

OSU~EmEA-20

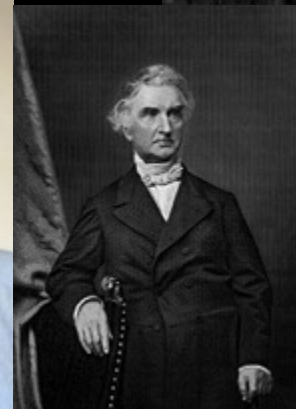
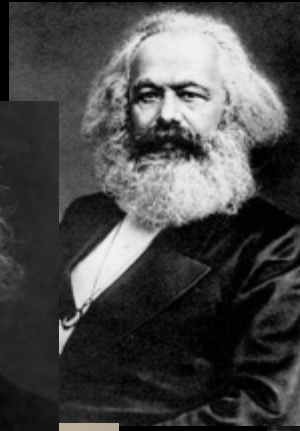
Beyond Growth:

Economics as if the planet mattered

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My Thanks To...



~~Beyond Capitalism:~~

Economics as if the planet mattered



Business as usual cannot go on, and tinkering with the existing system will not do. We need a fundamental transformation....

The Prime Minister of Bhutan, H.E. Mr. Jigmi Y. Thinley,

"Gross National Happiness" as conceptualized by the 4th King of Bhutan, Jigme Singye Wangchuck, in 1972

Beyond Growth ...

In the past year...

we added 82 million people to the world population
and pumped 10 billion tons of CO₂ into the world's atmosphere.



Beyond Growth ...

...between 5,000 and 50,000 species
have become extinct

(the unfortunate thing ...we really don't
know how many).



....In this past year

about 12 million hectares of new deserts have been created

...and 150 billion tons of soil has been eroded.



In the last year...

we have lost 16 million hectares of tropical rainforest

.....and another 5 million hectares of temperate and dry forests to various forms of “development”.



In 2021....the world spent \$2.1 trillion
on defense (\$266/person)

Equal to the GDP of bottom 125 countries
of the world (193 total)

(USA = 38% of total)



In 2018...

Human conflict resulted in a total of 105,000 deaths

Innocent civilians made up over 60% of this number.



Since 2018....

16.2 million people were added to the 70 million individuals who have been forcibly displaced worldwide
(44,400/day !)

The result of persecution, conflict, violence, or human rights violations.



The number of undernourished people in the world last year reached an estimated 829 million.

While...

Roughly one third of the food produced in the world — approximately 1.3 billion tonnes — gets lost or wasted.

(enough to feed approx 650 million people)



In all...

The world has gotten a little warmer, a little more dangerous, a little more crowded, and a bit less diverse.



Our thanks to David Orr for the inspiration for these first slides.
(Orr, D. 1994. Earth in Mind, Island Press, Washington DC, 213p.)

This is not the work of ignorant people...

Rather, it is largely the result of the work of the “most highly educated” and “successful” workforce in the history of humankind, people with....

BAs.....

BSs.....

MEs.....

Ph.Ds.....

JDs.....

MBAs, etc.

...and a business as usual ethic.

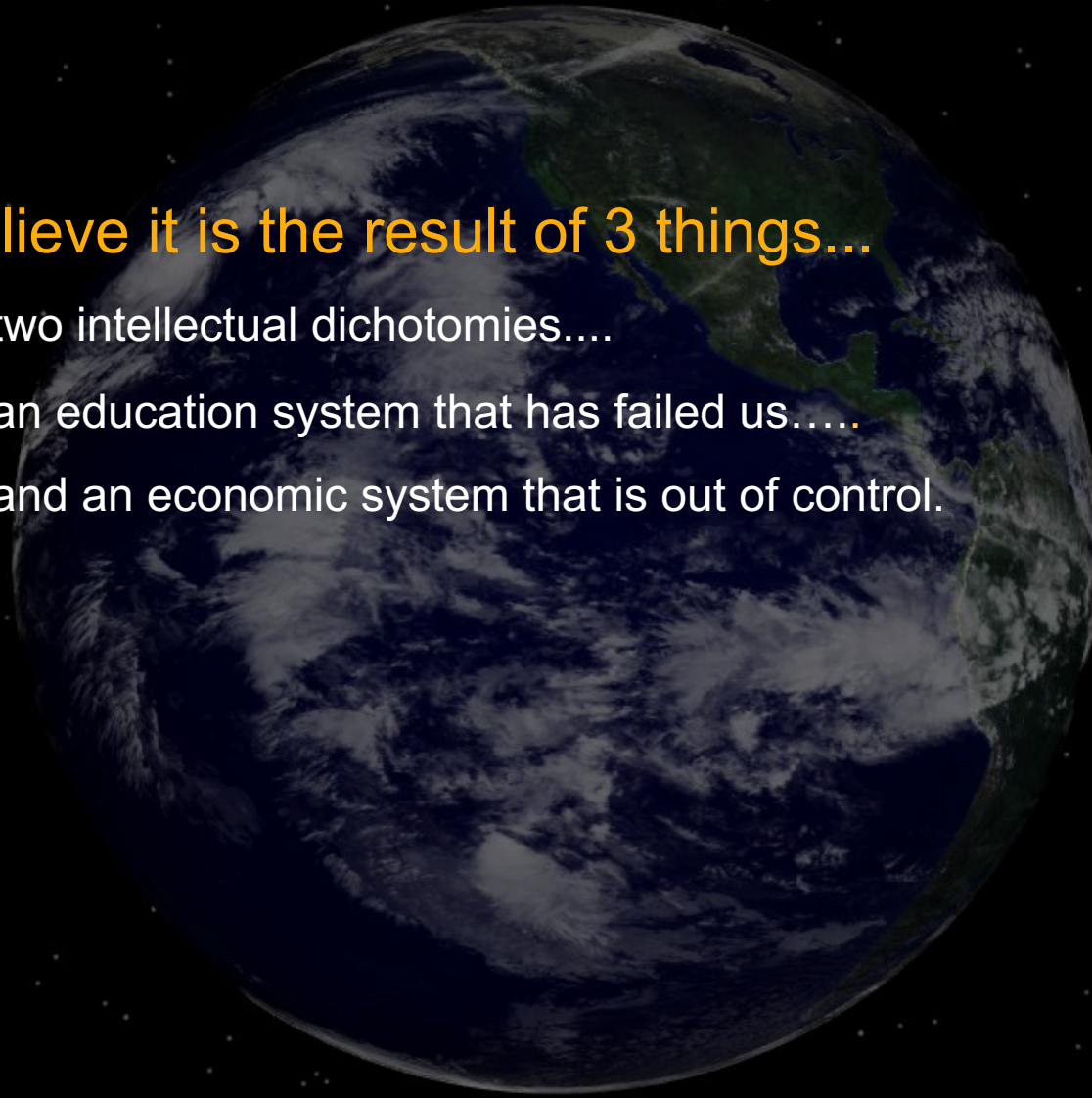
What is Wrong?

I believe it is the result of 3 things...

two intellectual dichotomies....

an education system that has failed us.....

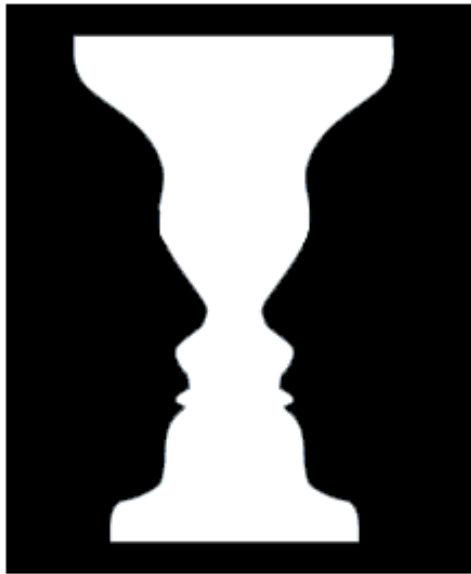
and an economic system that is out of control.



Intellectual **D**ichotomies...

Competing Paradigms...

A paradigm is a “World View” a way of looking at the world



#1

Our present global civilization is handicapped by the coexistence of two incompatible “value” systems:

- One centered on the interrelationships of matter and energy

The other...

- centered on monetary values.

#2

Civilization is further handicapped by the existence of two incompatible metaphysical constructs:

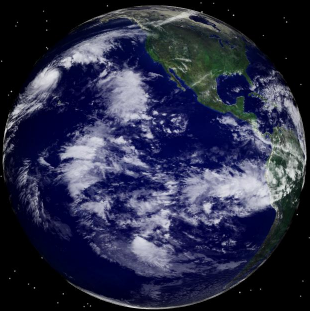
- Humanity is not natural, the artifacts of humanity are “man-made”

Versus..

- Humans and their social, material, and energy systems are natural...we are part of nature.

These world views lead to

Four somewhat overlapping, but competing economic paradigms



Humanity

Neoclassical Economics

Technocracy

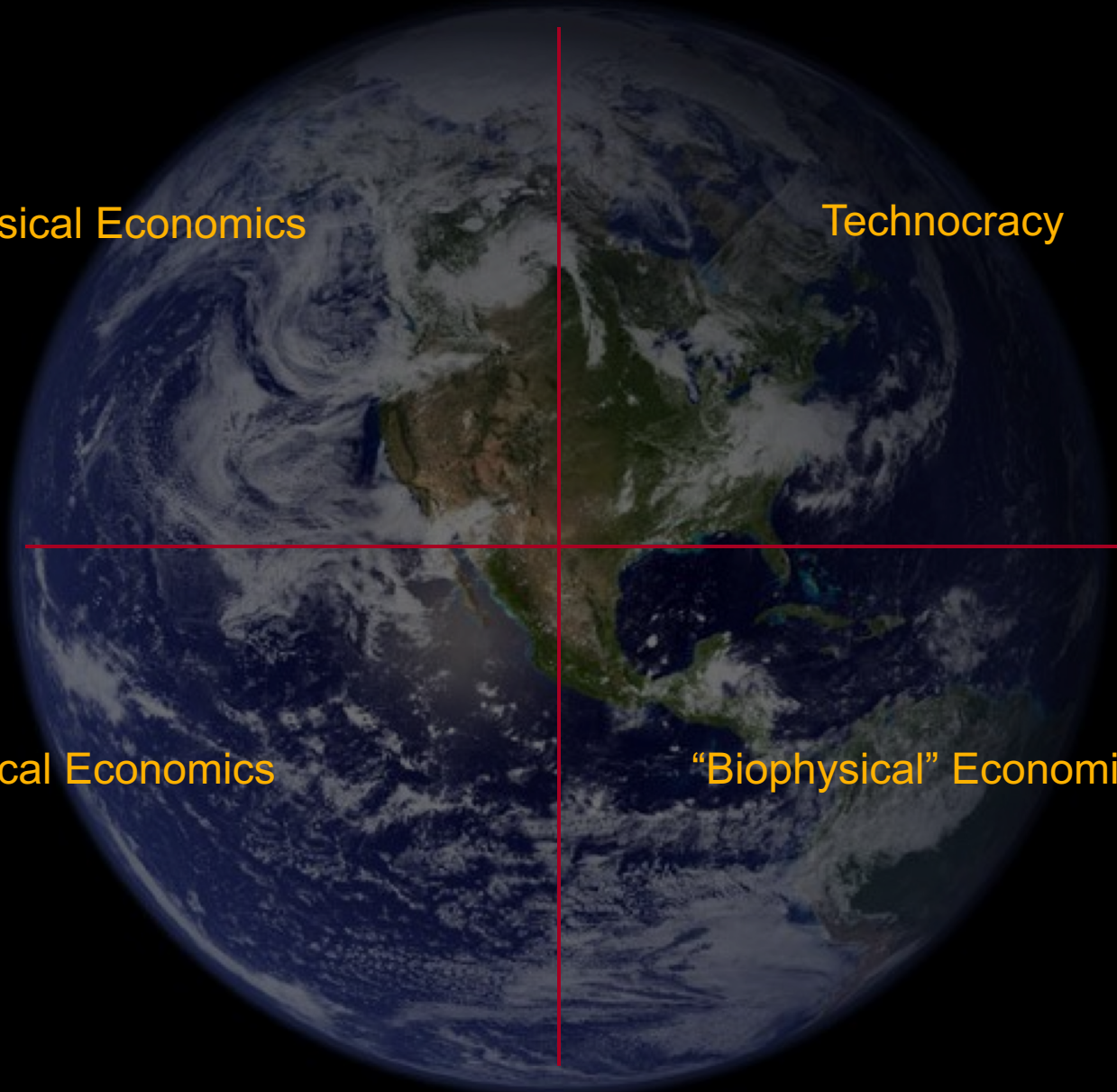
Money

Matter/
Energy

Ecological Economics

“Biophysical” Economics

Nature



Failure of Education...

What is wrong with education?...

The most important thing....

it arbitrarily and artificially fragments the study of reality without an integrating strategy.



In addition it stresses...

Answers instead of questions....

Rote memory instead of thinking,

Linearity instead of complexity,

Abstraction rather than consciousness,

Secondhand rather than firsthand knowledge,

Technological efficiency over conscience,

and

...it has no place for contemplation.

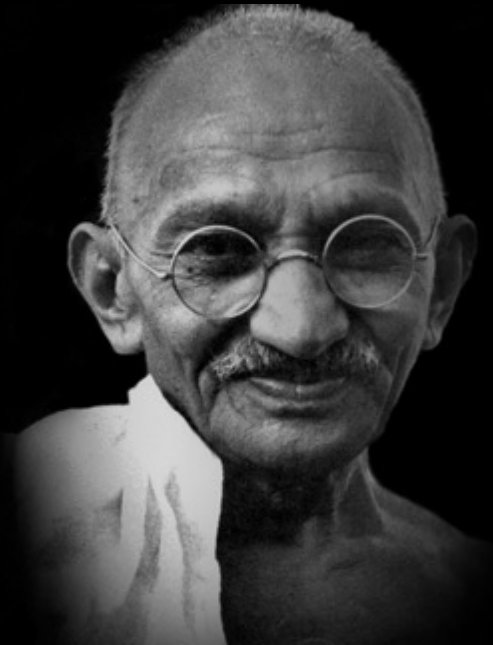


The planet does not need more “successful people”

...But it desperately needs ...

People with moral courage...

People willing to fight to make the world a better place



What we Need....is to rethink education

1. All education is environmental education,
2. the purpose of education is mastery of self, not mastery of subject matter,
3. knowledge carries with it the responsibility to see that it is used well,
4. we cannot say we know something until we understand its effect on real people, communities and environments.
5. both knowledge and education are common goods. and as such should be available to all at no cost.

David Orr, 1994

And equally if not more important...

...we need to rethink Economics education

Schools of Economic Thought

Ancient economic thought ~ 2200 BC - 500 AD

Islamic economics ~ 700 – 1100 Ad

“Scholastic” Tradition ~ 1200 – 1500

Mercantilism ~ 1500 – 1700

The Physiocrats ~ 1650 – 1750

Classical Economics ~ 1750 – 1850

Neoclassical Economics ~ 1850 – present

Marginal analysis

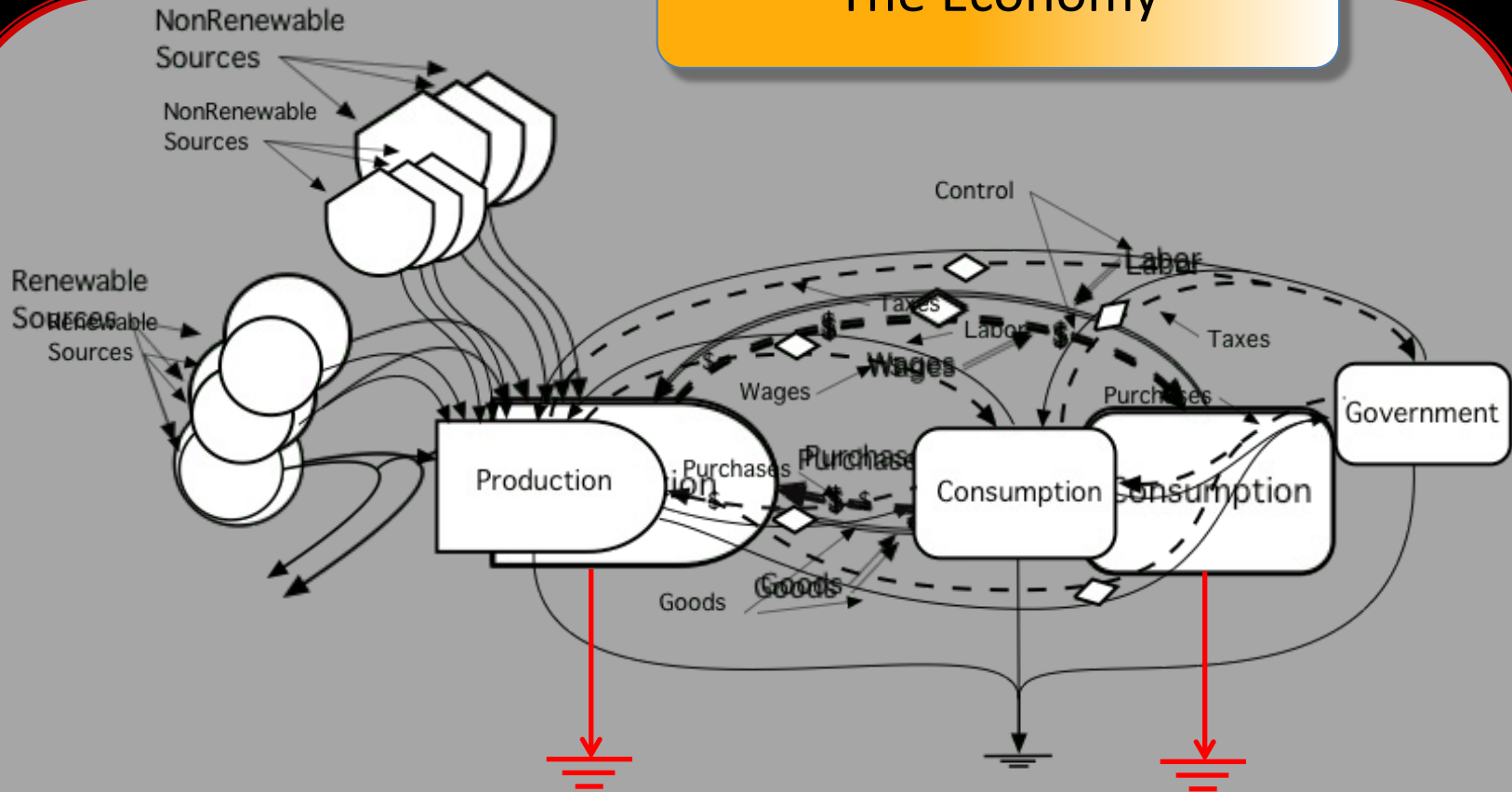
Keynesian Revolution

Post Keynesian Economics

Beyond Capitalism



"The Economy"



...In other words, we need to teach “Mainstream Economists” some

Ecology

and

Physics

Lotka



+

Volterra



)

x

Boltzmann



=

Pareto



Economics out of Control...

Economics is the “social science” concerned with the factors that determine the production, distribution and consumption of goods and services.

Uncovering Neoclassical Economics

1. Wealth, and Value
2. The Triumph of Capitalism
3. Debt-money
4. Growth & GDP

Wealth and Value

The word “wealth” is derived from two Old English words: *weal* (well-being) and *th* (condition).

Therefore, the word wealth literally means “the conditions of well-being” or “the condition of being happy and prosperous”



Wealth

We must distinguish between real wealth and virtual wealth



Individual
Family
Community
Nation
Geobiosphere

A pyramid diagram with five levels of organization. The levels are labeled from top to bottom: Individual, Family, Community, Nation, and Geobiosphere. The pyramid is light gray and has a gradient effect, being lighter at the top and darker at the bottom. The text is white and centered on each level.

Real Wealth

Real Wealth is the abundance of valuable resources or valuable material possessions.

Real wealth is subject to the Laws of Thermodynamics and will rot, rust, wear out, and will be consumed over time.



Virtual Wealth

Money and Debt

I would add to this,

Bonds,

Stocks,

Collateralized debt obligations,

Interest rate swaps,

Interest rate caps and floors,

Interest rate options,

Exotic derivatives,

Stock options,

Equity futures,

Currency futures,



Virtual Wealth

...money and debt (as artificial accounting devices) are subject only to the laws of mathematics, not the laws of thermodynamics.

Virtual wealth, as debt compounding at some rate of interest, will grow effortlessly over time and without limit, instead of diminishing with use as does real wealth.

Frederick Soddy. 1934. *The Role of Money*

Value

Price is what you pay. Value is what you get.

Warren Buffett

We must distinguish between “use value” and “exchange value”

....and ultimately “price”

Exchange Value

Exchange value begins as the ratio in which one good exchanges for another.

In a developed market society, one commodity eventually emerges as the primary commodity in which all other commodities express their exchange value.

Exchange value thus becomes simply the price for which a good will trade in a given market .



Use Value

Use value arises from the actual use of commodities, it is concrete and physically embodied.

Use value tells us how a commodity satisfies a social need.



≠



Value

In modern society, there is a huge confusion regarding Value and Price

From a macro-perspective...

As Price increases,
Value decreases



Economics out of Control...

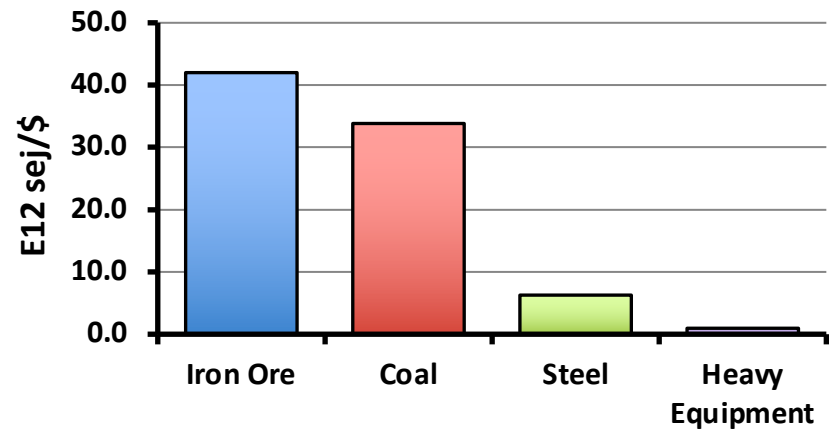
Energy per Dollar

Item	Price (\$/MT)	Emergy/Mt	Emergy/\$ (E12 sej/\$)
Iron Ore	\$50	2.10E+15	42.0
Coal	\$60	2.03E+15	33.8
Steel	\$540	3.39E+15	6.3
Heavy Equipment	\$7,500	7.18E+15	1.0

Value received
Or
Use Value

“Value Added”
Or
Exchange Value

Emergy/\$



Ok...so we've been exploring the difference between real wealth and virtual wealth and between use value and exchange value...

but what does it mean....what's the context?

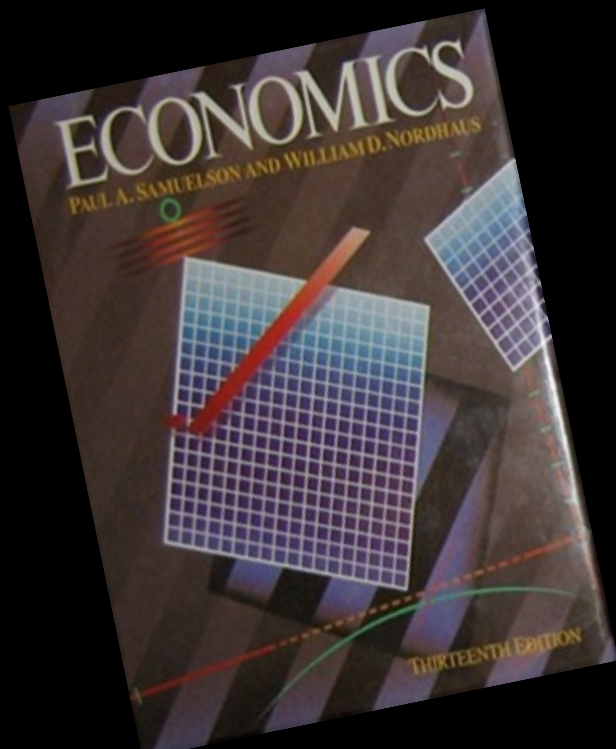
The ecological contradictions of neoclassical economics are most evident in its distorted accounting that stresses exchange values and largely excludes use values...

...and emphasizes virtual wealth while ignoring real wealth

Economics out of Control...

For example... William Nordhaus was quoted in *Science* magazine as saying:

“Agriculture, the part of the economy that is sensitive to climate change, accounts for just 3% of national output. That means there is no way to get a very large effect on the U.S. economy just through the failure of agriculture.”



.... Sterling Professor of Economics at Yale University, best known for his work in economic modeling and climate change.



Economics out of Control...

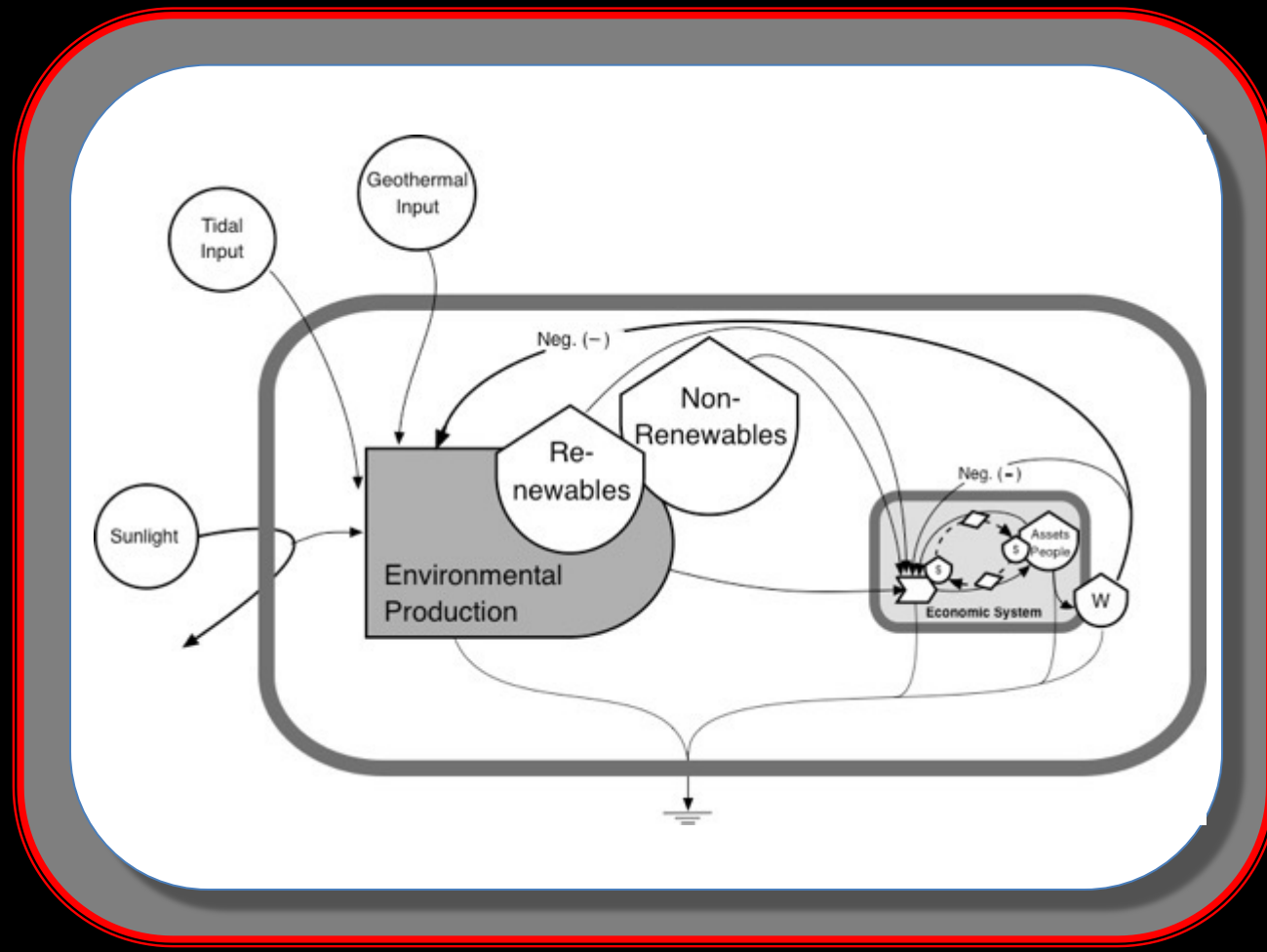
The Triumph of Capitalism

Capitalism triumphed as an “empty world” economics.
In a “full world” a new economics is needed.



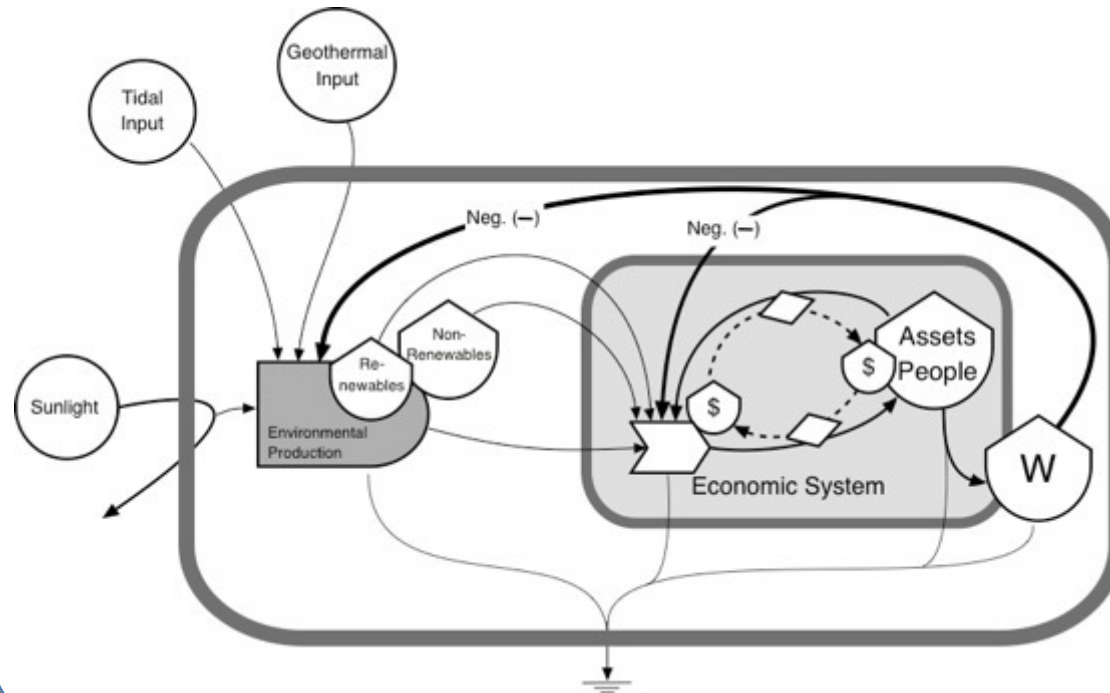
“Empty World”

In the Empty World, environment is large and economy is small...



“Full World”

In the Full World economy is large and environment is small

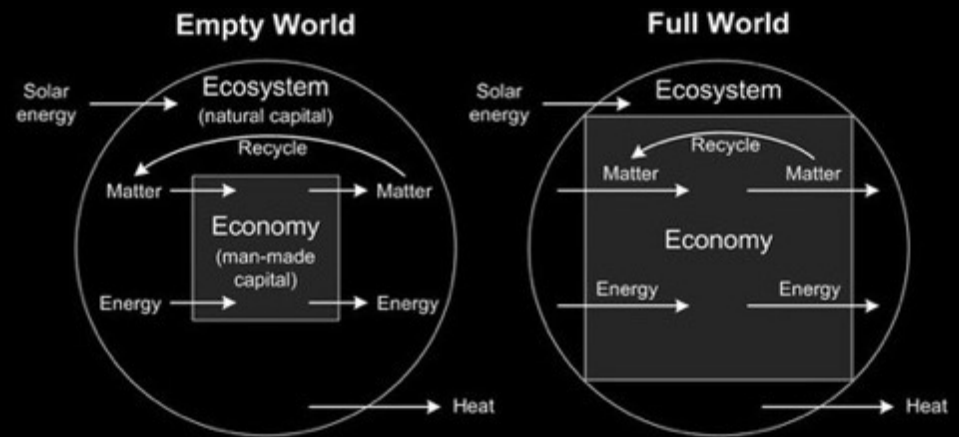


The Triumph of Capitalism

Empty vs Full World...

Capitalism triumphed for the past 200 years simply because capital was limited and real wealth seemed “unlimited”...and demand exceeded supply, a positive feedback loop that created exponential growth in production and profits.

In a full-world, the costs of production are the ever larger opportunity costs of depleted resources, displaced ecosystem services, displaced people, destroyed livelihoods, and ruined habitats of other species.



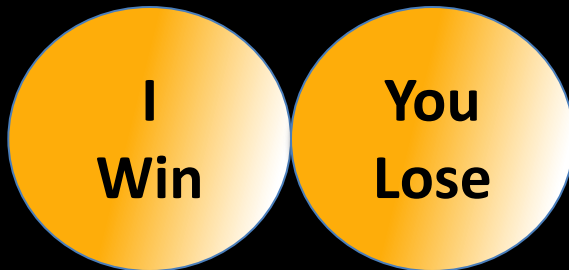
The Triumph of Capitalism

Growth is a zero sum game. Growth requires resources. Thus for every +1 growth, there is at minimum -1 in the environment.

In an “empty world” the -1 was hardly noticed...in a “full world” the -1 is significant.

The point is... that there is both a cost and a benefit from economic growth. The benefit is economic services and products gained. The cost is natural capital and ecosystem services lost.

In other words... capitalism triumphed by disregarding the 2nd Law of Thermodynamics

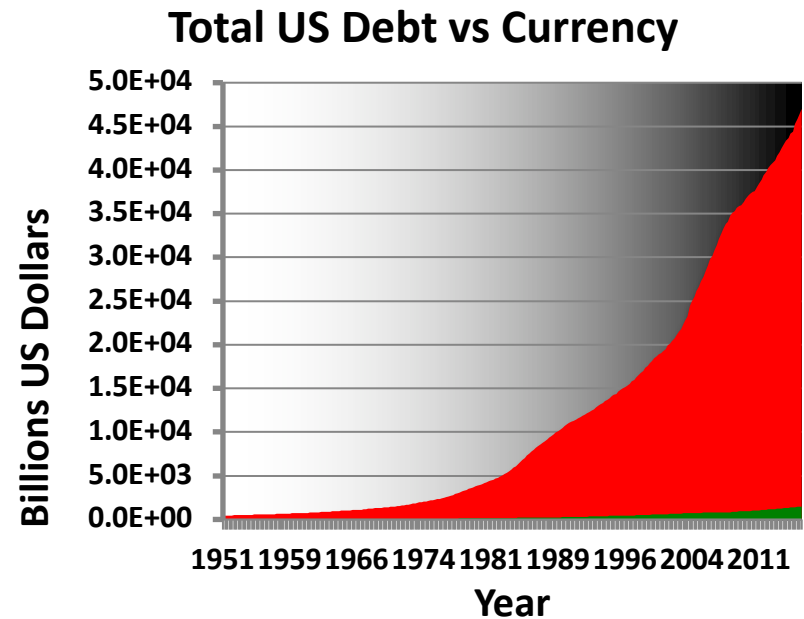


Money

Herman E. Daly - “Anyone who is not confused by money probably hasn’t thought about it very much.”

Debt - Money...

The vast majority of money in the national and global economy is debt-money, literally created out of nothing when a private bank issues a mortgage, a student loan or a business loan or the government prints money and issues a government debt bond.



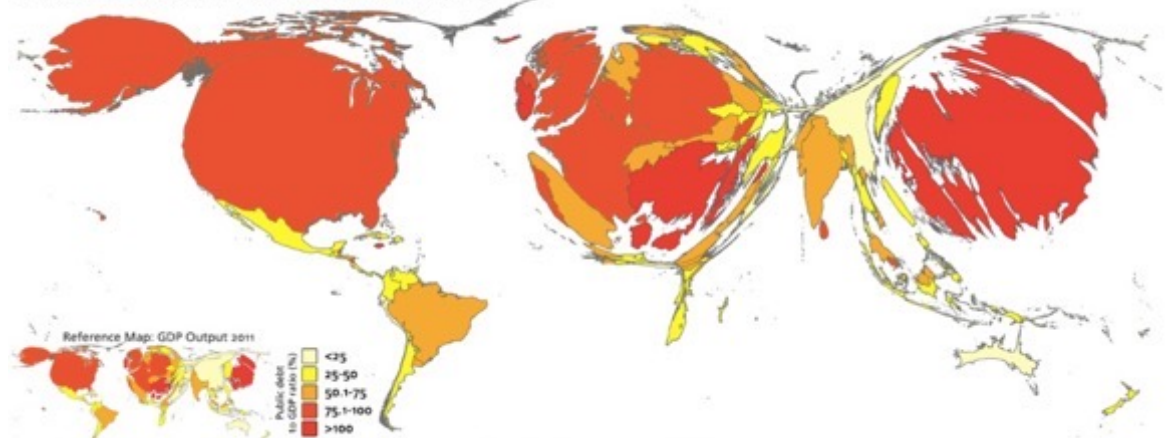
Debt - Money...

Debt - money is the single largest contributor to growth...

and the instability of all national economic systems.

Debt to GDP Ratio

Public Debt around the World



Data Sources: Compiled from IMF, World Economic Outlook Database 04/2011, with additional data from IMF & EUROSTAT
Map created by Benjamin D. Hennig, Sasi Research Group, University of Sheffield

www.viewsoftheworld.net

Growth

Anyone who believes exponential growth can go on forever in a finite world is either a madman or an economist.

Kenneth Boulding, "The Economics of the Coming Spaceship Earth" (1966), in Victor D. Lippit, ed., *Radical Political Economy*, Armonk, NY: M.E. Sharpe. p 362.

When we speak of growth, we must always ask..
Growth of what?
and for whom?

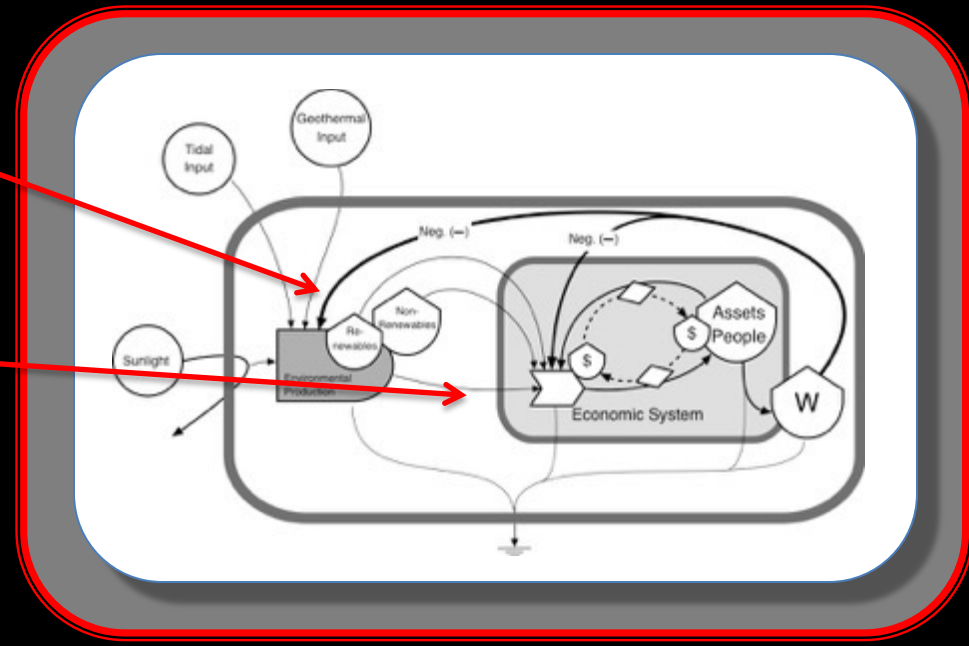
Herman Daly

Growth

Growth in real terms is constrained by increasing scarcity of natural resources, both at the source end (resource depletion), and the sink end (absorptive capacity of the biosphere for pollutants).

....and here

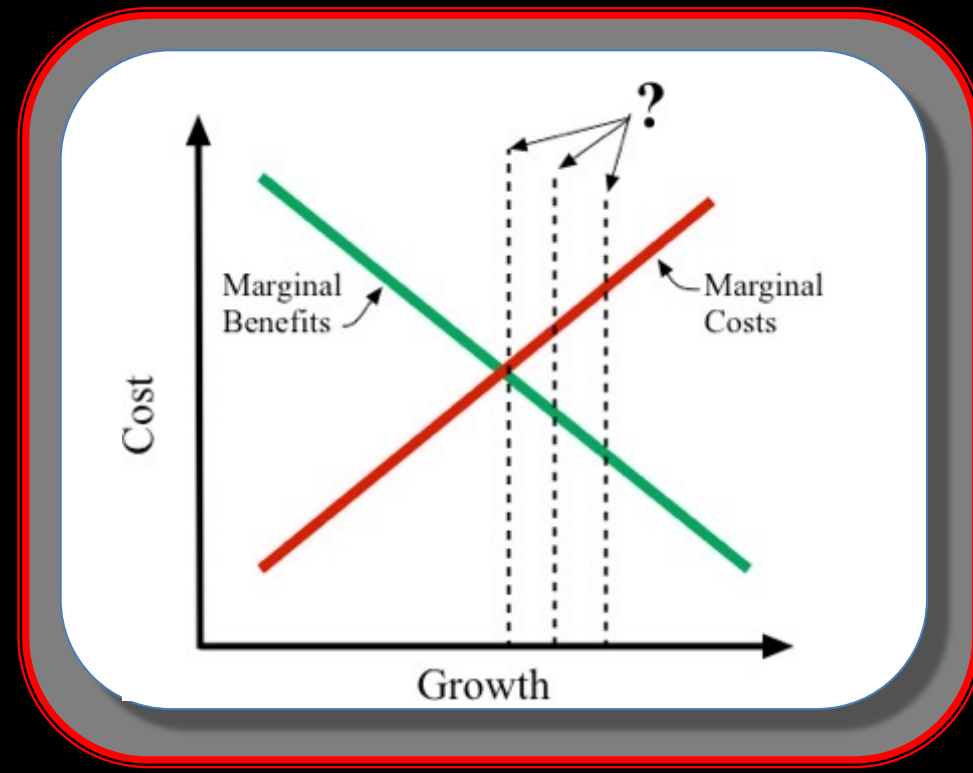
Constrained here



Growth

From an economics perspective...

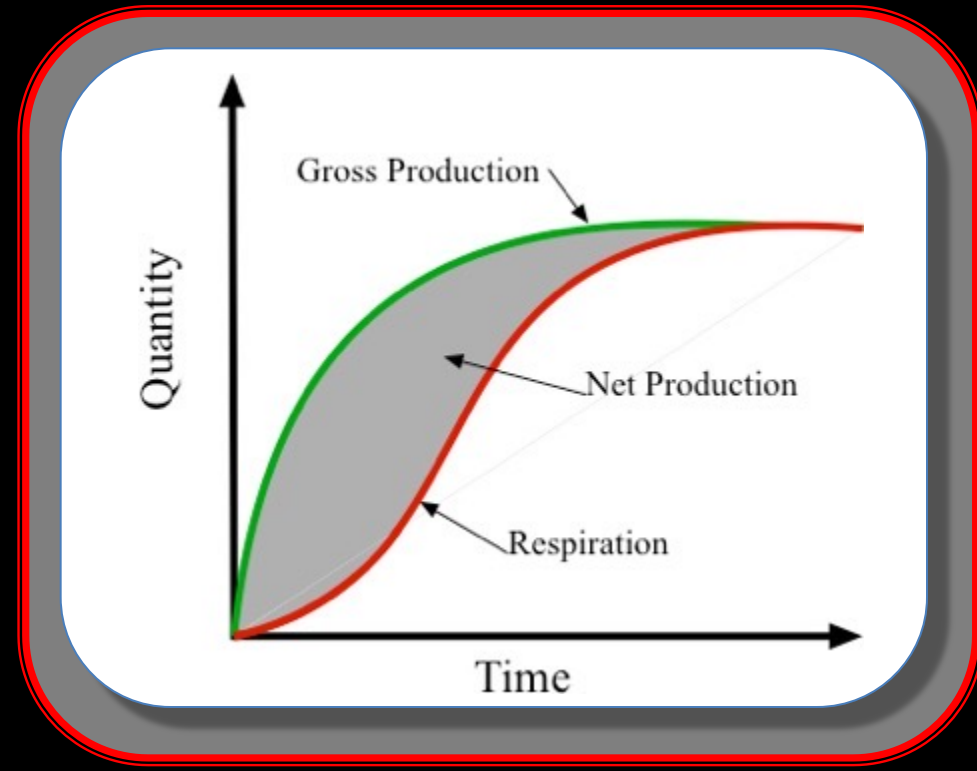
Marginal costs of growth now likely exceed marginal benefits, so that real physical growth makes us poorer, not richer



Growth

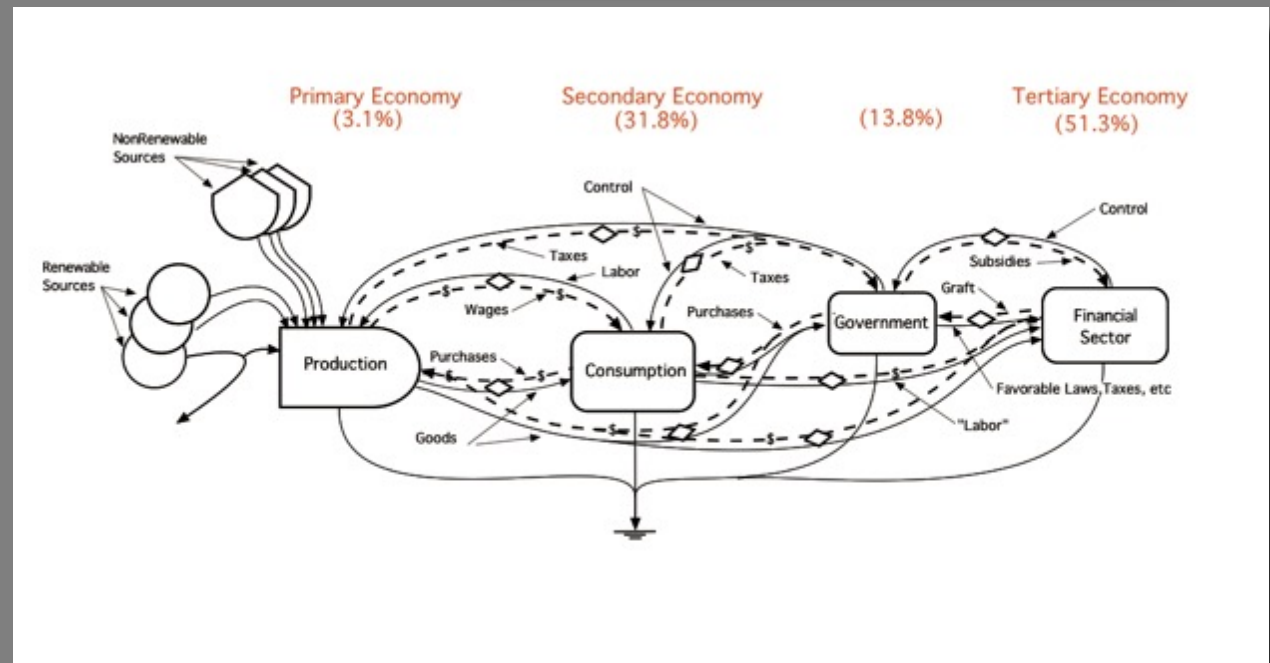
From an ecological perspective...

Physical growth stops when the costs of respiration equal production. At that point the only growth possible is qualitative growth



Growth

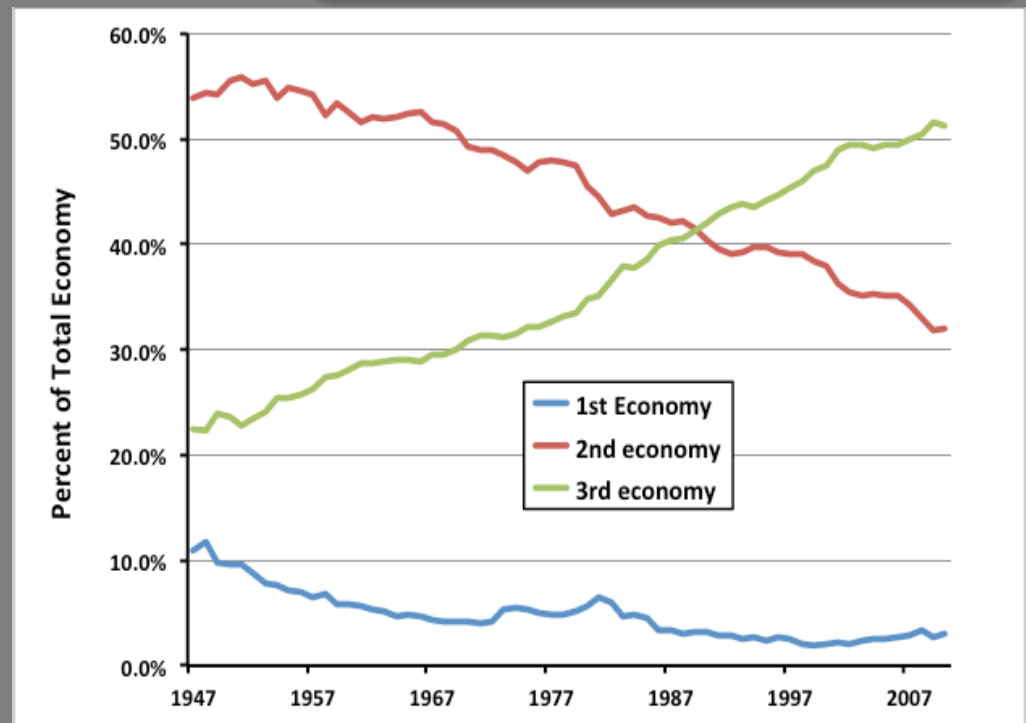
The Tertiary Economy



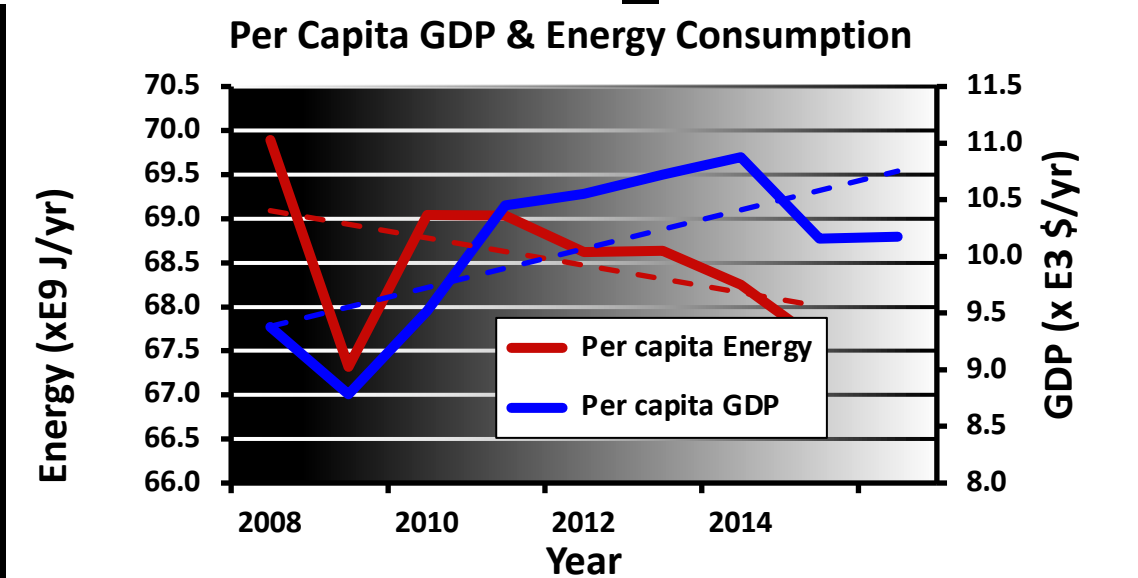
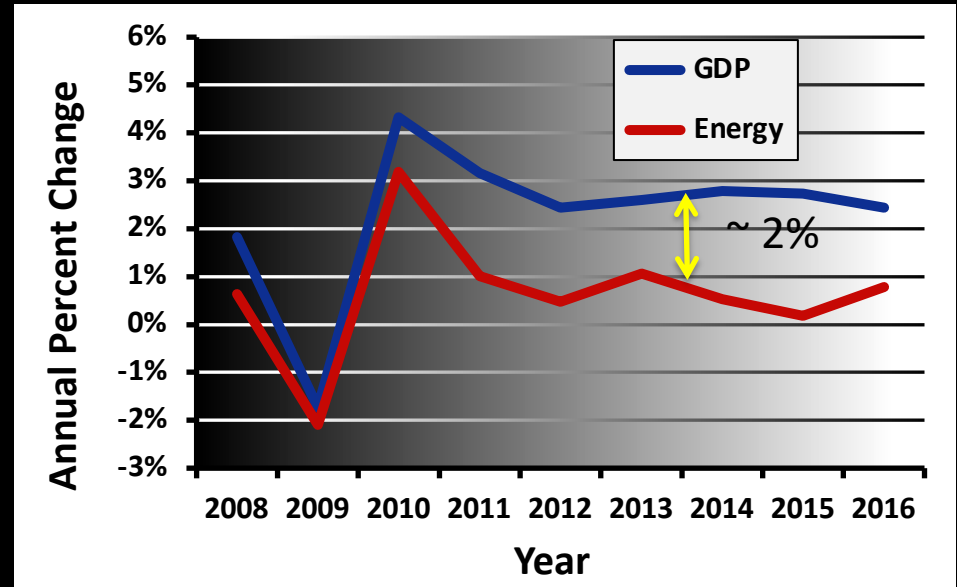
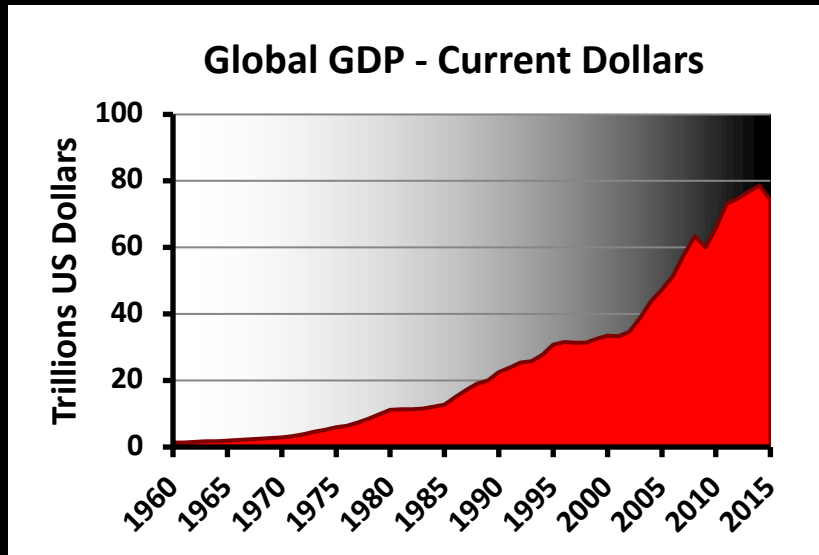
Growth

Growth of what?
and
For Whom?

Changing structure of the USA economy



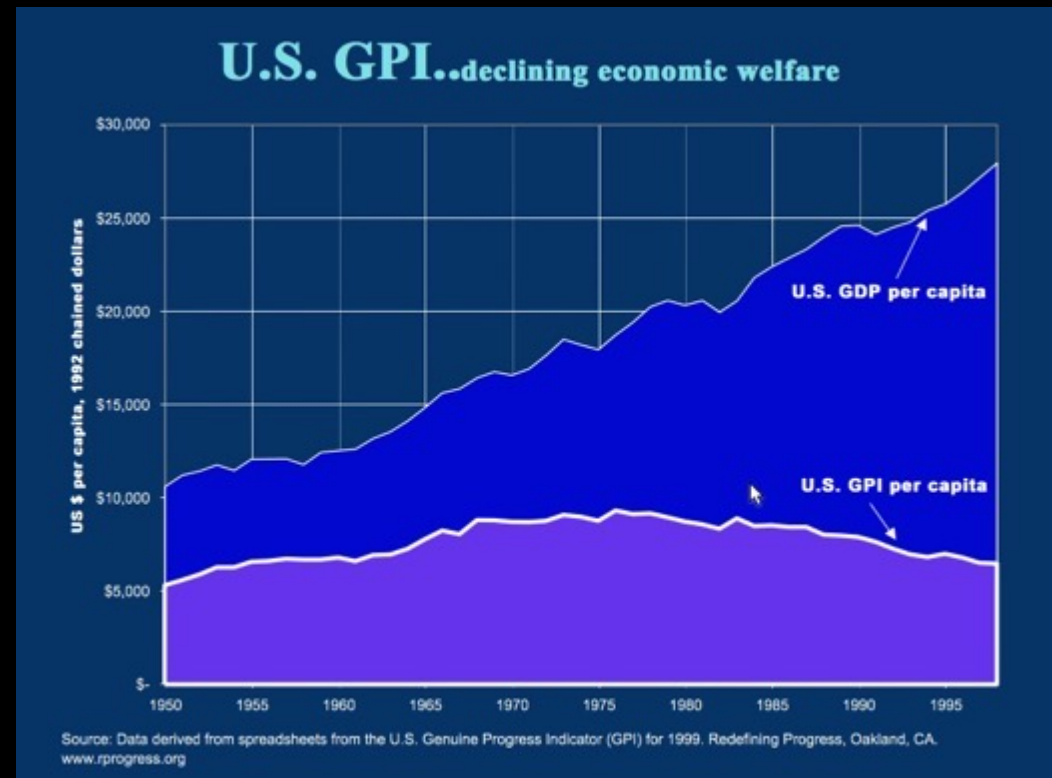
GDP and growth...



Growth

There are several alternatives to GDP which all suggest the same thing....Things are not nearly as rosy as the “establishment” would like us to believe.

...until now, the economics profession has not embraced any of these alternatives.



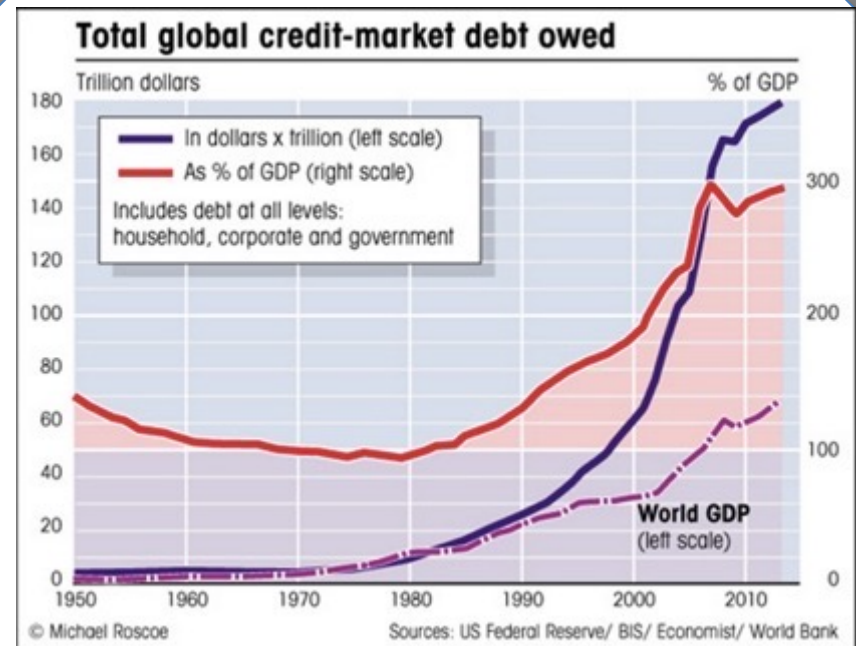
Growth

“Debt undoubtedly remains an essential tool for financing economic growth.”

Ben Bernanke former Federal Reserve Chairman

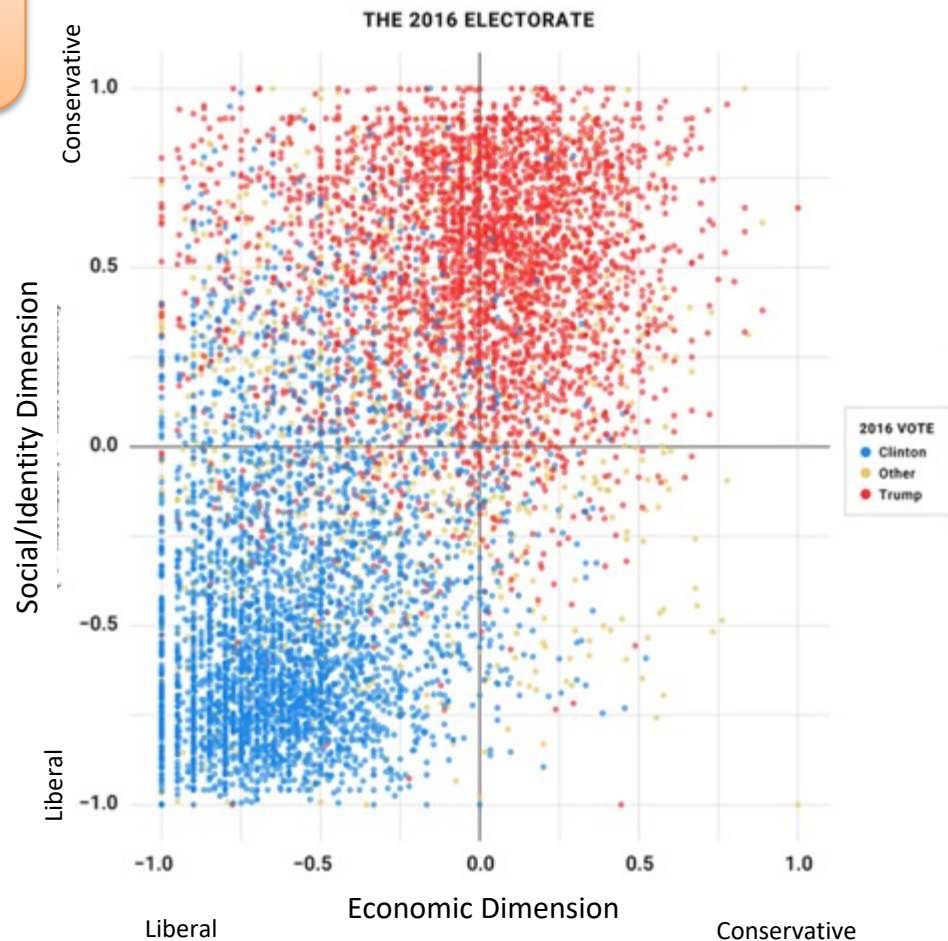
Almost 29% of global debt - \$57 trillion - has been accumulated in the relative short period since the 2008 financial crisis

The attempt to solve what was essentially a global debt crisis (2008) with mountains of more debt means we will have another global financial crisis - the question is not if... But when.



Changing the Mindset...

Drutman, L. 2017. Political Divisions in 2016 and Beyond.
Vote Study Group



https://www.voterstudygroup.org/publication/political-divisions-in-2016-and-beyond?campaign_id=116&emc=edit_pk_20221018&instance_id=74996&nl=paul-krugman®i_id=93764831&segment_id=110365&te=1&user_id=9fa653fa5285fc4af38b0b7a5fe9c83f

The Future Requires...

The Future Requires...

Collaboration not competition

Optimization not maximization

Cycling not throughput

Living with and within the environment rather than exploiting it

Networks of organization not linear patterns

Qualitative growth in place of quantitative growth

Above all, a change of mind set in all of us.

What to do...?

First, we must recognize the function of government. It is not to “run” the economy, but to determine sustainable scale of exploitation and fair distribution of resources.

Second, we must give legal standing to all living things on earth. While they cannot vote, they are essential to our existence.

Third, we need to re-orient the economic system.

Function of Government

Up to now, governments have defended political, economic and legal pressures to enclose, privatize and commercialize the commons.

They must now be re-oriented toward functions that insure 'common' ownership and stewardship of resources.

Function of Government

Following the lead of Peter Barnes (Capitalism 3.0) we suggest that government must create and enforce common property trusts that encompass all common pool resources....

Land

Water,

Air,

“Air waves”

All Natural Resources (oil, NG, minerals, & metals)

Etc.

They should be managed by a trust manager who is bound by law to manage them for the good of the trust holders , and that they may manage them in a way to generate income , but they cannot diminish the principal.

Function of Government

The “rent” (income) from the trusts belongs to everyone, equally...

How to share this income will be discussed in a moment.

Legal Standing

Provide legal standing to the environment, based on the idea that humans are part of nature, not separate from it, and the welfare of the entire system and all its members is dependent on the welfare of the Earth as a whole.

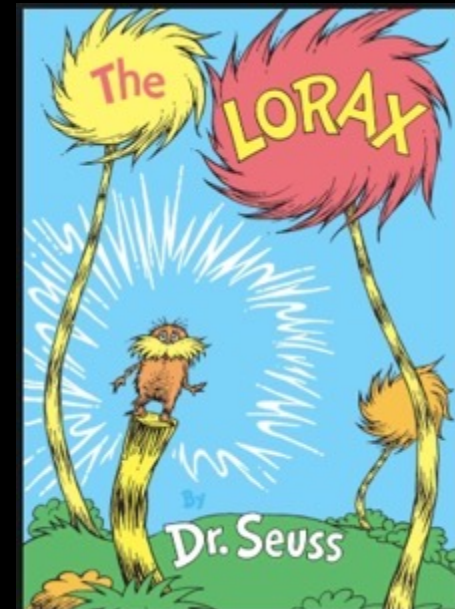
Human societies will only be viable and flourish if they regulate themselves as part of the entire Earth system...

...and do so in a way that is consistent with the fundamental laws and principles that govern how the universe functions.

Legal Standing

With legal standing, “the environment” can sue for redress from suffering a concrete injury as a result of some untended or actual activity.

“I am the Lorax. I speak for the trees. I speak for the trees... for the trees have no tongues.”



Re-orient Economics

First, completely overhaul our national accounts system

Second, create a debt-free money system

Third, provide universal dividends from the Natural Resource Trust Fund

Re-orient Economics

1. Overhaul Economic Indicators

Progress should be measured by new indicators of progress that account for benefits and costs related to well-being.

...and reflect the pillars of well-being,

Natural capital,

Social capital

Economic capital

Knowledge capital

Re-orient Economics

2. Debt-free money system

Creation of money should rest with the government, not the private banks

gradually raise the fractional reserve requirement from the present value (3-10%) to 100%

Creation of money should be tied to the supply of resources (the throughput of resources)

We need a public banking initiative

Re-orient Economics (cont'd)

3. Universal Dividends from NR Trusts

From the proceeds of the trust mentioned above...

1. Provide as a birthright, a single 1 time payment “opportunity fund” to each child as they are born.
2. Provide as a birthright, guaranteed annual income to every woman and man.
3. Provide for every citizen of earth free education and health care.

Only when the last tree has withered, and the last fish caught, and the last river been poisoned, will we realize we cannot eat money.

Cree Proverb.....



The superior man understands
what is right;
the inferior man understands
what will sell.

Confucius

It is time that we question the
prevailing “economic wisdom”



Thank You
