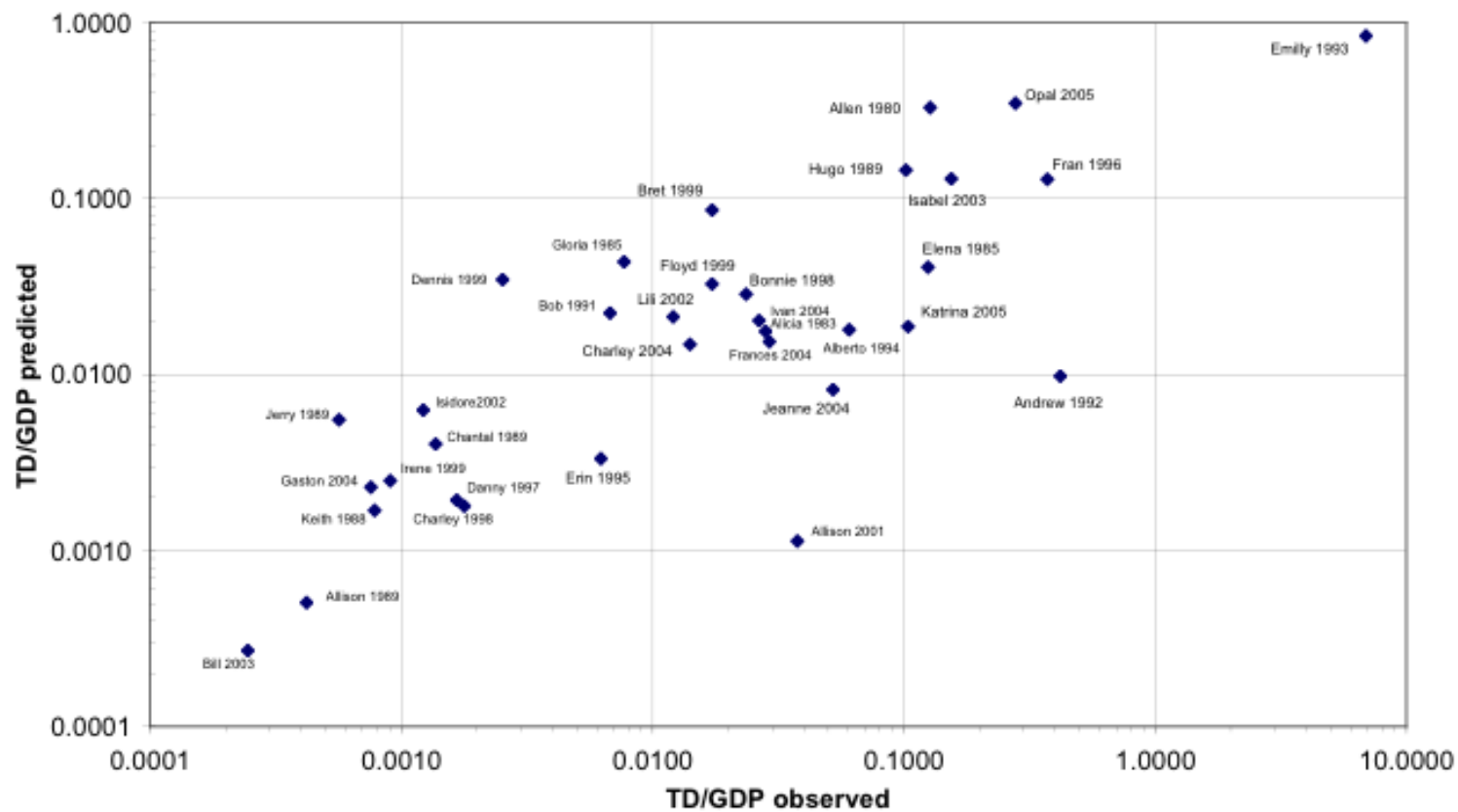
u_i = error

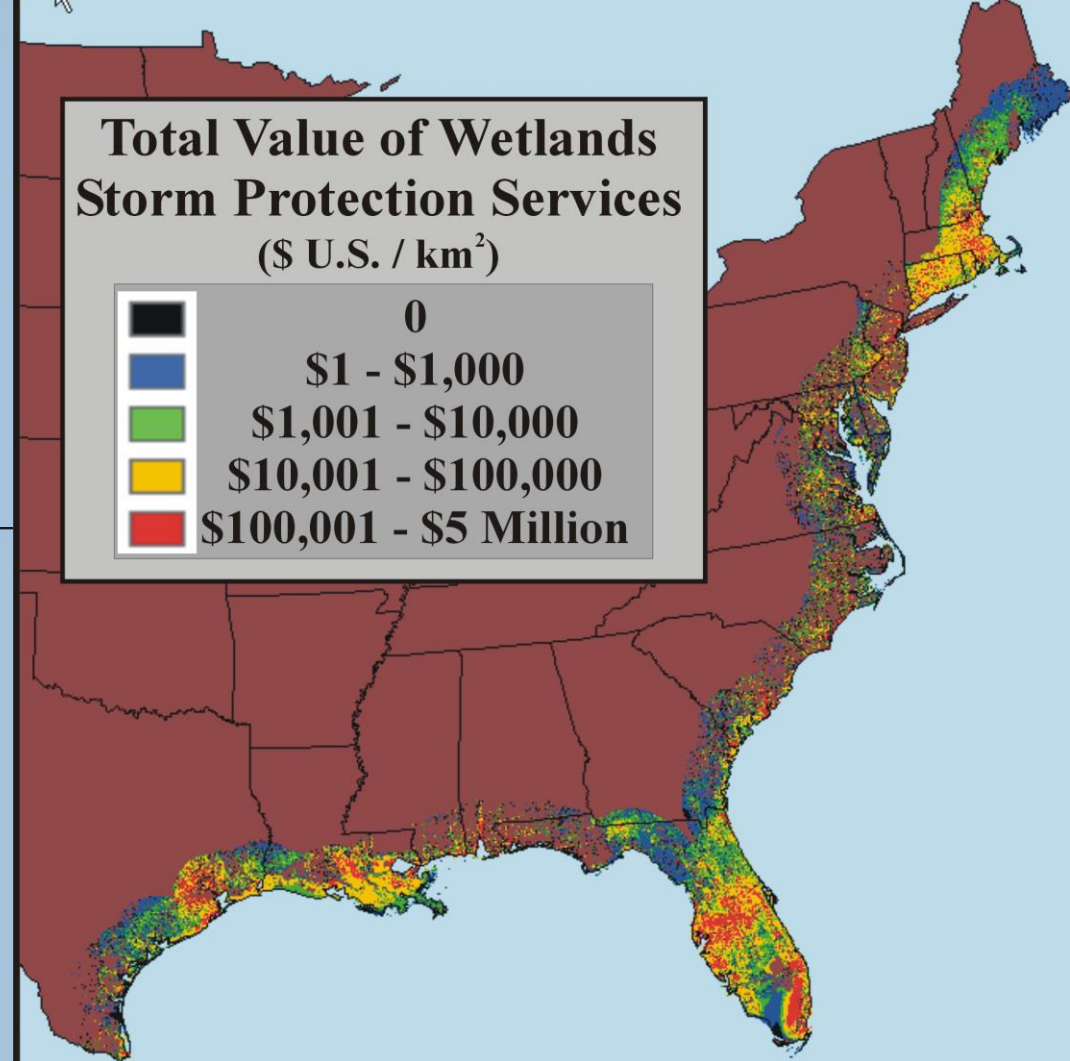
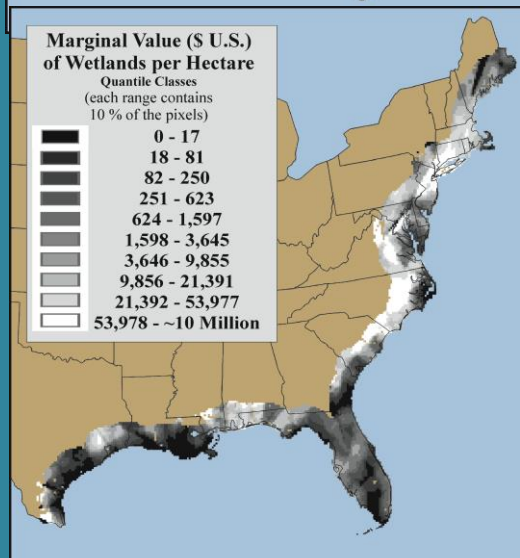
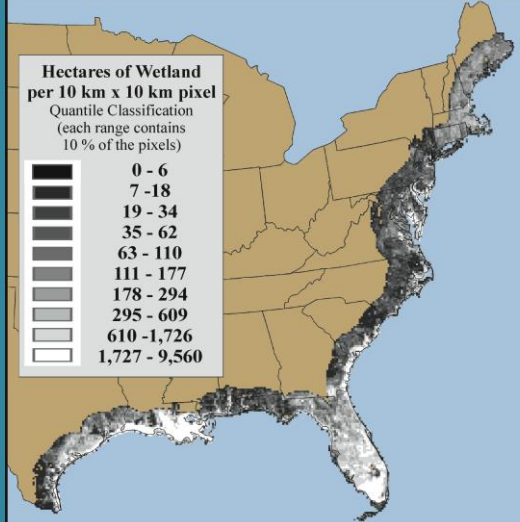
Predicted total damages from storm i

$$TD_i = e^{\alpha} * g_i^{\beta_1} * w_i^{\beta_2} * GDP_i$$

Avoided cost from a change of 1 ha of coastal wetlands for storm i

$$\Delta TD_i = e^{\alpha} * g_i^{\beta_1} * \left((w_i - 1)^{\beta_2} - w_i^{\beta_2} \right) * GDP_i$$





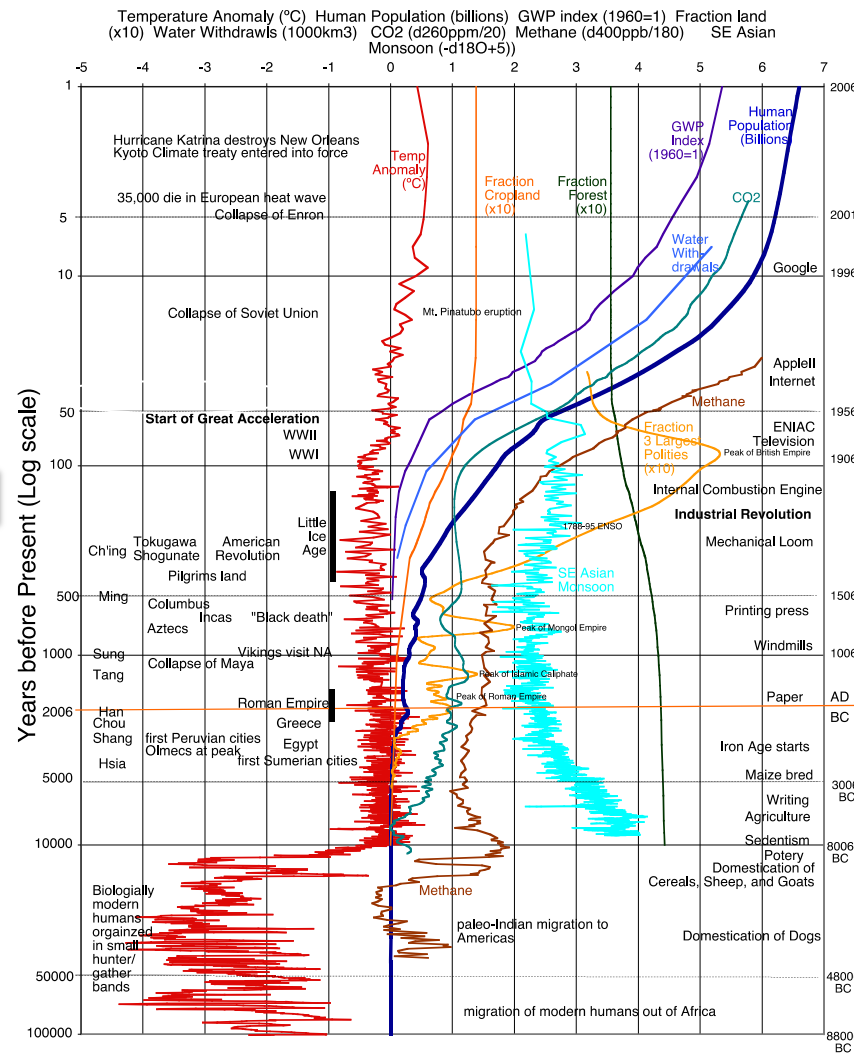
- A loss of 1 ha of wetland in the model corresponded to an average \$33,000 (median = \$5,000) increase in storm damage from specific storms.
- Taking into account the annual probability of hits by hurricanes of varying intensities, the annual value of coastal wetlands ranged from \$250 to \$51,000/ha/yr, with a mean of \$8,240/ha/yr (median = \$3,230/ha/yr)
- Coastal wetlands in the US were estimated to currently provide \$23.2 Billion/yr in storm protection services.

From: Costanza, R., O. Pérez-Maqueo, M. L. Martinez, P. Sutton, S. J. Anderson, and K. Mulder.
2008. The value of coastal wetlands for hurricane protection. *Ambio* 37:241-248.

EcoServices Classified According to Rivalness and Excludability

	Excludable	Non-Excludable
Rival	Market Goods and Services (some provisioning services)	Common Pool Resources (some provisioning services)
Non-rival	Congestable Services (some recreation services)	Public Goods and Services (most regulatory and cultural services)

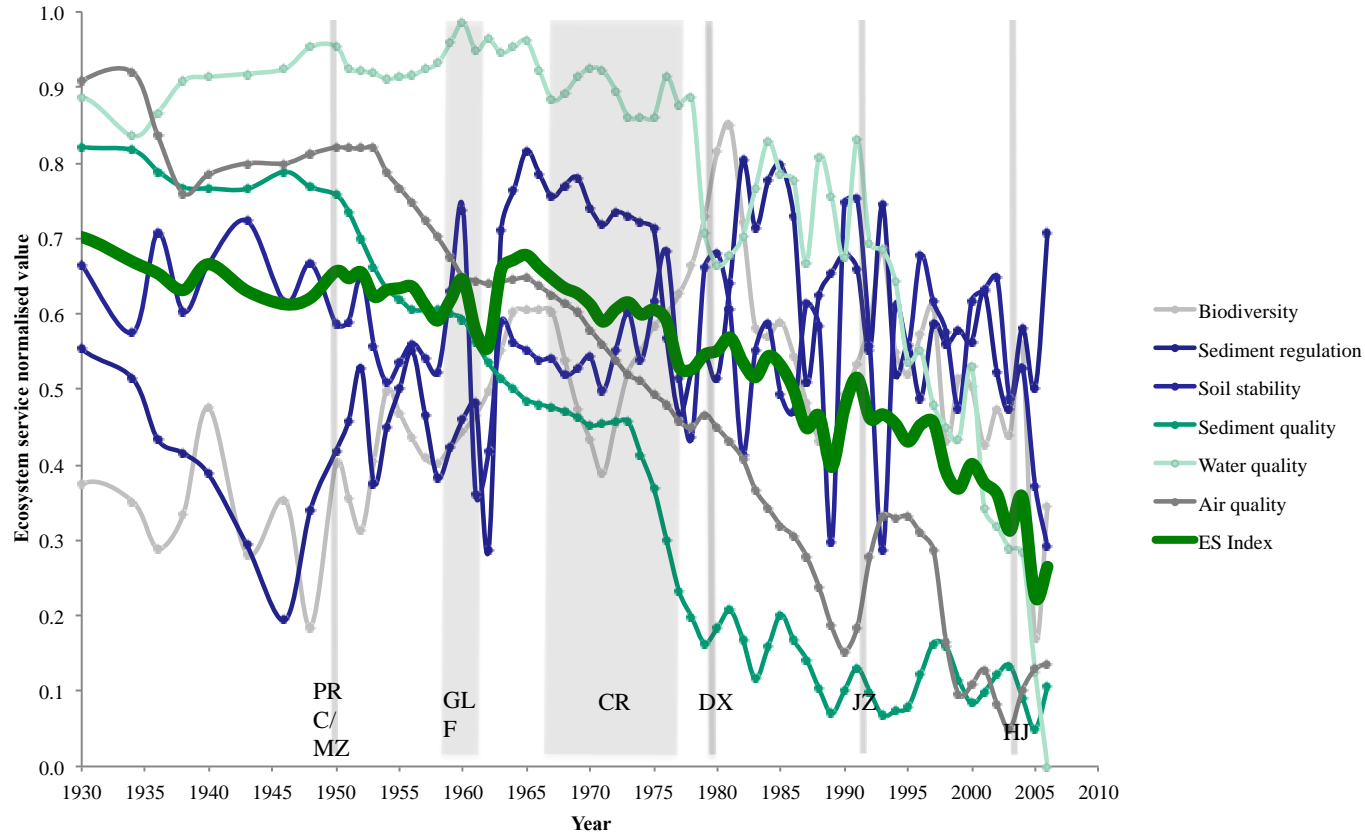
From: Costanza, R., 2008. Ecosystem Services: Multiple classification systems are needed. *Biological Conservation* 141:350-352



Integrated History and future Of People on Earth

From: Costanza, R. L. Graumlich, W. Steffen et al. 2007. Sustainability or Collapse: What Can We Learn from Integrating the History of Humans and the Rest of Nature? *Ambio* 36:522-527

Reconstruction of Ecosystem Services in the Lower Yangtze basin 1930-2000 from paleo records.



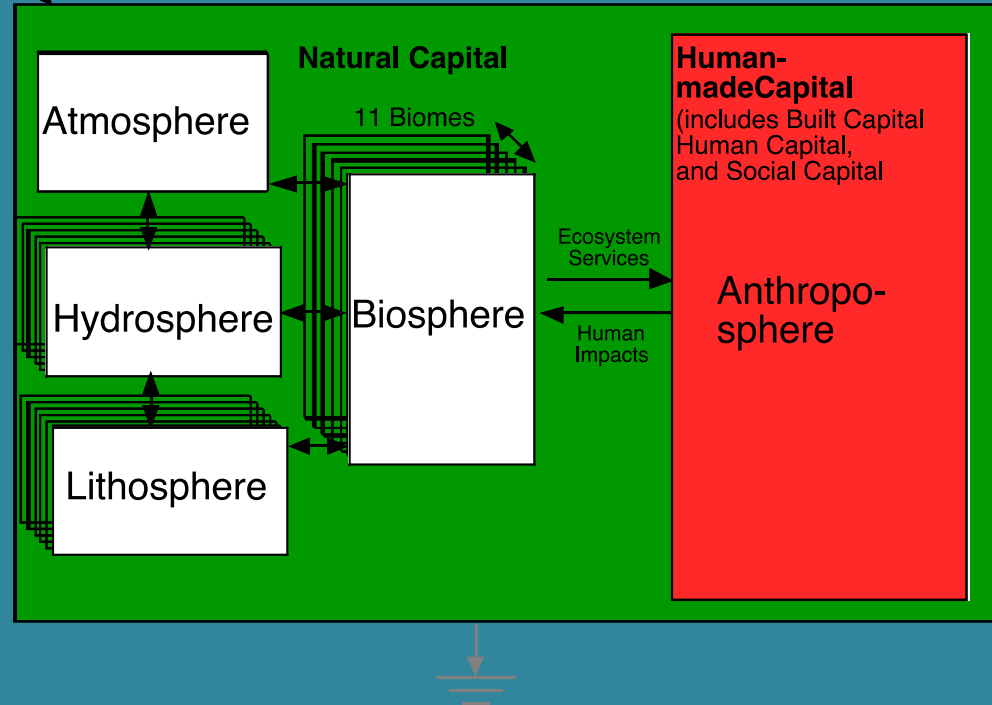
Source: John A. Dearing, Xiangdong Yang, Xuhui Dong, Enlou Zhang, Xu Chen, Peter G. Langdon, Ke Zhang, Weiguo Zhang and Terence P. Dawson. 2012. Extending the timescale and range of ecosystem services through paleoenvironmental analyses: the example of the lower Yangtze basin. *PNAS*

Integrated Modeling of Humans Embedded in Ecological Systems

- **Intelligent Pluralism (Multiple Modeling Approaches), Testing, Cross-Calibration, and Integration**
- **Multi-scale in time, space, and complexity**
- **Can be used as a Consensus Building Tool in an Open, Participatory Process**
- **Acknowledges Uncertainty and Limited Predictability**
- **Acknowledges Values of Stakeholders**
- **Evolutionary Approach Acknowledges History, Limited Optimization, and the Co-Evolution of Human Culture and Biology with the Rest of Nature**

Solar
Energy

GUMBO (Global Unified Model of the BiOsphere)



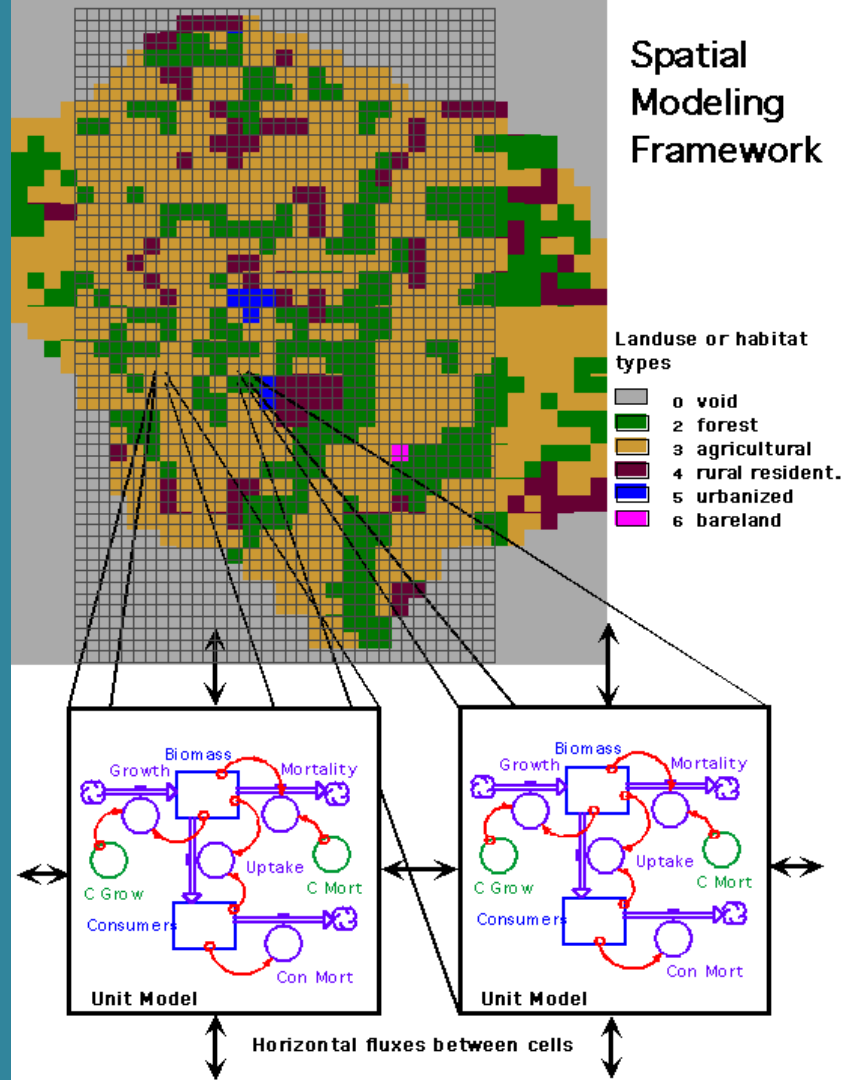
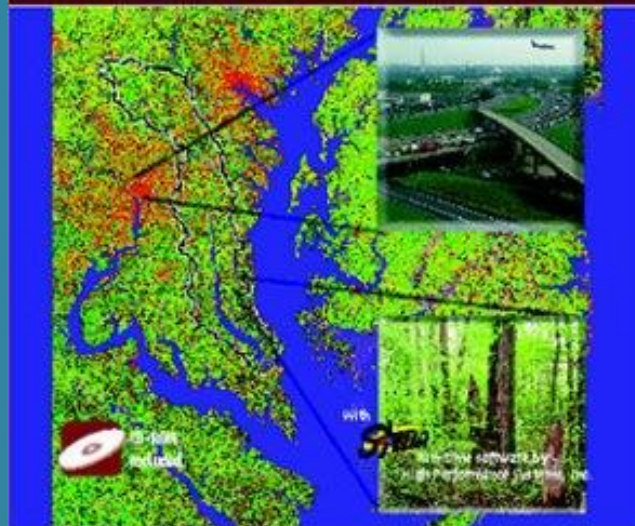
From: Boumans, R., R. Costanza, J. Farley, M. A. Wilson, R. Portela, J. Rotmans, F. Villa, and M. Grasso. 2002. Modeling the Dynamics of the Integrated Earth System and the Value of Global Ecosystem Services Using the GUMBO Model. *Ecological Economics* 41: 529-560

Springer, 2003

LANDSCAPE SIMULATION MODELING

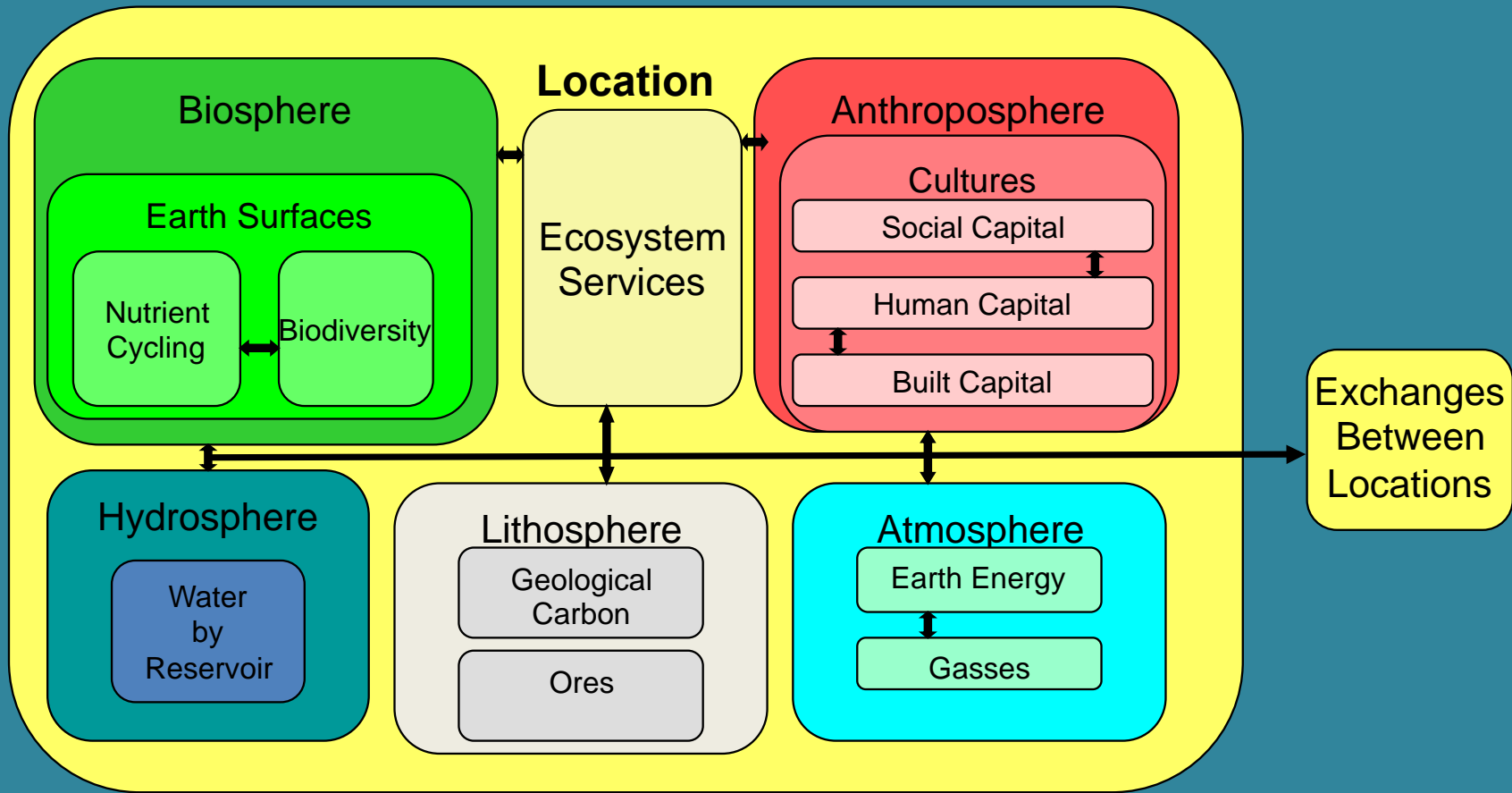
A SPATIALLY EXPLICIT, DYNAMIC APPROACH

ROBERT COSTANZA & ALEXEY VOINOV



MIMES

Multi-scale Integrated Models of Ecosystem Services



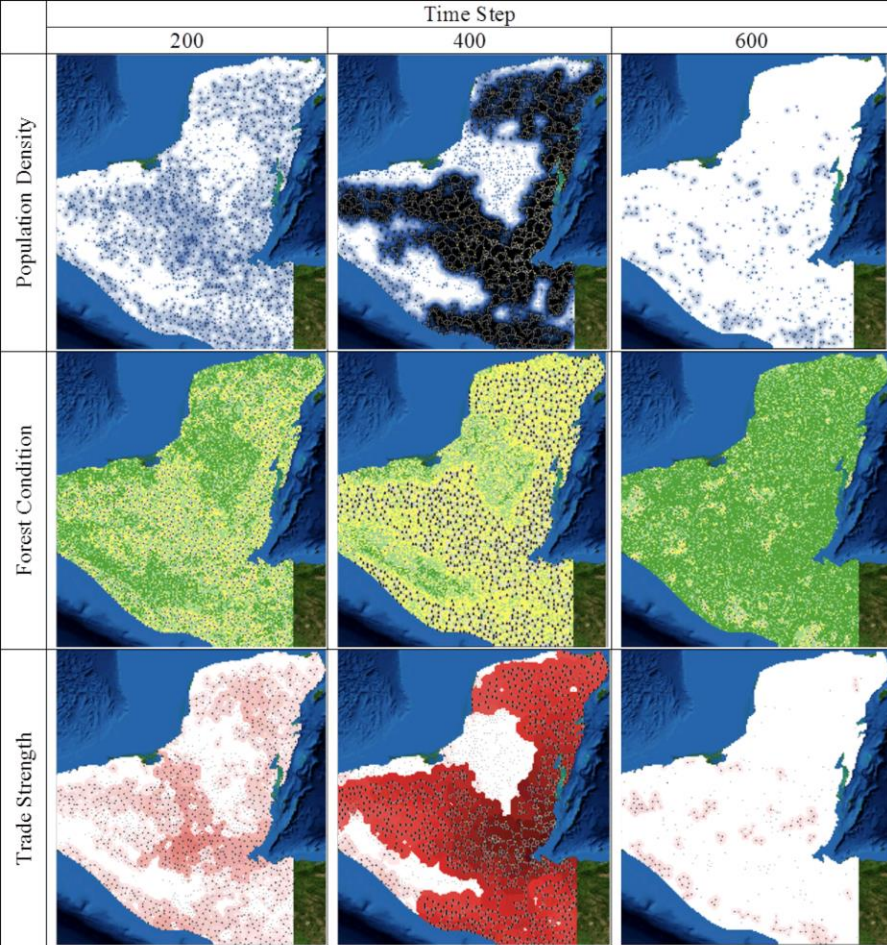


Figure 4: Spatial model results for the scenario where trade is enabled. Population density, forest condition, and settlement trade strength is shown at time step 200, 400, and 600. Darker colouring shows increased population density (blue) and trade strength (red), and forest condition depicts three states of cleared / cropped cells (yellow), secondary regrowth (light green), and climax forest (dark green).

Growing the ancient Maya social-ecological system from the bottom up

Scott Heckbert, Christian Isendahl, Joel Gunn, Simon Brewer, Vernon Scarborough, Arlen F. Chase, Diane Z. Chase, Robert Costanza, Nicholas Dunning, Timothy Beach, Sheryl Luzzadder-Beach, David Lentz and Paul Sinclair

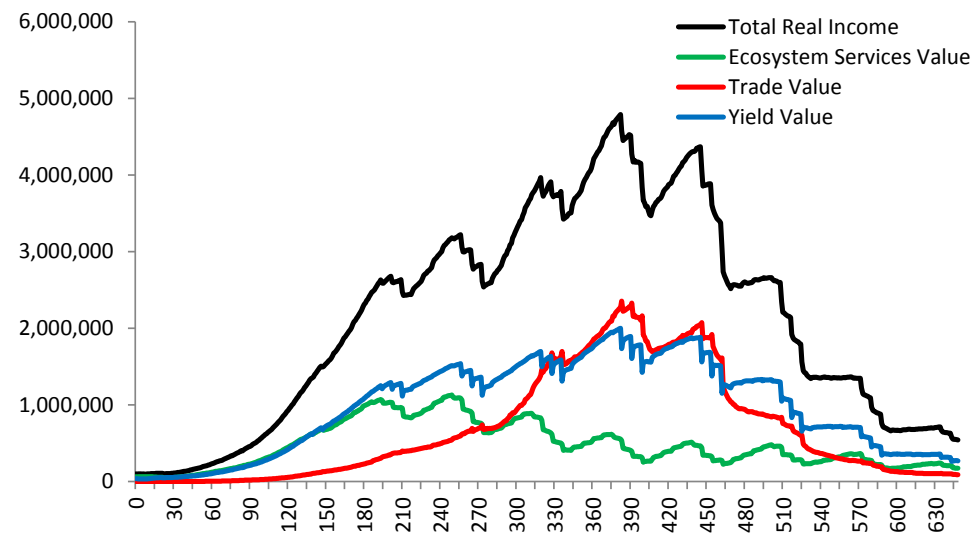


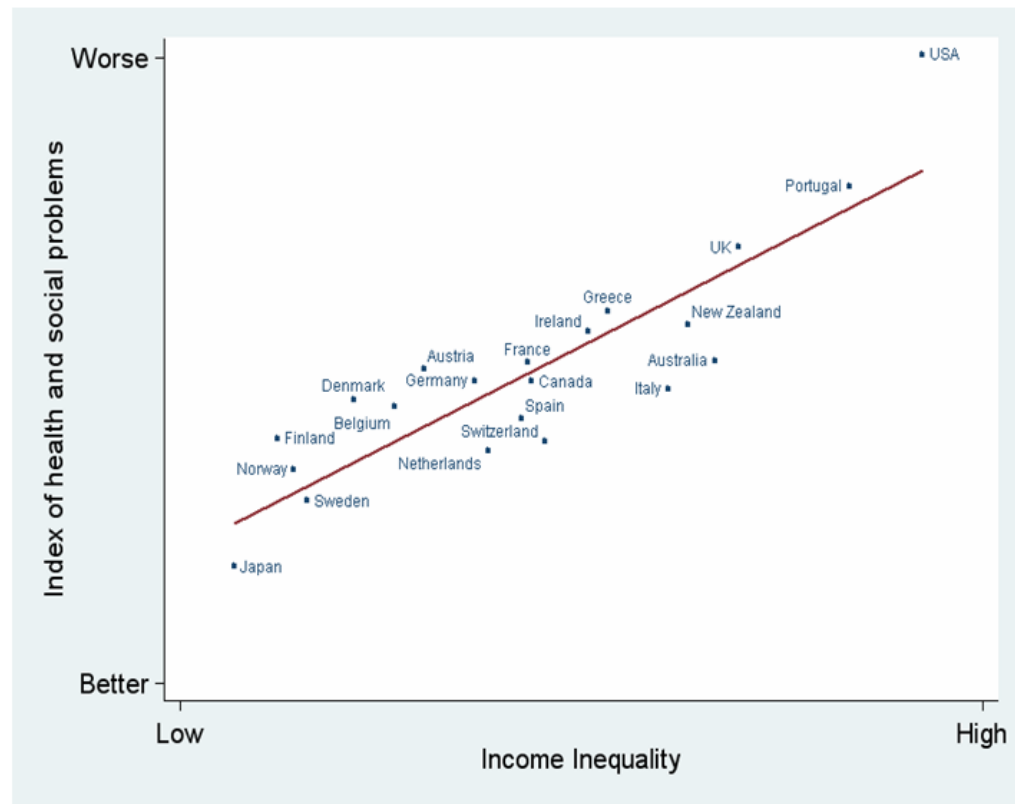
Figure 6: Real income of all simulated settlements over time by contributions from agriculture, ecosystem services, and trade value. Ecosystem services is eventually superceded by agriculture, and both by trade around time step 350.

Fair distribution is *essential* to quality of life

Health and Social Problems are Worse in More Unequal Countries

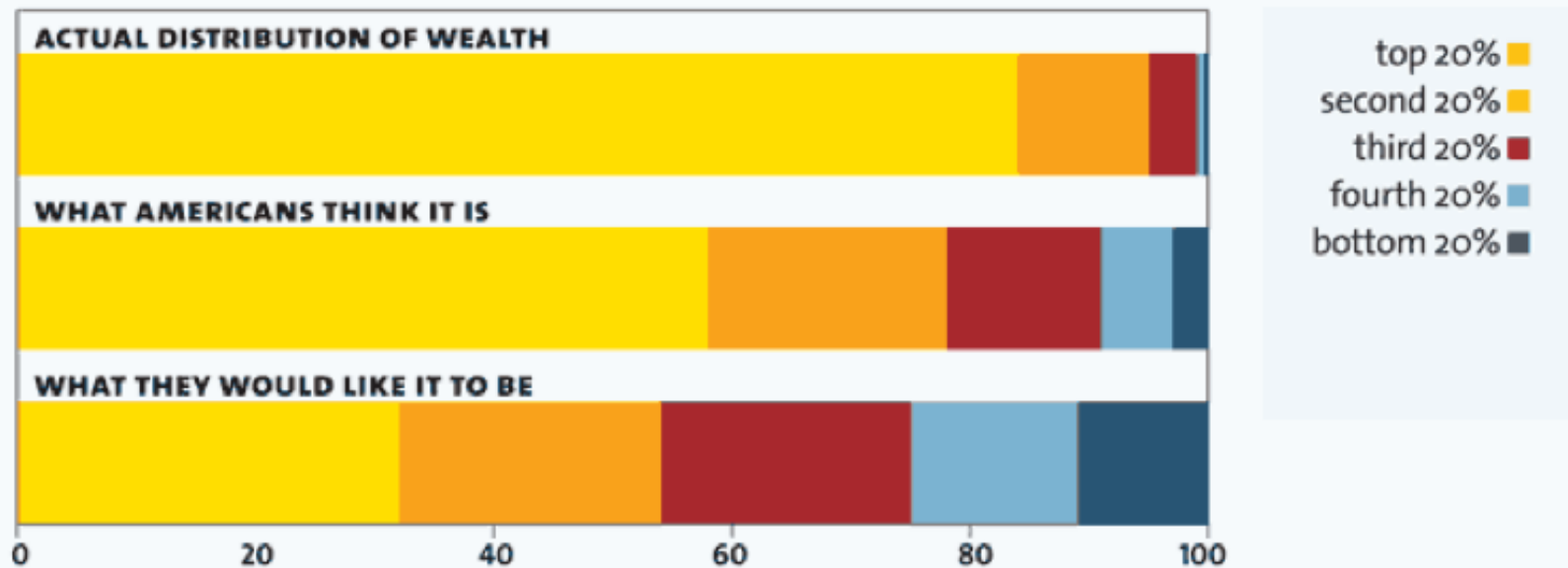
Index of:

- Life expectancy
- Math & Literacy
- Infant mortality
- Homicides
- Imprisonment
- Teenage births
- Trust
- Obesity
- Mental illness – incl. drug & alcohol addiction
- Social mobility



OUT OF BALANCE

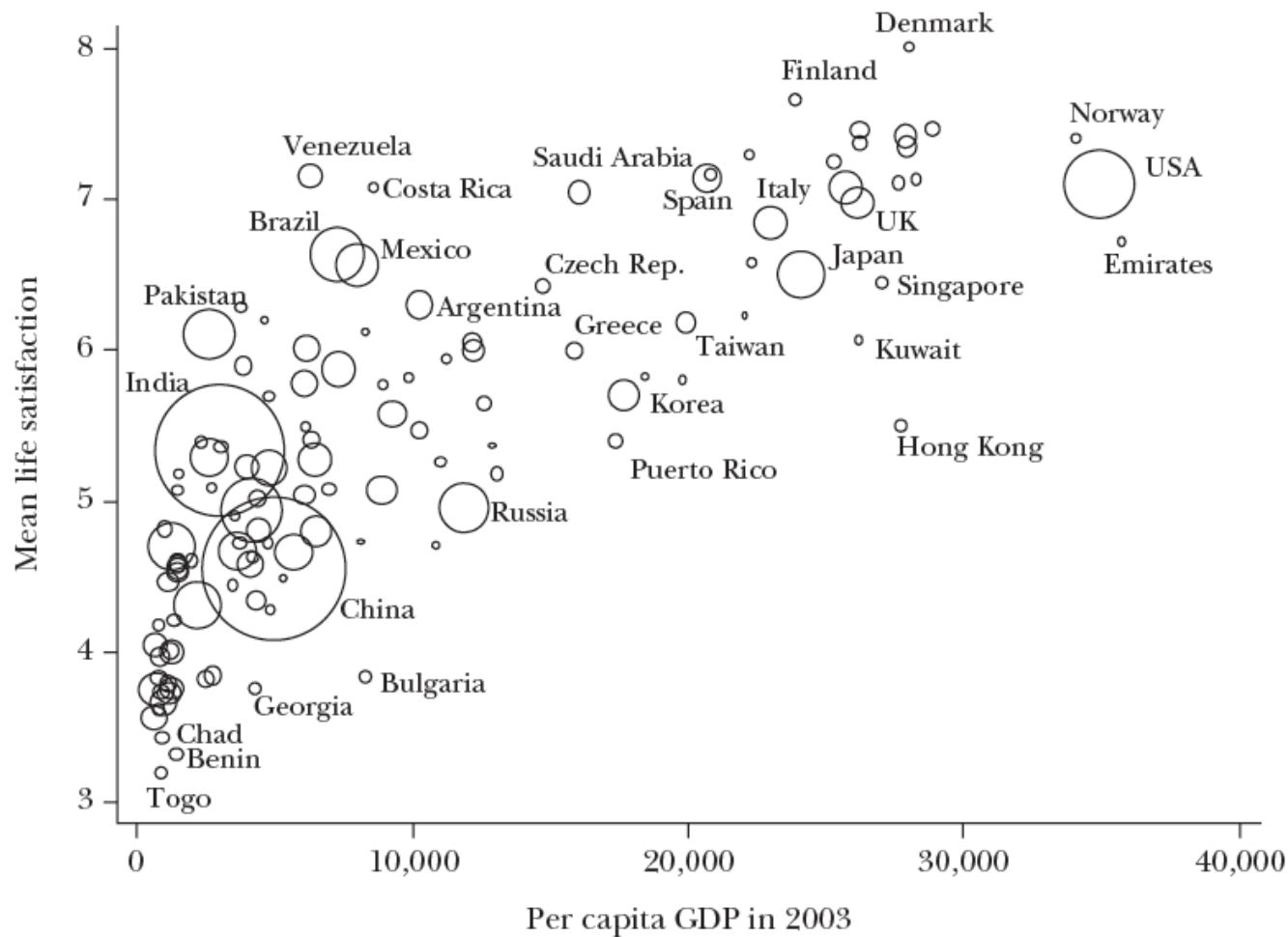
A Harvard business prof and a behavioral economist recently asked more than 5,000 Americans how they thought wealth is distributed in the United States. Most thought that it's more balanced than it actually is. Asked to choose their ideal distribution of wealth, 92% picked one that was even more equitable.



Source: Michael I. Norton, Harvard Business School; Dan Ariely, Duke University

Life Satisfaction and Per Capita GDP around the World

Source: Deaton, 2008.



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

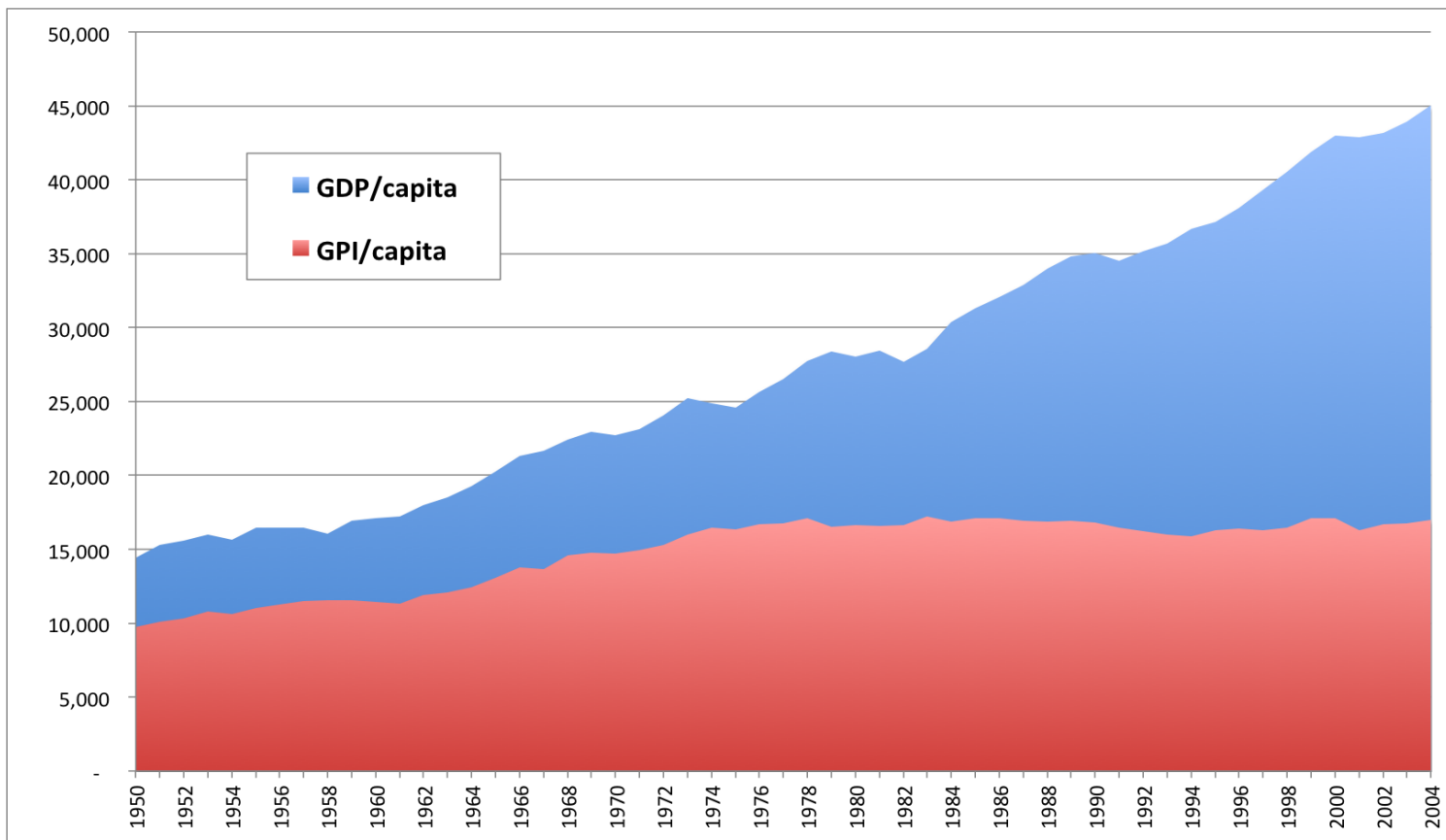
Column X: Loss of Forest Cover

Column Y: Net Capital Investment

Column Z: Net Foreign Lending and Borrowing

Subtractions

 Built Capital
 Human Capital
 Social Capital
 Natural Capital



GENERAL INFORMATION

What Is the Genuine Progress Indicator?

What Are The Gross Domestic/State Products?

What Are Other States Doing?

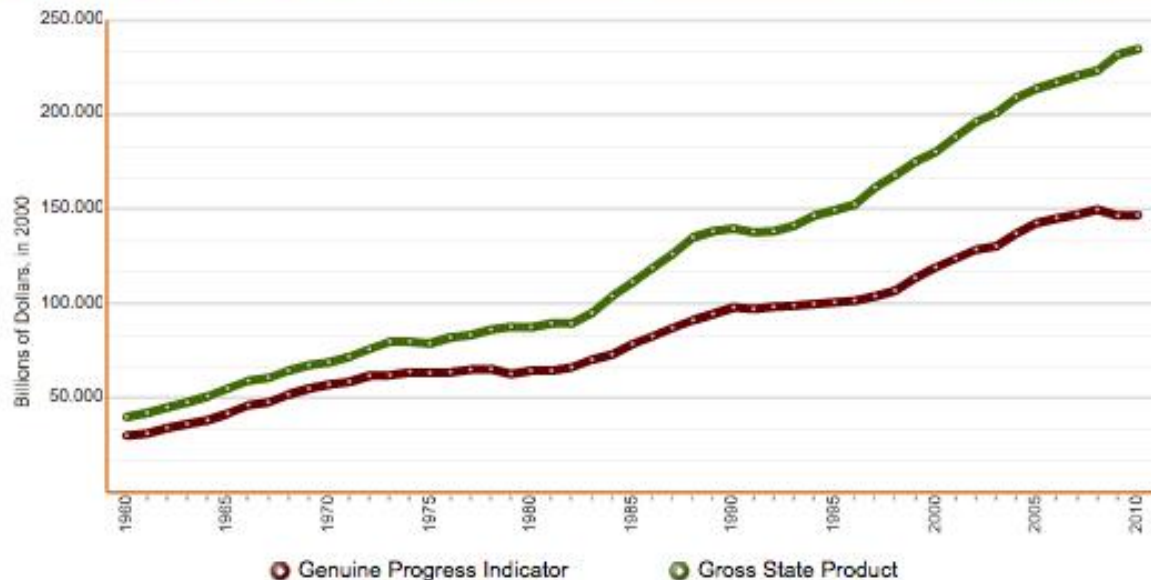
MD-GPI Background & Methodology

Other Indicators Of Social Well-Being



Overview

www.green.maryland.gov/mdgpi/



Maryland Genuine Progress Indicator

Consistent with other States and nations, Maryland's GPI is near the States GSP until the early 1980s wherein they begin to separate. Because of our many strengths and resources, though, Maryland's GPI has fered much better than the U.S. GPI.



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Maryland GPI Grows More Than 2 Percent Last Year

by kking



6



3



+1

0



GPI updated with 2011 data

Governor Martin O'Malley today announced that the State has updated **Maryland's Genuine Progress Indicator (GPI)**, the first state government sanctioned tool of its kind, to include 2011 data. According to the new data, Maryland's GPI – a measure of statewide well-being – grew more than 2 percent since last year; the highest increase since 2005.

"The GPI is one of the best ways to evaluate our progress as a State because it provides a comprehensive look at our economy, natural resources and community," said Governor O'Malley. "With these results we are able to see where we need to focus our efforts, and create the necessary policies."

Featured Videos



[Lizard Hill Wetland Project](#)

2:04

On August 31, a crew from DNR, Maryland Coastal Ba...

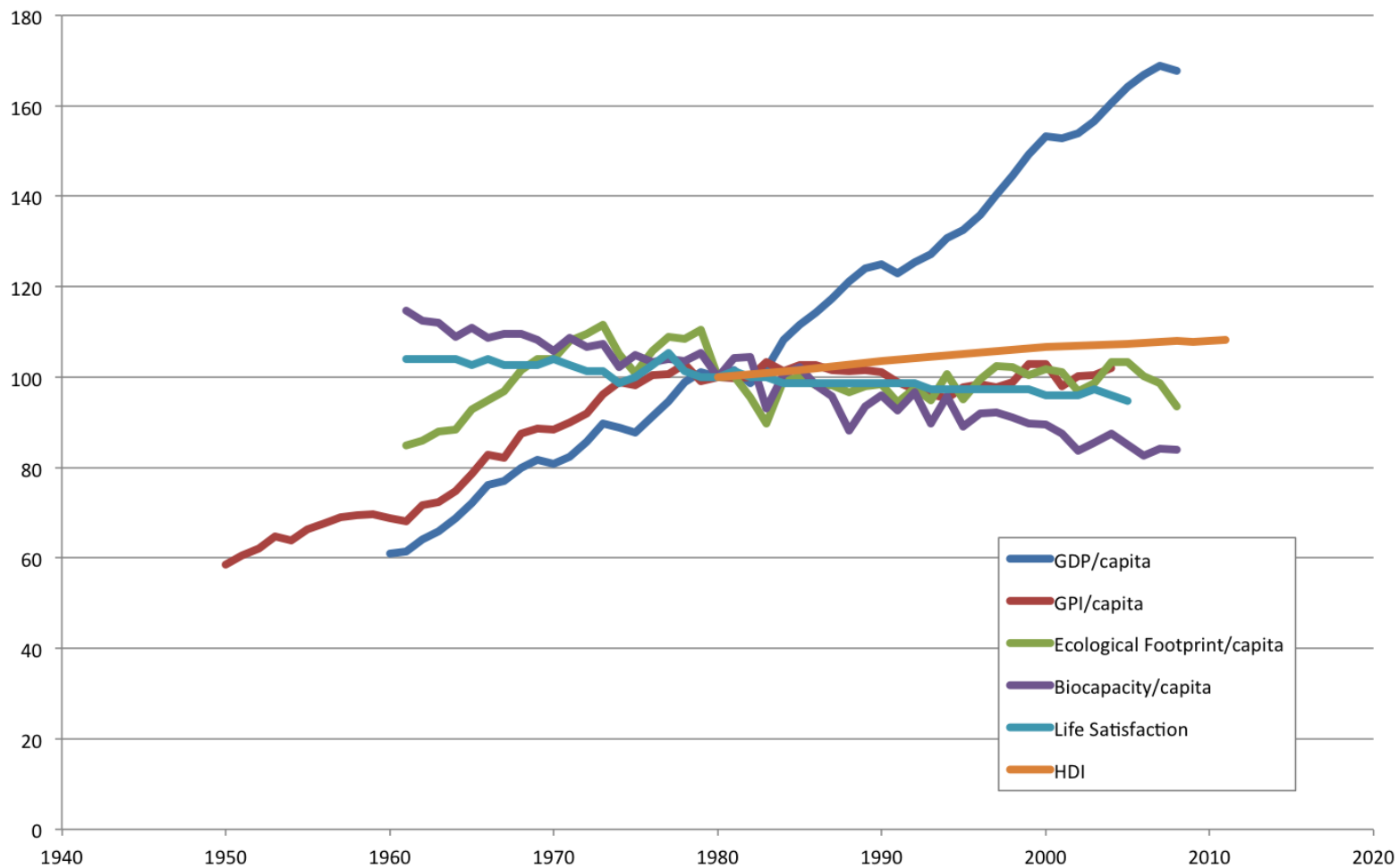


[How to use the new DNR news room](#)

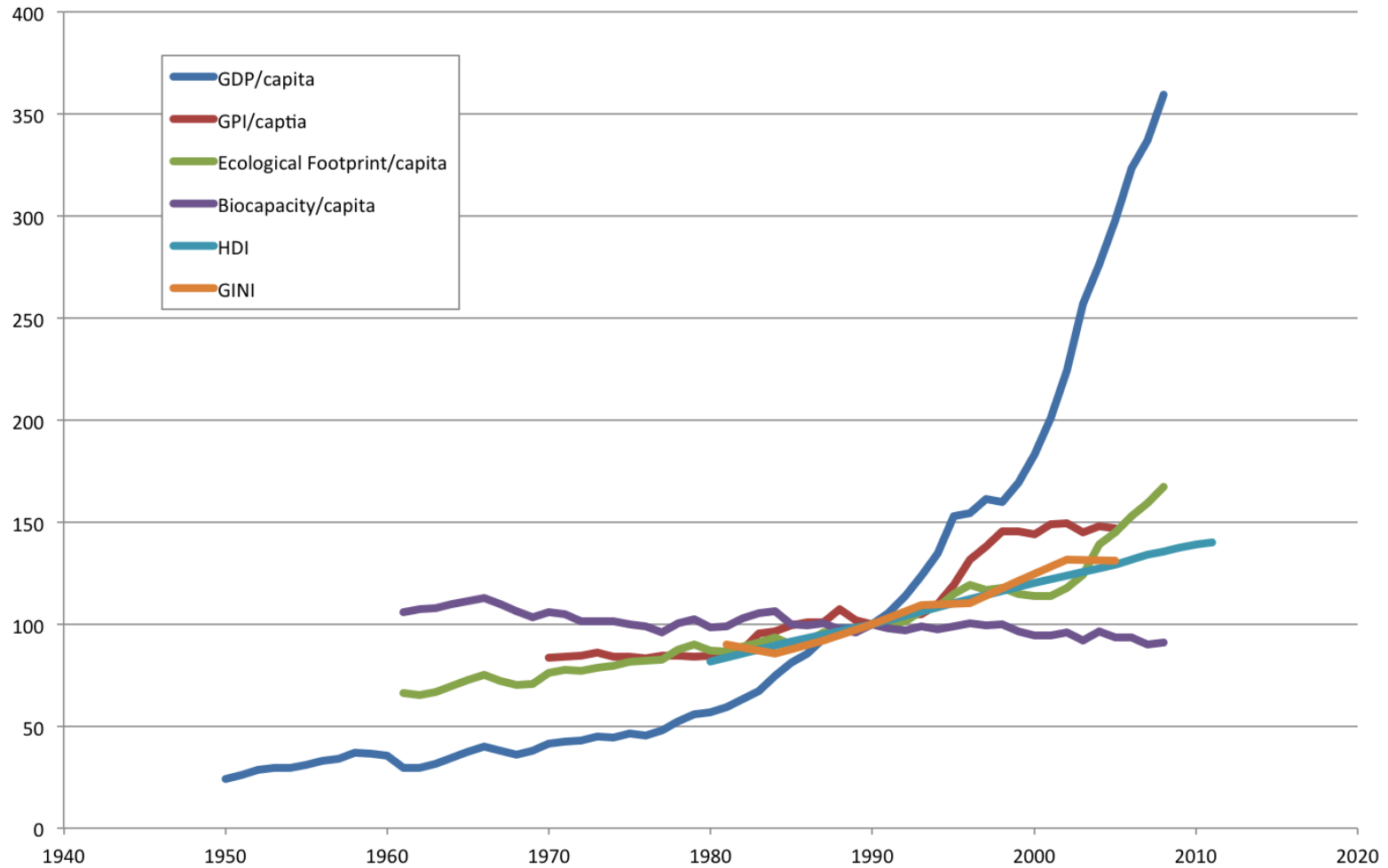
2:39

A short instructional video on how to use the Acce...

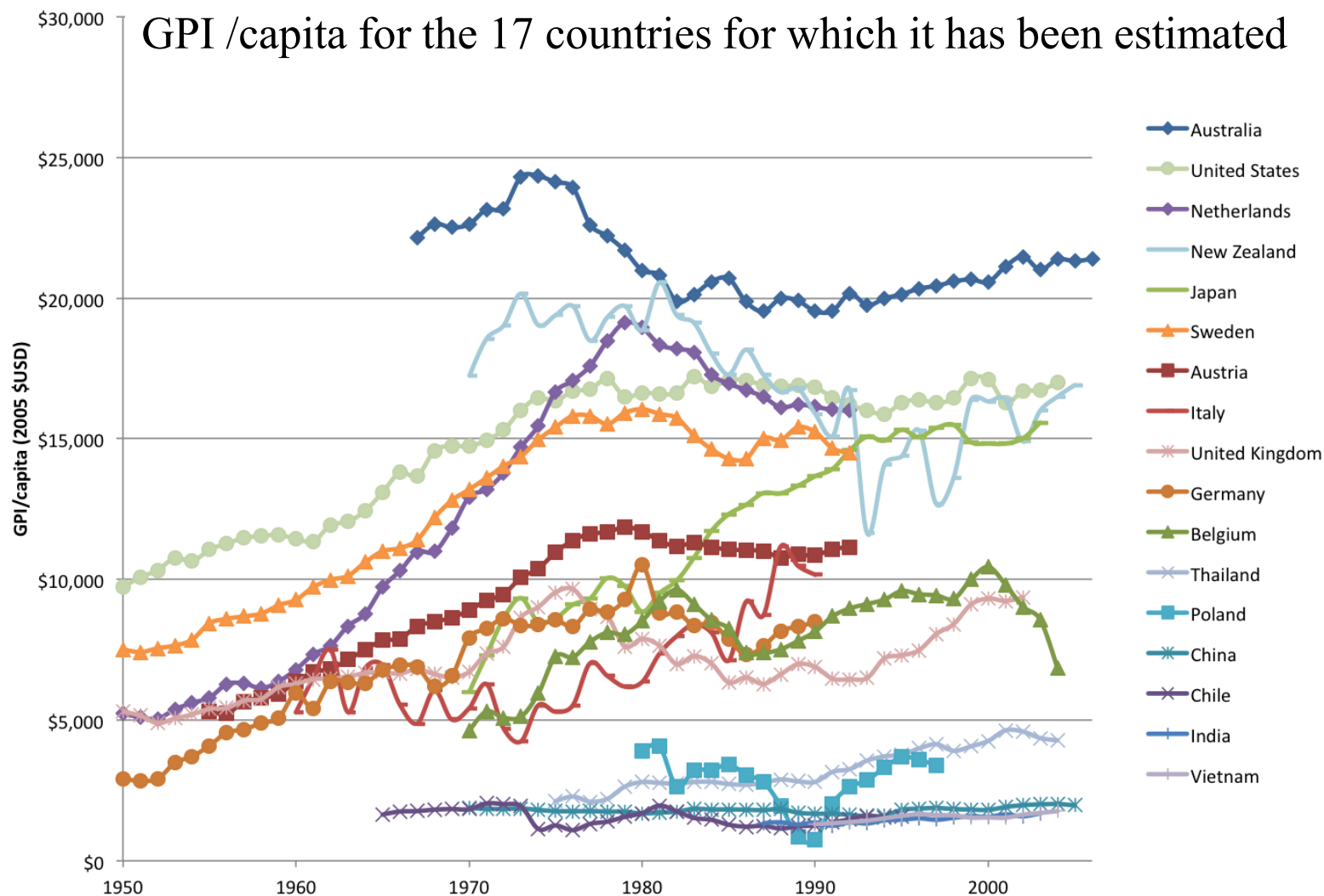
United States



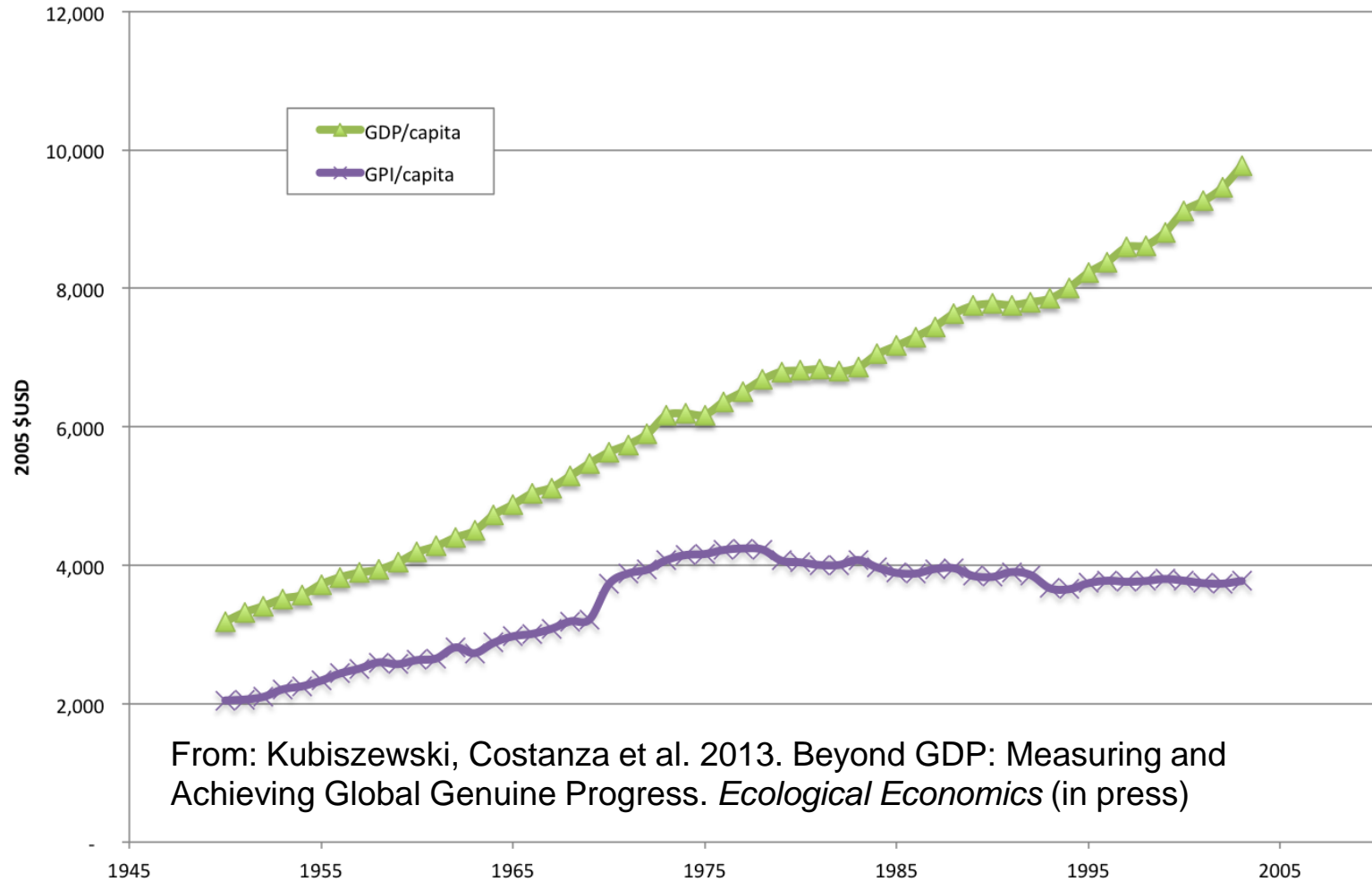
China



GPI /capita for the 17 countries for which it has been estimated

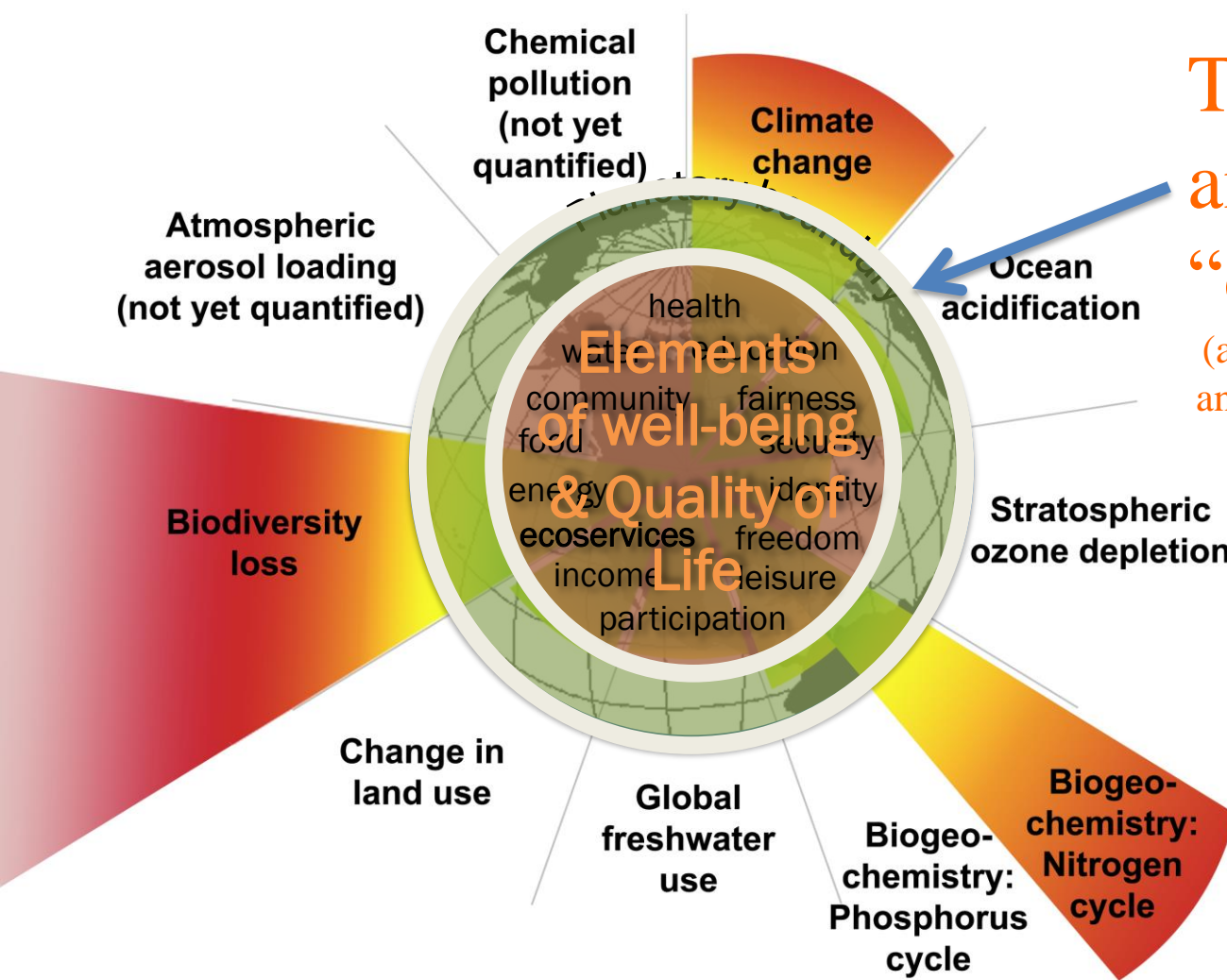


Global GPI/capita & GDP/capita



The Sustainable and Desirable “doughnut”

(after: K. Raworth. 2012. A safe and just space for humanity: can we live within the doughnut? Oxfam International)



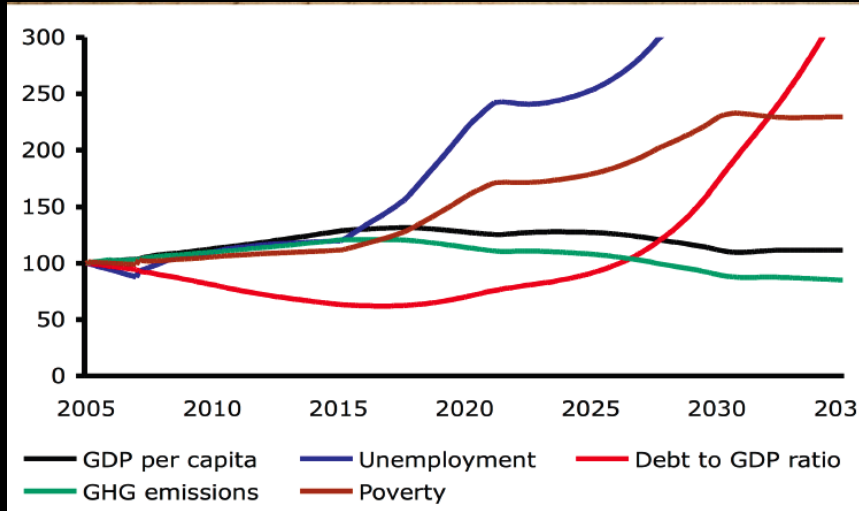
The dimensions of the new economy include:

- ▶▶ **A. Sustainable scale:**
respecting ecological limits
- ▶▶ **B. Fair distribution:**
protecting capabilities for flourishing
- ▶▶ **C. Efficient allocation:**
building a sustainable macro-economy

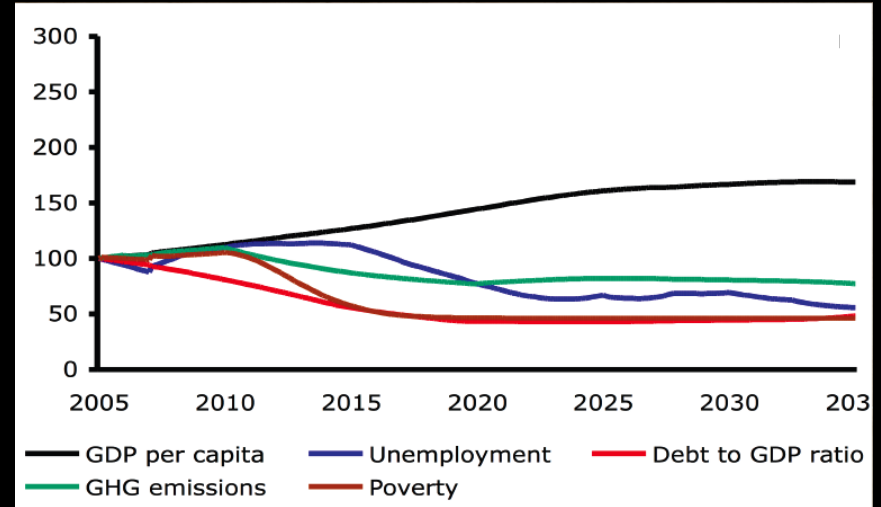
Example Policy Reforms

- Reversing Consumerism
- Expanding the Commons
- Systematic Caps on Natural Resources
- Sharing Work Time

A no-growth disaster



A better low/no-growth positive economy



Source: Victor, P. 2008. Managing Without Growth, Edward Elgar.

12 things we need to **change** to create a better world

1.

New meanings
and measures
of success

12 things we need to **change** to create a better world

2.

Limits on materials,
energy, wastes,
and land use

12 things we need to **change**
to create a better world

3. More meaningful
prices

12 things we need to **change**
to create a better world

4.

More durable,
repairable
products

12 things we need to **change**
to create a better world

5.

Fewer
status goods

12 things we need to **change** to create a better world

6. 

More informative
advertising

12 things we need to **change** to create a better world

7.

Better screening
of technology

12 things we need to **change** to create a better world

8. 

More efficient
capital stock

12 things we need to **change** to create a better world

9. ■

More local,
less global

12 things we need to **change**
to create a better world

10 Reduced
inequality

12 things we need to **change**
to create a better world

11

Less work,
more leisure

12 things we need to **change**
to create a better world

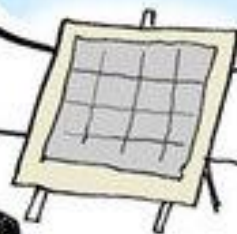
12 Education
for life,
not just work



CLIMATE SUMMIT

WHAT IF IT'S
A BIG HOAX AND
WE CREATE A BETTER
WORLD FOR NOTHING?

- ENERGY INDEPENDENCE
- PRESERVE RAINFORESTS
- SUSTAINABILITY
- GREEN JOBS
- LIVABLE CITIES
- RENEWABLES
- CLEAN WATER, AIR
- HEALTHY CHILDREN
- ETC. ETC.





To create a sustainable and desirable economy-in-society-in-nature requires:

- Breaking our *addiction* to the "growth at all costs" economic paradigm, to fossil fuels, and to over-consumption
- Envisioning a more sustainable and desirable future that focuses on quality of life



For a sustainable and desirable future

Solutions

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by Maria Pérez Victor

Fight the Status Quo

by Bill McKibben

Sustainable Consumerism in China

by Peggy Liu

After Financial Collapse, A New, Green Economy

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by Tim Kasser

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by Catherine O'Brien

Sustainable Consumerism Begins with China

by Peggy Liu

May/June 2012

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Editorial

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Rio and Beyond
by Jacqueline McGrath

Interview

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The UK Asks, How Happy Are Its Citizens?

by Christina Asquith An interview with former head of the British Civil Service, Gus O'Donnell.

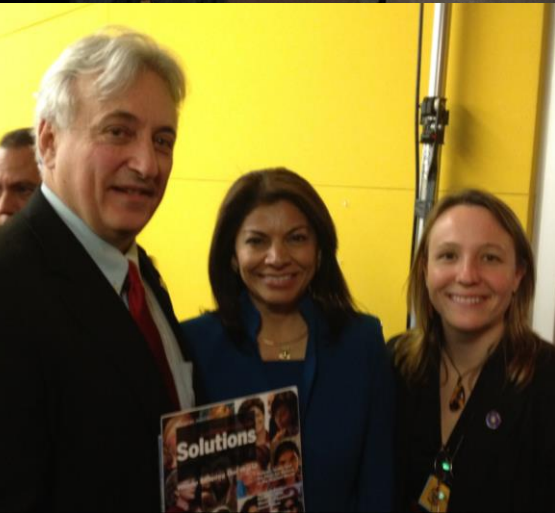
Solutions in History

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Rio+20: Charting the Way to a Green Economy?

by Elina Morges





Thank you

(millions of adults, US, 1965-2000)

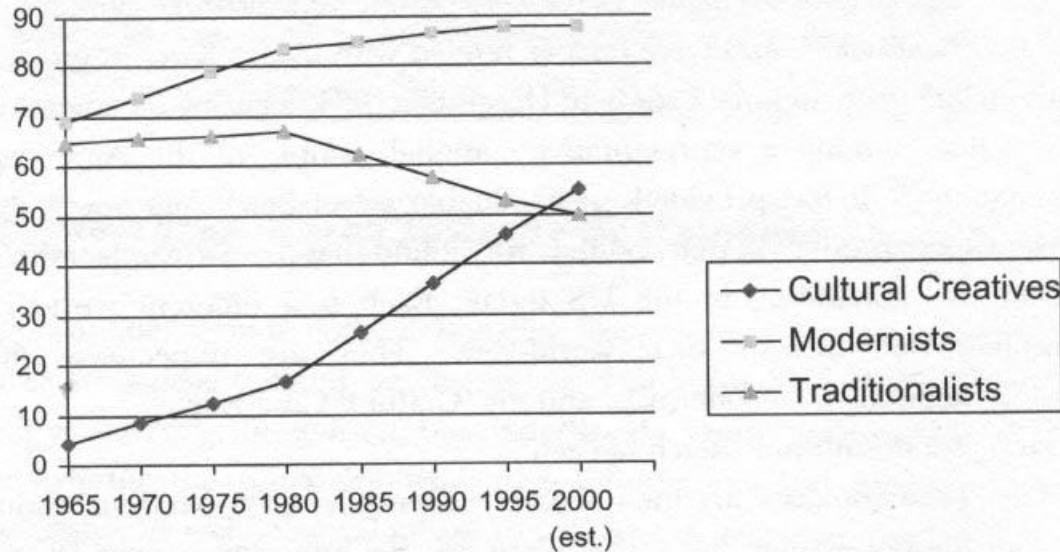


Figure 9.8 Relative growth of the three subcultures (US, 1965-2000)

cultural creatives share a series of attitudes and concerns: "they like to get a synoptic view [and] see all the parts spread out side by side and trace the interconnections"; they have strong concerns about the well-being of families; they have a well-developed social consciousness and a "guarded optimism for the future"; they are disenchanted with "owning more stuff... materialism... status display and the glaring social inequities of race" and are critical of almost every big institution of modern society, including corporations and government. This cultural group is drawn from all classes, races, education and income levels and social backgrounds and has emerged only during the past 50 years.

Paul H. Ray and Sherry Ruth Anderson. 2001. The Cultural Creatives: How 50 Million People Are Changing the World. Three Rivers Press