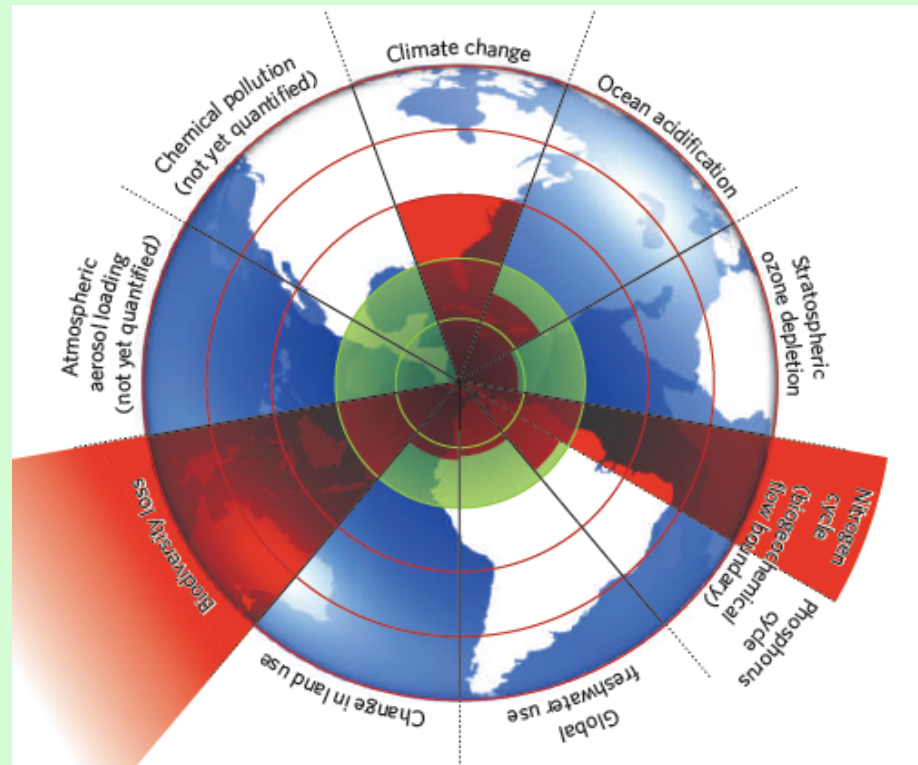


# Living within Earth's means: A framework for novel and adaptive governance approaches based on planetary boundaries



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4<sup>th</sup> Annual Biophysical Economics Conference, University of Vermont  
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# What is “governance”?

**Earth System Governance project’s definition of “earth system governance”:**

**“the interrelated and increasingly integrated system of**

- formal and informal **rules**,
- **rule-making systems**, and
- **actor-networks** at all levels of human society (from local to global)

that are set up to steer societies towards **preventing, mitigating, and adapting to global and local environmental change** and, in particular, **earth system transformation**, within the **normative context of sustainable development.**”

**Governance**

**Earth System Governance**

# Global eco-governance currently

**Prevailing objective:** Sustained economic growth and “sustainable development”

## **United Nations-led initiatives, e.g.:**

Rio Declaration, Agenda 21, Jo'burg and Rio+20

Biodiversity Convention, UNFCCC, CITES, Montreal Protocol

Millenium Development Goals

UN Declaration on Human Rights

## **WTO and regional trade mechanisms**

## **World Bank, IMF, other international financial institutions**

## **IUCN, Earth Charter, other multi-sector initiatives**

## **Private sector-oriented initiatives, e.g. ISO, WBCSD**

## **National and sub-national systems**



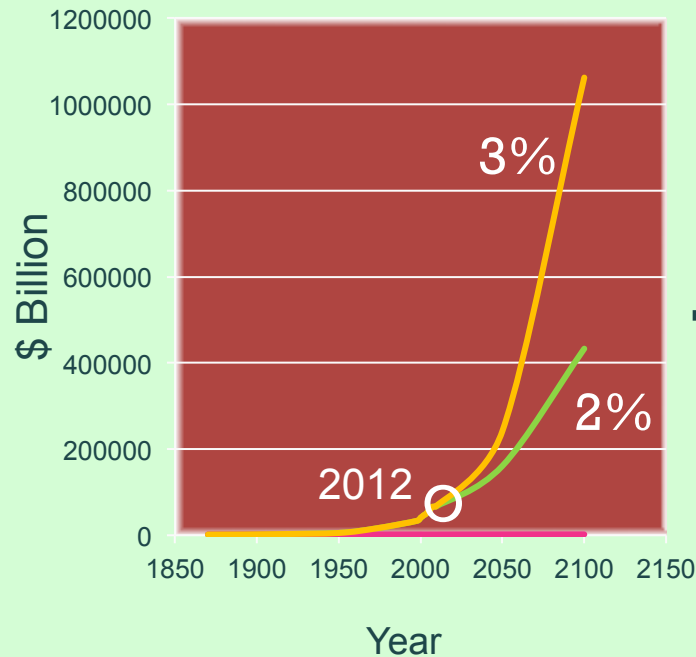
MANKOFF

*"And so, while the end-of-the-world scenario will be rife with unimaginable horrors, we believe that the pre-end period will be filled with unprecedented opportunities for profit."*

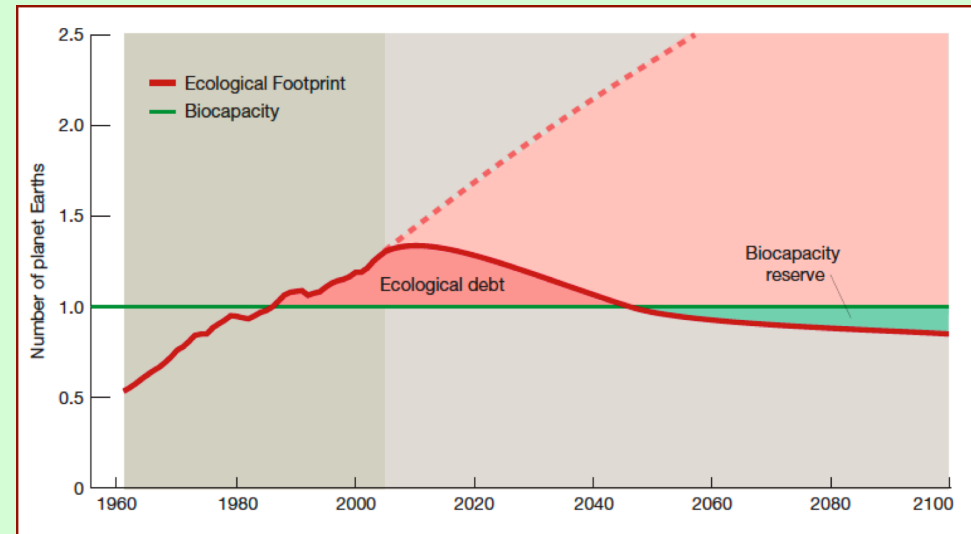
# The resulting challenge

Economic growth (GDP)

Growing ecological debt



+



= Opposing impossibilities that frame the governance challenge

# Opposing impossibilities

“It is impossible politically and socially to move away from an economic model built on continuously rising GDP”

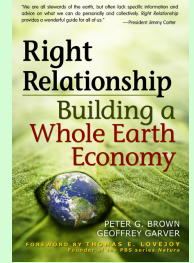
Dynamic  
tension

“It is impossible for the global ecosystem to supply the material and energy and biocapacity needed to support an infinitely growing economy”



Conceptions of personhood, well-being, fairness and justice  
Emerging primacy of boundaries and limits  
Alternative indicators of progress and well-being  
**Novel and adaptive governance**

# Key normative concepts for governance:



## ➤ “Right relationship” : holistic scientific and ethical foundation

*“A thing is right when it tends to preserve the integrity, resilience and beauty of the commonwealth of life. It is wrong when it tends otherwise.”*

## ➤ “**Safe**” operating space, i.e. “**safe**” distance from thresholds: normative judgments about **risk/uncertainty**

- Safety and precaution
- **Holocene** as frame of reference for a “**desirable** planetary state”
- Primacy of ecological boundaries over economics
- Adaptiveness

## ➤ SOS relative to RR

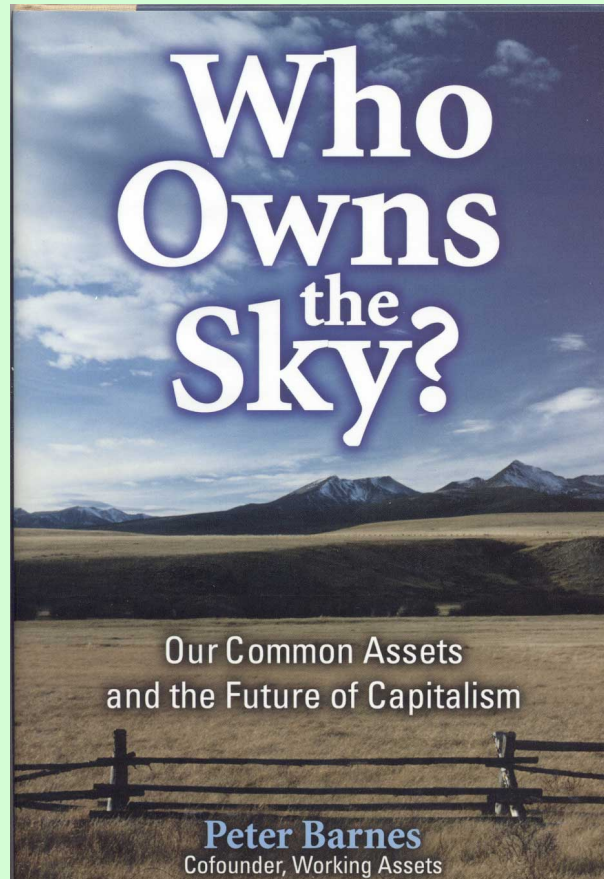
Both are based on ecological limits to Earth’s life support capacity and concerned with the human prospect; neither are growth-insistent

SOS : aggregate scale; RR : aggregate scale, distribution, efficiency

# Key features of “novel and adaptive” forms of governance

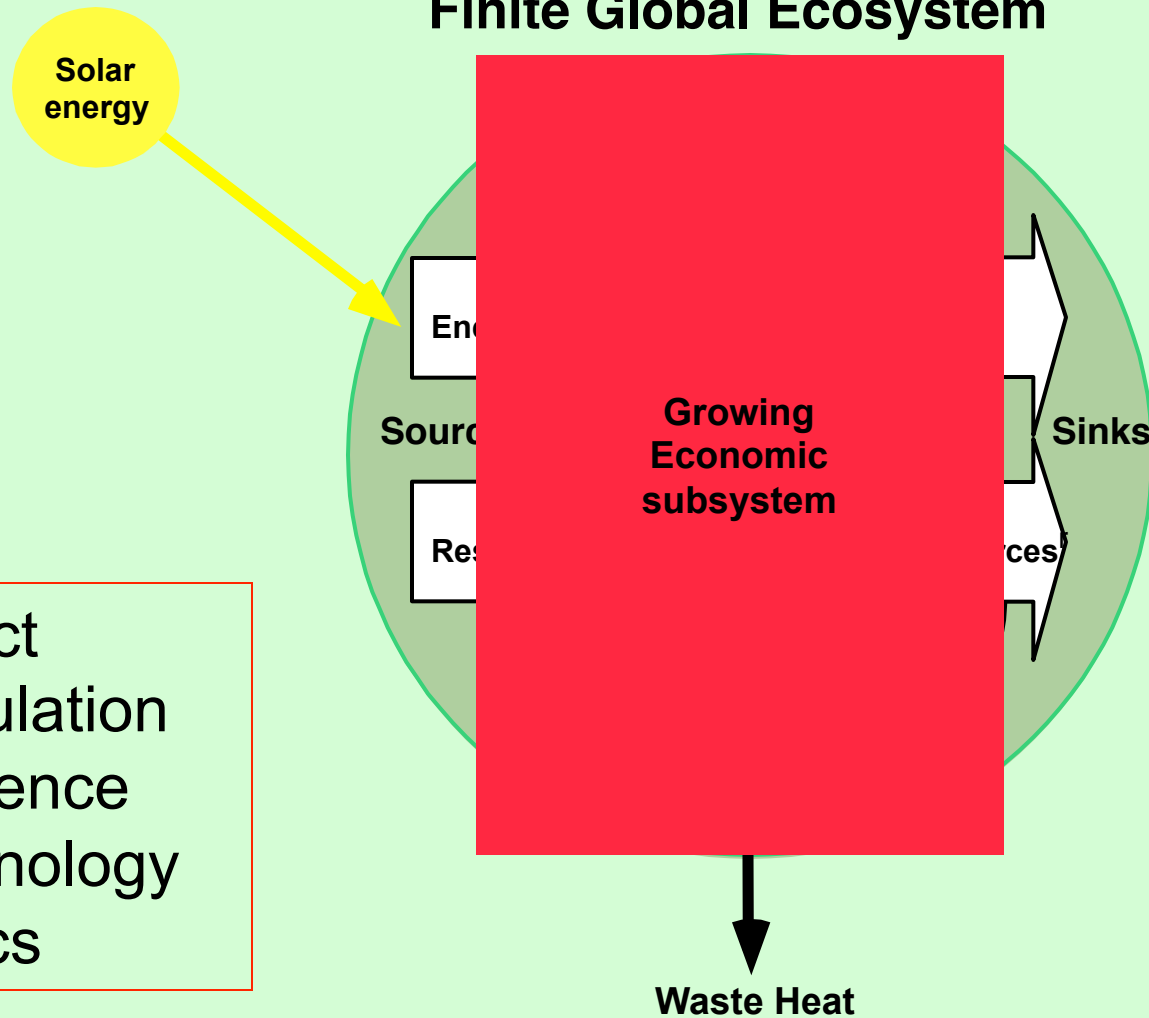
- Humans as part of Earth’s life systems
- Primacy of ecological boundaries over socio-economic spheres
- Integration of ecological limits in rules and policy
- Focus on reducing material and energy throughput
- Global, but distributed according to subsidiarity (diversity)
- Fair sharing among present and future generations of life
- Binding and supranational rules
- Greatly expanded research and monitoring
- Precaution about crossing boundaries
- Adaptive

# Trusts to protect global commons



# The *Earth Reserve*: monitoring and analysis of the ecological limits of the economy using $I=f(PATE)$

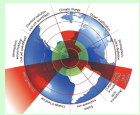
## Finite Global Ecosystem



$I$  = impact  
 $P$  = population  
 $A$  = affluence  
 $T$  = technology  
 $E$  = ethics

Graphic from Robert Costanza

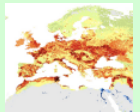
# New primary indicators based on global metrics of human use of ecological capacity



Planetary boundaries



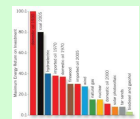
Material and energy flow accounts



Human appropriation of net primary productivity (HANPP)

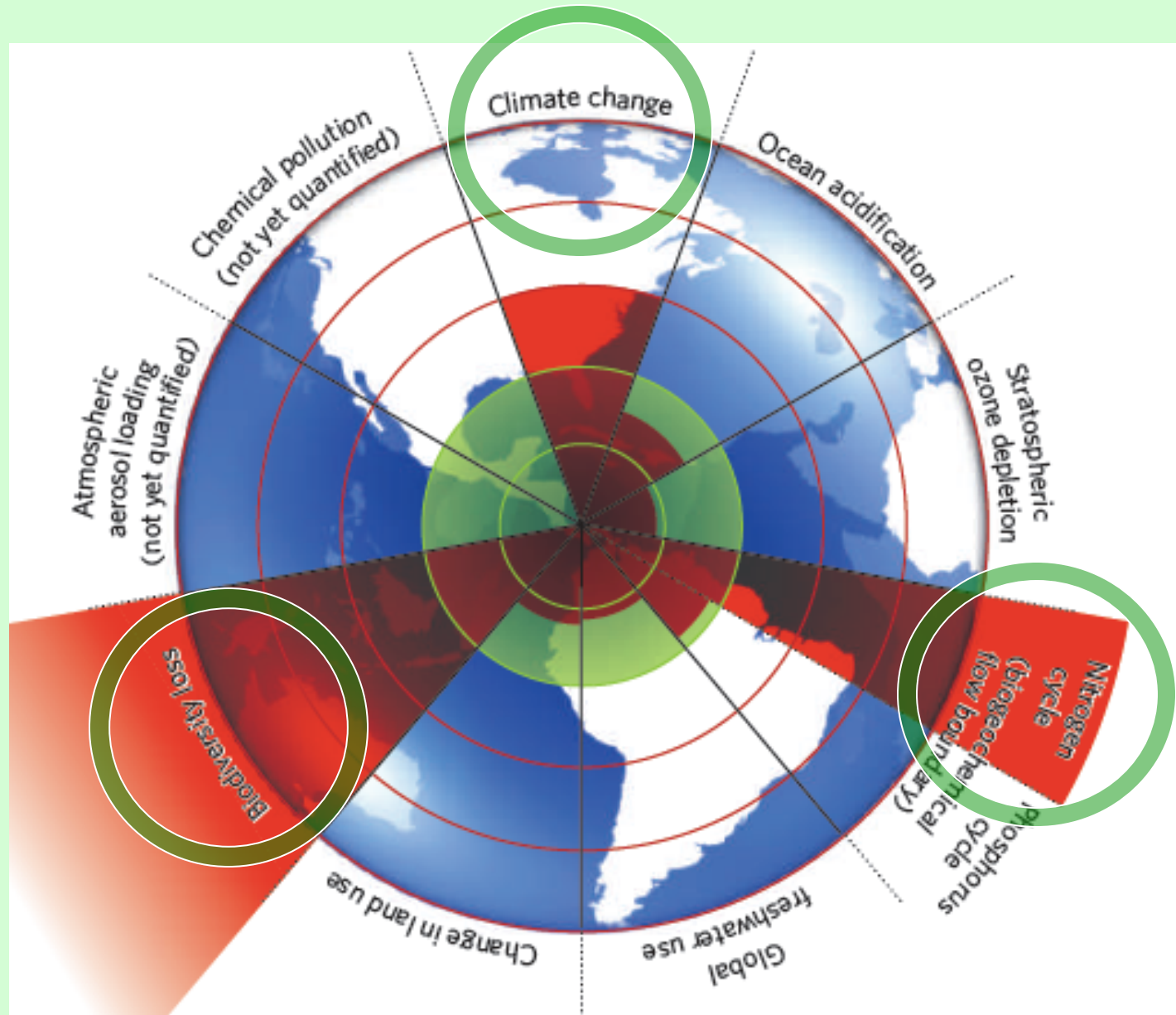


Ecological footprint



EROI

# Planetary boundaries



$$I = f(PATE)$$

**I** = aggregate scale (planetary boundaries)

**P, A, T, E** { distribution  
efficiency

**I**mpact

**P**opulation

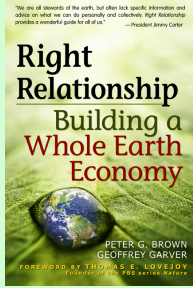
**A**ffluence (consumption)

**T**echnology

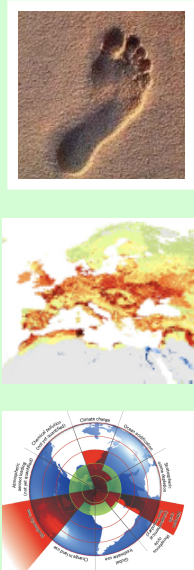
**E**thics

# Adaptive governance

Framing  
objectives



Indicators, rules/  
policies, institutions



Refined normative  
objectives

applications

research

Refined indicators, rules  
& policies, institutions

Comprehensively precautionary

# The challenge of transition

- Acknowledge the momentum & staying power of population trends, energy use, industrial model, advertising, addiction to consumption, the appeal of money, lethargic educational institutions, “embodied”-ness, etc.
- Reform or replace “tragic institutions”
- Address the rebound effect
- Find a fair and non-violent way to adjust the complex web of money-based expectations that currently exist (e.g. retirement accounts, real property, etc.)
- Solve the “deliberative democracy” vs. “benign eco-dictator” conundrum

# Earth System Governance Project



# Thank you!

