

Beyond Steady State Economics

Engineering a Steady State Economy

Sustainable Engineering Society

Hawken Auditorium, 24 November 2015 Brisbane

Richard Sanders *Quest 2025*

richard@quest2025.net

Director, Queensland Chapter CASSE



CASSE

**CENTER for the
ADVANCEMENT of the
STEADY STATE ECONOMY**

www.steadystate.org

Introduction



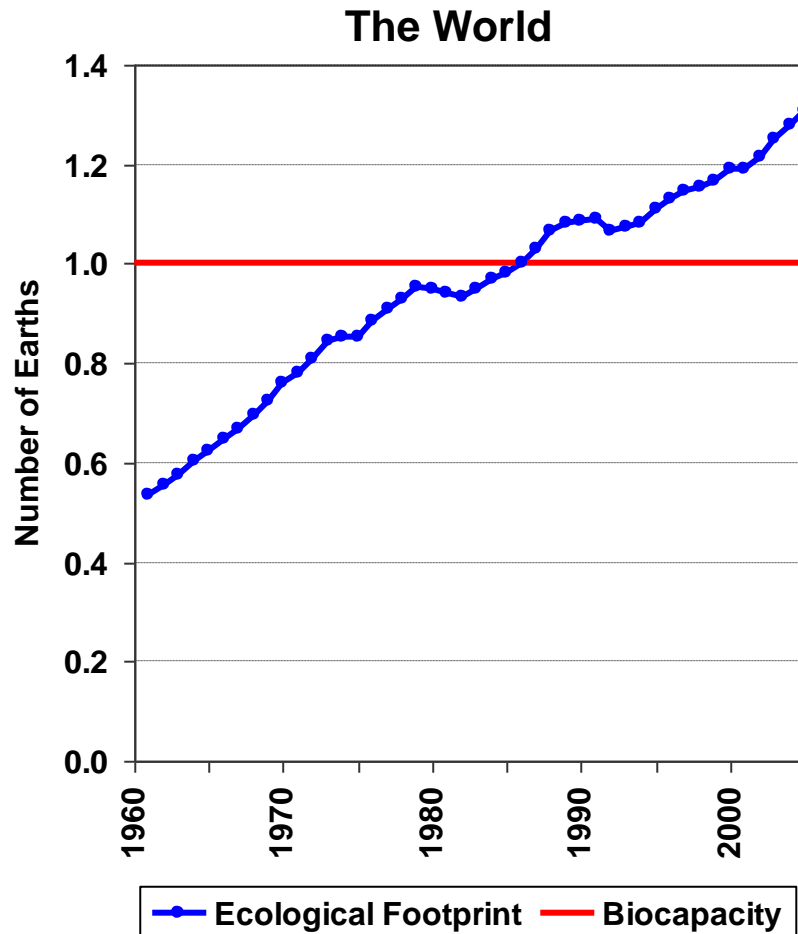
- The Earth can be likened to a spaceship
- A ball of rock hurtling through space cloaked in a thin veil of life – the biosphere
- The web of life continually replenishes the biosphere and keeps it in a stable far from equilibrium state unlike the Moon or Mars
- The biosphere is like a solar powered factory spontaneously producing matter and energy that is concentrated, structured and organised
- The biosphere is the primary economy producing the low entropy inputs for the human economy



Planetary Emergency

- ❑ Most of the ecological and biophysical gauges in the cockpit of spaceship Earth are in the red zone
- ❑ We are in a planetary emergency!
- ❑ Anthropocene – Humanity as geological force
- ❑ Impacts are devastating ecological integrity
- ❑ In terms of Ecological Life Support:
 - ❑ CO₂ is over 400 ppm. Safe level is 350 ppm
 - ❑ Sixth major extinction event in the planet's history
 - ❑ Humanity has overshoot planetary carrying capacity

Global Ecological Overshoot



Source: Global Footprint Network

- We are in a state of *overshoot*
 - Resources are being used faster than they can be regenerated
 - Wastes are being produced faster than they can be assimilated

- Economic growth is liquidating our planet's ecosystems and will lead to the collapse of human civilisation if it continues



Human Emergency

- ❑ Ever growing gap between rich and poor
- ❑ Peak everything as we hit limits
- ❑ Severe overpopulation (7.3 bn, Smil)
- ❑ Loss of community and the citizen
- ❑ Illusion of democracy (economic democracy for rich?)
- ❑ Affluenza – are we happy? Individuated and alone

Systemic Root is the Economy



- ❑ What is the systemic root of this emergency?
- ❑ Its not greed or selfishness
- ❑ Its not population growth (Green Revolution)
- ❑ These are consequences (symptoms) of an ideology legitimated by flawed economic system
- ❑ It can't be fixed, it must be transformed!
- ❑ Steady State Economy / Society



Unsustainability: Market Failure

- ❑ Ecological unsustainability occurs when the human economy consumes low entropy more quickly than nature can generate it
- ❑ Inter-generational equity (non-declining K^N)
- ❑ Intra-generational equity
- ❑ Economic system (markets + financial system) fails its promise by grossly misallocating resources and breaching the sustainability criteria
- ❑ Over allocating from planet into economy
- ❑ Under allocating to the majority of humanity

Economics – Flawed Paradigm



- ❑ Literally dealing with human Survival
- ❑ A flawed paradigm destroying our world
- ❑ Argue the Survival of human civilisation demands a new economics based on physical reality
- ❑ Introduce a new economic paradigm based on physical reality, not ideology and meaningless abstractions of conventional economics
- ❑ Pleased to address audience of engineers as you get physical reality (unlike economists who don't)

2 Systems: Money and Markets



- ❑ Economic system consists of 2 systems
- ❑ Financial system & Market system
- ❑ Both are highly abstract and disconnected from physical reality
- ❑ Money paid little attention by economists – seen as neutral
- ❑ Reality is financial system is a system of power (so lets keep it a mystery!)

Financial System



- ❑ Fractional reserve banking drives exponential growth – it's a pyramid scheme
- ❑ Private banks create new money as interest bearing debt (Bank of England, March 2014)
- ❑ World's money growing at 6% compounding for past 300 years
- ❑ 1c @ 6% for 1992 years = $\$2.5 \times 10^{48}$
- ❑ = 100 000 galaxies of a billion suns of pure gold!
- ❑ Money is not wealth but a claim on wealth

Financial System



- ❑ Sustainability problem = exponentially growing claims on natural capital realised through globalised markets
- ❑ Financial system drives ever increasing inequity
- ❑ Financial system being a pyramid scheme will collapse at some point
- ❑ This design of financial system will lead inevitably to ecological breakdown, ever increasing inequity and eventual financial system collapse no matter where in the universe it is adopted

Origins of Economics (Market)



- ❑ Economics is a very recent invention
- ❑ Didn't exist as a coordinating mechanism for society pre 1700 (no markets for K or L)
- ❑ The invisible hand: self interest = social interest
- ❑ 1 reference: A. Smith. IV:2 specific limited case about investing domestically vs abroad
- ❑ Grounded in primitive, outmoded 18th century worldview



Mysticism or what?

- ❑ Founding fathers and finding God's Laws
- ❑ Helmholtz's equations (random theory chosen!)
- ❑ J M Keynes (greatest of 20th C) to Hicks:
 - ❑ "I shall hope to convince you some day that Walras' theory and all the others along these lines are little better than nonsense"
- ❑ Leontief Am.Econ.Assn. Presidential Address 1971
 - ❑ Economic models "unable to advance the understanding of the operation of a real economic system"
 - ❑ "professional economic journals are filled with mathematical formulas leading the reader from sets of more or less plausible but entirely arbitrary assumptions to precisely stated but irrelevant theoretical conclusions"

Economics: a Flawed Paradigm



- ❑ Economic theory is fundamentally flawed – economics can in principle deliver neither efficiency nor maximise the welfare of society – if anything it does the opposite
- ❑ Economy does not operate according to economic theory anyway but legitimates neocon ideology
- ❑ Reality is chrematistics - art of making money
- ❑ The financial and economic systems constitute a system of power that transfers effort and purchasing power up the pyramid from the many to the few



Market Failure

- ❑ Can only inefficiently allocate abundant resources on basis of their relative scarcities (i.e. price)
- ❑ Allocates by exclusion
- ❑ Explicitly ignores equity
- ❑ Not technically efficient thermodynamically
- ❑ Theoretically impossible to devise automatic mechanism efficiently allocate absolutely scarce resources – this is the NEW ECONOMIC PROBLEM



Steady State Economics

- ❑ Allocating resources in an inter- and intra-generationally equitable way
- ❑ Place a global cap on the physical scale of the economy that keeps it within sustainability limits
- ❑ Put in place equity constraints to ensure all have equitable access to the capped resources
- ❑ Then use the market to allocate efficiently within these prior constraints
- ❑ Introduce 100% reserve financial system

Steady State Economics Fails!



- ❑ Unfortunately the Steady State Economics solution fails by relying on market to allocate
- ❑ The sustainable resource flow to sustain 7.3 bn is a 'trickle' – the interest on what's left of nature's capital = 90% reduction for Australia/US/wealthy
- ❑ It fails because if there is not enough to go around then its first in best dressed and some miss out
- ❑ It fails because markets cannot 'decide' what needs to be produced. Producers do that.

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Tech Solution for Living off a 'Trickle'



- ❑ 100% reserve financial system to stop growth
- ❑ Physical budgets for critical natural capital
- ❑ Participatory democratic process for deciding where absolutely scarce resources should be allocated in production
- ❑ Technical efficiency analysis to ensure most efficient use of resources in production
- ❑ Allocation for consumption is primarily by simple rationing

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Tech Solution continued



- ❑ Shift from economics to provisioning
- ❑ Limited hours of paid work shared equally
- ❑ Shorter working week/ contraction of production
- ❑ Abolish the private corporation
- ❑ Aspire to co-creating a civilisation truly worthy of our humanity based on natural 'laws' and the better side of human nature selected by evolution rather than the economic ideology that transgresses these laws and legitimates negative human traits

Thank you!



Richard Sanders

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<http://steadystate.org/act/sign-the-position/>