

What is Sustainability?

Sustainable Development

- “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs”
 - *Our Common Future/ Brundtland Report, 1987*

Goal

- To develop?

Some of the most threatening environmental problems are caused by widespread poverty

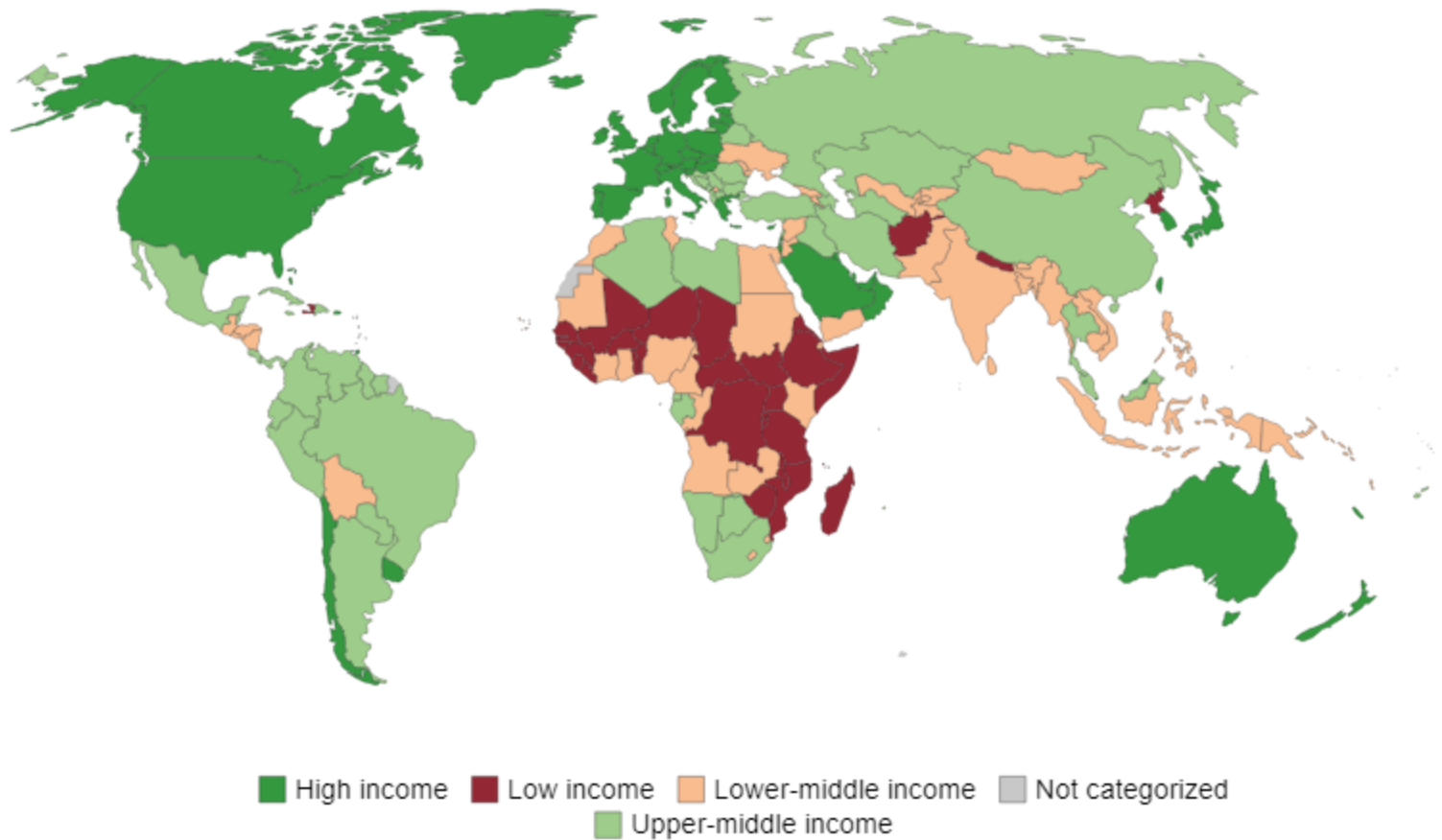
–Or

- To sustain?

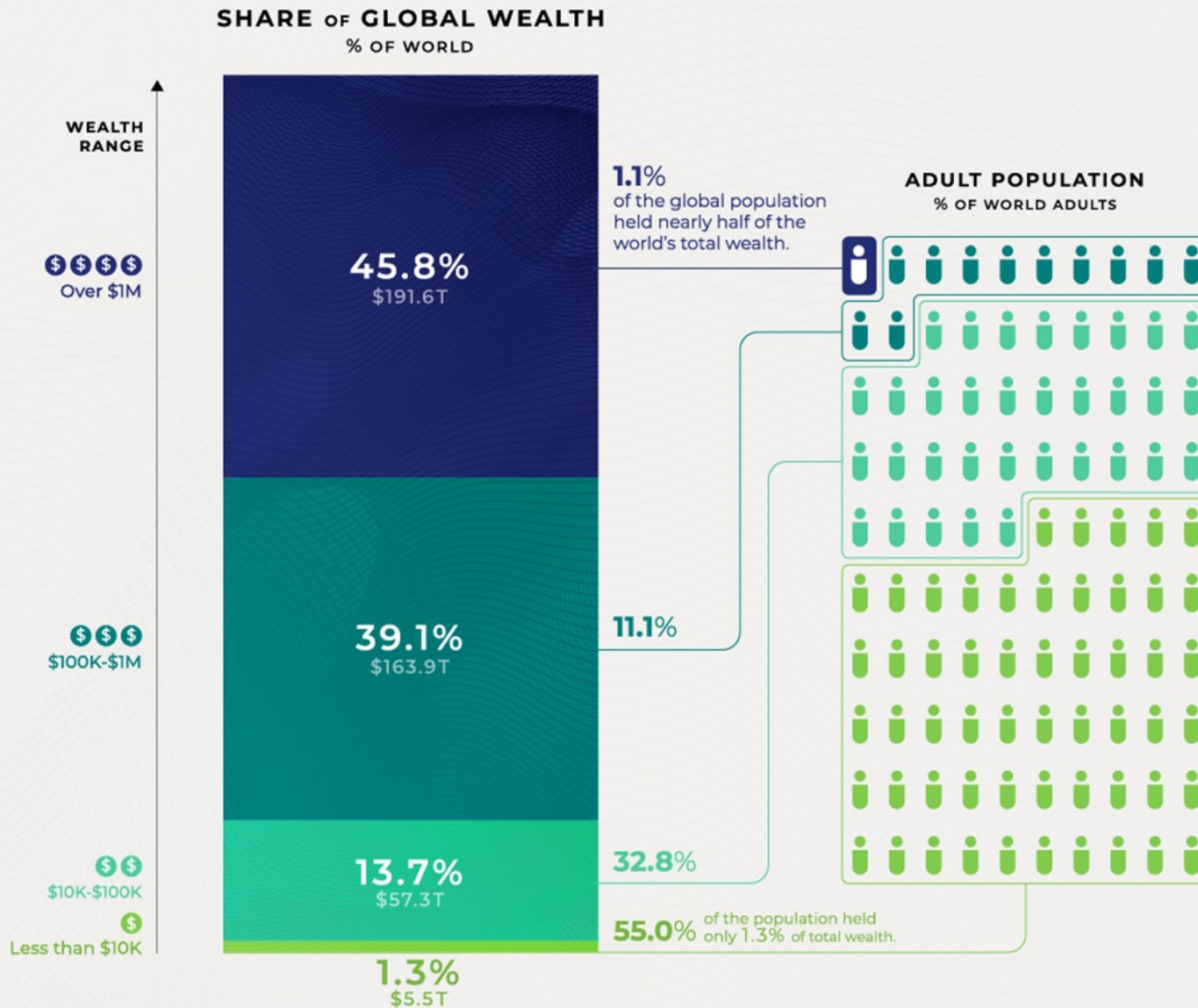
Development is based on utilizing/squandering our biological capital

World Bank's Income Groups, 2016

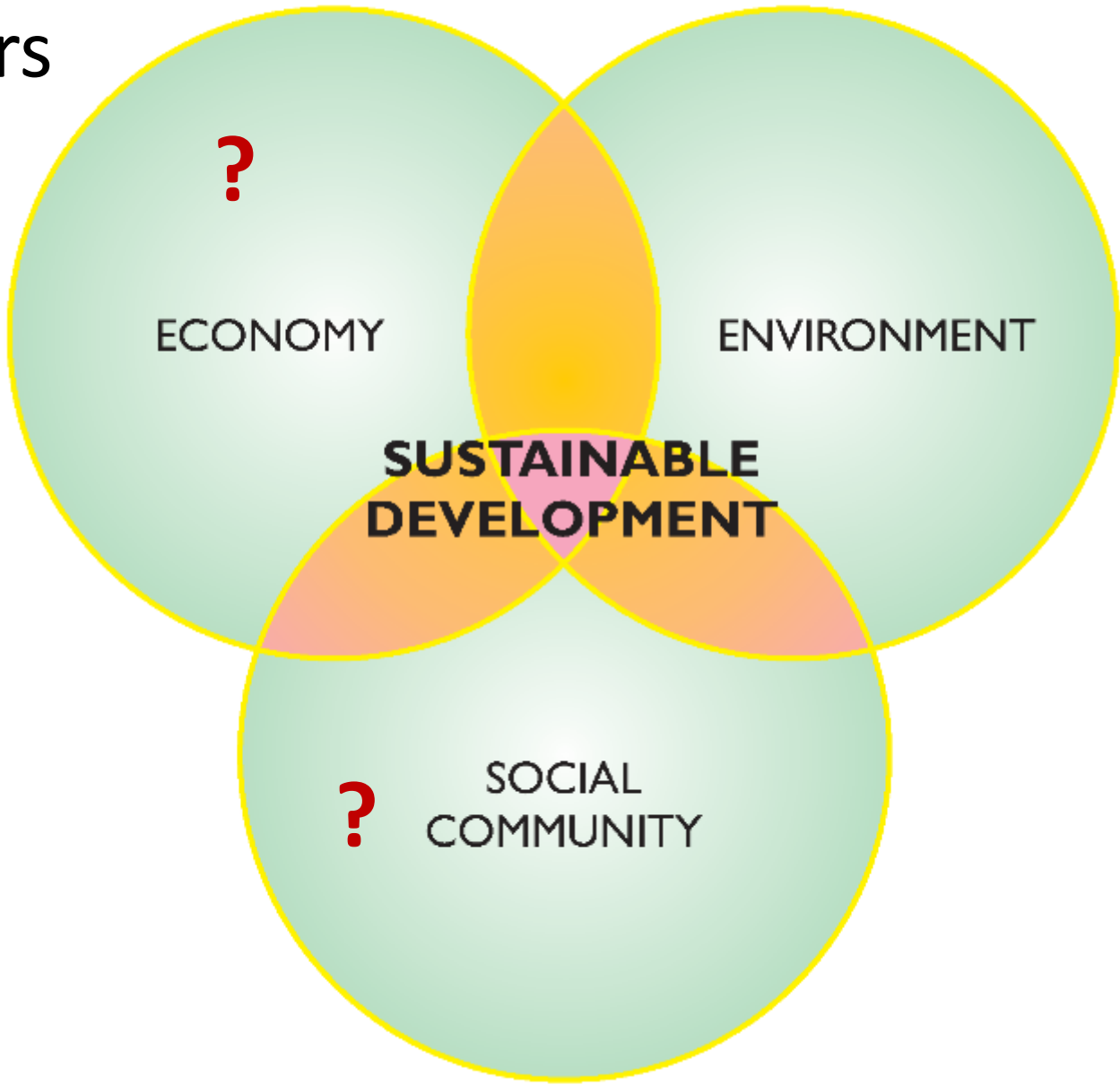
The World Bank's income classifications split countries into one of four categories determined by the country's gross national income (GNI) per capita in US\$. The GNI thresholds between income groups has changed through time based on World Bank definitions.



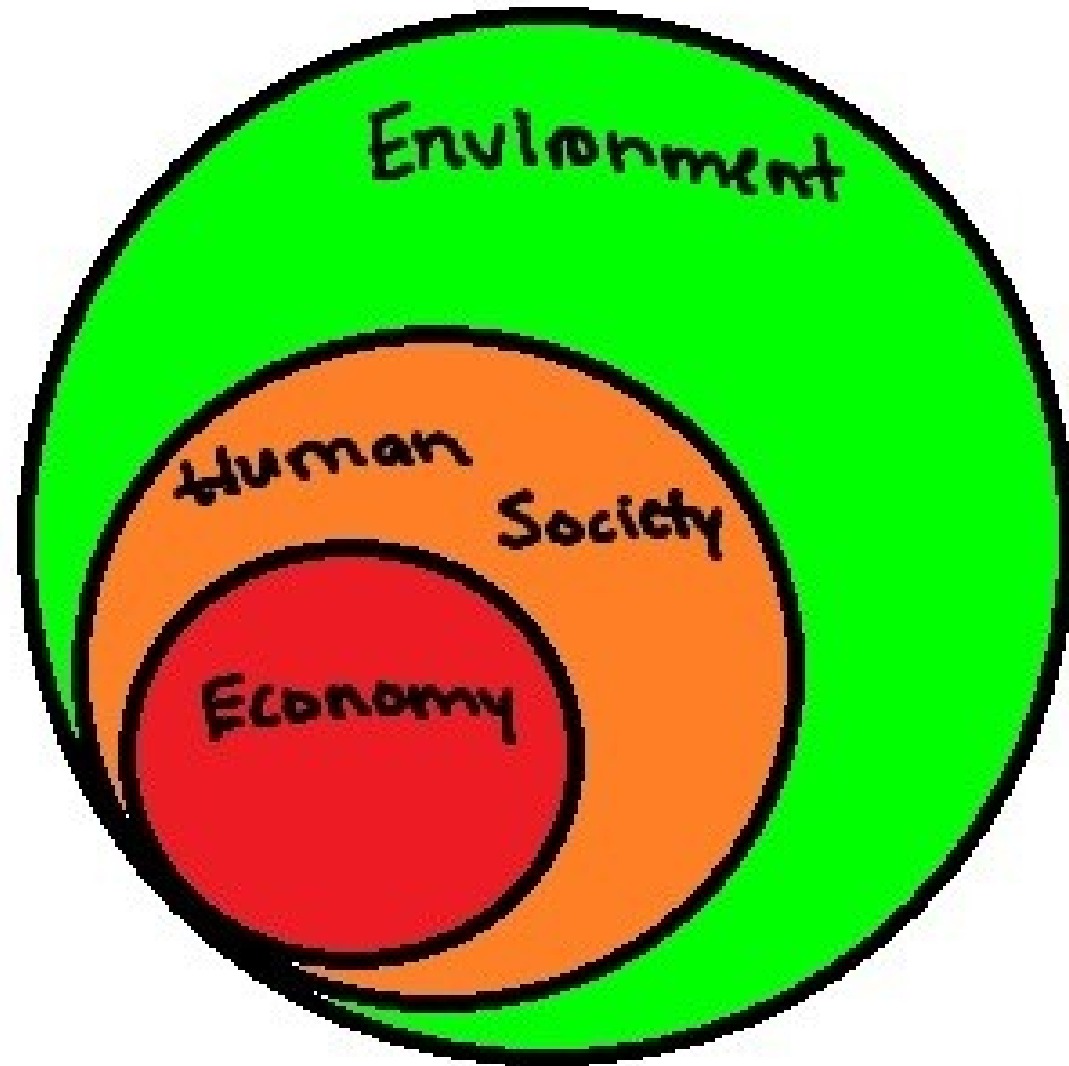
THE GLOBAL WEALTH DISTRIBUTION



Three pillars of SD



Environment is foundation for all aspects, others are subsets

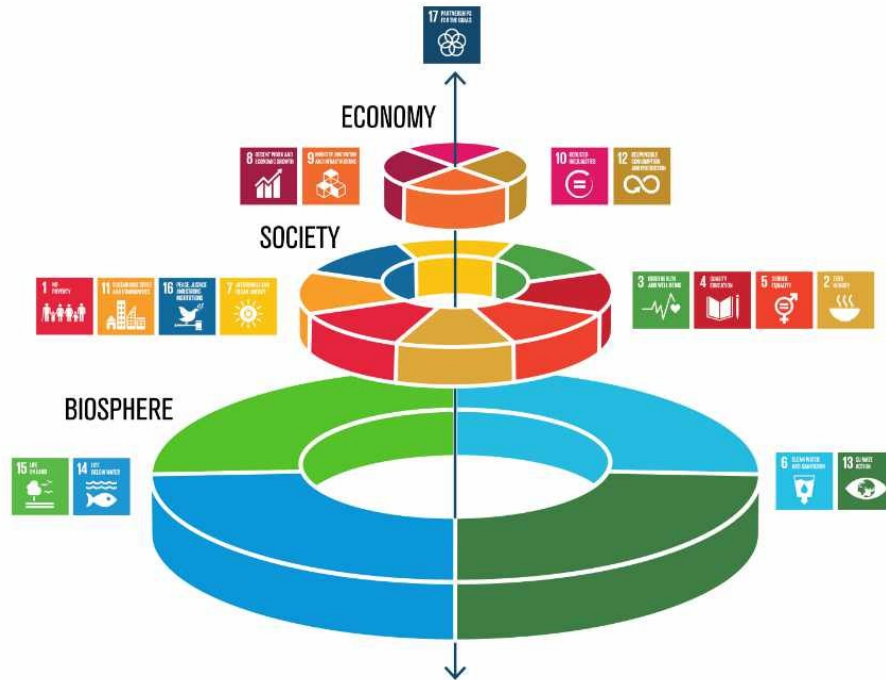


Nested hierarchy is more appropriate than Venn diagram

SUSTAINABLE DEVELOPMENT GOALS



Adopted September 2015 – also called Agenda 2030



Sustainable Development vs Sustainability

- Sustainable Development: “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” – *Our Common Future/ Brundtland Report, 1987*
What are “our needs”?
- Sustainability: a system’s ability to create and maintain self-organizing processes



Hurricane

https://en.wikipedia.org/wiki/Hurricane_Irma



Tornado

<https://www.weather.gov/safety/tornado>



Ecosystem



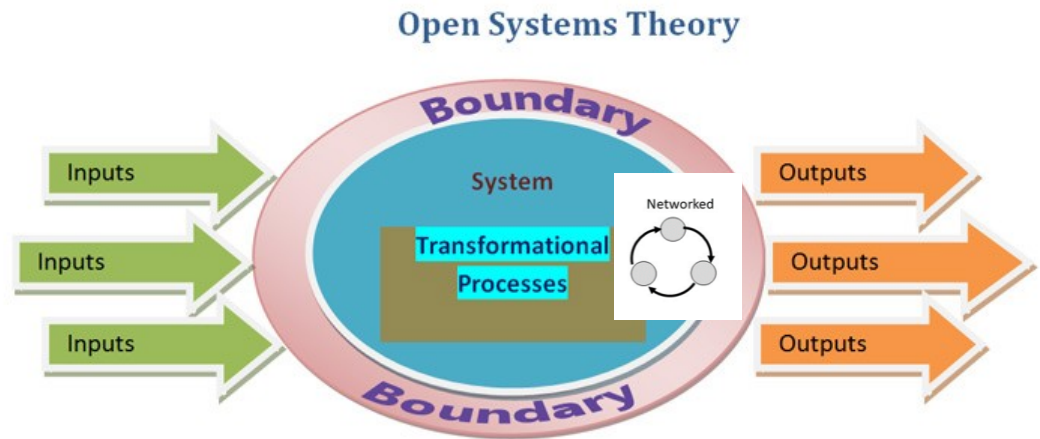
City



Campus

All are open systems with energy driving and maintaining the processes

All import, reuse, and export resources (water, wood, waste, minerals, metals, materials, etc.)

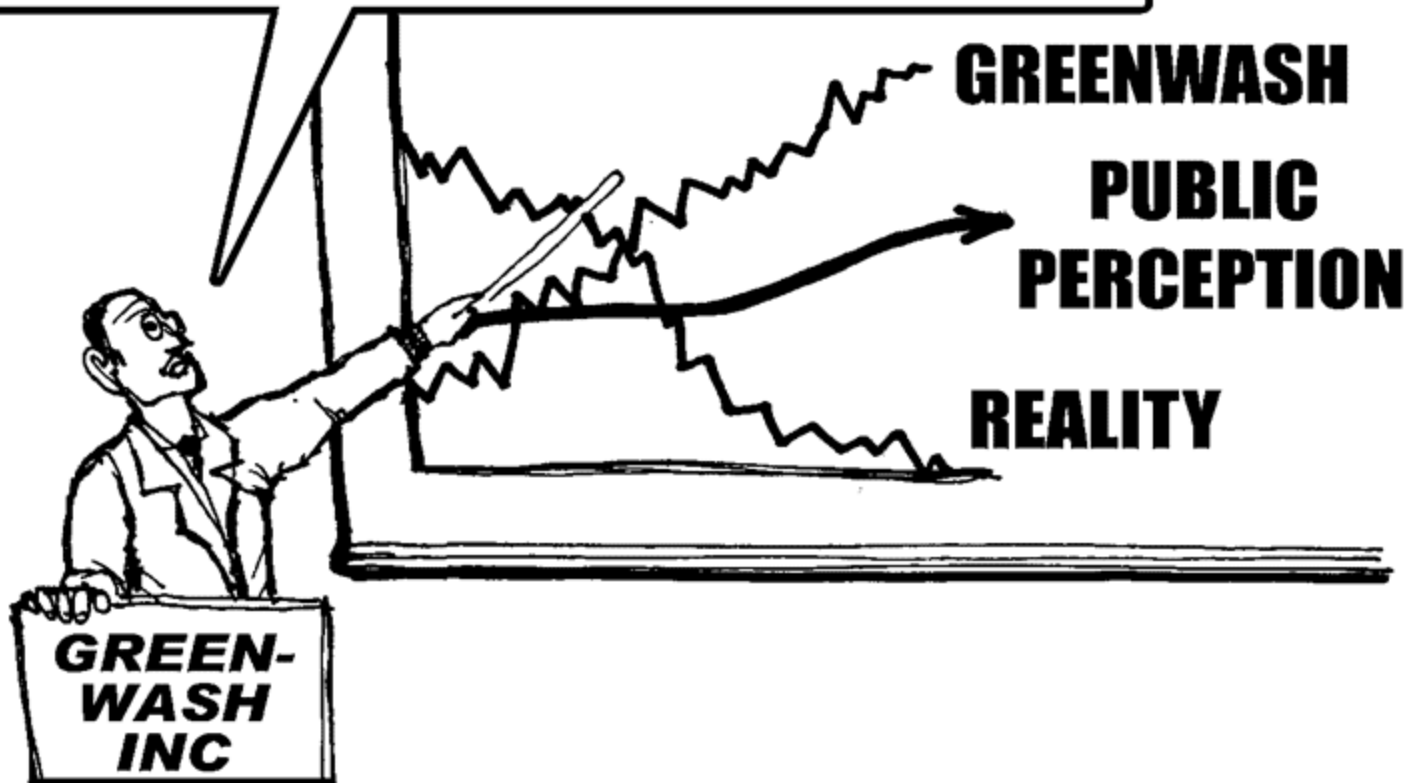


Misuse of the term sustainable

- Adjective that means “green” or “eco-friendly”
- “A little better for the environment than the alternative”
- Doing “better” is not enough
- Greenwashing
- Reducing unsustainability



*YOU CAN IMPROVE PUBLIC PERCEPTION BY
OFFSETTING THE REALITY OF YOUR PROJECT
WITH MORE INVESTMENT IN GREENWASH INC*





Any examples in advertising that you have seen?



Taking inventory who's responsible?



Producer
responsibility



Consumer
responsibility

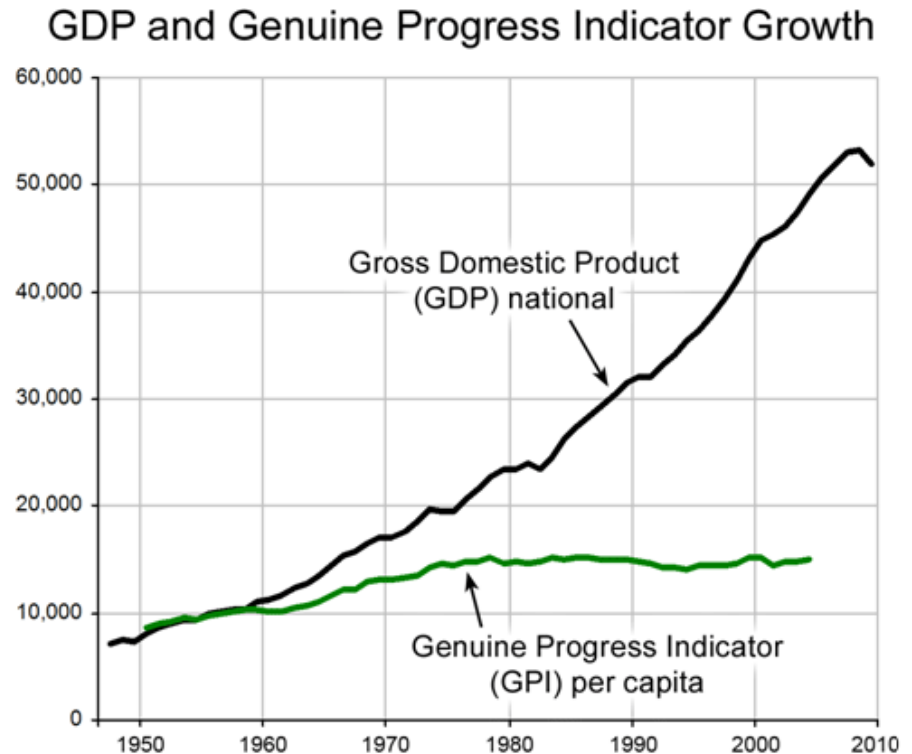
What are we tracking?

- If development is not sustainable, is it development – why so many bad decisions?

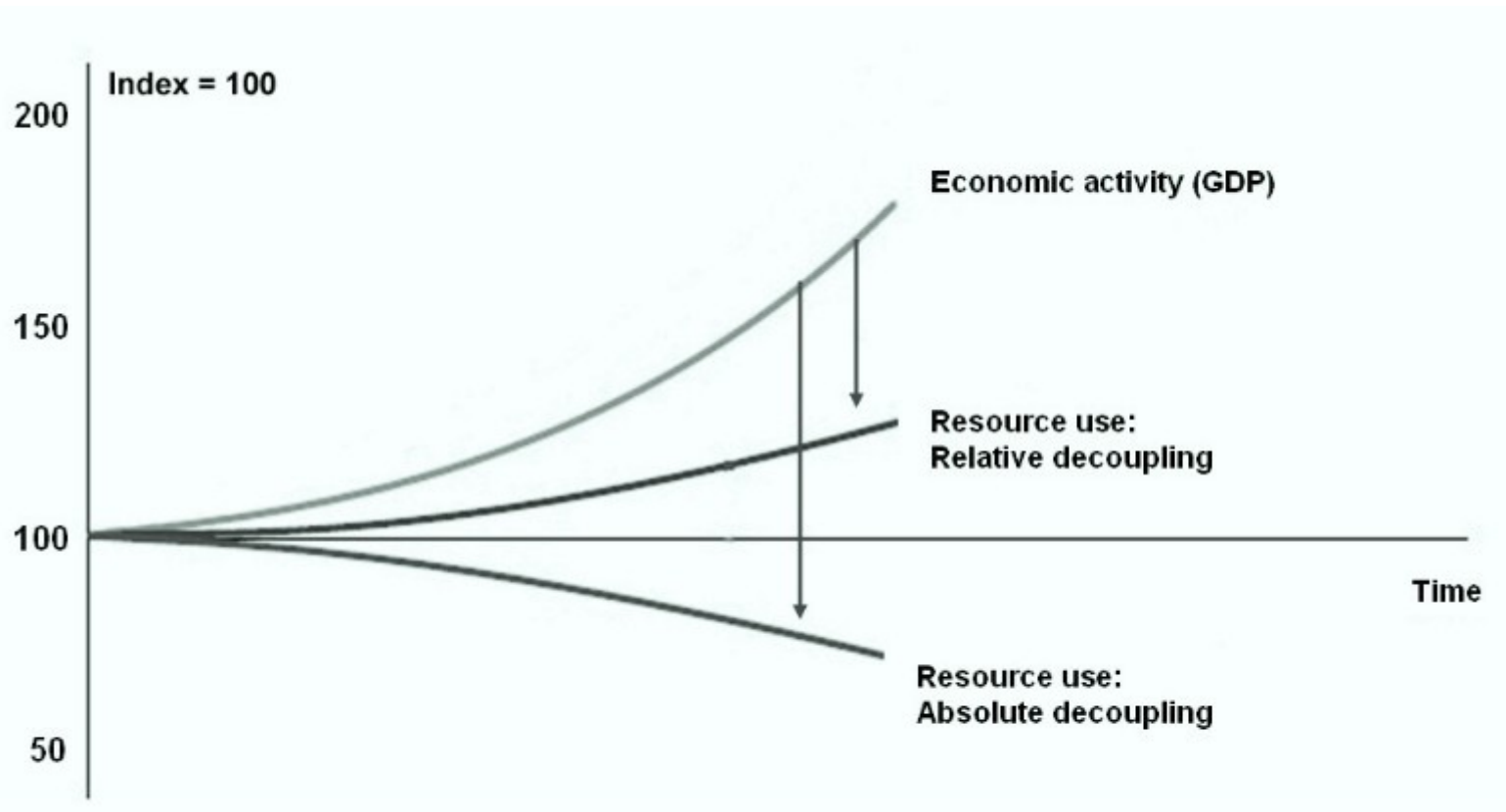
What are we tracking?

- Economic indicators get most of the attention in media and by politicians

Triple Bottom line:
Environmental, Social, &
Economic Development



Technology will save us: Decoupling – greater resource efficiency

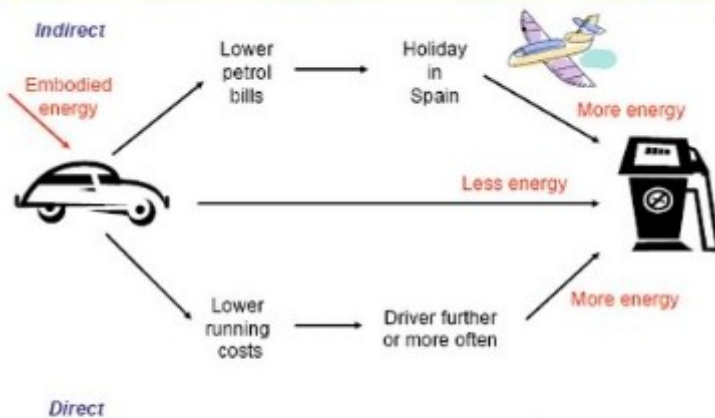


Decoupling –greater resource efficiency

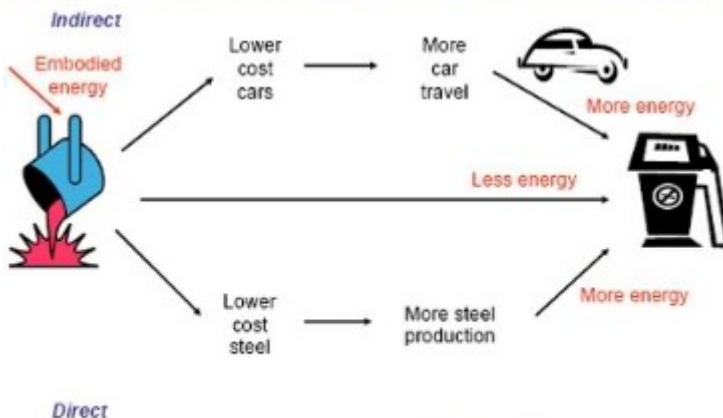
- Being more efficient saves resources.
- If you save resources, namely energy, what are ways that you use the savings?

Decoupling – greater resource efficiency leads to rebound effect

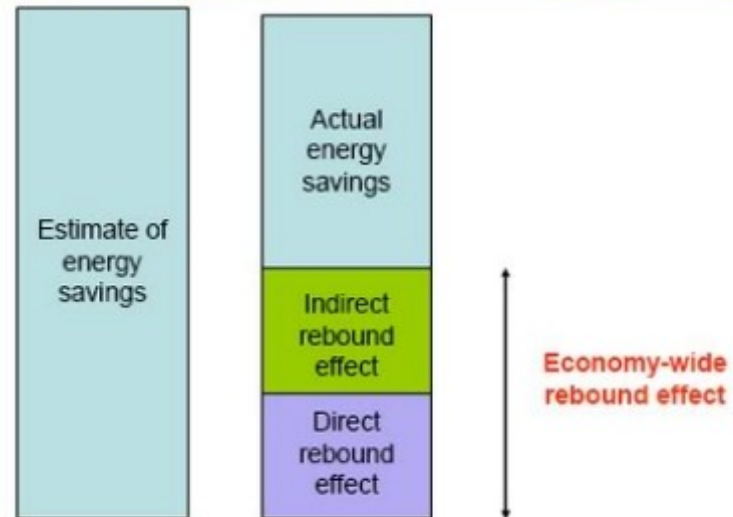
Rebound effects - consumers



Rebound effects - producers



Economy-wide rebound effect



Do more with less

degrowth

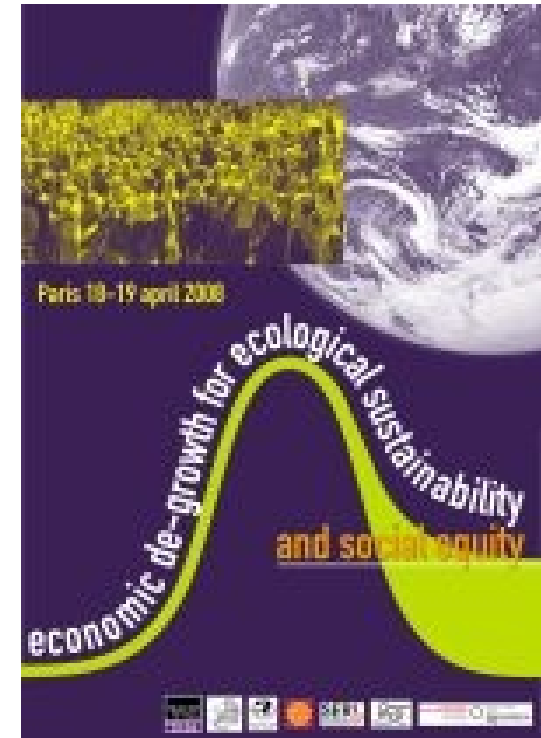


- Reduce scale to fit within planetary boundaries



'THE SAME BOAT'

Do less



Degrowth

- Can you think of an example where people might be willing to do less?
- Can you think of an example where doing less can improve overall well-being, health, or happiness?

TheUpshot

ECONOMIC TRENDS

We're in a Low-Growth World. How Did We Get Here?



Neil Irwin @Neil_Irwin AUG. 6, 2016

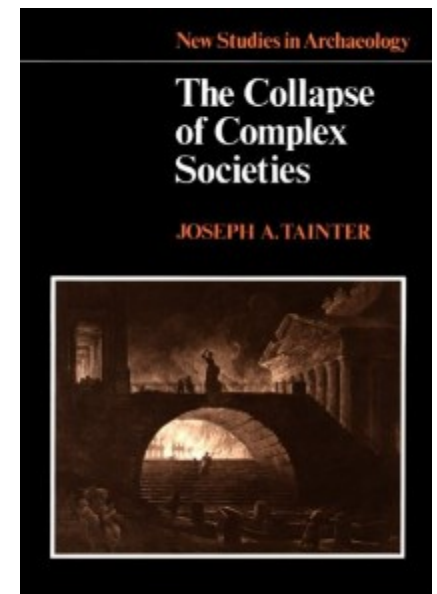
One central fact about the global economy in 2016 is that it's been... the year's remarkable headlines: Economic growth in advanced nations has been weaker for longer than it has in decades. For the first time in the lifetime of most people on earth.

No mention of natural resources or environment

... increasingly looks as if something fundamental is broken in the global growth machine — and that the usual menu of policies, like interest rate cuts and modest fiscal stimulus, aren't up to the task of fixing it (though some well-devised policies could help).

Is sustainability still possible?

- “Growing human populations are eating more meat, using more carbon-based energy, shouldering aside more natural resources, and tapping into more renewable and nonrenewable commodities than ever before.”
- “If humanity fails to achieve sustainability, when, and how, will unsustainable trends end?”

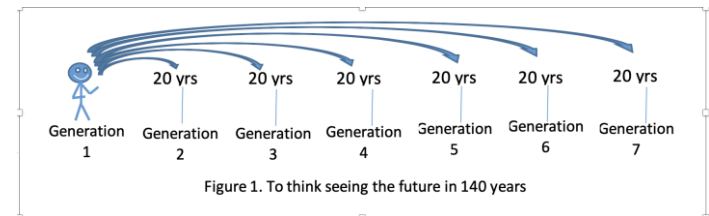


Is sustainability still possible?

- Why has it proved so hard to conform human behavior to the needs of a life-supporting future?
- Our political and economic institutions evolved before anyone imagined the need to restrain human behavior out of concern for the future.

Great Law of the Iroquois

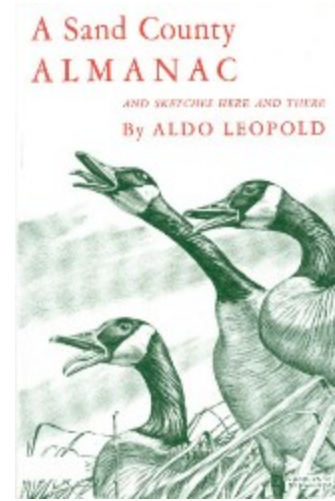
- In every deliberation, we must consider the impact on the seventh generation (~140 years into the future)
- What is the purpose of expressing concern for the consequences of decision-making down to the seventh generation from their own?
- We don't inherit the earth from our ancestors, we borrow it from our children



Guidance for answers

- Western insight into the needed physical and ethical transformations

Aldo Leopold



- Forest Service and Wisconsin professor, eloquent and passionate writer of our duty to protect balance of nature: humans should extend to nature the same ethical sense of responsibility that we extend to each other.
- A Sand County Almanac (1949) – regarded as the most influential book on conservation ever written.
- “The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land.”



Rachel Carson

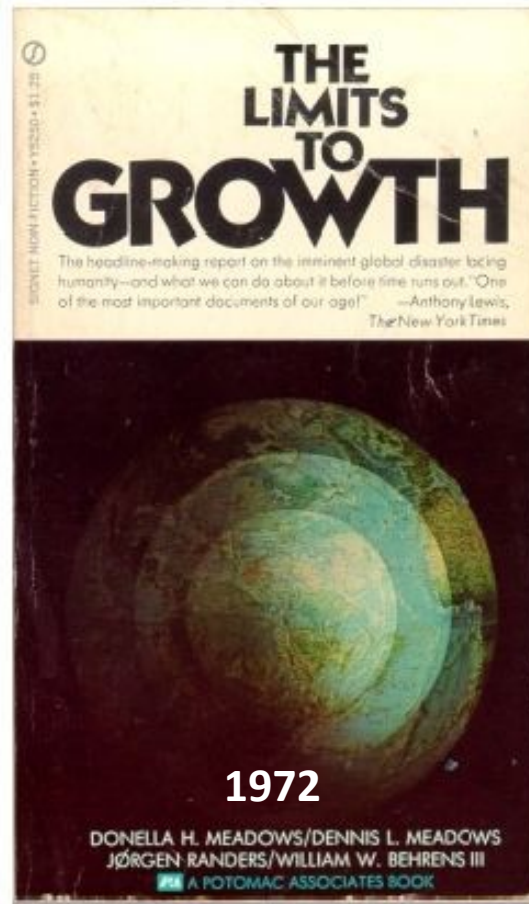


- 1960s – **The modern environmental movement is born**
- 1962 *Silent Spring*
- Carson, writer and marine biologist, told how chemical use on farms, forests, and gardens, poison the environment. Insects were dying (not just the pest species) which meant no food for the birds. No birds, no bird song – a silent spring
- Public awareness that humans are damaging environment

1st Earth Day 1970



Donella Meadows and Club of Rome



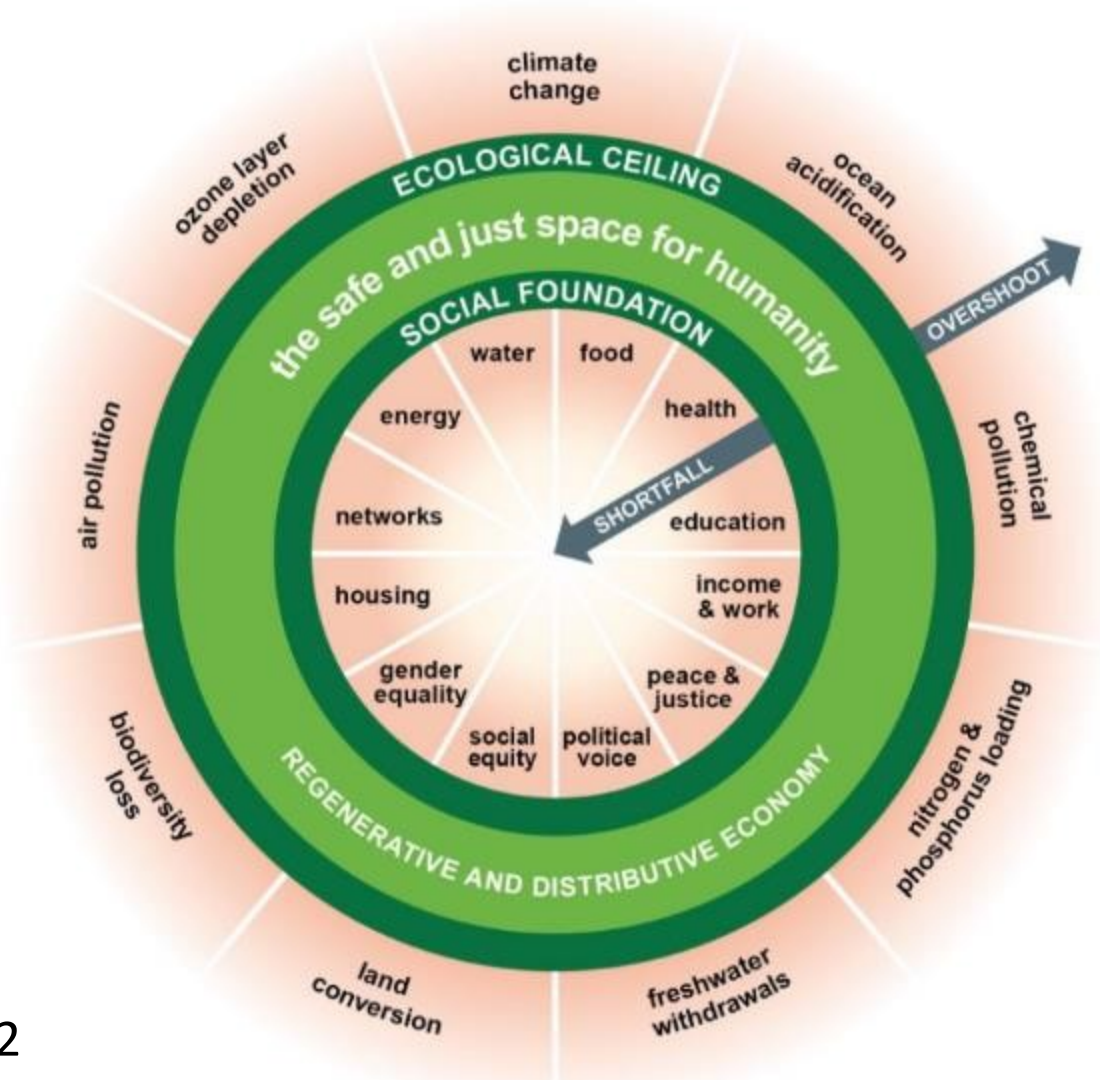


Planetary Boundaries – Stockholm Resilience Centre



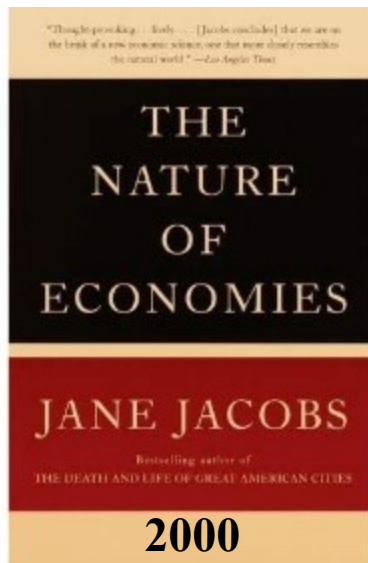
2009

Donut Economics – Kate Raworth



Limits to Growth

- *“Natural principles of chemistry, mechanics and biology are not merely limits. They’re invitations to work along with them.”*



Jane Jacobs



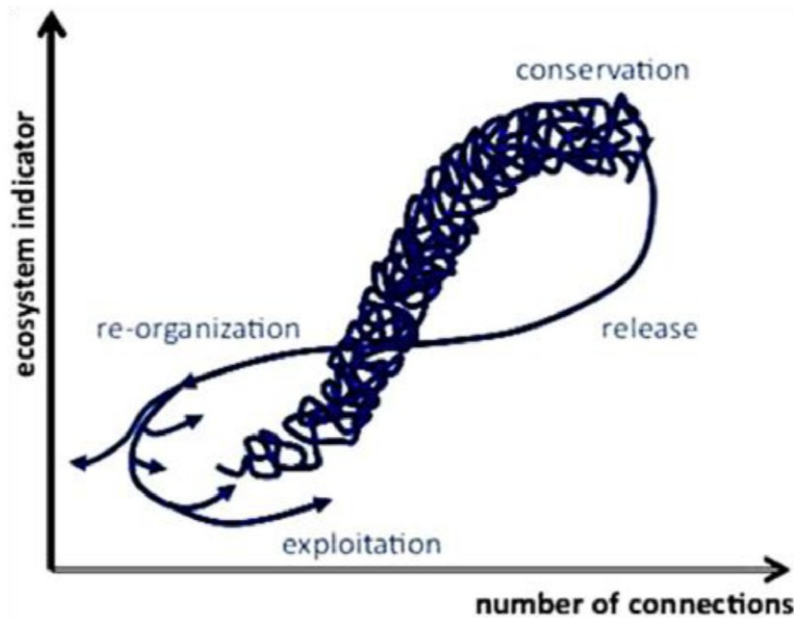
- *“There are limits. Let’s celebrate the limits, because we can reinvent a different future.”*



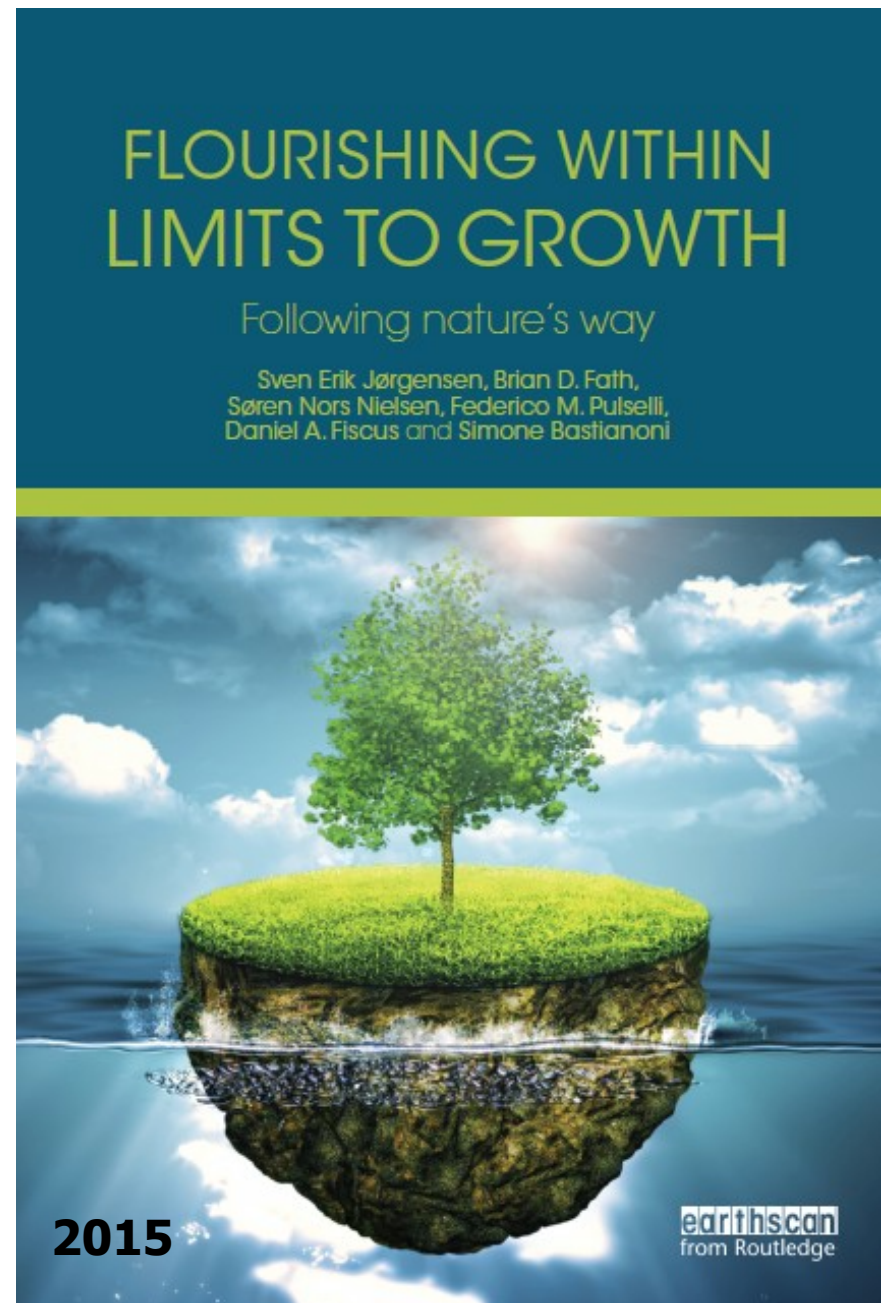
Sunita Narain
This Changes Everything 2015



Ecosystems do quite well under constraints, let's learn from them



There is a right time to grow, it is just not always



clubofsiena.eco-soft.dk

Steps forward

- Identify a shared common vision that respects planetary boundaries
- Enhance built environment by mimicking natural processes
- Systems thinking at all levels of decision-making
- Define sustainability and measure/monitor if current trends are heading toward or away from these trajectories
- Generational leadership initiates transformative change

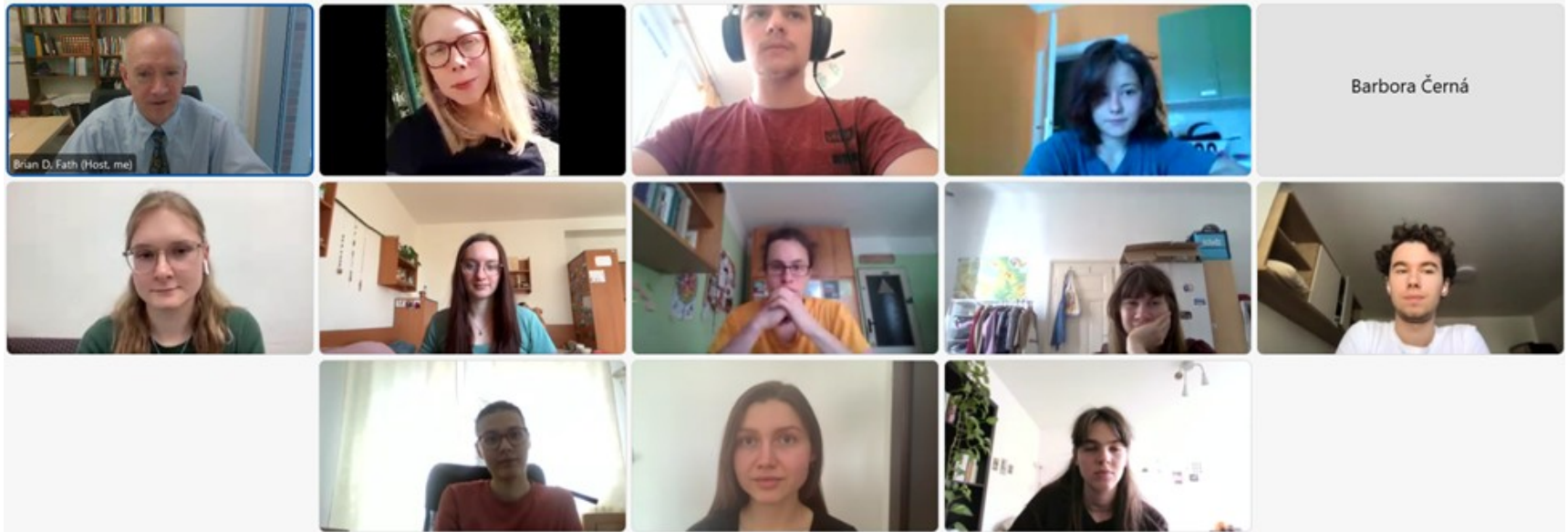
Conclusions

- Change our dominant paradigm
- Use systems thinking and ecosystem thinking
- Address the root causes of environmental problems
 - Ask yourself where does stuff come from: Food, clothes, electronics, water, energy
 - Where does it go when I flush it or throw it “away”?
- See connections, make connections
- Care about yourself, care about place
- Enlist a cadre of excited, eager, and enthusiastic colleagues to explore, discuss, improve, spread, and implement these ideas!

- HAVE FUN!



THANK YOU FOR YOUR ATTENTION



Second group photo

