

# “Beyond Precious: Ecosystem Values in Times of Scarcity”

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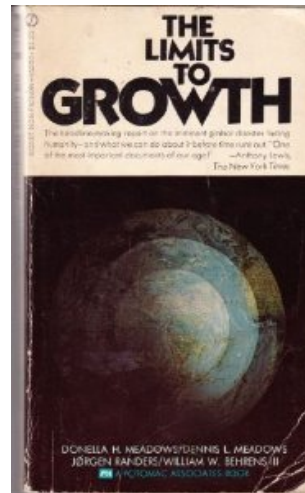
# Our Organization and History

## Thinking in Systems

*A Primer*

Donella H. Meadows

*Edited by Diana Wright,  
Sustainability Institute*



## Donella Meadows (1941 - 2001)

An opinionated columnist, perpetual fundraiser, fanatic gardener, opera-lover, baker, farmer, teacher, and global gadfly

# Goals

- Ecology and economics when ecosystems and their services are scarce
- Emerging ideas and solutions in (progressive) Vermont, USA
  - Cleaning up Lake Champlain
  - Genuine Progress Indicator
  - Common Assets Trust
  - Progressive business



born here

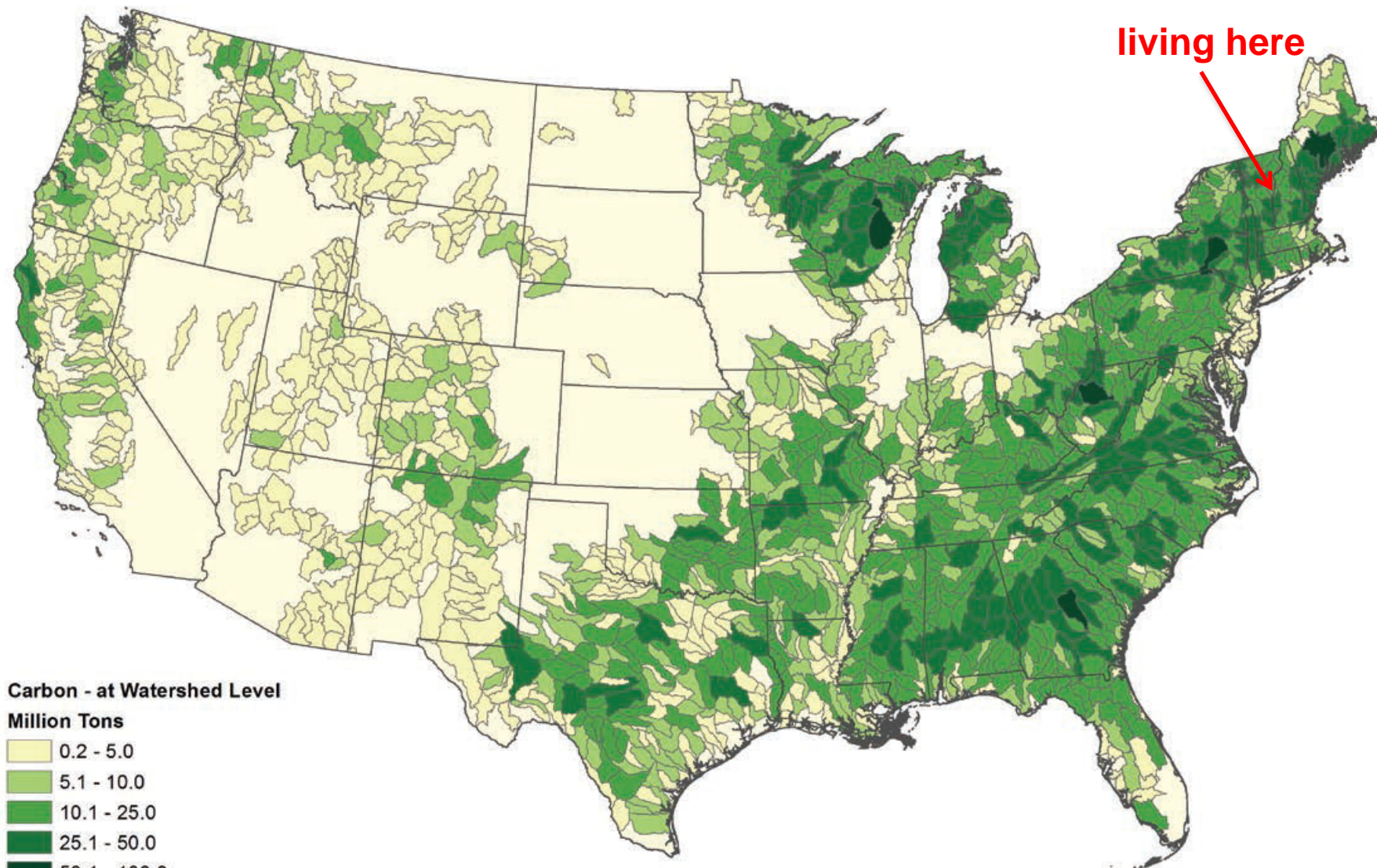
living here



Hanover, New Hampshire

Milano  
vista dal cielo © foto Fabio Polini

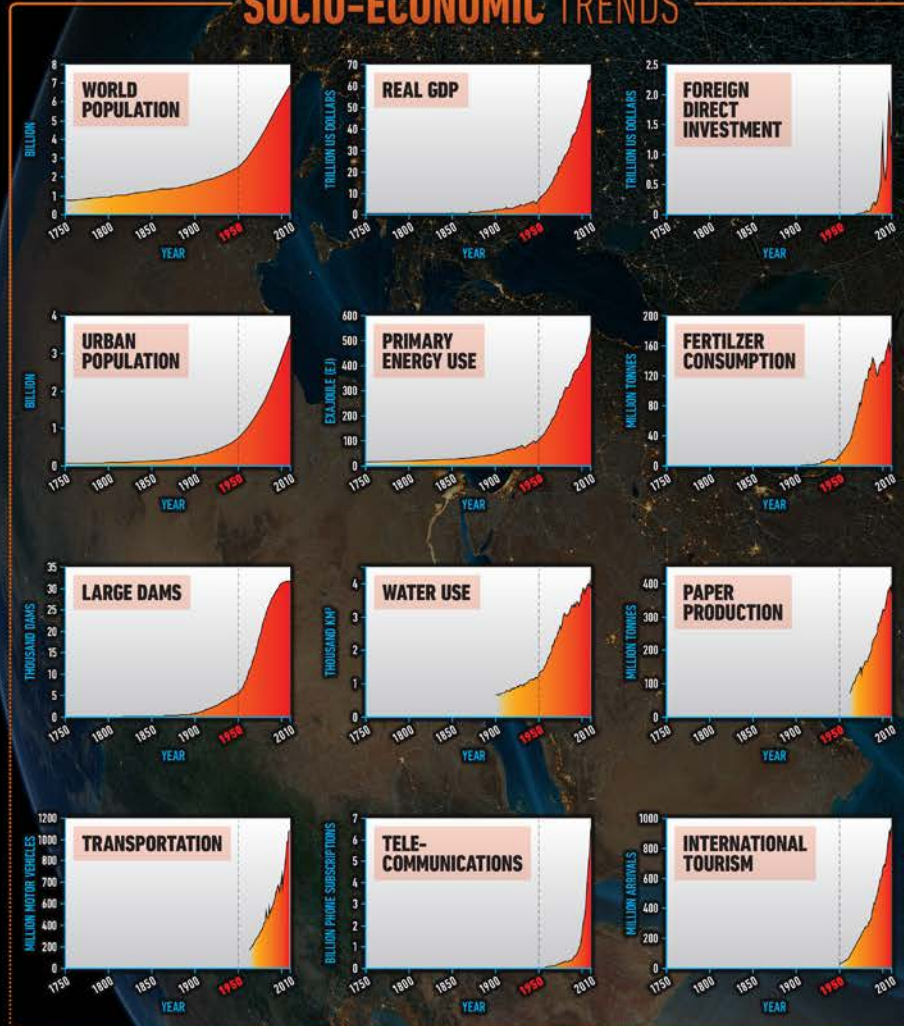




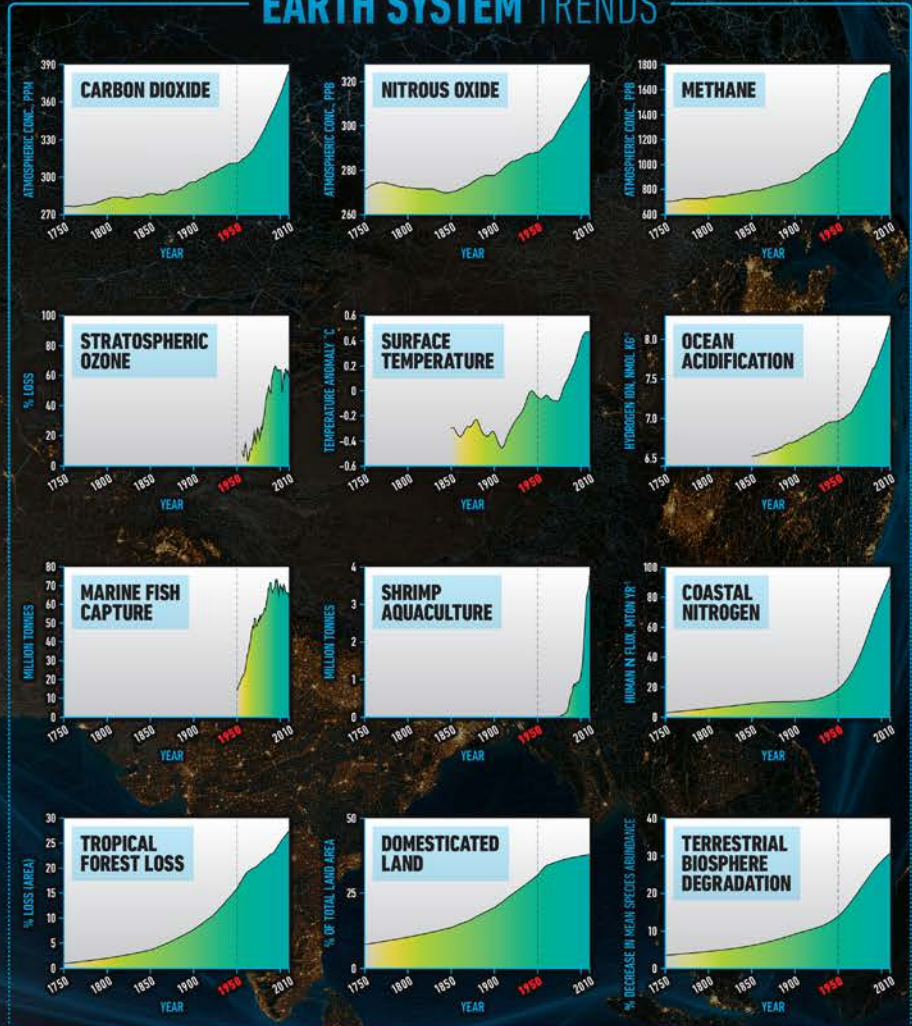


# THE GREAT ACCELERATION

## SOCIO-ECONOMIC TRENDS

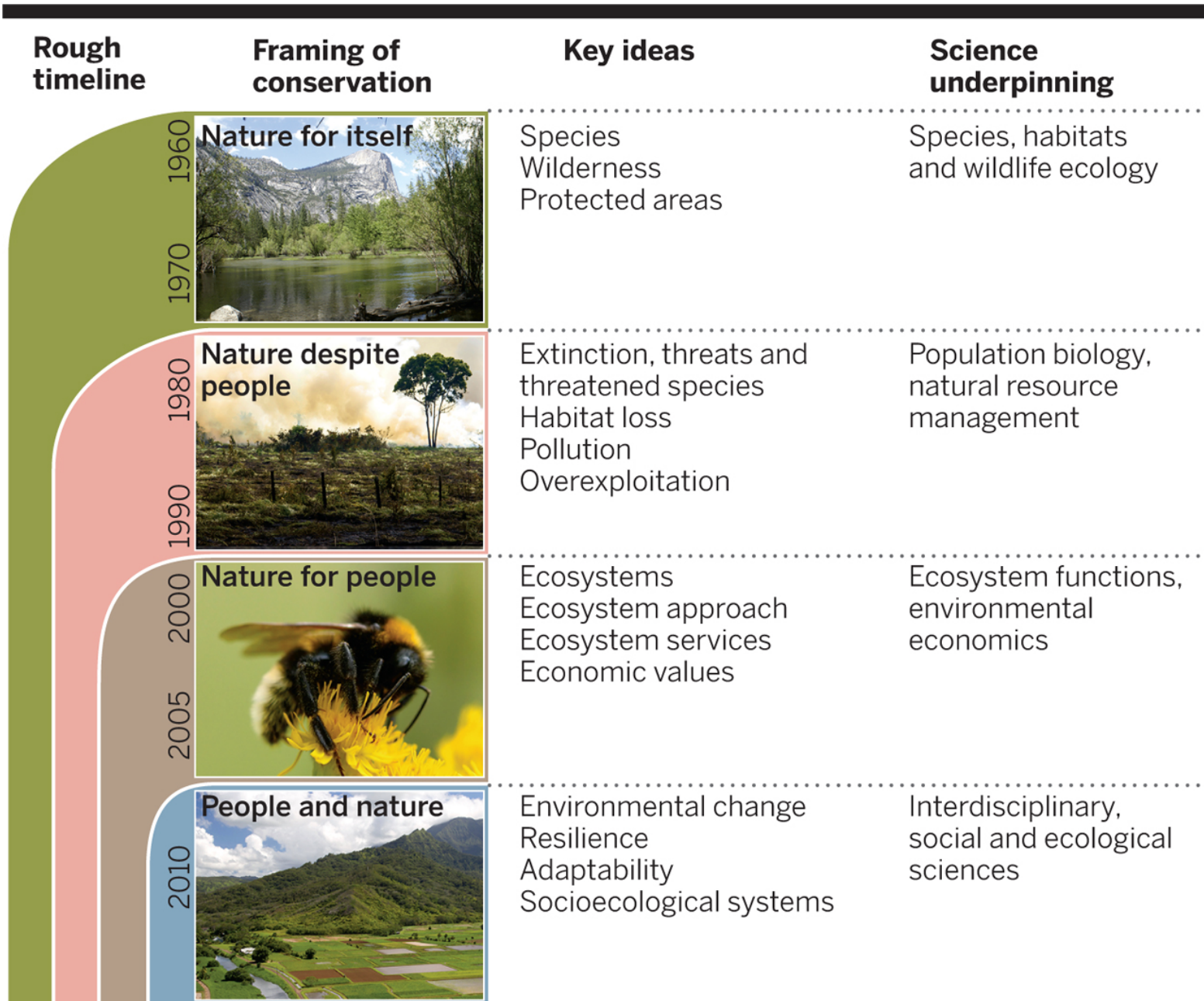


## EARTH SYSTEM TRENDS



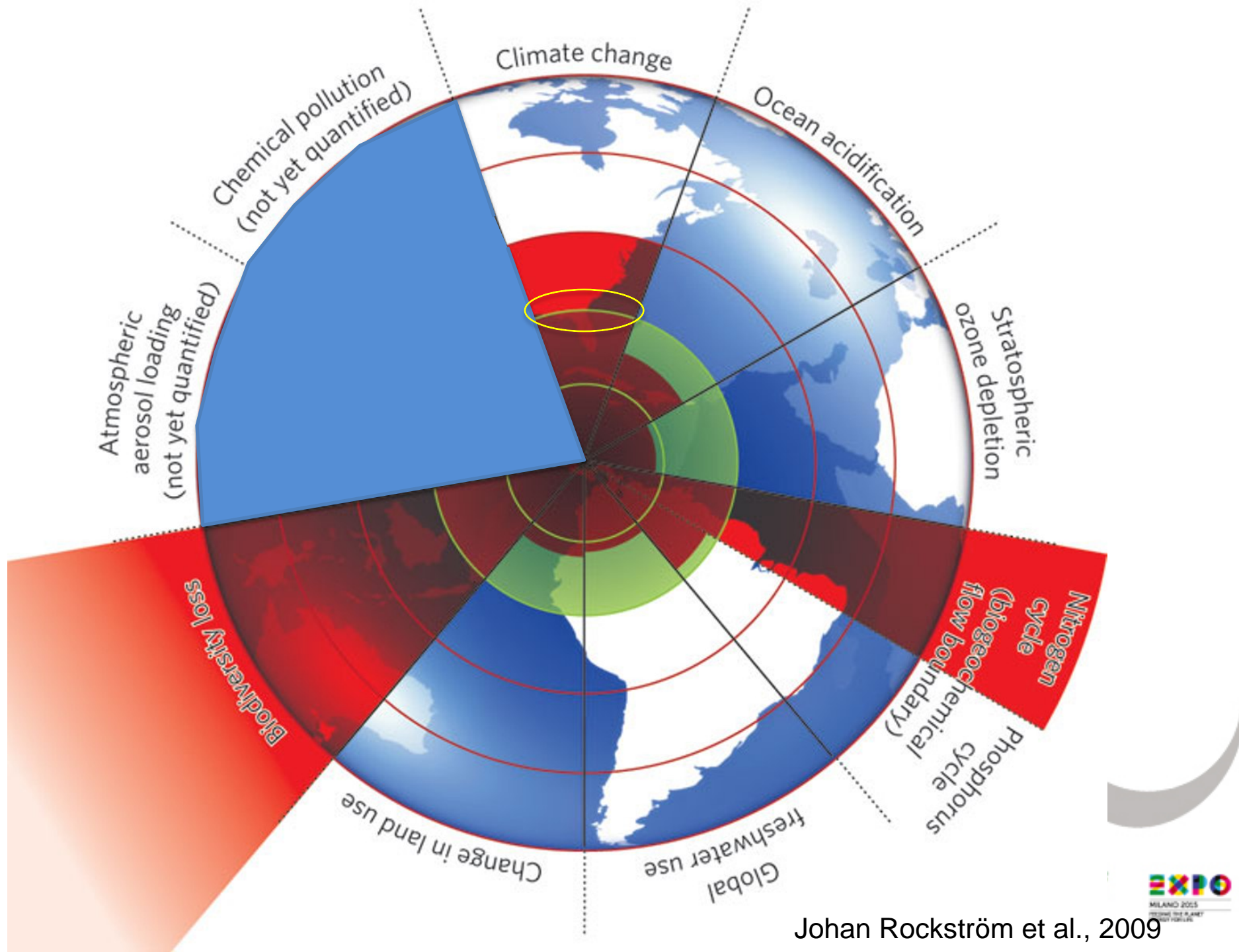
REFERENCE: Steffen, W., W. Broadgate, L. Deutsch, O. Gaffney and C. Ludwig (2015), The Trajectory of the Anthropocene: the Great Acceleration, Submitted to *The Anthropocene Review*.

MAP & DESIGN: Félix Pharand-Deschênes / Globaïa



Georgina Mace, Science 2014



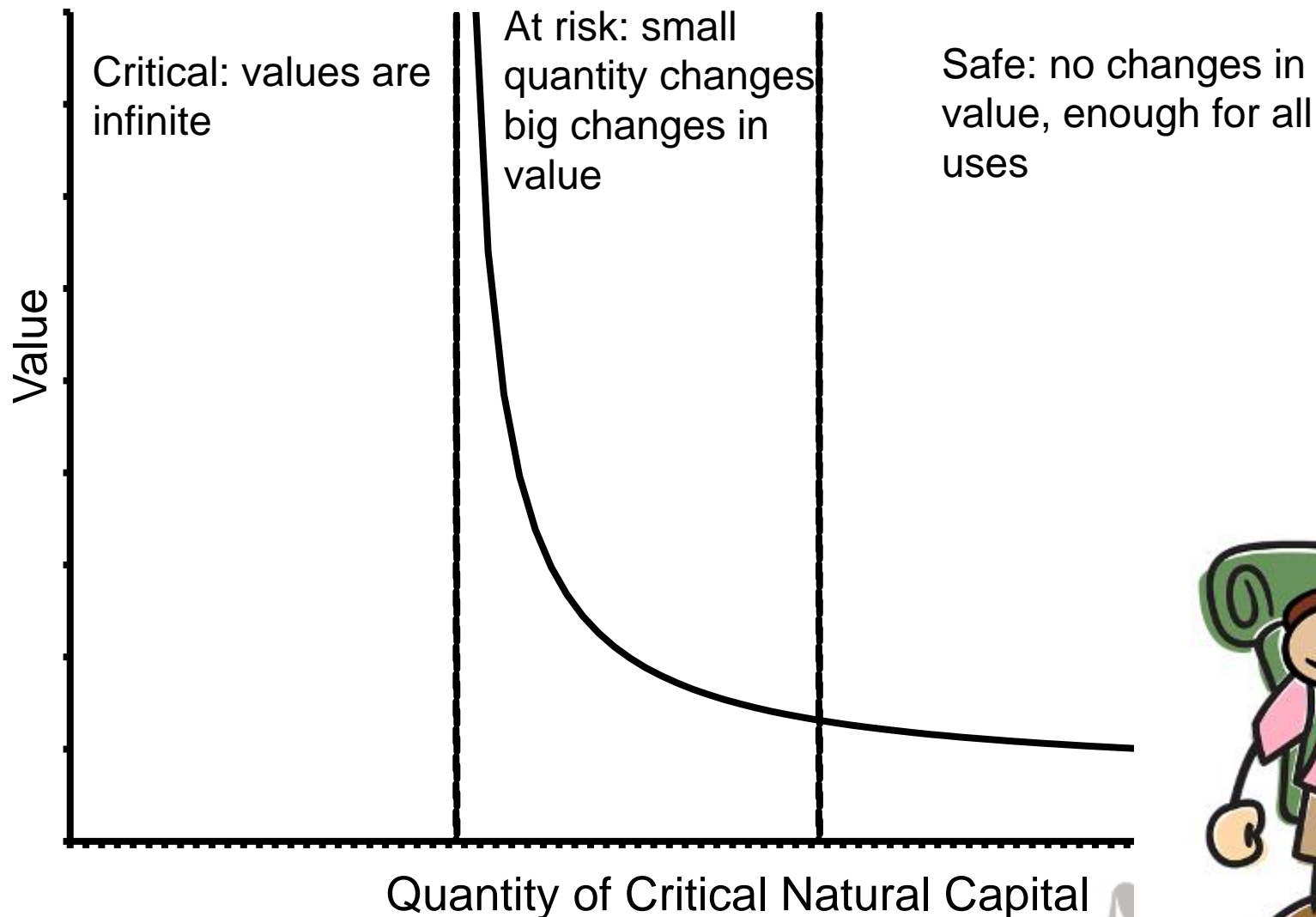


Johan Rockström et al., 2009





# The Value of Critical Natural Capital





# Lake Champlain, Vermont







6 states in the Northeast work towards  
50% of food produced regionally by 2060

<http://www.foodsolutionsne.org/>







# Vermont's New Economy





# Means and Ends of the New Economy

People's wellbeing and happiness.....

**Ultimate  
Ends**



Health care, quality education, housing, mobility .....

**Intermediate  
Ends**



Productive capacity, sr businesses, coops,  
alternative currencies.....

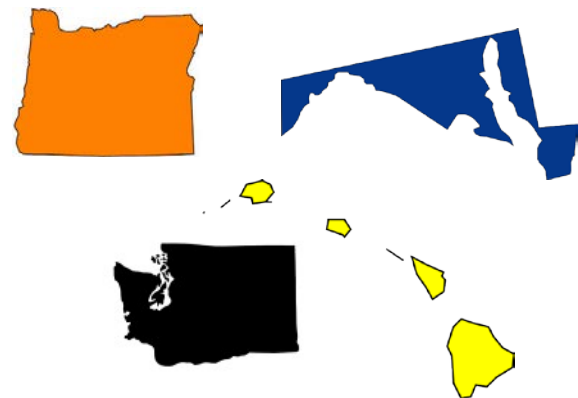
**Intermediate Means**



Healthy ag land, forests, wetlands, sun,  
wind, water, but also cultural values and  
world views.....

**Ultimate Means**

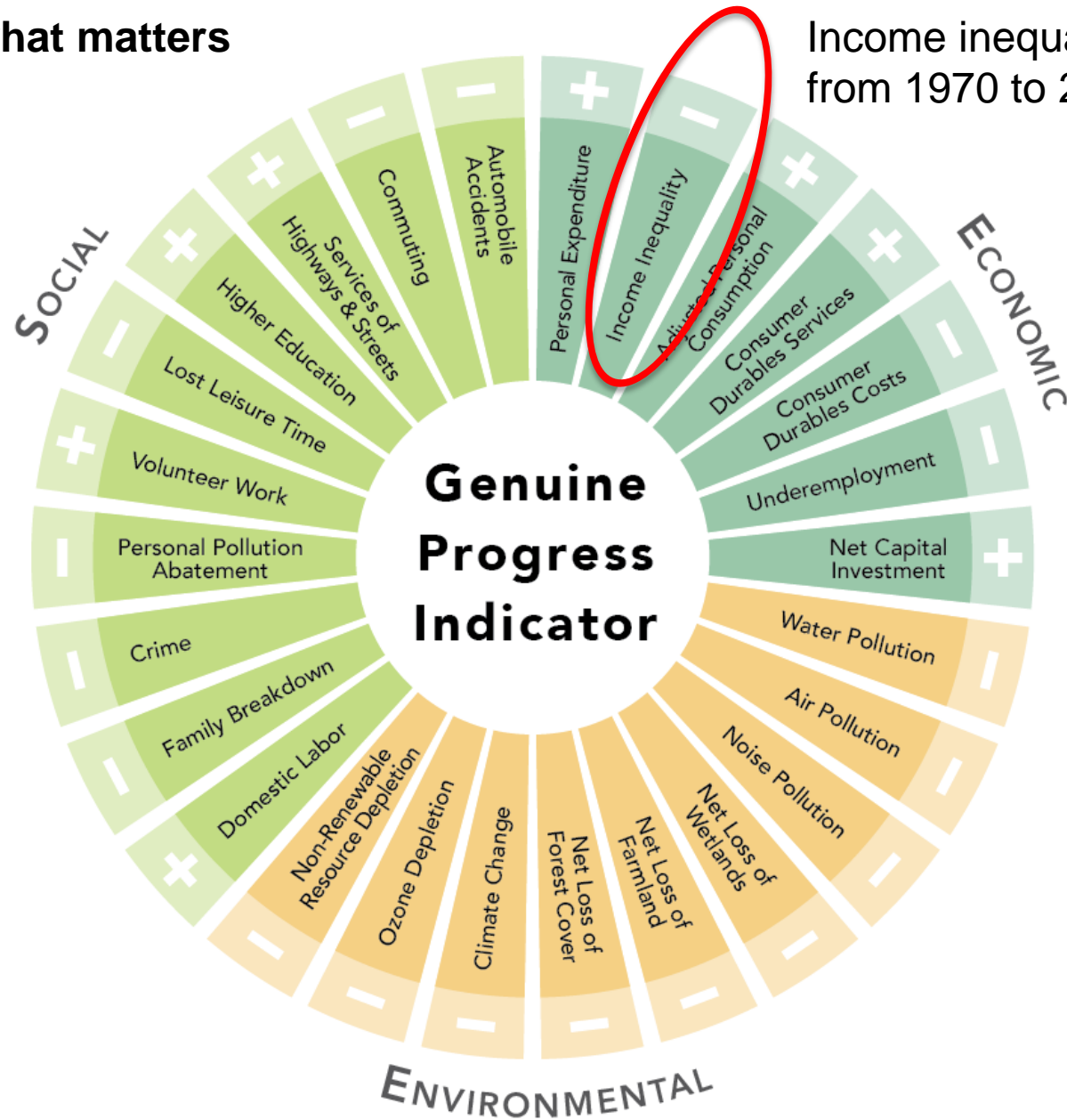




20 states are experimenting  
with the GPI

In 2012 Vermont passed a law for a  
new measure of the economy:  
**Genuine Progress Indicator**

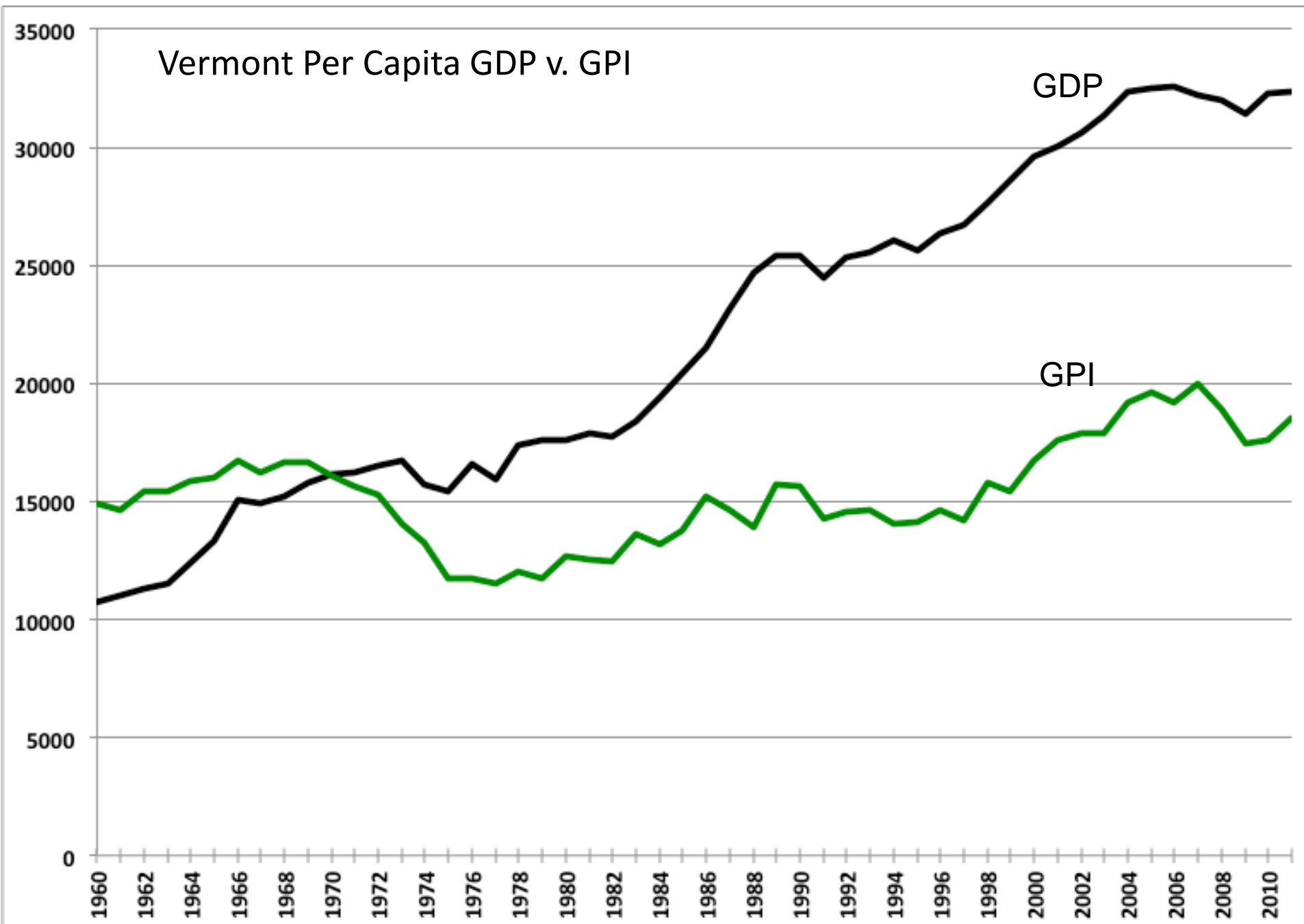
## Measure what matters



Income inequality rose by 29% from 1970 to 2010



# Vermont Per Capita GDP v. GPI



# Vermont's Common Assets Fund

- Rights to shared wealth
- Based on *res communis* Roman juridical system
- Charge users for nature's services
- Trust fund in perpetuity
- 75% of annual funds used for ecosystem restorations and renewables
- 25% of annual funds as dividends to all citizens

VERMONT COMMON ASSETS TRUST FUND

623,000

Date: 2009

Pay to the order of: **Every Vermont Citizen** **\$1,972.00**

**One thousand, nine hundred seventy-two and 00/100 Dollars**

For: Payment for use of common assets

Treasurer of Common Asset Fund

# Supportive business





# Supportive business







THANK YOU!  
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**EXTRAS**



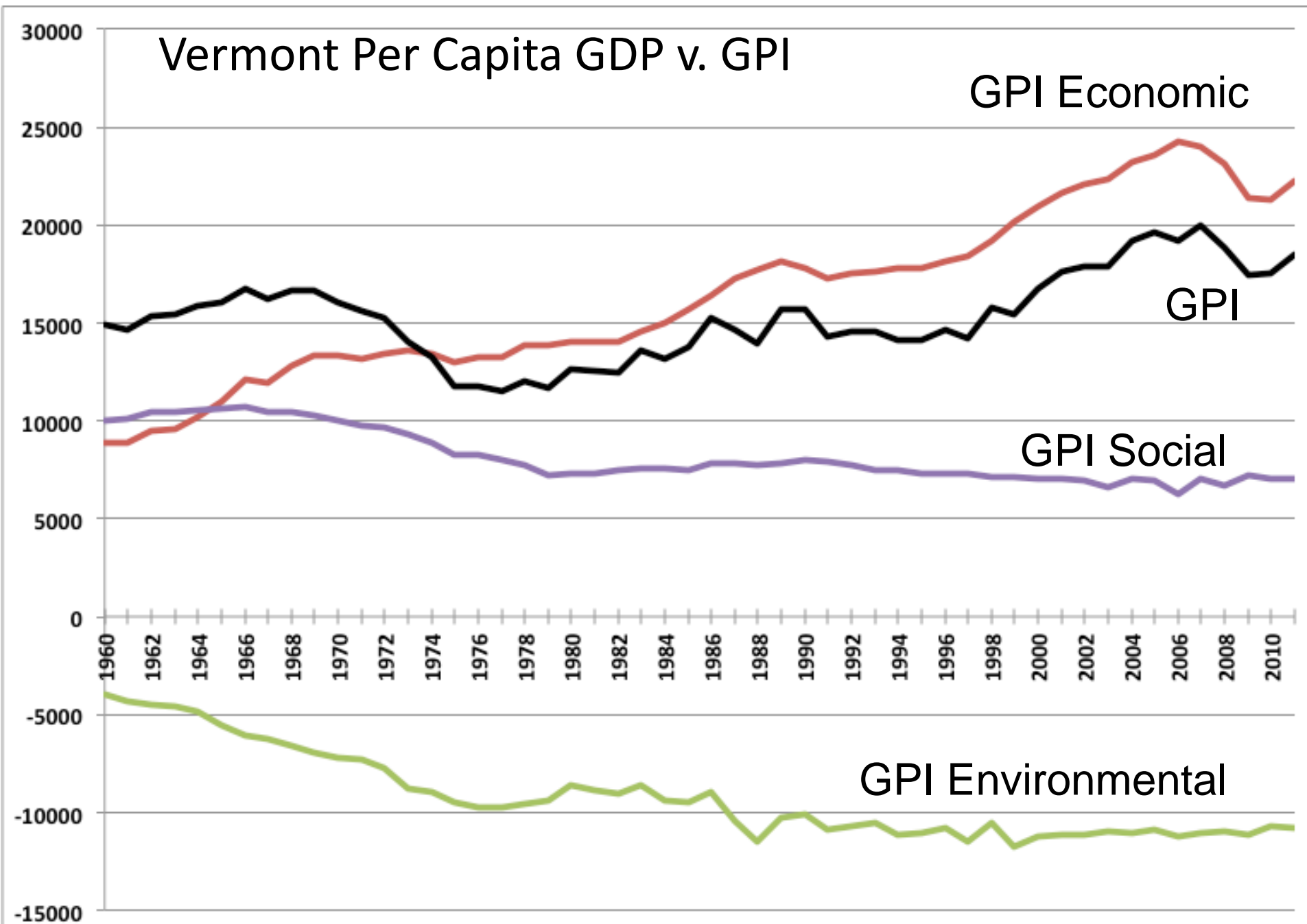
# Vermont Per Capita GDP v. GPI

GPI Economic

GPI

GPI Social

GPI Environmental



# Examples of GPI components



## Value of volunteering

Volunteer hours X average hourly wage



## Cost of Climate Change

BTUs -> Pounds of  
CO<sub>2</sub>  
Pounds of CO<sub>2</sub> X Cost  
of CO<sub>2</sub> (\$89.57)

Photo © VermontDailyNews



Redo slide

<https://prezi.com/ntrxn36vjcme/copy-of-phosphorus-and-the-lake-champlain-basin/>

## Overview of Lake Champlain Basin



Area of Basin: 8,234 sq. miles

-56% Vermont

-37% New York

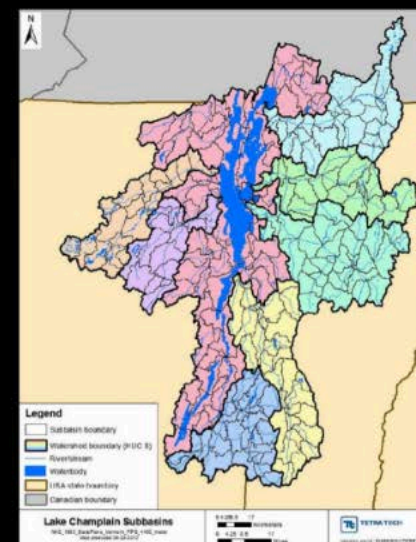
-7% Quebec

Source of drinking water for 200,000 people

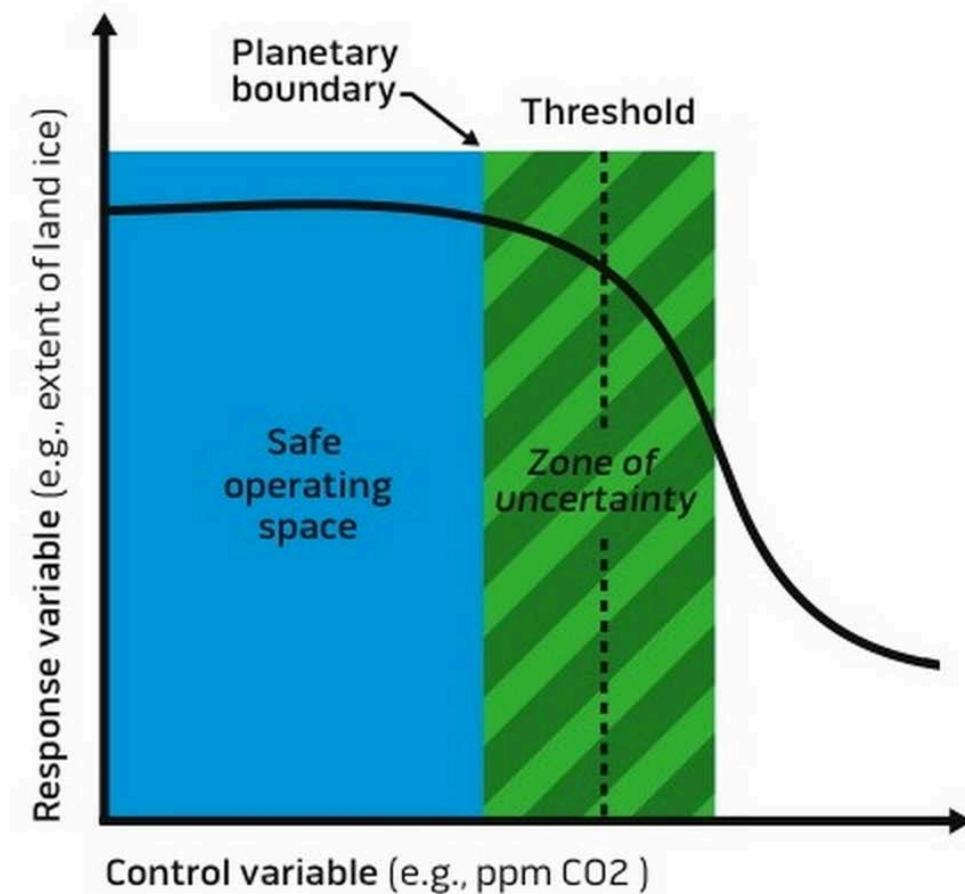
Tourism Expenditures: 3.8 billion

Basin Population: 571,000

Facts via Lake Champlain Basin Program

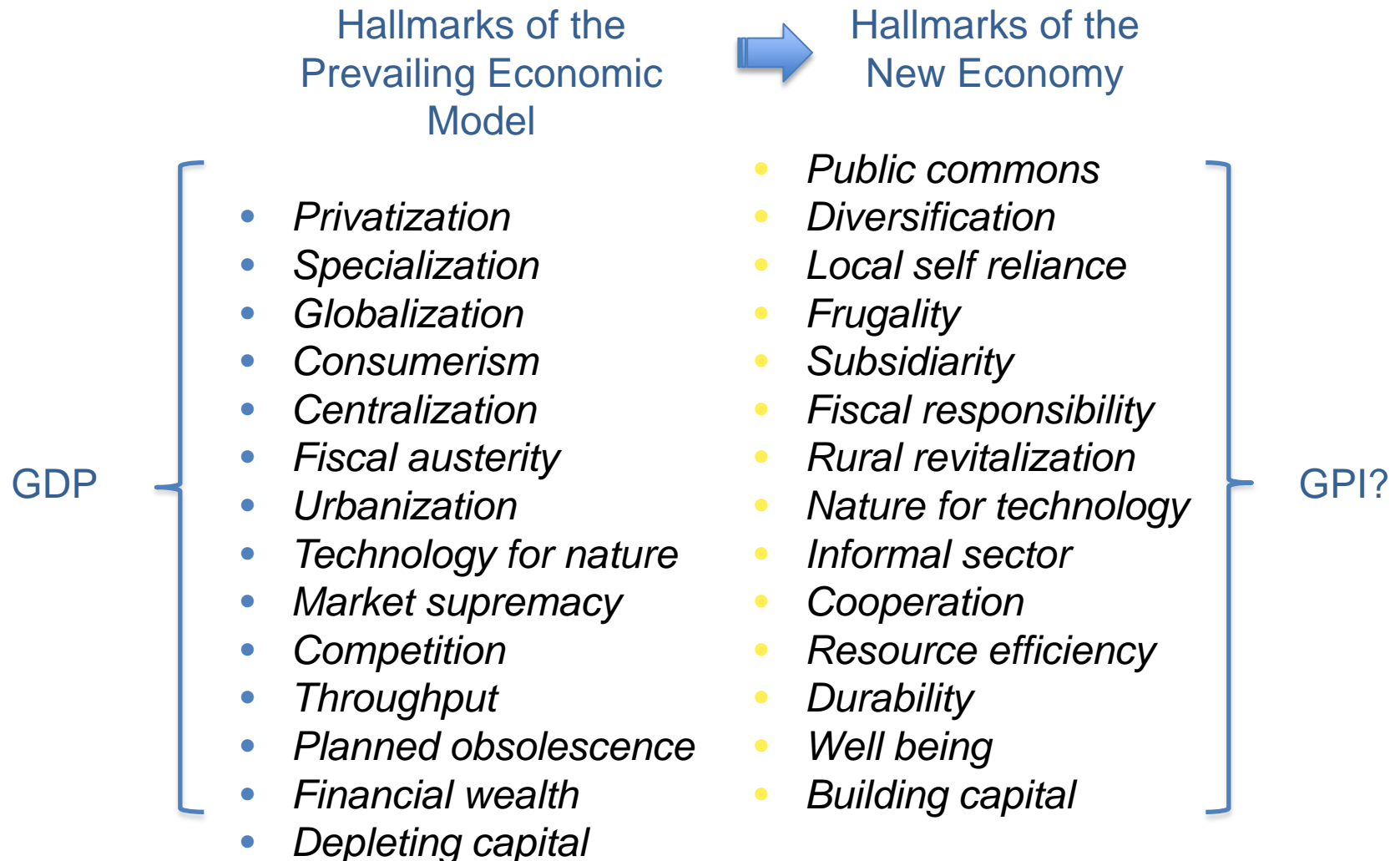


# Ecological boundaries and thresholds





## A Headline Indicator for the New Economy?



Courtesy of John Talberth, Center for Sustainable Economy



*"As you go through life, take time to monetize the roses."*