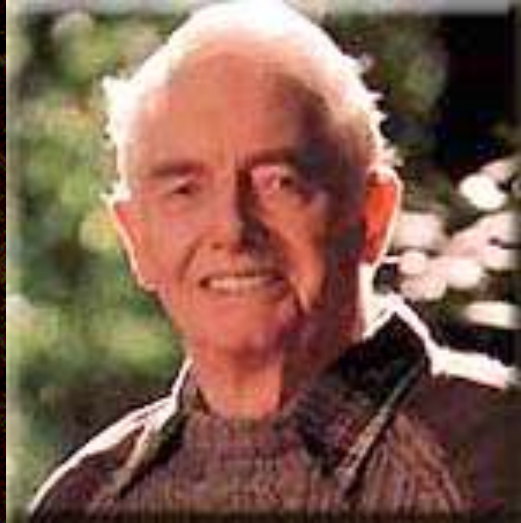


NATURAL CAPITALISM SOLUTIONS



DECOUPLING;
KEY TO CREATING AN ECONOMY
IN SERVICE TO LIFE



David Brower:

What do we want the earth to be like fifty years from now? Let's do a little dreaming.

Aim high! Navigators have aimed at the stars for centuries. They haven't hit one yet, but because they aimed high they found their way



Our work is to put forth a narrative that shows how to create a world that works for 100% of humanity.

The key to this is decoupling – no future is possible without it



Humans learn by telling stories.

Science, facts, modeling are all critical, but the real need now is for a story that and gives people a place to stand, to hold on to.

People are afraid, confused - they need a new story about an economy that doesn't trash the planet, that has a place for people, for life.

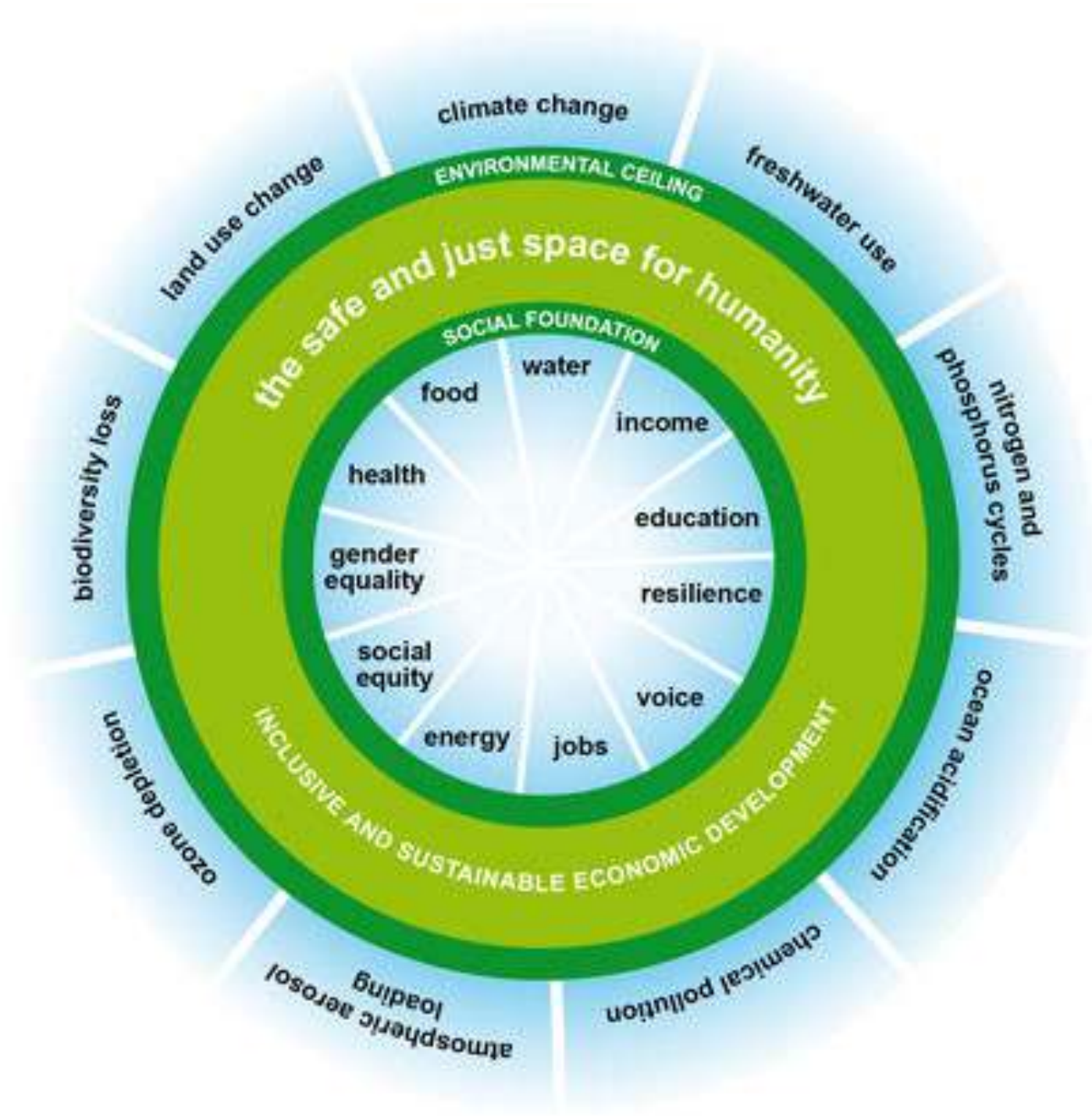
New Story

1. It's better business: you'll make more money
2. People want it
3. It's happening
4. We have no choice: BAU = collapse

Humanity stands
on the edge of a
crumbling cliff.

Most of the
world's people
live on
precarious
edges of one
sort or another,
watching it all
unravel

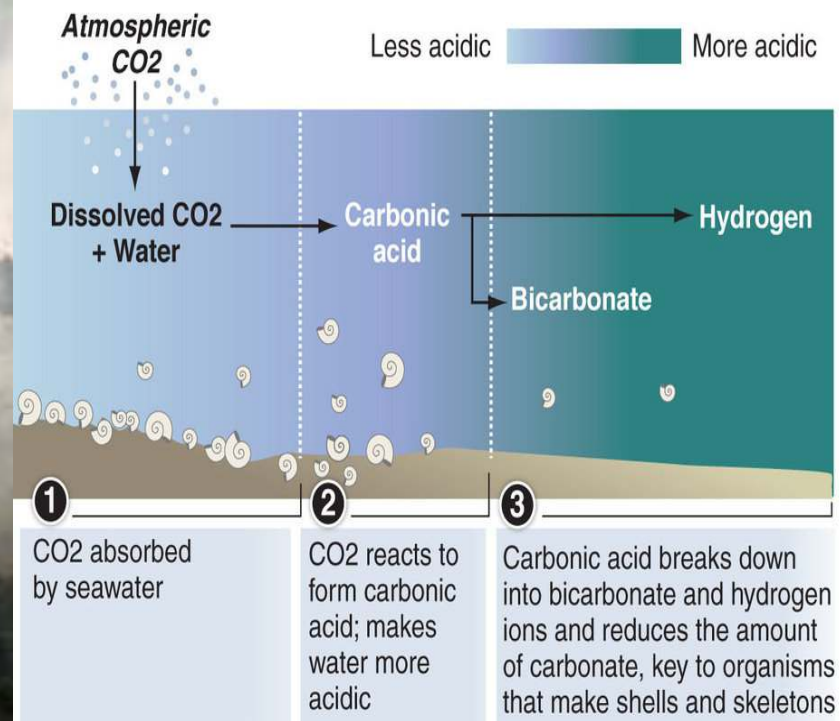




Global Biodiversity Outlook Three -

Oceans turning acidic

Higher carbon dioxide (CO₂) emissions from human activity are acidifying the oceans and could harm everything from plankton to whales.



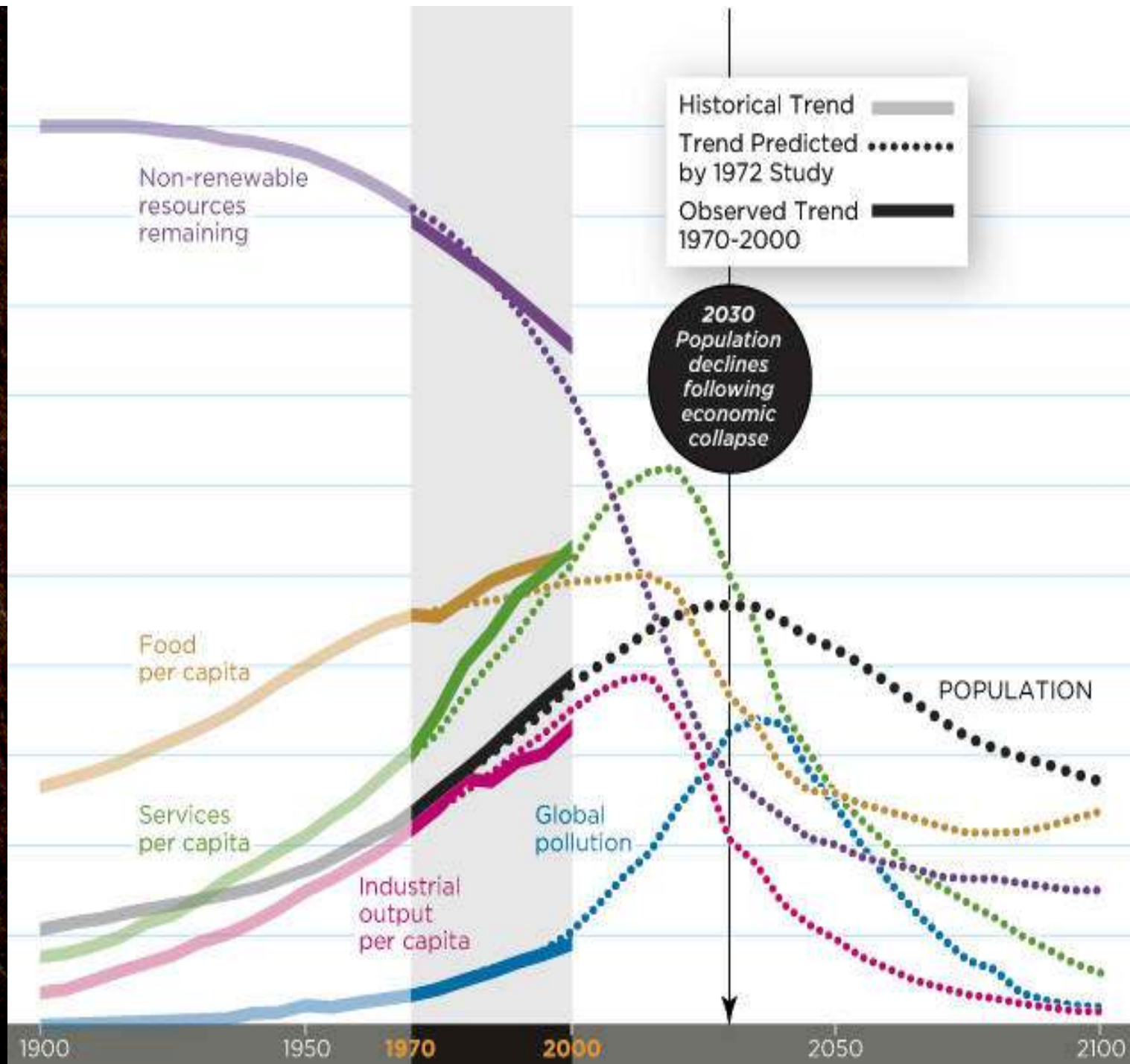
How acidity affects marine life

- Depletes oceans of compound that clams, coral, plankton, other creatures need to build shells, skeletons
- Fish, other organisms can develop metabolic, immune, reproductive problems
- Kills off food for animals at higher end of food chain

Source: University of Maryland, Center for Biological Diversity

© 2010 MCT





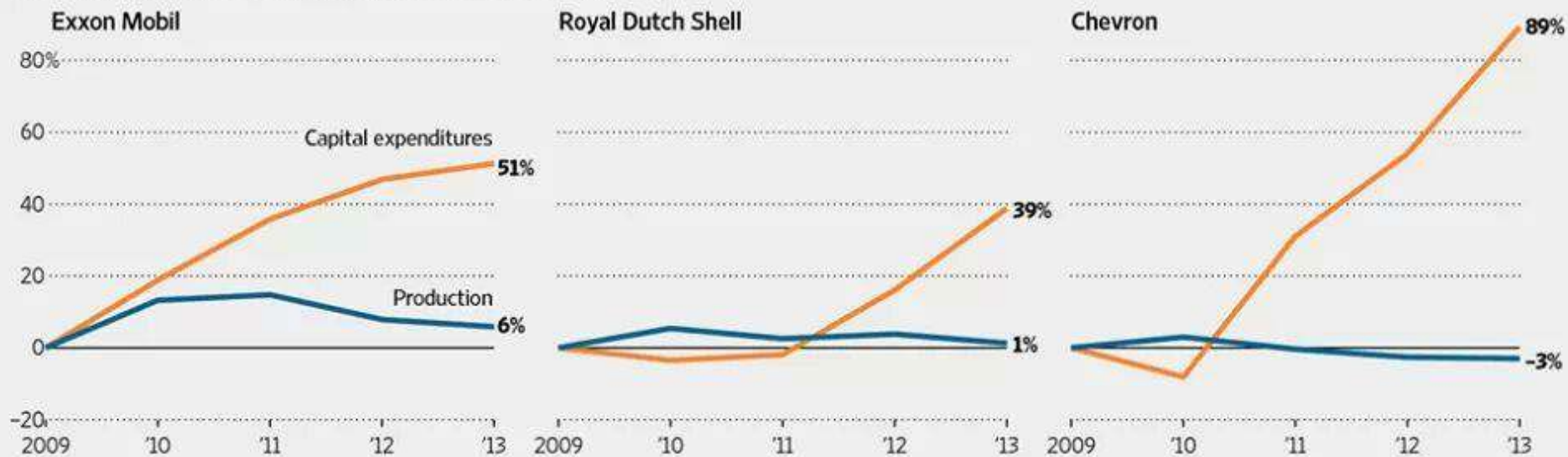
Jeremy Grantham



BAU assumes 3 – 8% GDP growth
it is likely to be 1% or perhaps zero

Costly Quest

Exxon, Shell and Chevron have been spending at record levels as they seek to boost their oil and gas output. It has yet to pay off. Below, change in production and capital expenditures since 2009.

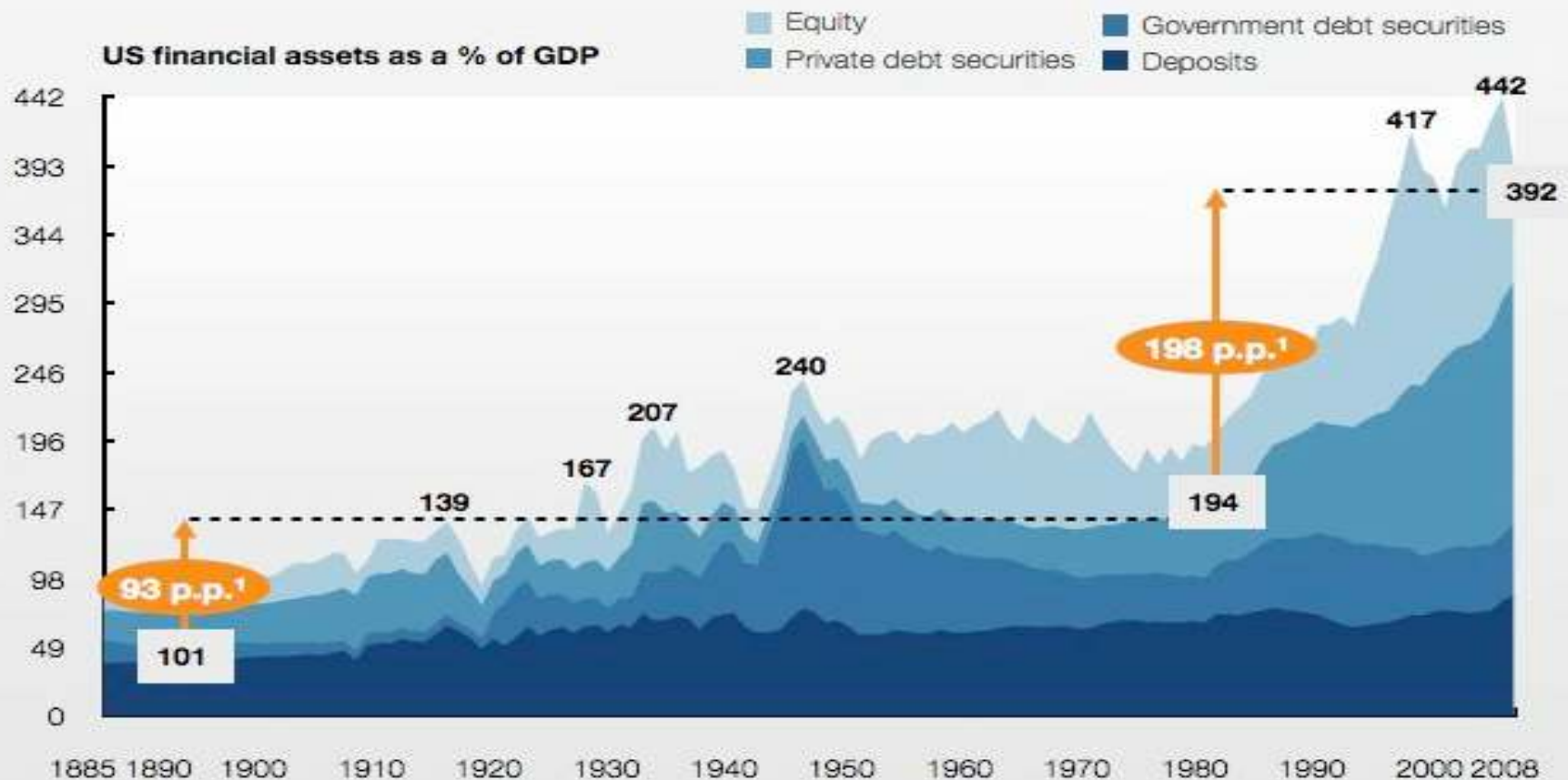


Note: Spending in 2013 reflects company estimates; for Shell it is net of asset sales; production rate in 2013 is through the first nine months. Source: the companies

The Wall Street Journal

Financial Overshoot?

After 1980, financial asset growth accelerated

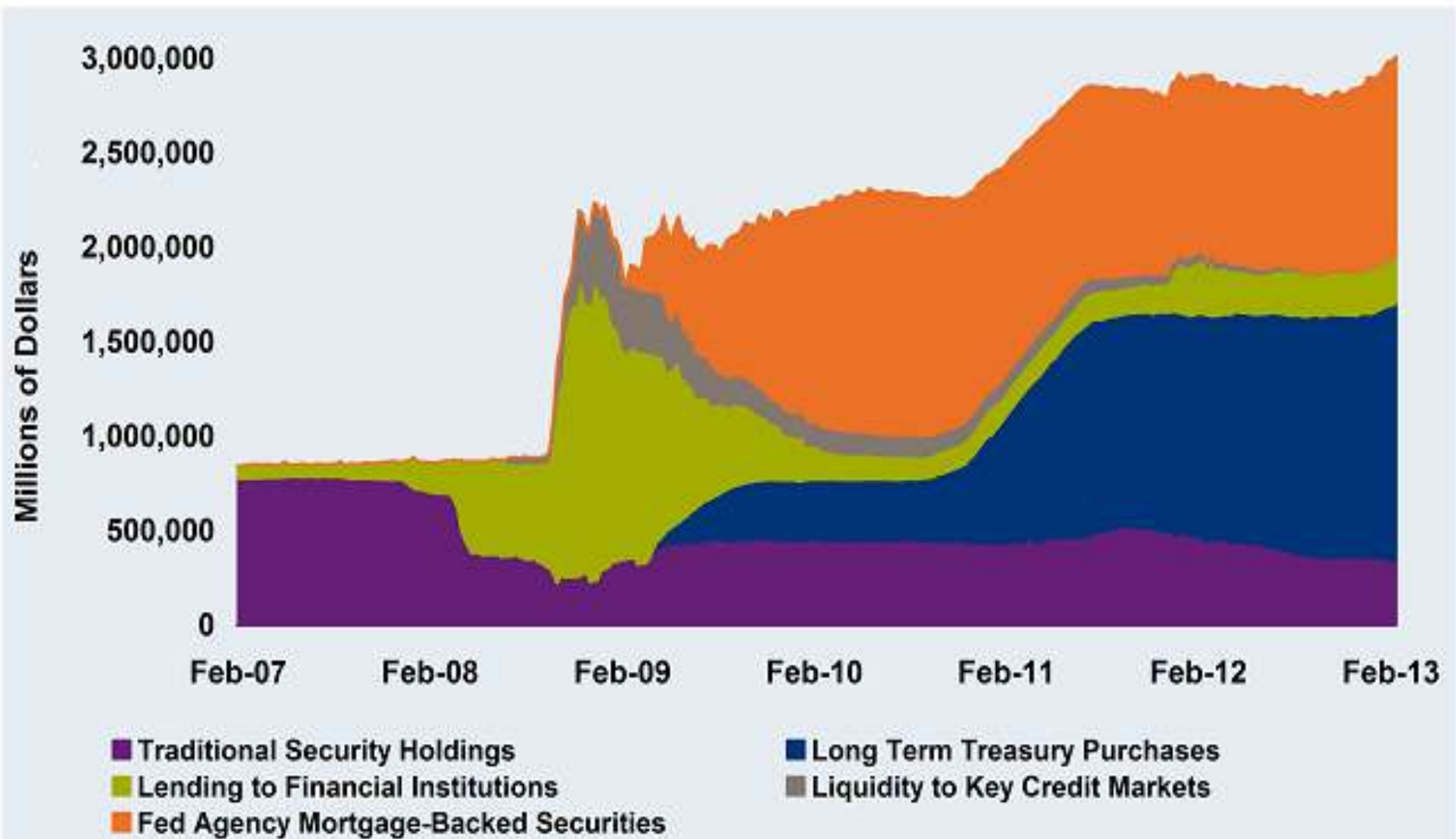


1 Percentage points of GDP

SOURCE: Federal Reserve; National Bureau of Economic Research; Robert Shiller; McKinsey Global Institute analysis

www.capitalinstitute.org

What financial system triage looks like



US Fed Reserve Balance Sheet.

Source: Schwab.com

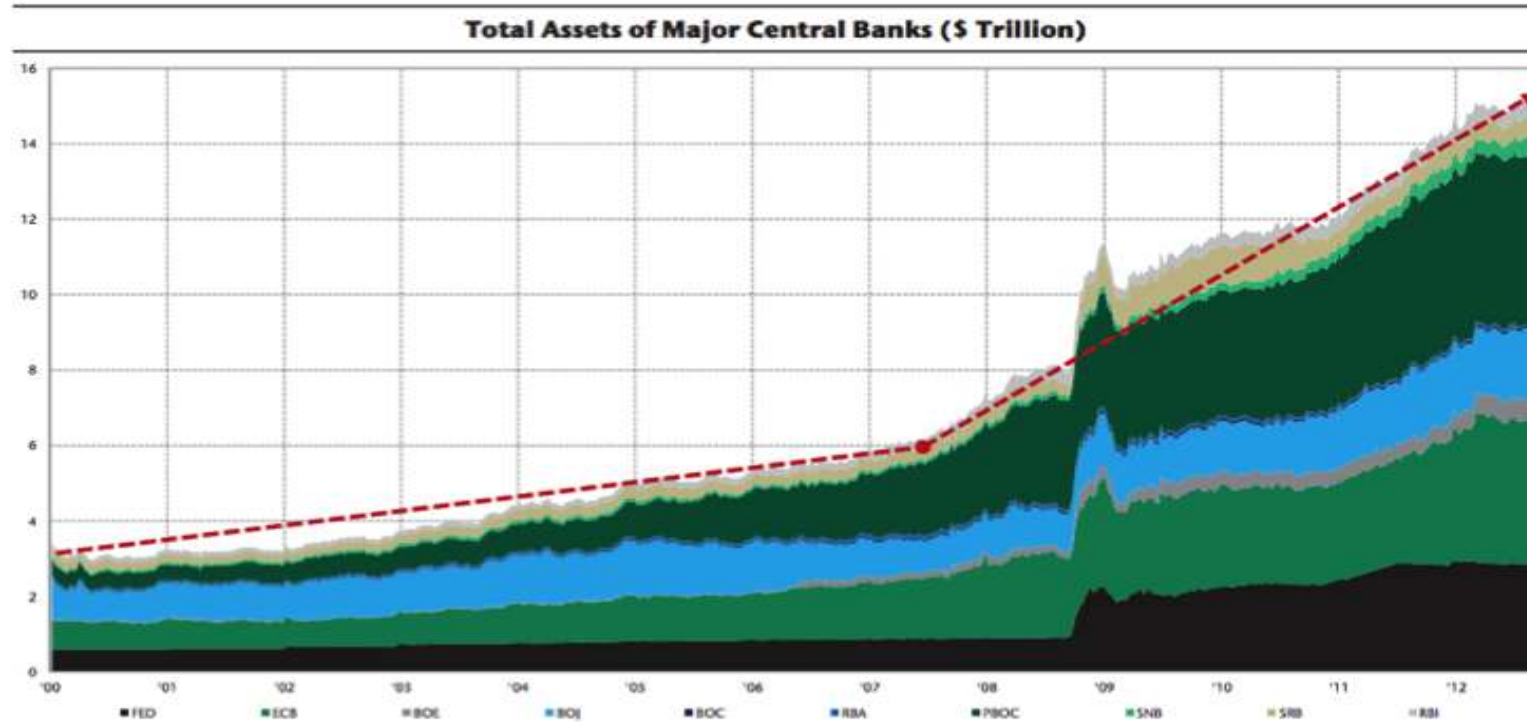
Major Central Bank Balance Sheets

Expansion Of Central Bank Balance Sheets In Dollar Terms

"Since the crisis began, the major central banks have expanded their balance sheets by over USD 9 trillion...GIDDY UP!!!"

—David Zervos, Managing Director at Jefferies

BUSINESS
INSIDER



Total Assets, Source: NCIs through both Bloomberg and Haver

Desired Outcome

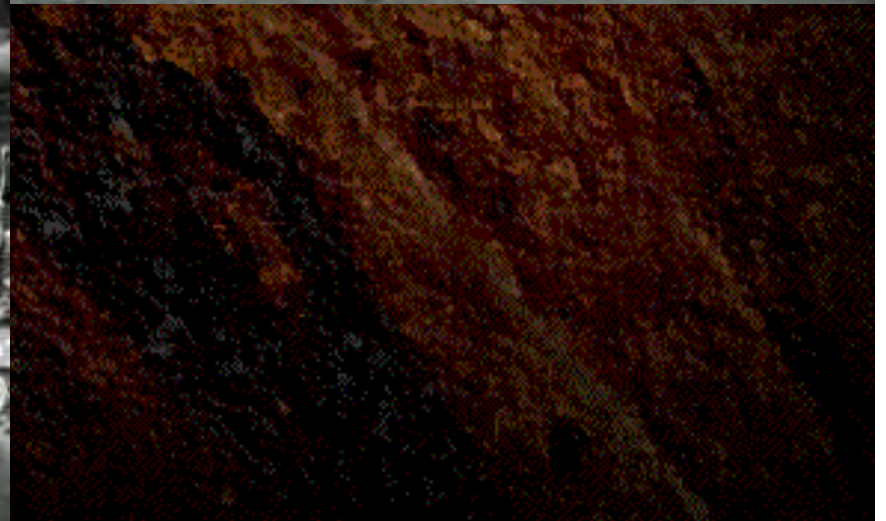
Finance

Economy



www.capitalinstitute.org

Humanity
is in the
muck







We need to manage the transition to REGENERATIVE CAPITALISM!

THE EIGHT ELEMENTS OF REGENERATIVE CAPITALISM

1. Right Relationship: Holds the continuation of life sacred; recognizes that the human economy is embedded in human culture and the biosphere.

2. Entrepreneurialism: Draws on the innate ability of human beings to innovate and "create anew" across all sectors of society.

3. Wealth Viewed Holistically: True wealth defined in terms of the well-being of the "whole," achieved through the harmonization of the multiple forms of capital.

4. Democratized Financial Wealth: Financial wealth equitably (although not necessarily equally) distributed in the context of an expanded view of true wealth.

5. Real Economy Circularity: A continual striving to minimize energy, material, and resource throughput at all phases of the production cycle.

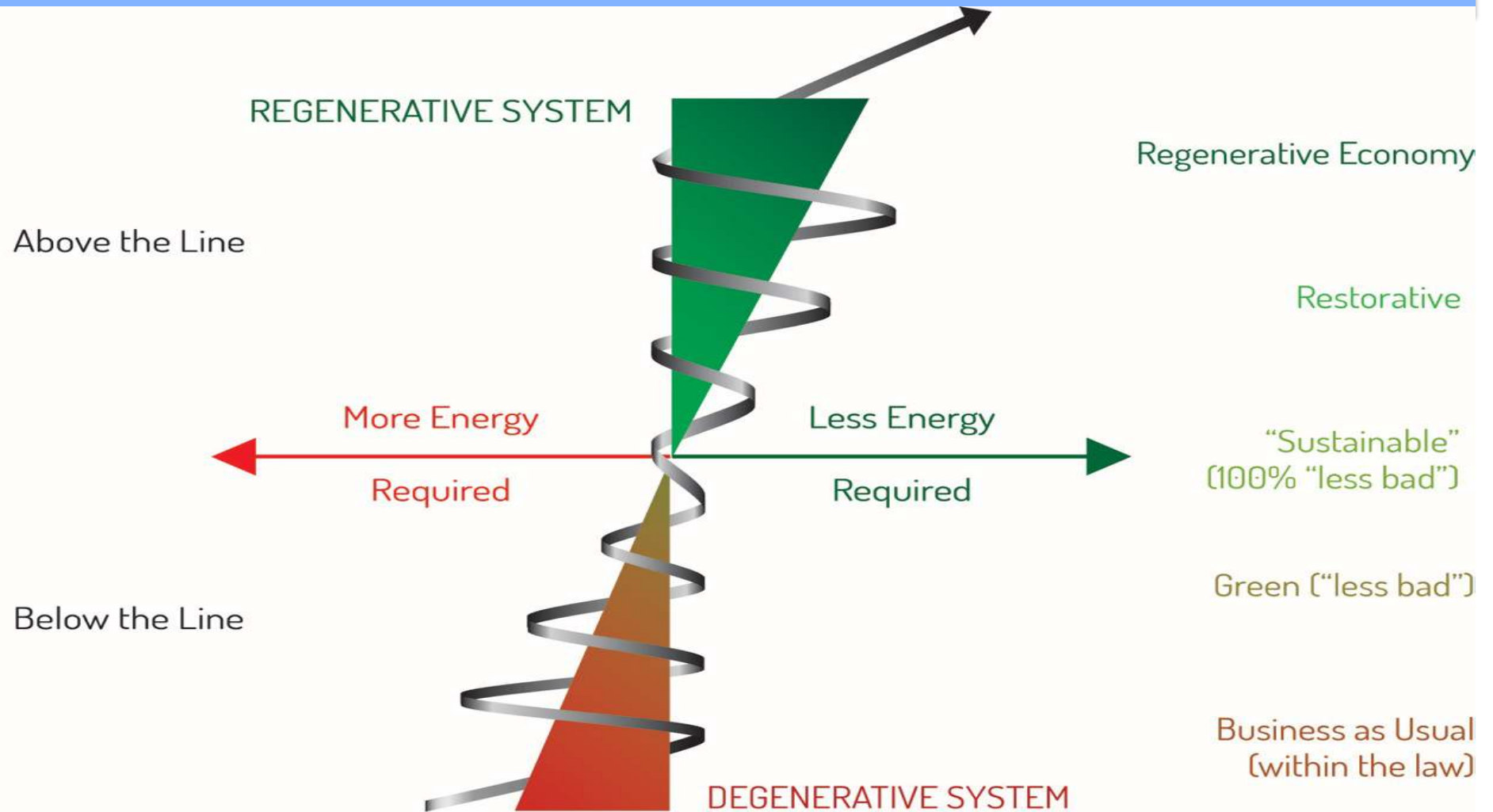
6. Edge Effect Abundance: Creative collaborations increasing the possibility of value adding wealth creation through relationship, exchanges, and resiliency.

7. Resiliency: Long run ability to recover from shocks and adaptability to change valued over brittle concentrations of power and hyper-efficiency in the present.

8. Honors Place: Operates to nurture healthy, stable communities and regions, both real and virtual, in a connected mosaic of place-centered economies.

Natural systems are sustainable

because they are Regenerative



Derived from Bill Reed, Regenes Group



What is our theory of change?



WE WILL ASK NOTHING
WE WILL DEMAND NOTHING
WE WILL TAKE NOTHING
OCCUPY.



We need an
antidote to the
Russell Brand
video calling for
revolution - now
the most
watched You
Tube video for
all of 2013.





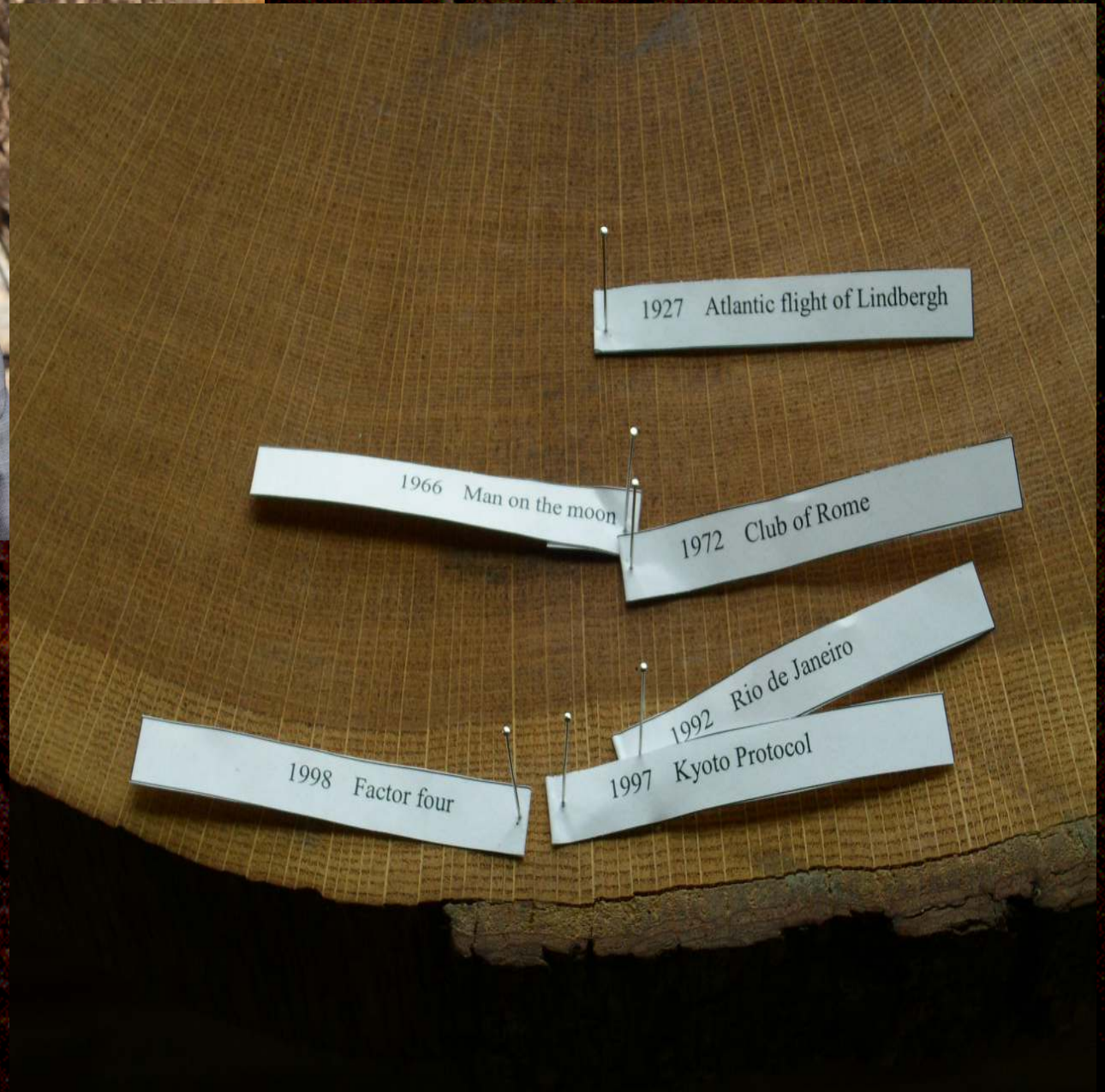
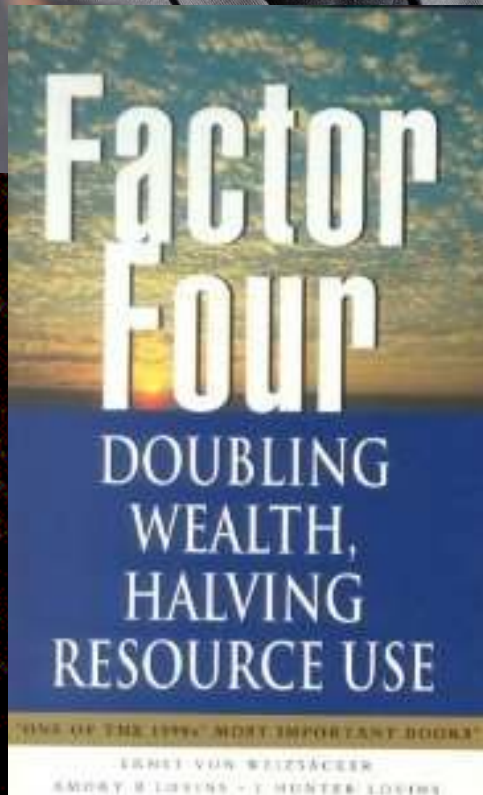


When standing on a crumbling cliff, wisdom, is to turn around to see what is behind us - all the intactness of the natural world, of human community, and build from there.

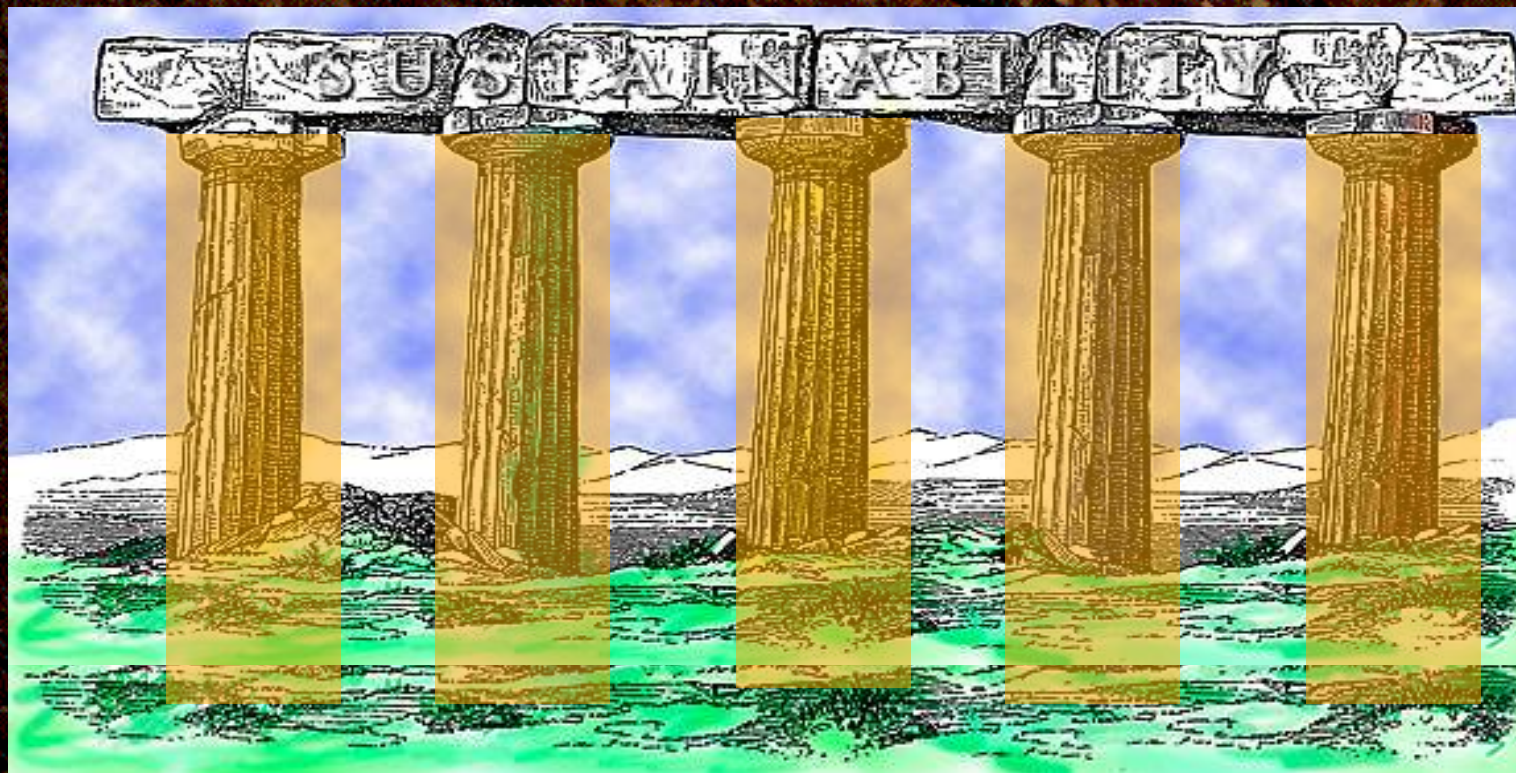
There IS a round economy out there - a circular economy, a sharing economy - to counter the liquidation economy now ravaging the planet.

This is the entrepreneurial challenge of sailing off over the edge of the flat economy to find new lands, new hope, to counter flat climate denialism and those who reject decoupling.





The five pillars of sustainability



Conservation

Health &
Safety

Energy,
materials
efficiency

Social
ecology

Cultural
ecology

Impact of industry

75% of industrial energy use is due to mining and production of such basic materials as steel and concrete.



Remanufacturing

25% is used to make materials into finished goods.

3x as much labor to make higher value added goods as original mining

Reconditioning creates the sorts of jobs we need, where we need them



The Next Mining Boom

More than \$21 billion worth of gold and silver alone are required annually to manufacture high-tech devices.

“Today, e-waste is seen as a burden, when in reality, it's an opportunity,”

- *GTSO CEO Paul Watson.*



The first country on GTSO's list of urban mining regions is Chile

The Next Mining Boom

Urban mine deposits are 40-50 times richer than traditionally mined ore.

Current
recovery rate
of valuable
materials is
less than 15%
worldwide



China has replaced the United States as the world's leading consumer of most basic commodities, like oil, grain, coal, and steel.



© Wade Gupta

- If China's economy grows at its prior rate
- If it uses resources as inefficiently as the U.S.
- By 2030 China will need **99 million barrels of oil** a day.

The world currently produces 80+ million barrels per day and may never produce more.

China Renewable Investments

- China's State Administration of Energy (SAE), is creating a new energy blueprint
- Total investments for renewable energy by 2020
 - \$911 billion for efficiency and renewables
 - \$10.6b million new jobs
 - Generate several trillion dollars in new GDP



China - 1 MW grid interconnected



Rizhao, China



City of 3 million
– 99% use
solar hot water

5,000
manufacturers
of simple solar
water heaters

Now looking at
export

Baoding, China

Mayor Yu Quin:

“Polluting first and cleaning up later is very expensive. So we chose renewable energy to replace traditional industry.”

200 renewable energy companies replace cars and textiles



Chinese solar

From yurts to
Suntech's
building integrated PV



First Solar building
2,000 MW PV plant
in Mongolia



Island of Eigg -
crowdsourced
movement
funded the
purchase of the
island, and its
conversion to
100%
renewable
energy.

Now the only
place in
Scotland with
net in-migration

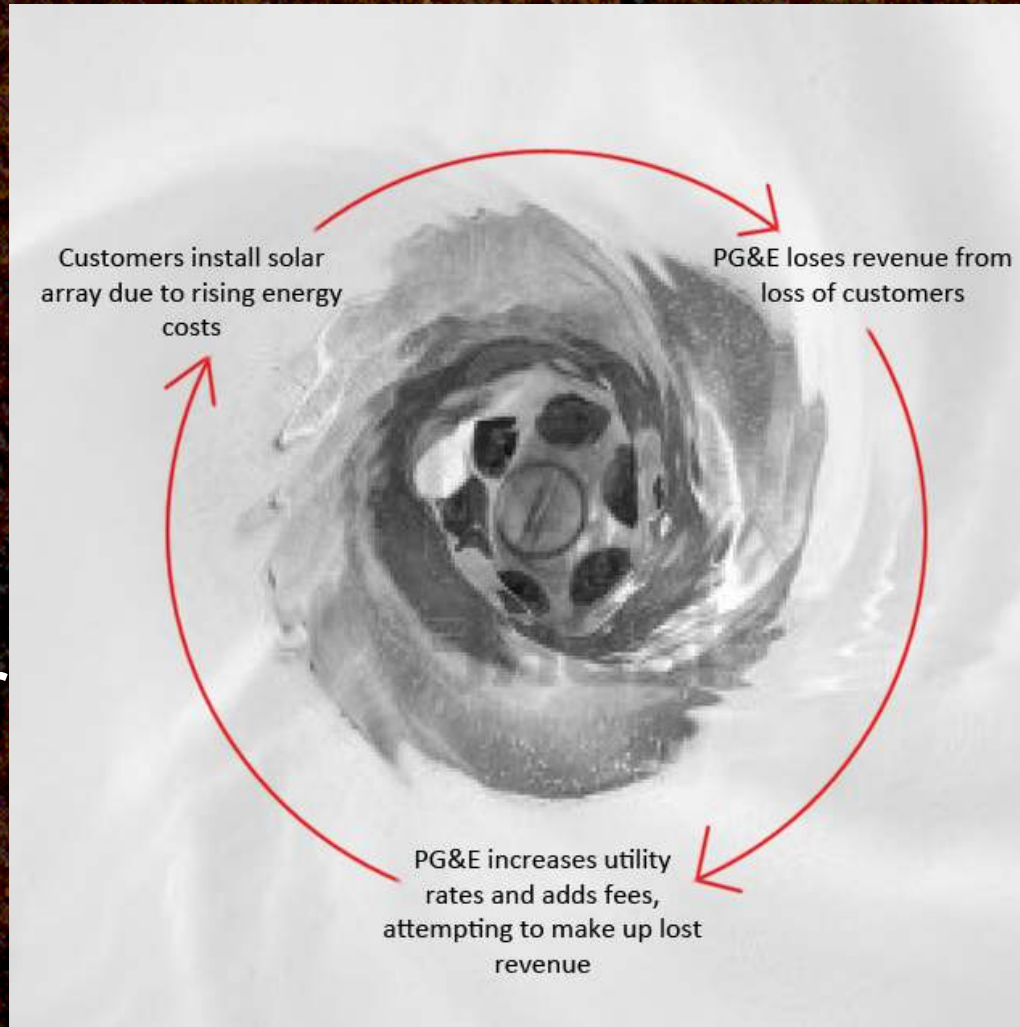


“Utilities are in danger of being FedExed, Chu said, like the Post Office got FedExed, as rooftop solar modules drop in price”



THE DEATH SPIRAL

Top 20 European utilities have lost \$600 billion in value over the past 5 years



Tesla is valued at more than half of GM – despite producing 300 times fewer cars



Reforming the Energy Vision

“Stresses and opportunities indicate that a **business-as-usual approach should no longer be considered the only cost-effective way** to meet our responsibility....

Demand management can be used not as a last resort but rather as a cost effective, primary tool to manage distribution system flows, shape system load, and **enable customers to choose cleaner, more resilient power options**....

Integrate energy-consuming equipment, as well as distributed generation and storage, fully into the management architecture of the electric grid....

Integrate DER as a primary means of meeting system needs.



Power System Realignment or Death Spiral
Sept 9 conference NYC

Breakthroughs



Molten salt storage - 280
MW plant now running in AZ

Vehicle to building
electricity





GE's next gen wind turbines

PV's hit grid parity

Ocean wave technology

Ocean wave to clean water

Ultrathin, PV at more than 30% efficiency

Better batteries

Floating offshore wind turbines

Use of DC power

Cellulosic ethanol

Innovative financing – PACE, crowdfunding, PPA, etc

Wind competitive with coal and gas

Solar increasingly replacing fossil



To be on line by 2016

Last year 22% of SCE's power
was from renewables
CA to be 30% by 2020 – acquire
1.1GW of storage

Southern California
Edison just
commissioned 1.3
GW of new solar
plus 225 MW of new
geothermal – an
order of magnitude
larger PPA than
most utilities in their
lives

**BAVARIA HAS MORE INSTALLED SOLAR CAPACITY
THAN THE ENTIRE UNITED STATES.**



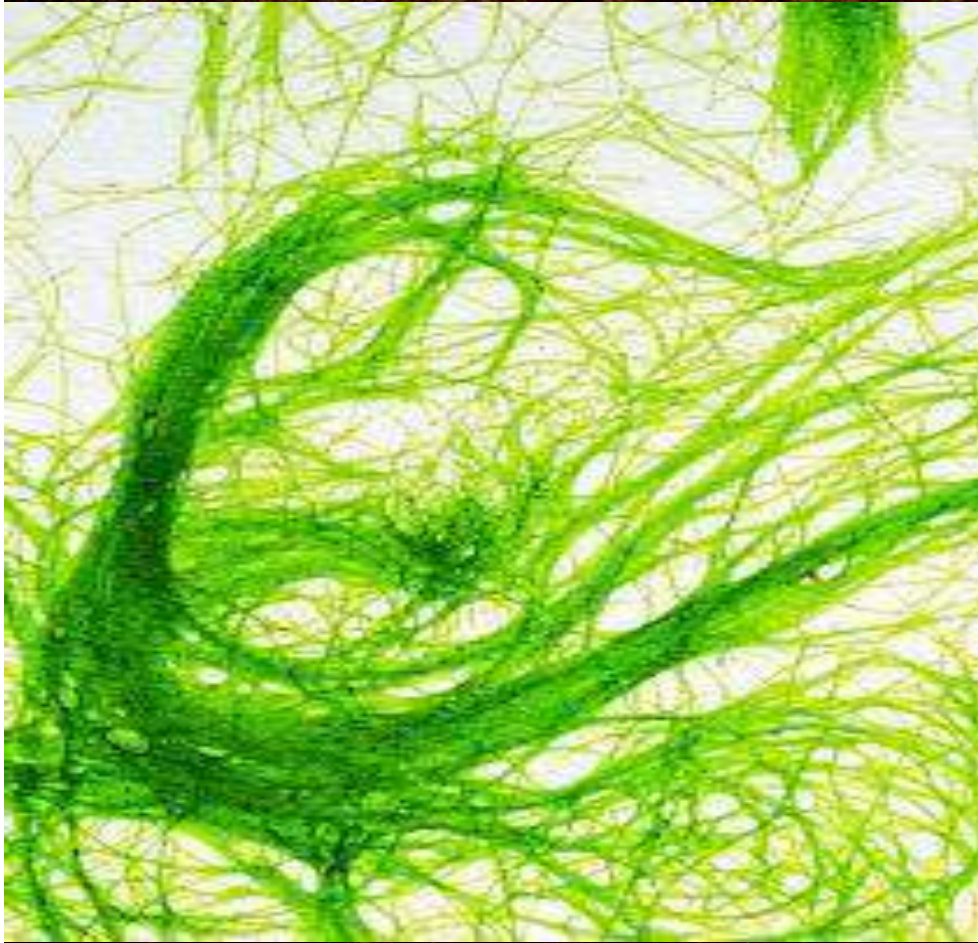
**DID WE FORGET
HOW TO AMERICA?**

Source: Slate

OILCHANGE
INTERNATIONAL

Fuel from Algae

Solazyme - Jonathan Wolfson



Great Green Fleet

Navy Secretary Ray Mabus: "We simply have to figure out a way to get American-made, home-grown fuel that is stably priced, that is competitive with oil,"



MH-60 chopper flying on 50-50 algae/ grease biofuel and petroleum fuel



Deploy a biofuel-burning carrier group by 2016 and require the Department of the Navy to get half of its energy from alternative sources by 2020.



F-18 Green Hornet flying on Sustainable Fuels' oil seed fuel/ jet fuel mix – 60 – 75 million barrels of jet fuel/ year



2011 1st commercial flight using 40% biofuels from algae – signed letter of commitment to buy 20 million gallons of green jetfuel by 2014

20% biofuel blend, 10% reduction in greenhouse gases.

Växjö, Sweden: Fossil Fuel Free City by 2015



Vauban, Germany car-free city

70% of Vauban's 5,500 residents do not own cars, and 57% sold a car to move there.



2013 U.S. renewable industry employed 9 million; solar industry more than 140,000 people, 53% increase over 2010.

Investing more than \$1 trillion in the U.S. economy annually; solar \$15 billion

There are more than 6,000 solar companies in the U.S., spread across all 50 states.

Renewable jobs projected to top 37 million by 2030

A greener economy could create between 15 million to 60 million jobs worldwide over the next two decades

At least half of the global workforce will be affected in some way by 2030



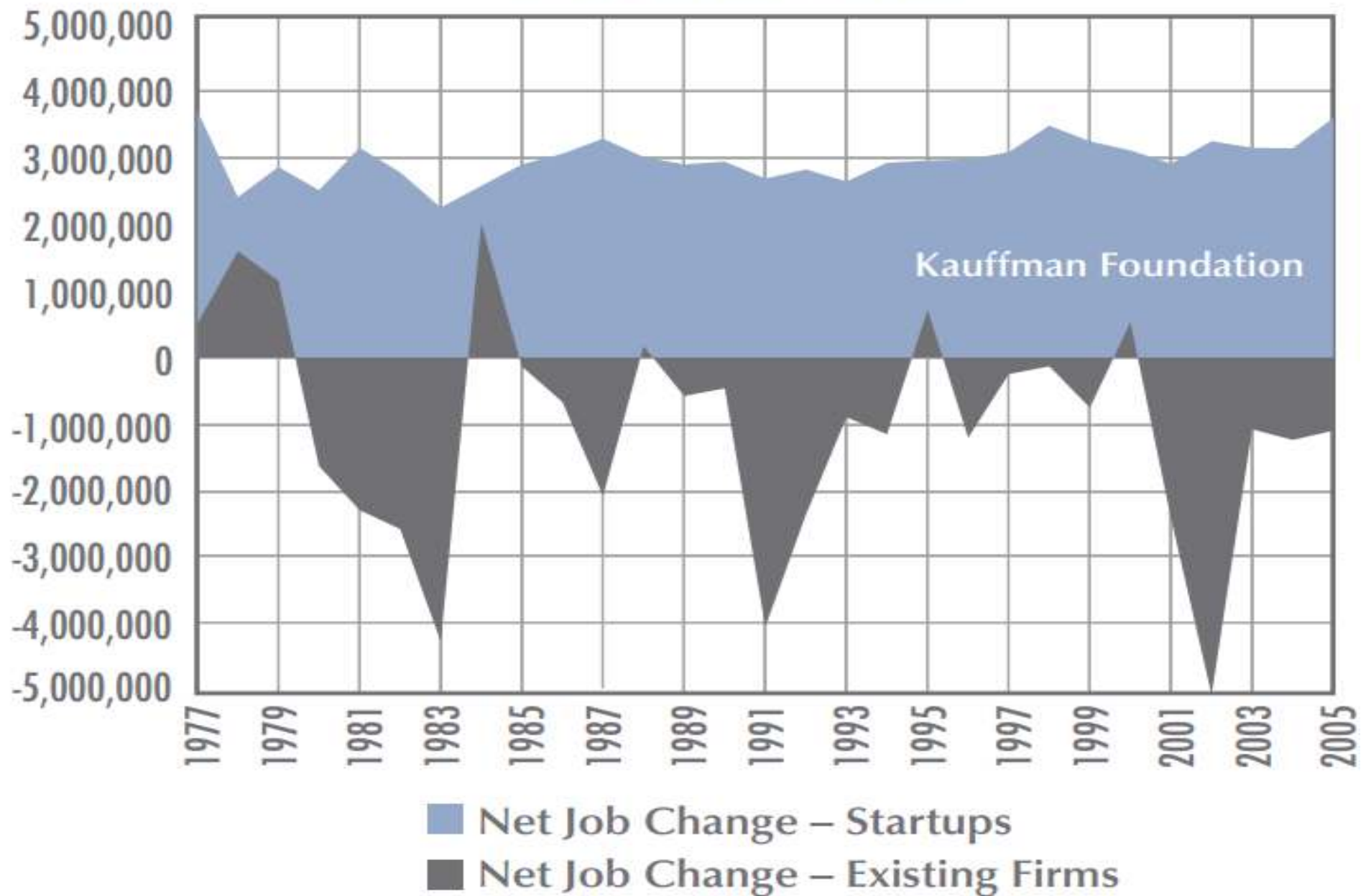
CORPORATION
2020

TRANSFORMING BUSINESS
FOR TOMORROW'S WORLD



PAVAN SUKHDEV

Startups Create Most New Net Jobs in the United States





Sustainability is happening



Sustainability pays

Companies in the Dow Jones sustainability Index outperform the general market.

Goldman Sachs report July 2007: Companies that are **leaders in environmental, social and governance (ESG) policies** are outperforming competitors in stock performance—by an **average of 25%**. 72% of the companies on the list outperformed industry peers.

Regions that protect their environment outperform those that do not.

Countries with half the world's population surveyed,
United States, Canada, Brazil, the United Kingdom,
Germany, France, Russia, China, India and Japan.

93% of consumers say companies must go beyond
legal compliance to operate responsibly

94% say companies must analyze and evolve
their business practices to make their impact as
positive as possible.

Cone
Communications

“Generation Y is much more likely to look for products that follow ethical practices and are aligned with social causes and are slightly less concerned about buying brands for their luxury or cool factor. Gen Y has faith in brands’ ability to change the world.”

-The Intelligence Group



Generation Y wants to be engaged

Millennials want to be an involved, engaged member of a workforce that makes a difference.



92%

Source: MonsterTRAK, Oct. 2007 Survey of Recent Graduates

...of young professionals interested in a job would prefer to work for an environmentally friendly company.

The Business Case is Clear: Gallup Study

Compared to companies who do not actively engage employees, those who do enjoy:

Higher

- 16% Profitability
- 18% Productivity
- 12% Customer Loyalty

Lower

- 25% Employee Turnover
- 49% Safety Incidents
- 37% Absenteeism

“Leading companies (said) engaging employees on sustainability is a powerful motivating tool, with improved customer satisfaction, increased productivity, and reduced employee turnover and absenteeism”

- Economist Intelligence Unit (2011)

Reinvent the global economy





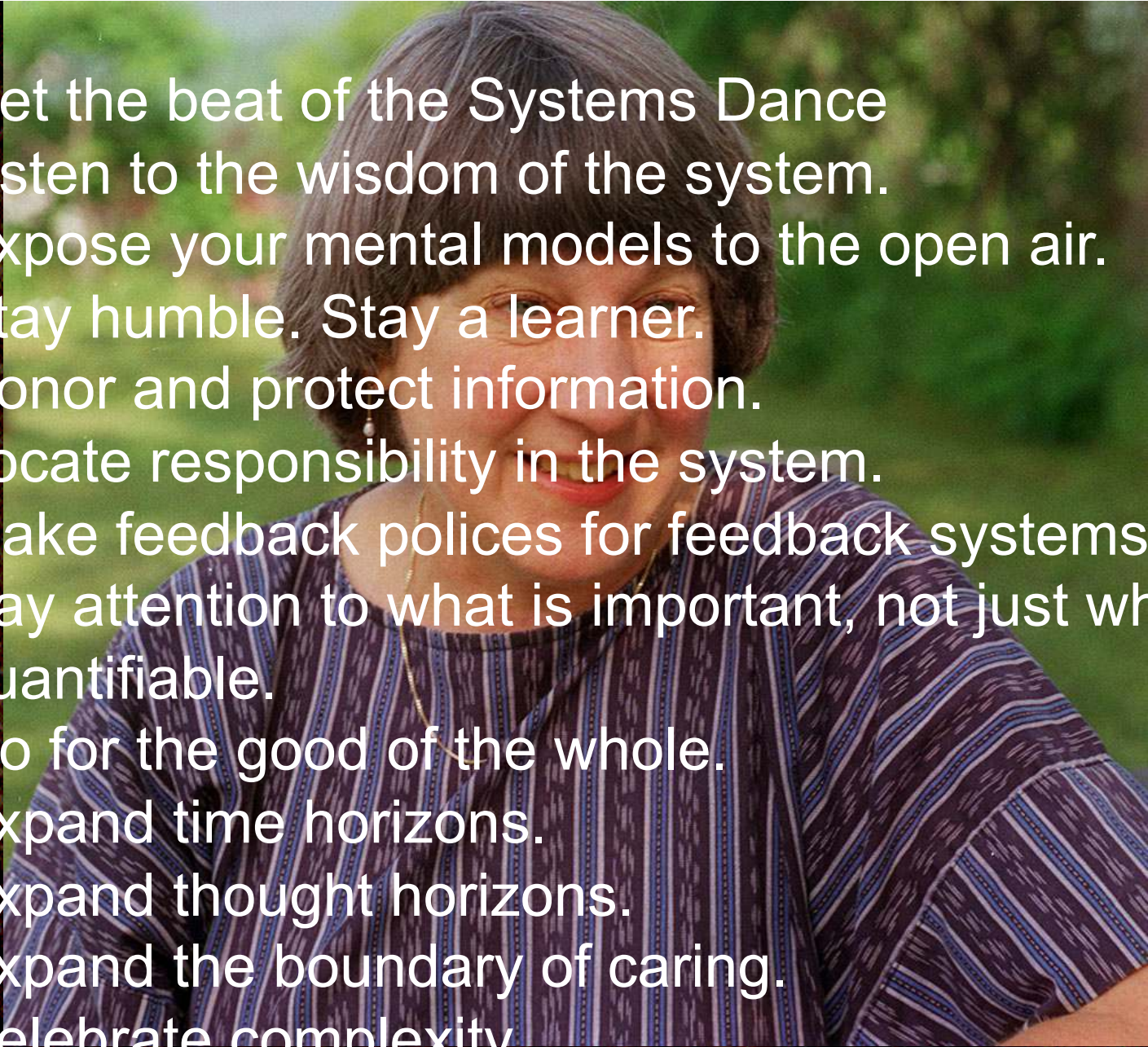
Each person must see himself as though the entire world were held in balance and any deed he may do could tip the scales

Maimonides



We are called to be architects of the future, not its victims.

Buckminster Fuller

- 
1. Get the beat of the Systems Dance
 2. Listen to the wisdom of the system.
 3. Expose your mental models to the open air.
 4. Stay humble. Stay a learner.
 5. Honor and protect information.
 6. Locate responsibility in the system.
 7. Make feedback polices for feedback systems.
 8. Pay attention to what is important, not just what is quantifiable.
 9. Go for the good of the whole.
 10. Expand time horizons.
 11. Expand thought horizons.
 12. Expand the boundary of caring.
 13. Celebrate complexity.
 14. Hold fast to the goal of goodness



Natural Capitalism Solutions

LONGMONT, COLORADO

Email: solutions@natcapsolutions.org

Visit: www.natcapsolutions.org

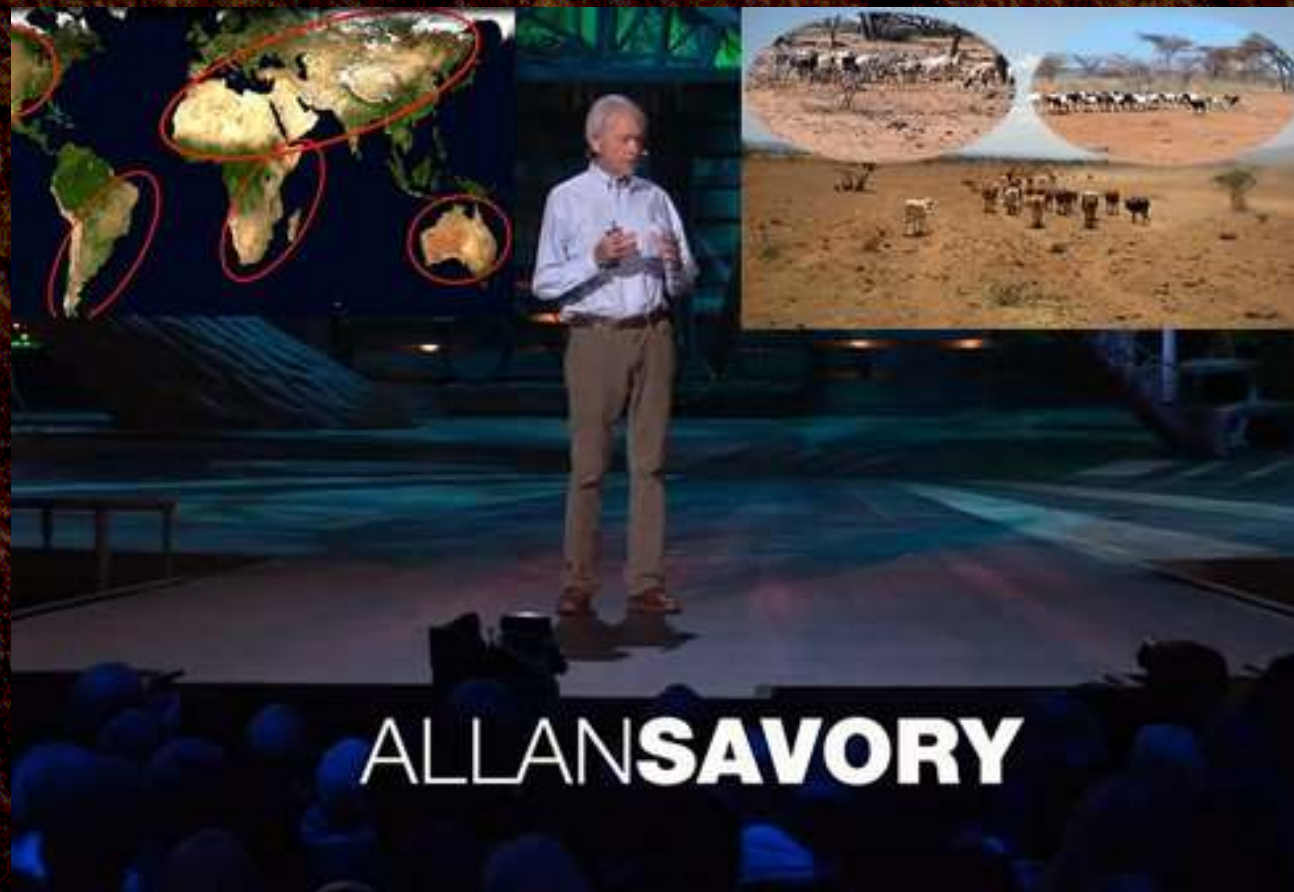
Economy on Edge

Article by Hunter Lovins, Dr Robert Costanza,
Dr Ida Kubiszewski, Donna Morton

<http://www.theguardian.com/sustainable-business/blog/2014/jun/06/global-economy-on-edge-create-world-for-100-percent>

TED Talk

<http://www.youtube.com/watch?v=IOpoRdpvIh0>



[Previous](#)[Blog home](#)

Eat more meat and save the world: the latest implausible farming miracle

Allan Savory tells us that increasing livestock can reduce desertification and reverse climate change – but where is the scientific evidence?

[Share](#) 2709[Tweet](#) 630[+1](#) 31[Share](#) 30[Email](#)

Posted by
George Monbiot
Monday 4 August 2014
07.24 EDT
theguardian.com
[Jump to comments \(310\)](#)



Environment
Farming · The meat industry · Desertification
Food

Science
Agriculture

Guardian Sustainable Business

Ideas and insight for sustainable business leaders

Why George Monbiot is wrong: grazing livestock can save the world

L Hunter Lovins: George Monbiot's recent criticism of Allan Savory's theory that grazing livestock can reverse climate change ignores evidence that it's already experiencing success

- [George Monbiot: Eat more meat and save the world: the latest implausible farming miracle](#)

L Hunter Lovins

Guardian Professional, Tuesday 19 August 2014 04.25 EDT

[Jump to comments \(139\)](#)



Can grazing cows save the world? Photograph: Graham Turner for the Guardian

Current debate in
Guardian Sustainable Business

GROW FOOD, NOT LAWNS



FB.COM/GROWFOODNOTLAWNS



Bottom up replacement theory of change
Shut down but start good

collapse

Middle Thru

soft landing/abundance

our
model
vision

levers that drive
change

framework & work
plan/assignments

Tools Resources
what

Key Allies

Existing efforts - what's working
where are they?

social safety net
infant/elder
Education



What is theory of change

Categories

Energy/Climate

Water

Food

Housing

Transportation

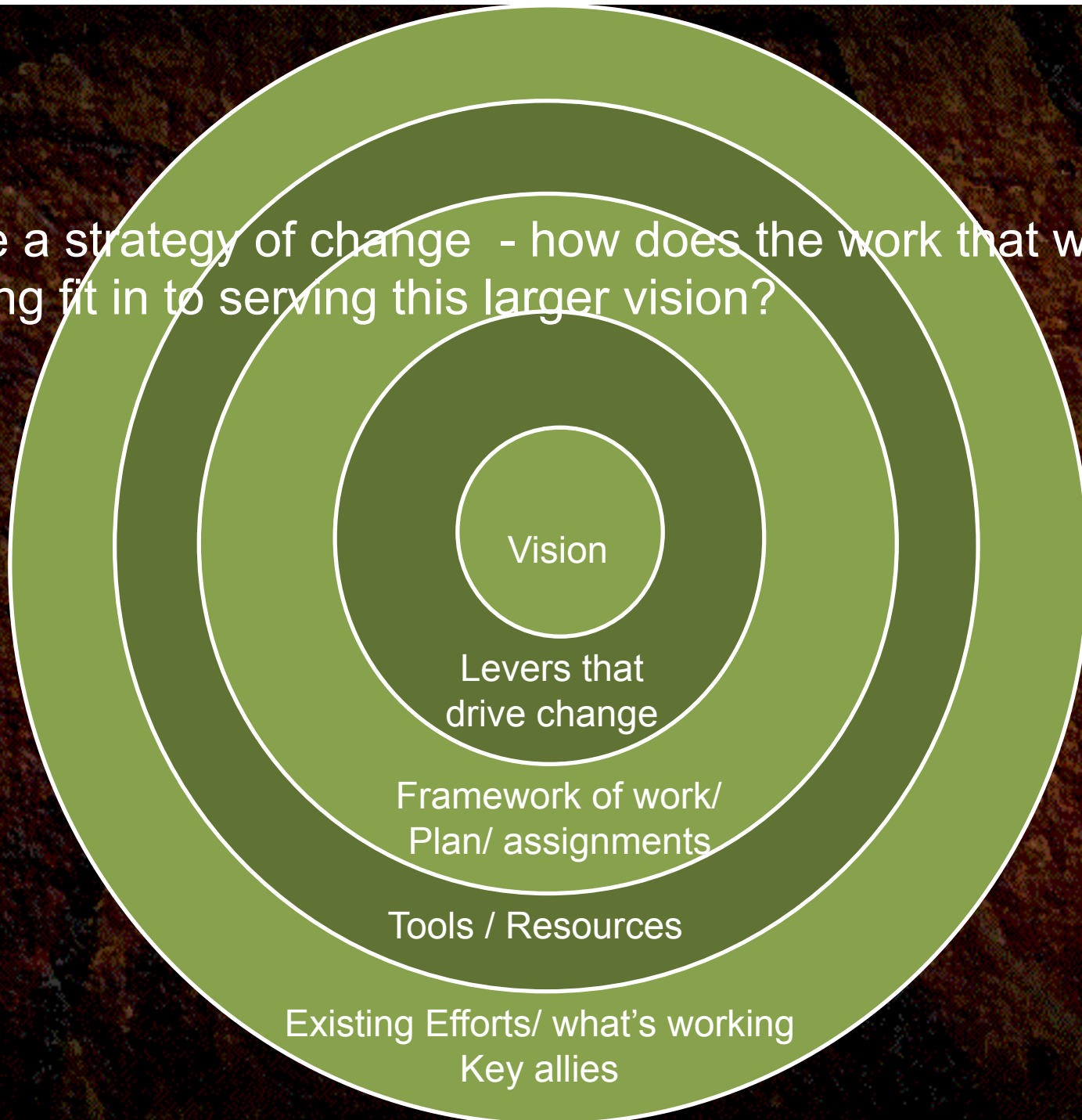
Health Care

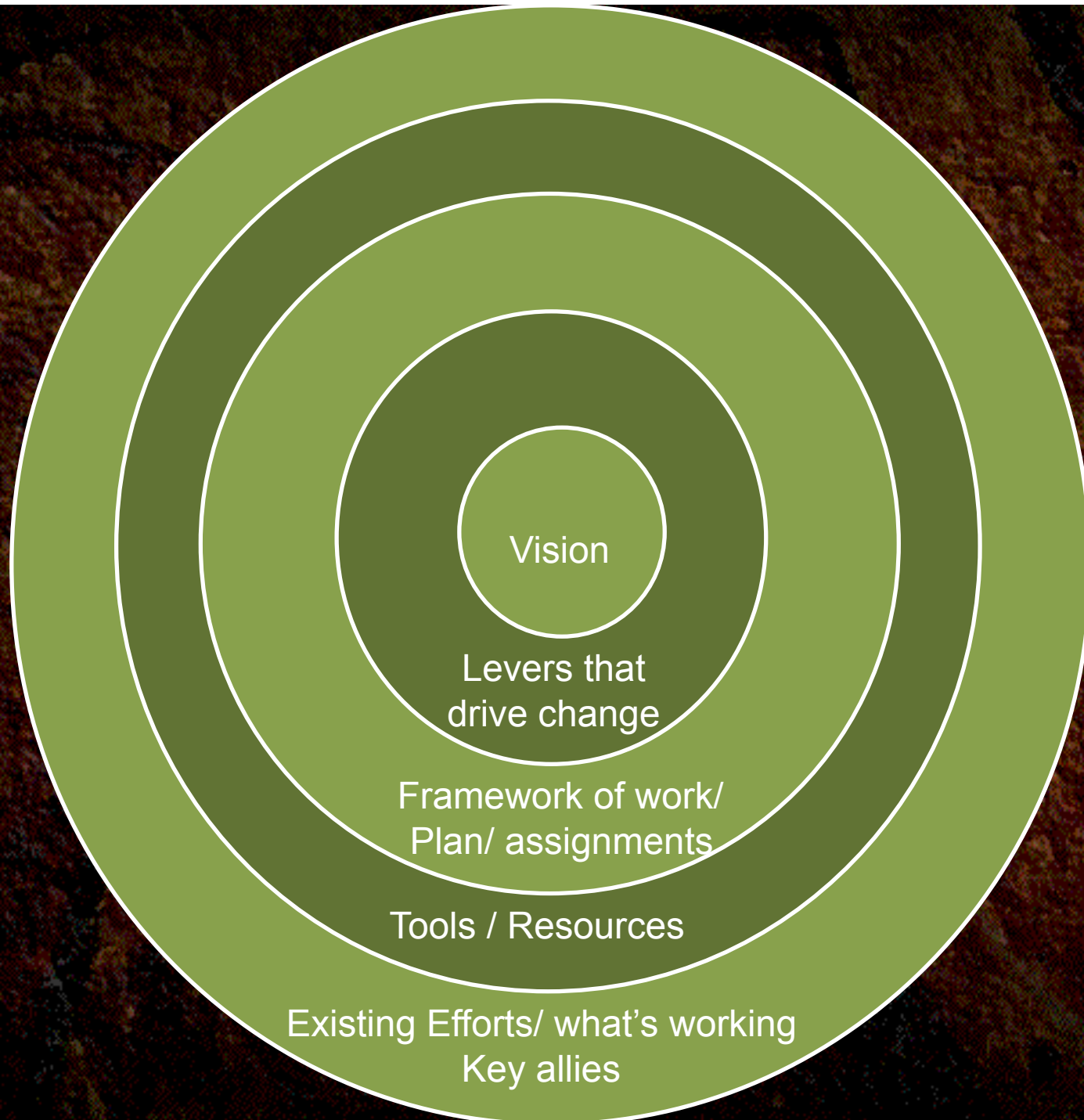
Sanitation

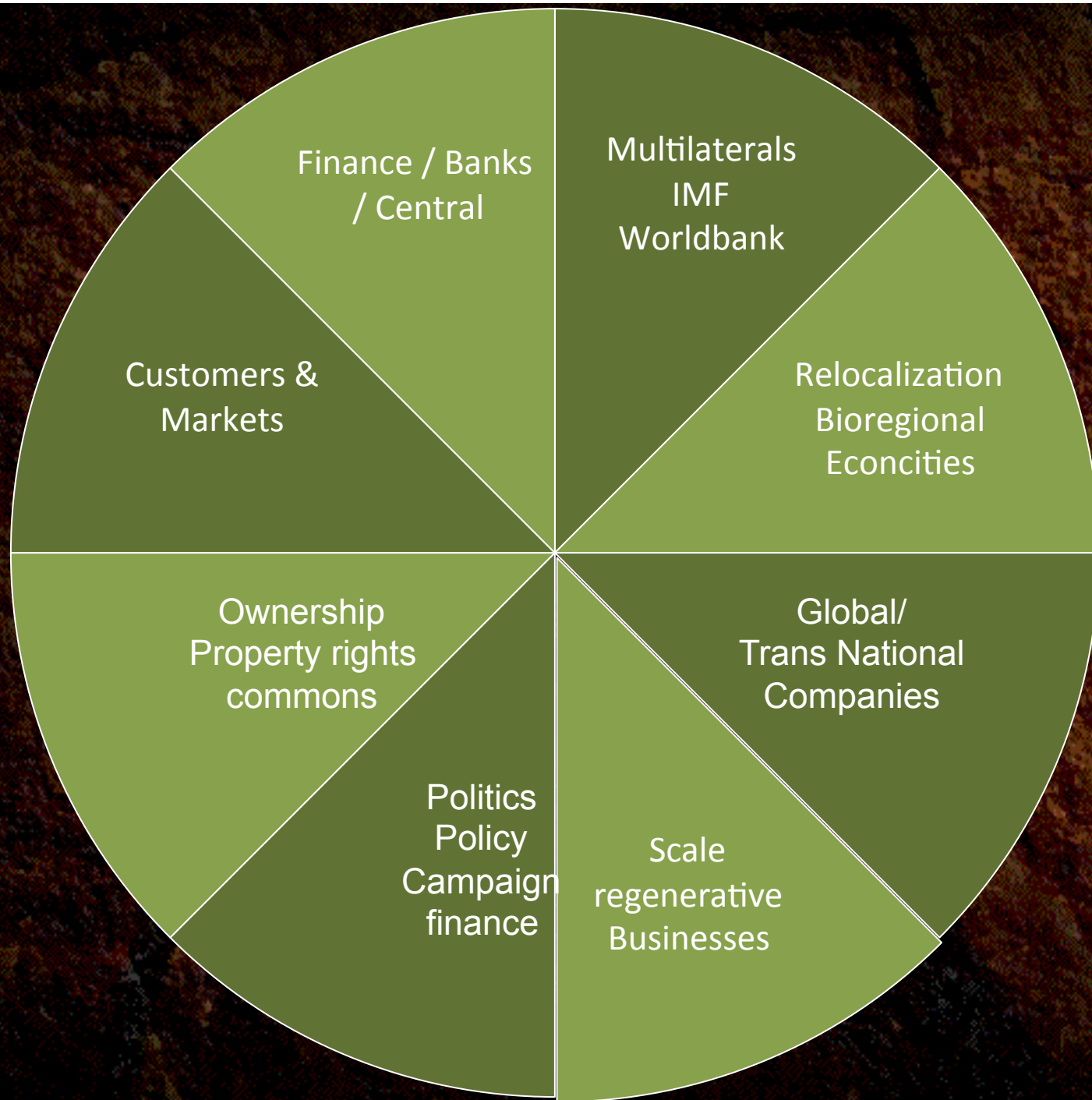
Does this need new institutions
How to factor in B.C
of bioeconomy

Job 1:

Create a strategy of change - how does the work that we are all doing fit in to serving this larger vision?







Edge Principles

Start with the arc of transition of Natural Capitalism

Buy time – thru efficiency

Redesign how we make and deliver goods and services

Manage all institutions to be regenerative of human and natural capital

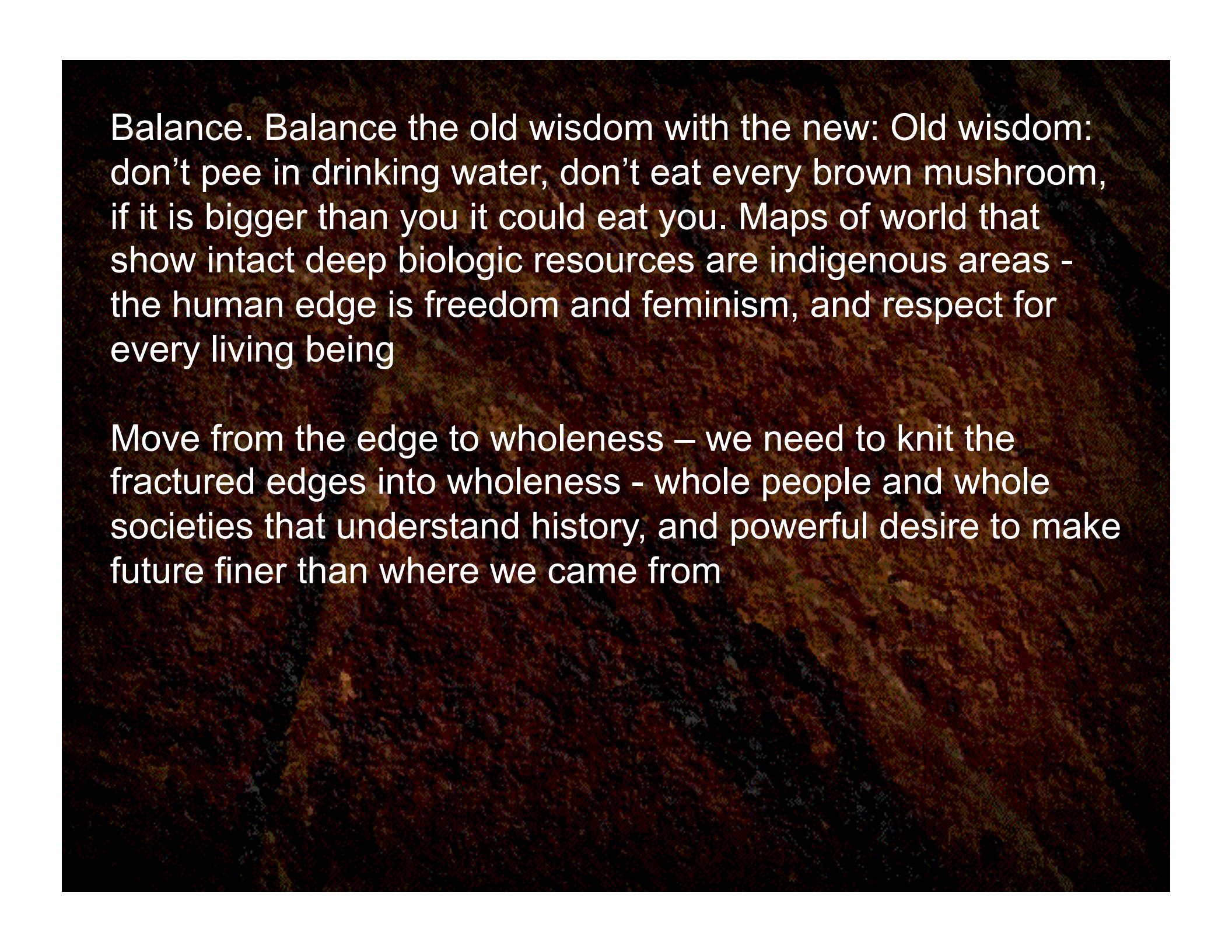
Tell the truth – that we are on the edge – we need to feel the fear

Explore the Edge – take stock, feel the exhilaration, opportunity

Accept the call – let it guide your life – we can solve climate crisis but we are not the hero – the heroes are the little people

Enter the territory of the heretic – business heretics: Steve Jobs, Ray Anderson, Paul Polman, artists - “My people will sleep for 100 years and when they wake up it is the artists that will give them their spirit back.”

Take it to scale – it has to work in Afghanistan, in rural Liberia – those who have survived have the resilience – the life artistry - the genius the planet needs are kids in slums and favellas



Balance. Balance the old wisdom with the new: Old wisdom: don't pee in drinking water, don't eat every brown mushroom, if it is bigger than you it could eat you. Maps of world that show intact deep biologic resources are indigenous areas - the human edge is freedom and feminism, and respect for every living being

Move from the edge to wholeness – we need to knit the fractured edges into wholeness - whole people and whole societies that understand history, and powerful desire to make future finer than where we came from


Elements of a strategy of change

Move the money

Business schools - and key professions: Engineering,

ID leverage points - they shift so keep shifting - Dana's places to intervene

All hands on deck strategy - social media - Bring Back Our Girls - Yesallwomen - world saying it - since when does world care about 300 girls in Africa - too little too late, but it gives a glimpse of power of us as species - Avaaz

A photograph of a sunset over the ocean. The sun is a bright, glowing orb on the horizon, casting a long, shimmering reflection across the water. The sky transitions from a deep blue at the top to a warm orange near the horizon. The ocean has gentle waves, and the foreground shows a dark, silty beach. A semi-transparent circular overlay is positioned on the left side of the image, containing a quote in white text.

**"The key to the future
of the world is finding
the optimistic stories
and letting them be
known."**

- Pete Seeger, 1919-2014.