# **Towards a New Economics**

Tim Crabtree Senior Lecturer in Economics & Programme Lead, Ecological Food Systems Schumacher College



### **Matthew Crawford on Descartes**

According to Descartes:

- "If I am thinking, I must exist. This is the secure beginning point that must serve as the foundation for knowledge altogether.....
- Attention is therefore demoted. Or, rather, it is redirected. Not by fastening on objects in the world does it help us grasp reality, but by being directed to our own processes of thinking, and making *them* the object of scrutiny. What it means to know, now, is not to encounter the world directly (thinking you have done so is always subject to skeptical challenge), but to construct a mental *representation* of the world, according to canons of correct method."

	Dominant Western Approach	"New" approaches
Ontology (the study of being)	Reductionism – the whole can be understood through its parts. Separation between subject and object	Inter-being The "web of life" Relational perspectives
Epistemologies (the study of knowledge)	Materialism Objectivism "I think therefore I am". A universal mathematics.	<ul> <li>The "new" scientific approaches, including:</li> <li>Complexity thinking</li> <li>Phenomenology</li> <li>Deep ecology</li> <li>Action research</li> <li>Contemplative inquiry</li> </ul>
Pedagogy (approaches to teaching and learning)	Individualistic and competitive. Separation of the knower from the known.	Living in community Project based learning Design charrettes Inter-disciplinary co-operation
Ethics	Education leads to a distancing and disconnection from the world. Self-interest, competition and survival of the fittest.	Inter-connectedness Relationship Importance of community Co-operative & collaborative behaviour

# To practice is to go beyond ideas

To practice is to go beyond ideas, so you can arrive at the *suchness* of things.

"No idea" conception – as long as there is an idea, there is no reality, no truth. "No idea" means no wrong idea, no wrong conception. It does not mean no mindfulness. Because of mindfulness, when something is right, we know it's right, and when something is wrong, we know it's wrong.

We are practicing sitting meditation, and we see a bowl of tomato soup in our mind's eye, so we think that is wrong practice, because we are supposed to be mindful of our breathing. But if we practice mindfulness, we will say, "I am breathing in and I am thinking about tomato soup." That is Right Mindfulness already. Rightness or wrongness is not objective. It is subjective.

### **Right View is the absence of all views**

Relatively speaking, there are right views and there are wrong views. But if we look more deeply, we see that *all views are wrong views. No view* can ever be the truth. It is just from one point; that is why it is called a "point of view." If we go to another point, we will see things differently and realize that our first view was not entirely right.

Buddhism is not a collection of views. It is a practice to help us eliminate wrong views. The quality of our views can always be improved. From the viewpoint of ultimate reality, Right View is the absence of all views.

### **Right View – Understanding Interbeing**

If we look deeply into the nature of our universe we can see all things as profoundly interdependent. In traditional Buddhism this was originally called *dependent co-arising*. At the heart of this understanding is the realisation that we have no separate self, that everything is empty of a separate self in a universe which is in a constant state of flux and change. The interdependent nature of all phenomena is central to Buddhist teachings.

*Emptiness* is always emptiness of something, it is *empty* of a separate self – i.e. *interbeing*, meaning connected to everything.

Thich Nhat Hanh

### **Interdependent Co-Arising**

The Buddha expressed Interdependent Co-Arising very simply: "This is, because that is. This is not, because that is not. This comes to be, because that comes to be. This ceases to be, because that ceases to be."

In the sutras, this image is given: "Three cut reeds can stand only by leaning on one another. If you take one away, the other two will fall."

## "Emptiness" in a table

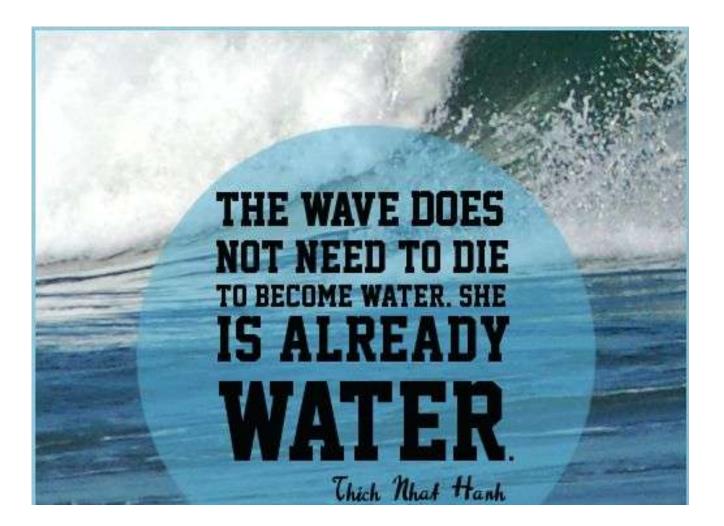
- For a table to exist, we need wood, a carpenter, time, skillfulness, and many other causes. And each of these causes needs other causes to be. The wood needs the forest, the sunshine, the rain, and so on. The carpenter needs his parents, breakfast, fresh air, and so on. And each of those things, in turn, has to be brought about by other conditions. If we continue to look in this way, we'll see that nothing has been left out.
- Everything in the cosmos has come together to bring us this table. Looking deeply at the sunshine, the leaves of the tree, and the clouds, we can see the table.
- The one can be seen in the all, and the all can be seen in the one. One cause is never enough to bring about an effect. A cause must, at the same time, be an effect, and every effect must also be the cause of something else. Cause and effect inter-are. The idea of a first or only cause, something that does not itself need a cause, cannot be applied.

### **Flowers and compost**

Wilting flowers do not cause suffering; it is the unrealistic desire that flowers not wilt that causes suffering

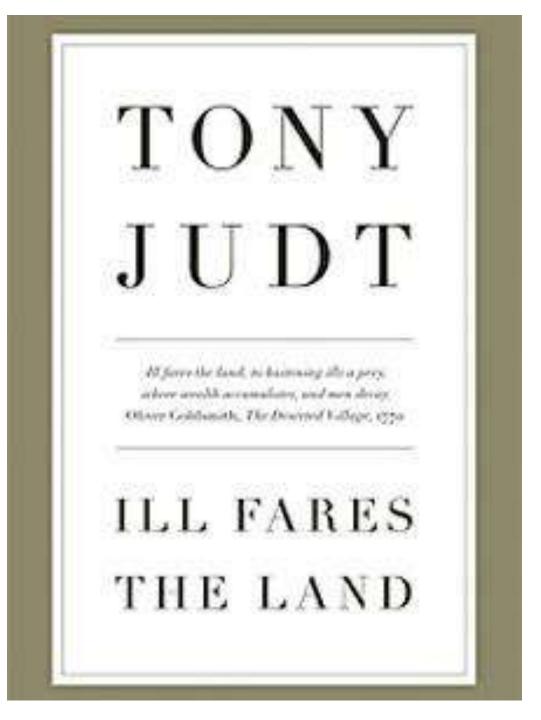
- THICH NHAT HANH

### The wave of birth and death



# **Double grasping**

If you believe that there's a subjective consciousness that exists separately from the object of your consciousness, then you are caught in an error called double grasping. You are caught by this way of seeing subject and object as two different things.



Ill fares the land, to hastening ills a prey, Where wealth accumulates, and men decay.

Oliver Goldsmith, The Deserted Village (1770)

"For 30 years we have made a virtue out of the pursuit of material self-interest: indeed, this very pursuit now constitutes whatever remains of our sense of collective purpose. We know what things cost but have no idea what they are worth......

The materialistic and selfish quality of contemporary life is not inherent in the human condition. Much of what appears natural today dates from the 1980s: the obsession with wealth creation, the cult of privatisation and the private sector, the growing disparities of rich and poor. And above all, the rhetoric which accompanies these: uncritical admiration for unfettered markets, disdain for the public sector, the illusion of endless growth. We cannot go on living like this......

And yet we seem unable to conceive of alternatives."

### Wendell Berry

- That we live now in an economy that is not sustainable is not the fault only of a few mongers of power and heavy equipment. We all are implicated, by economic proxies thoughtlessly given, by thoughtless consumption of goods ignorantly purchased...... The antidote is affection, connection, and a broader definition of education — to study and appreciate practical skills like the arts of land use, life support, healing, housekeeping, homemaking.
- This is the economy that the most public and influential economists never talk about, the economy that is the primary vocation and responsibility of every one of us.

John Maynard Keynes (1883-1946) in The General Theory of Employment, Interest and Money

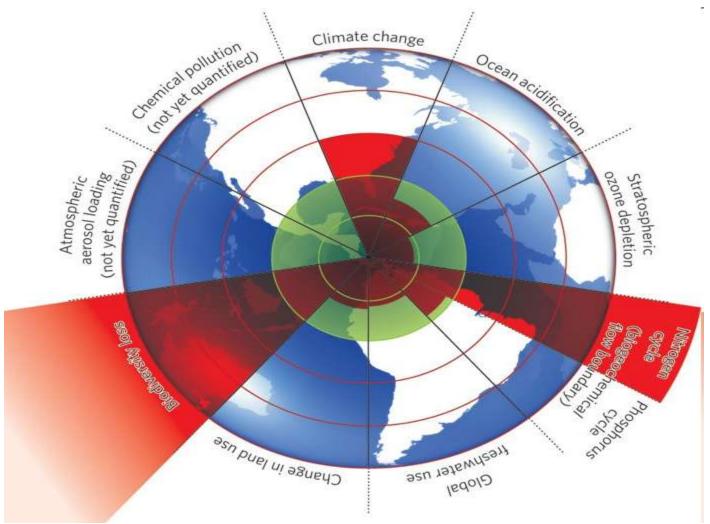
"Practical men who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back"

# "There is no alternative"

At university I was taught:

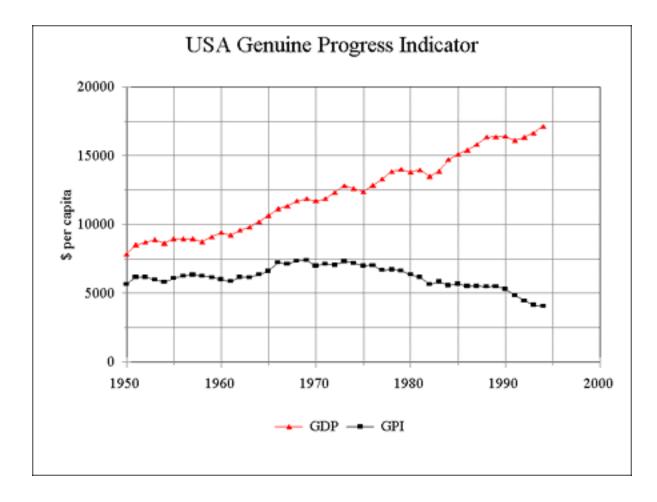
- That people are self-interested, rational and competitive, and that more consumption will create well-being.
- That firms should focus only on profit and growth, that decreasing returns to scale will prevent monopoly power
- That economies best function with "free" markets, free trade, growth maximisation, deregulation, privatisation, globalisation....

### **Planetary Boundaries**

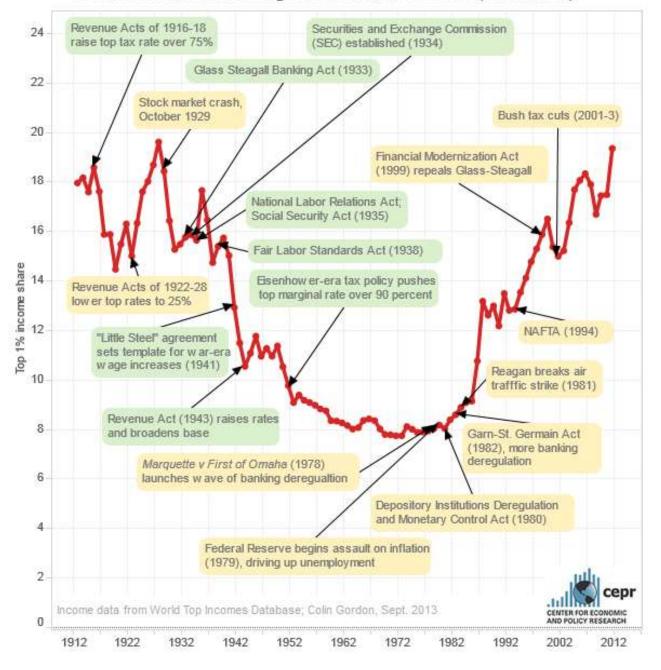


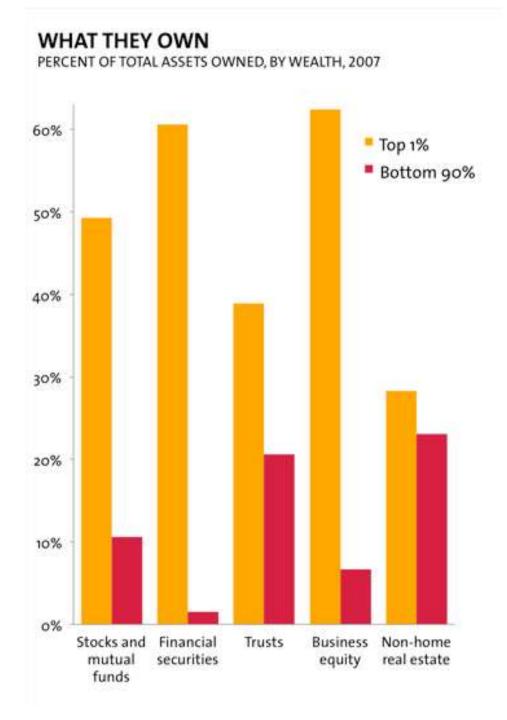
Green zones = our planetary 'playing field' or 'Gaia gift'

Rockstrom et. al 2009, Nature

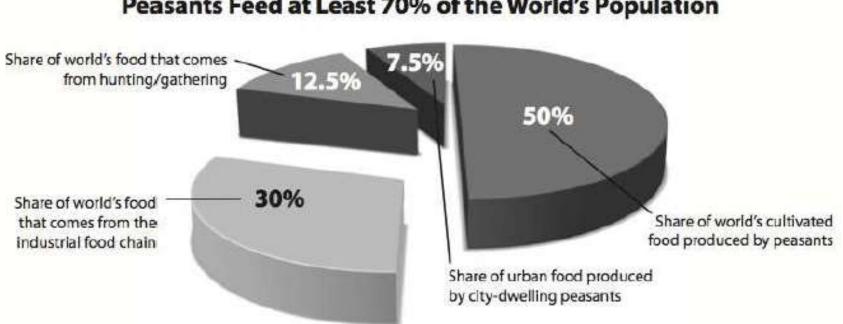


#### Income Share of the Top 1 Percent, 1913-2012 (annotated)



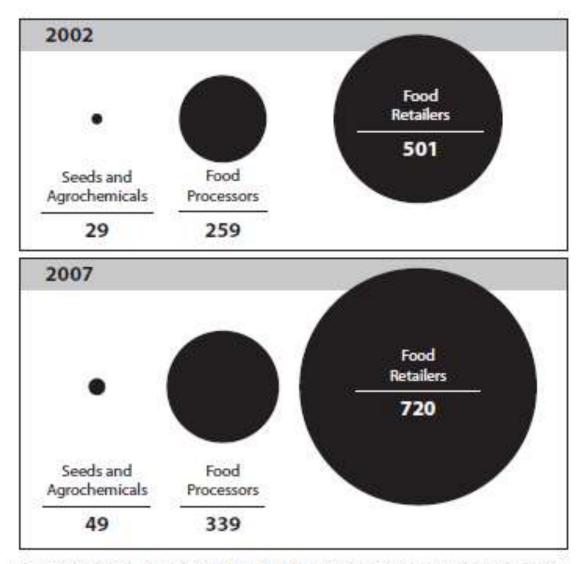


## Who produces the world's food?



### Peasants Feed at Least 70% of the World's Population

### Corporate Food Chain At-a-Glance: Top 10 Revenue Share (\$US billions)



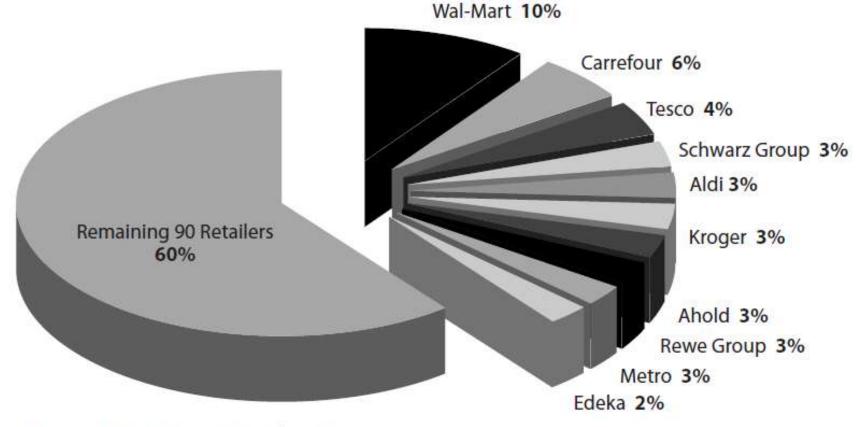
Source: ETC Group. Note: In 2002, Wal-Mart did not report grocery sales separate from total revenues. For purposed of comparison, we estimate that 40% of Wal-Mart's 2002 revenues were derived from grocery sales. In 2007, grocery sales accounted for 46% of Wal-Mart's sales.

### Grocery Retailing Industry

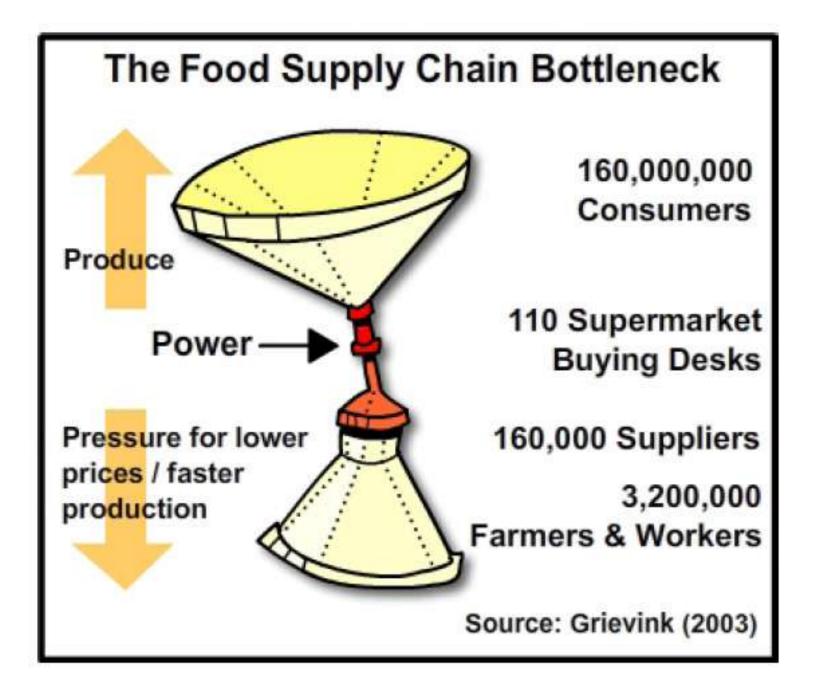
World's Top 10 Global Food Retailers

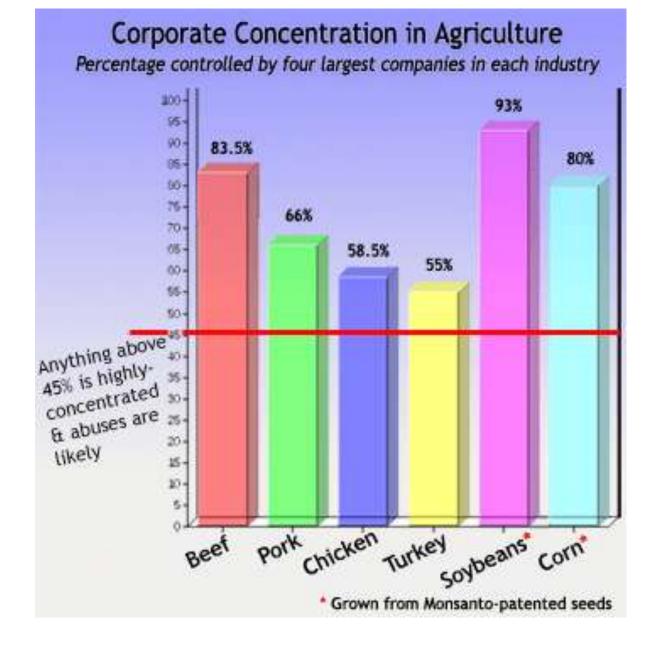
Company	2007 Food Sales (US\$ millions)	2007 Total Sales (US\$ millions)	Grocery as % of Total Sales
1. Wal-Mart (US)	180,621	391,135	46
2. Carrefour (France)	104,151	141,087	74
3. Tesco (UK)	72,970	100,200	73
4. Schwarz Group (Germany)	58,753	70,943	83
5. Aldi (Germany)	55,966	65,251	86
6. Kroger (US)	52,082	73,053	71
7. Ahold (UK)	50,556	62,614	81
8. Rewe Group (Germany)	49,651	56,324	88
9. Metro Group (Germany)	49,483	73,538	71
10. Edeka (Germany)	45,397	51,272	89
Total Top 10	719,630	1,085,417	
Source	e: Planet Retail		

### Global Food Retailers: Top 10 Account for 40% of Groceries Sold by Top 100



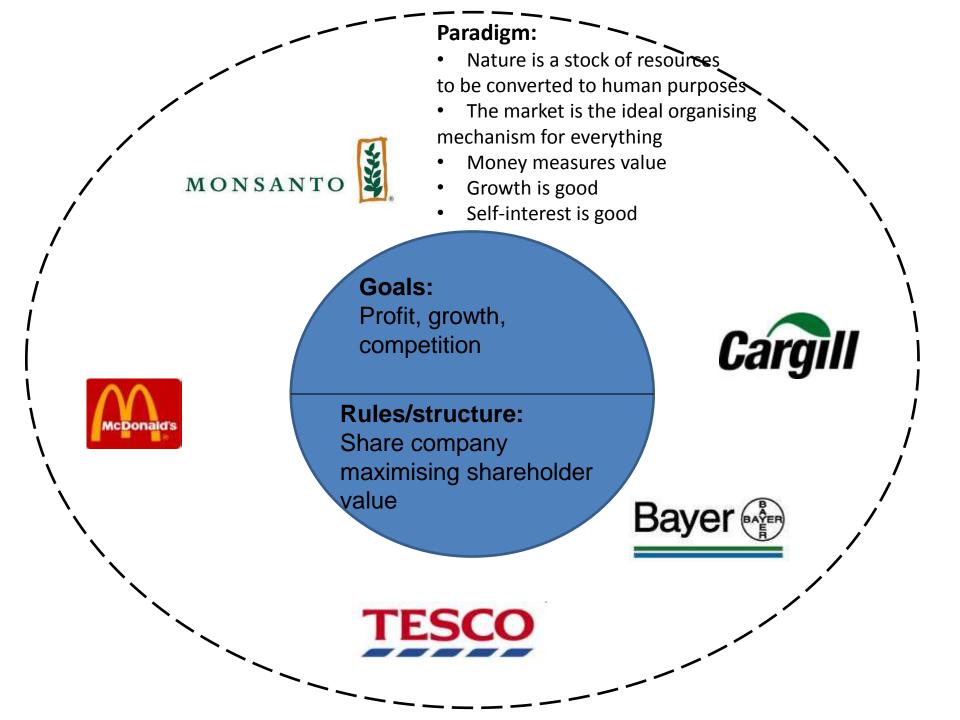
Grocery sales of top 100 retailers in 2007= US\$1.8 trillion



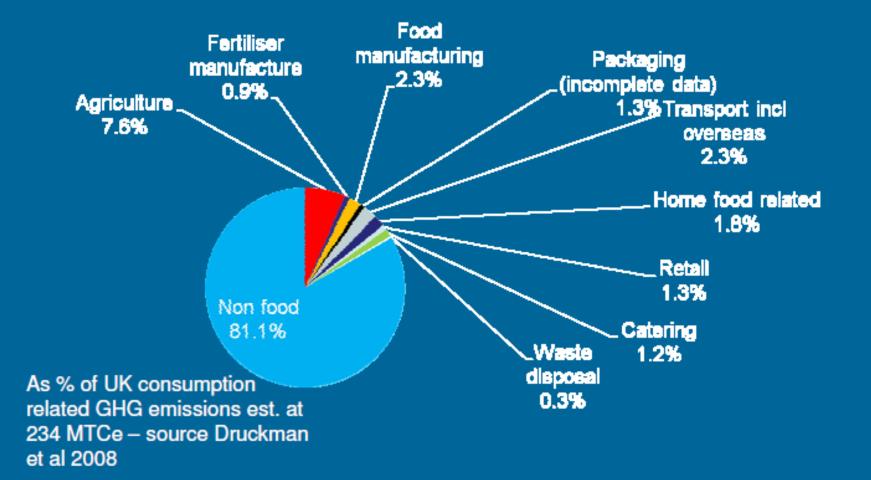


Source: www.farmaid.org





# Food GHG impacts – by life cycle stage - UK



## Former forest, Matto Grosso Brazil



### **Orthodox economics**

"When the crisis came, the serious limitations of existing economic and financial models immediately became apparent. Macro models failed to predict the crisis and seemed incapable of explaining what was happening to the economy in a convincing manner. As a policy-maker during the crisis, I found the available models of limited help. In fact, I would go further: in the face of the crisis, we felt abandoned by conventional tools. . . . In this context, I would very much welcome inspiration from other disciplines: physics, engineering, psychology, biology."

Jean-Claude Trichet

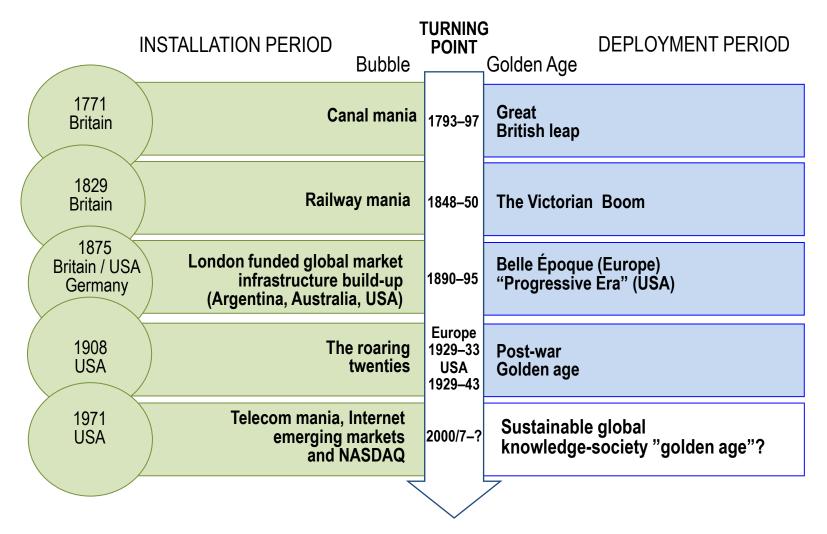
"Economics is a broken science, living in a kind of *Alice in Wonderland* state believing in multiple, inconsistent, things at the same time......Economics today needs a revolution in thought a much as Astronomy did at the time of Copernicus and Galileo."

George Cooper, ex-Goldman Sachs trader (PhD, Physics) in *Money Blood and Revolution* (2014)

"In order to change an existing paradigm you do not struggle to try and change the problematic model. You create a new model and make the old one obsolete."

**Buckminster Fuller** 

### The historical record: bubble prosperities, recessions & golden ages

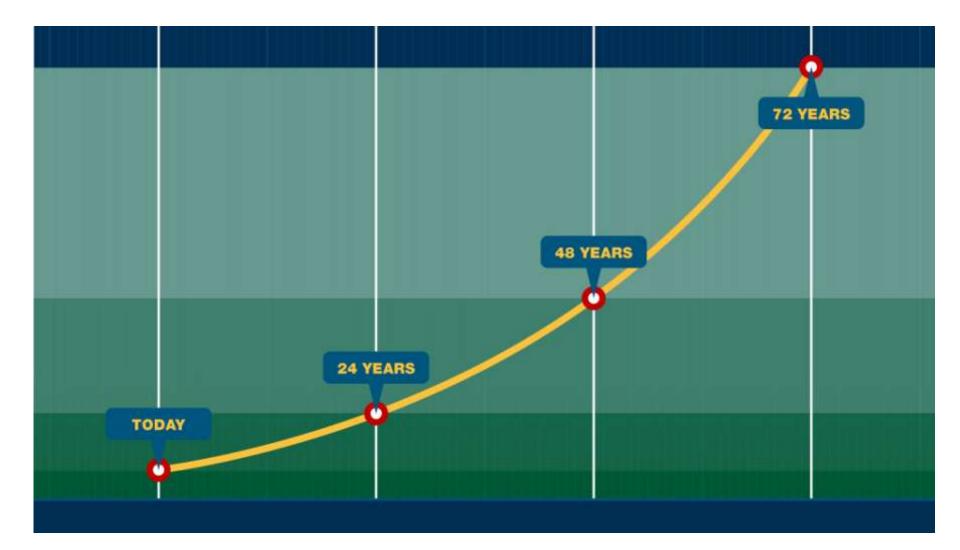


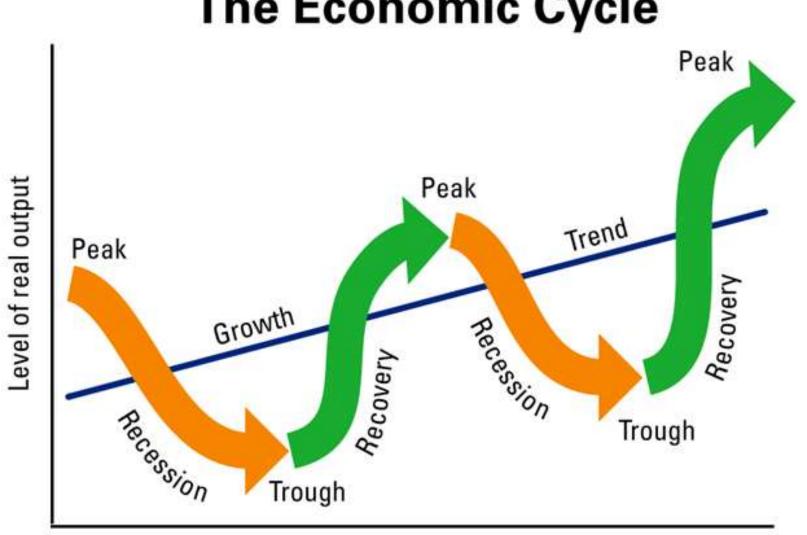
Each Golden Age has been facilitated

by enabling regulation and policies for shaping and widening markets

### **Brian Arthur: Increasing returns**

There are several things that are different about high tech. One of them is that there are typically increasing returns, network effects, and upfront costs....... So this is not a situation where everyone gets 10 or 15 percent market share. You typically find 80 percent market shares, 70 or 80 percent, like CompuServe or Microsoft have in their markets. The next player might have 20 or 30 percent, and then there are a few bit players. This is because there are increasing returns and diminishing costs, and the more advantage you have the more advantage you get. The more people who use Windows, the more likely I am to use Windows.





#### The Economic Cycle

#### The Rocking Horse



"If you hit a rocking horse with a stick, the movement of the horse will be very different from the stick. The hits are the cause of the movement, but the system's own equilibrium laws condition the form of movement"

Knut Wicksell (1918)



### Andrew Haldane – Bank of England's Chief Economist

A *rocking-horse* is a useful metaphor for how mainstream neoclassical economics believes an economy responds to shocks:

- The horse/economy is initially **stationary** in stable equilibrium until perturbed.
- The response of the horse/economy to being perturbed is entirely predictable – depending on how hard you hit it, where, and so on. Laws of motion are approximately linear in nature and can be independently modelled.
- Eventually (and predictably), the horse/economy will return to its **initial equilibrium position**.

#### The limitations of Newtonian economics

Mainstream economic models are based on notions of equilibrium. Like a pebble thrown in a pond, these models elegantly predict that the economy should return to calm and stable state.

However, the post-2008 recession has reminded us that the economy behaves in no such way:

- non-equilibrium processes and reflexivity (self-fulfilling bank runs);
- non-normality (fat-tailed stock market returns);
- non-linearities and discontinuities (animal spirits, popping of asset bubbles); tipping points (sovereign debt crises);
- multiple equilibria (unemployment scarring/hysteresis);
- network effects (financial contagion, peer effects).

#### Who Scared the Rocking Horse?





## What if we think of the economy as *a herd* of *real* horses?

Hitting one horse with a stick will cause the *whole* system to move unpredictably, and one thing is for certain: it will not return to a single predictable state of rest. In this world:

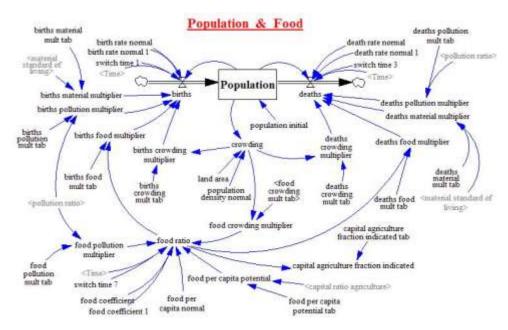
- Striking a horse/the economy will have knock on effects on other horses/parts of the economy
- The response is **unpredictable.** There will be very complex interactions, possibly stampedes! Impulses can set off processes that are highly non-linear and interdependent.
- When and where the economy returns to rest is very uncertain. There is **no single equilibrium**, and the field may not resemble its initial conditions!

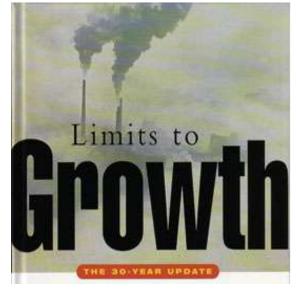
# From simple systems to complex systems

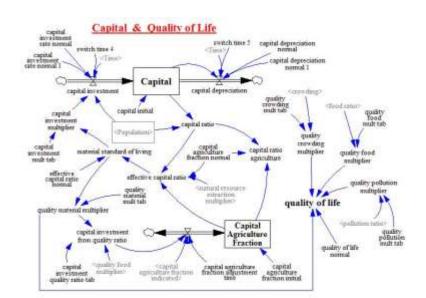
- Human beings, and the societies they live in, are complex.
- So, we cannot assume that interventions will have a straightforward causal effect.

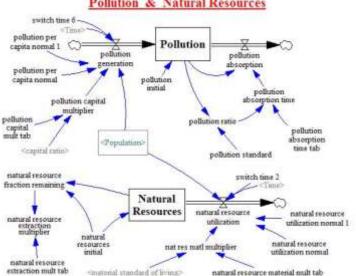


#### **Complex systems**

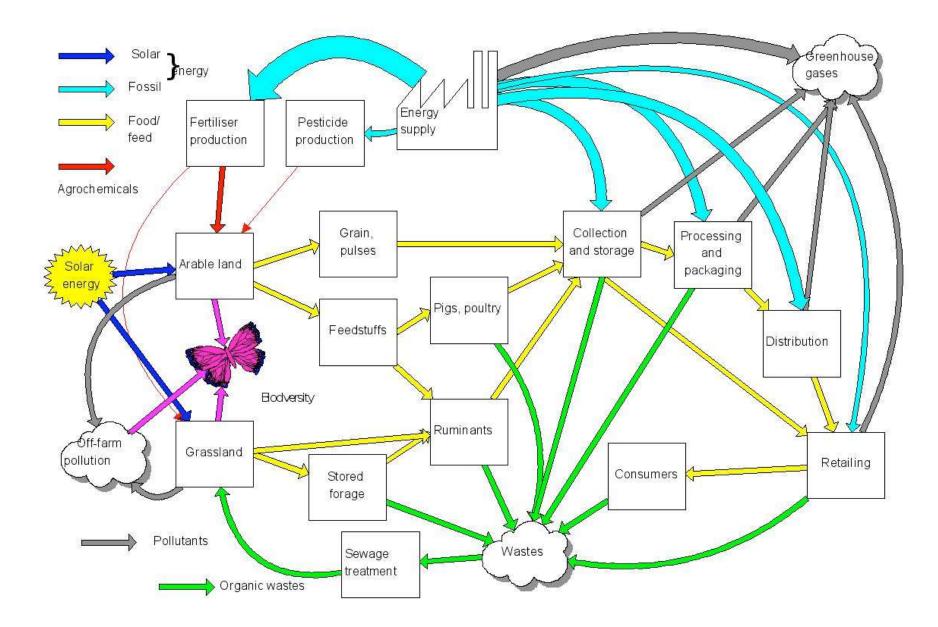








#### Pollution & Natural Resources



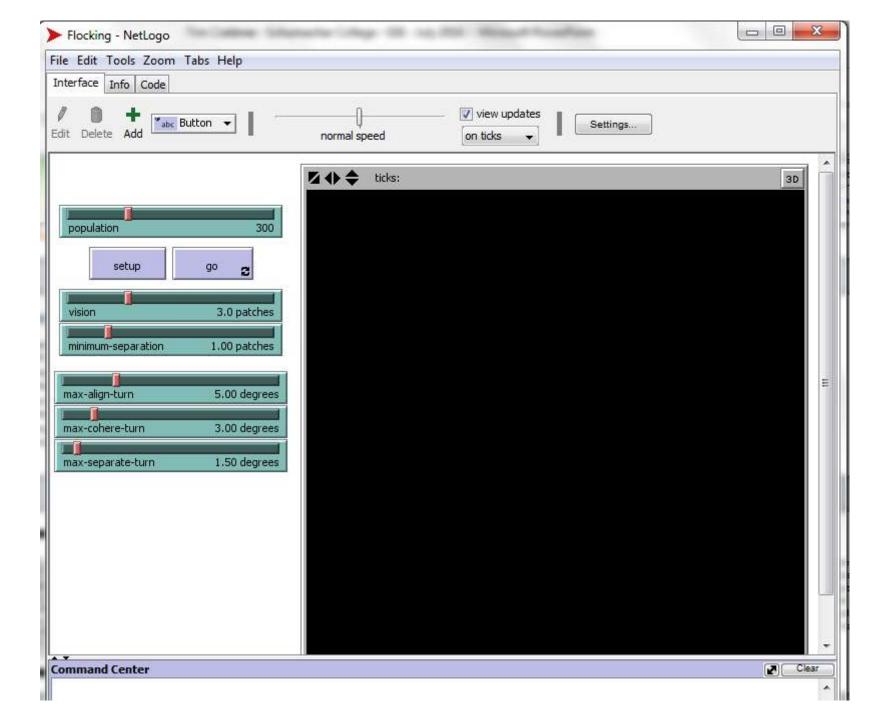
## 'Complexity Thinking' approach

- Self organising: encouraging a system which will spontaneously emerge as the actions of autonomous participants come to be interlinked and codependend on each other.
- **Evolutionary**: the system will be able to change its structure and processes as it adapts to maintain its viability within a changing, dynamic context. In other words, the system will be designed to learn from its experiences.

#### **Eve Mittleton-Kelly, LSE**

- Complex behaviour arises from *interaction*
- Complexity theory focuses on *relationships*
- The distinguishing feature of complex systems is that they can create new order
- Complexity theory builds on Systems Theory
- Complex systems are non-linear and their specific behaviour is unpredictable





#### W. Brian Arthur

I was saying that small events can lock the economy into different structures and that it's fractal – that there are structures within structures, that the entire economy isn't the best of all possible worlds. Capitalism does not lead you to the best of all possible worlds......

the whole edifice that had been built up for 200 years was threatened. You couldn't do economics statically anymore. The equilibria that manifested were not the best of all possible worlds. Markets were not perfect. Small events could lead you to inferior solutions.

#### W. Brian Arthur

- Standard economics is very good for being shoehorned into an image of 19<sup>th</sup>-century physics. It was precise and accurate and static; it concerns itself with equilibrium. I began to realize that what really interested me was to see the economy not as static but as unfolding, and as patterns that were always unfolding.
- The economy is always unfolding, and at a more fine level business is always unfolding.
- If you ask Taoists how they see the world, the first thing they'll tell you is that the world is changing. Everything is always changing, everything is always unfolding, and it is our job as human beings to allow things to unfold. You can give a little nudge here and a nudge there, influencing things at the proper time in your own way, but the world is not seen as a machine. The world is seen organically as a collection of unfolding patterns.
- things in this world emerge from elements that structure themselves. The mind, they said, is not a vessel to be filled with facts or ideas. It too emerges. The mind is an emergent phenomenon. All this they said a thousand years ago.

### **Complexity Theory**

- W. Brian Arthur:
- Standard sciences tend to see the world as mechanistic. That sort of science puts things under a finer and finer microscope. In biology the investigations go from classifying organisms to functions of organisms, then organs themselves, then cells, and then organelles, right down to protein and enzymes, metabolic pathways, and DNA. This is finer and finer reductionist thinking.
- The movement that started complexity looks in the other direction. It's asking, how do things assemble themselves? How do patterns emerge from these interacting elements? Complexity is looking at interacting elements and asking how they form patterns and how the patterns unfold. It's important to point out that the patterns may never be finished. They're open-ended......anything complicated and interactive seems to unfold and develop new structures.

#### The Mechanistic View of the Old Economy

- Now switch to business or the economy. The old thinking is that business and the economy are mechanistic. People talk of linkages, that things have to be "on the right track," that we need to fine-tune things, get it up to speed. If only we understood the mechanisms, we could fine-tune the economy.
- At deeper levels in business there are decision-makers, agents, and at any time each agent faces a set of problems, probably with a capital "P," and to those problems there are Solutions. This just happens to be a structure we laid on business, trying to make it a science.
- We believe there are Problems and there are Solutions. Implicitly it means that if you are managing there is a feeling here that you can actually frame the problem correctly so that there is a Solution with a capital "S," and it's up to you to learn how to arrive at that solution. But all this only works in repetitive business, where you can optimize and the problems are well defined. It appears in that case that management's problem is to optimize, to get it right. Lower costs, get quality up, keep everything moving, make it smooth, make things reliable, solve the problems, and find solutions. That's old thinking.

## Brian Arthur: The economy is not in "equilibrium"

To the degree that uncertainty and technological changes are present in the economy—and certainly both are pervasive at all levels—agents must explore their way forward, must "learn" about the decision problem they are in, must respond to the opportunities confronting them.....agents are not just reacting to a problem they are trying to make sense of; their very actions in doing so collectively re-form the current outcome, which requires them to adjust afresh. We are, in other words, in a world of complexity, a complexity closely associated with non-equilibrium.

•Standard sciences tend to see the world as mechanistic. That sort of science puts things under a finer and finer microscope.

•The movement that started complexity looks in the other direction..... Complexity is looking at interacting elements and asking how they form patterns and how the patterns unfold.

## Brian Arthur: Complexity economics & Taoism

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If you ask Taoists how they see the world, the first thing they'll tell you is that the world is changing. Everything is always changing, everything is always unfolding, and it is our job as human beings to allow things to unfold. You can give a little nudge here and a nudge there, influencing things at the proper time in your own way, but the world is not seen as a machine. The world is seen organically as a collection of unfolding patterns.

# From representations of systems to participation in dynamic processes

- We are immersed in problems of organised complexity – these are situations where you have a moderate number of variables, but strong non-linear interactions amongst those variables.
- This involves dealing simultaneously with a sizeable number of factors which are interrelated into an organic whole.

#### **Patricia Shaw**

We are used to thinking/seeing/experiencing in terms of a world of separate THINGS apart from ourselves at need to be managed,

•*Things* are clearly defined, identifiable, separate, bounded, stable, graspable, measurable, countable entities.

•They may be material *things* or intangible conceptual *things* such as organisations, jobs, managers, systems, leaders, resources, strategies, plans, goals, targets, budgets, meetings, cultures, visions.....

•Such *things* can be connected, arranged, ordered, organised by *design* into structures.

•Such ordering connections are *universal, linear, rational, sequential, predictable, neutral.* 

Complexity invites us to think/see/experience in terms of a world of PATTERNED FLOW in which we are inextricably immersed.

 This dynamic flow is not uniform but patterned as events and activities emerging *in webs of interdependent relating*.

 Patterning (irregular regularities) *emerges spontaneously through self-organisation* at many scales simultaneously.

 Such self-patterning processes are *local, reciprocal, non-linear, lateral, unpredictable, improvisational* in which both individual and social identities are emerging simultaneously.

 Continuity and change are emerging simultaneously as exploration of the adjacent possible with all its creative/destructive potential.

#### Warren Weaver

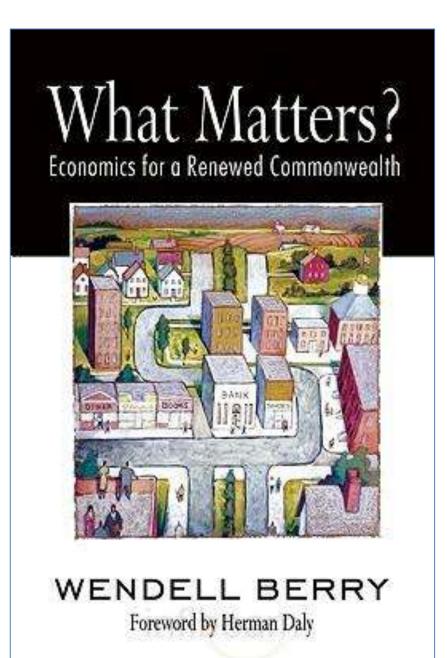
We must "stop thinking of science in terms of its spectacular successes in solving problems of simplicity." He is optimistic about the potential application of the methods of organised complexity, but counsels:

"do not expect science to furnish a code of morals, or a basis for aesthetics......[nor] furnish the yardstick for measuring, nor the motor for controlling, man's love of beauty and truth, his sense of values, or his convictions of faith. There are rich and essential parts of human life which are alogical, which are immmaterial and non-quantitative in character, and which cannot be seen under the microscope." His conclusion is that "our morals must catch up with our machinery".

•Weaver, W. (1948). "Science and complexity," in American Scientist, 36: 536-544

	Neo-classical economics	"New" economics
The individual	Utility maximising. Rational agents, not influenced by others.	
The firm	Share-holder owned. Key objective is to accumulate capital.	
The macro- economy	Increase in GNP is key aim. Markets are best co- ordinating mechanism.	

	Neo-classical economics	"New" economics
The individual	Utility maximising. Rational agents, not influenced by others.	Not wholly rational. Social being, networked. Well-being not solely equated with consumption.
The firm	Share-holder owned. Key objective is to accumulate capital.	Multiple objectives. Multiple stakeholders. New forms required, e.g. B- Corp & employee ownership
The macro- economy	Increase in GNP is key aim. Markets are best co- ordinating mechanism.	Complexity analysis. Systems thinking. Alternative economic indicators. Core economy & the commons.





## BEYANNE INVISION Soundwork for a New Economics

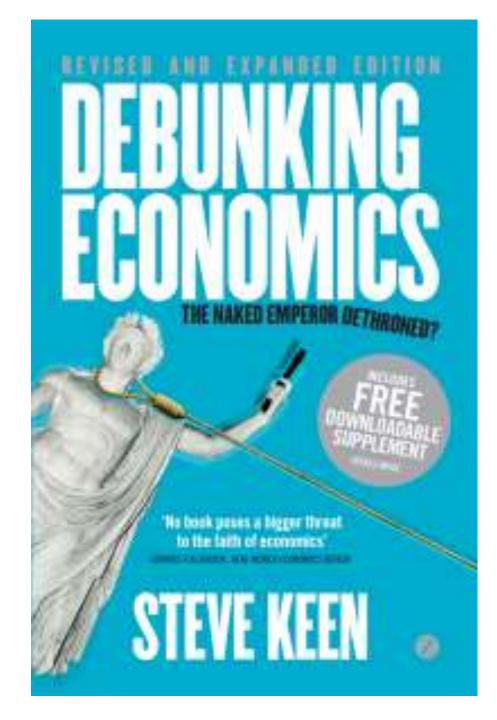
Watashik Basis tone overelivest ocurrencie masoning to show how the half essented setmination for the invisible hand of the market catribe deeply minimaling and even dangerous. This is a wonderful book with important lessons for policy, but sho much fun to read."

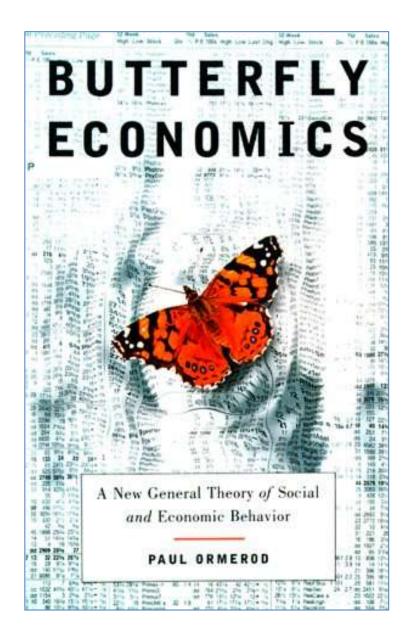
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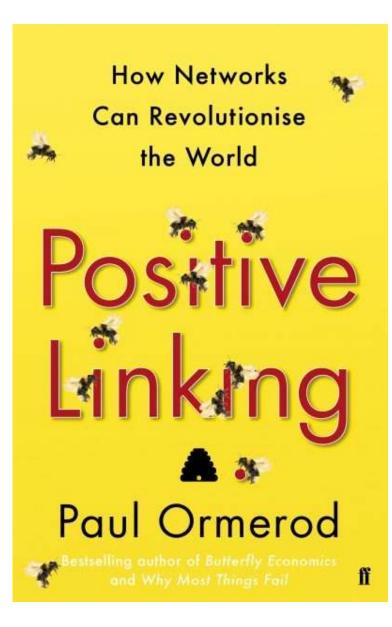
An endersous emigae of contemporary capitalism by a leading theorem with mal-world experience as one of India's chief economic policy makers. Bass takes on the alcoholistics of free market economics and constructs an alternative rewof base the economy works."

issuph E. Blights, Habel Leisenste









\*A compelling outsiders' take on the hubris and failures of reigning economic orthodoxies." —Publishers Weekly





WHAT PHYSICS, METEOROLOGY, AND THE NATURAL SCIENCES CAN TEACH US ABOUT ECONOMICS

MARK BUCHANAN

#### What is economics?

#### What can – and can't – it explain about the world?

#### Why does it matter?

Ha-Joon Chang teaches economics at Cambridge University, and writes a column for the Guardian. The Observer called his book 23 Things They Don't Tell You About Capitalism, which was a no.1 bestseller, 'a witty and timely debunking of some of the biggest myths surrounding the global economy.' He won the Wassily Leontief Prize for advancing the frontiers of economic thought for his book Kicking Away the Ladder. He is a vocal critic of the failures of our current economic system. HA-JOON CHANG ECONOMICS: THE USER'S GUIDE



Economics: The User's Guide Ha-Joon Chang



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### Ha Joon Chang

 Economics should be defined *not* in terms of its methodology, or theoretical approach, *but* in terms of its subject matter, that is, the economy (money, jobs, transfers, consumption, production).

• If you follow this definition, there are many different ways of studying economics.

### **Resilience and Transition**

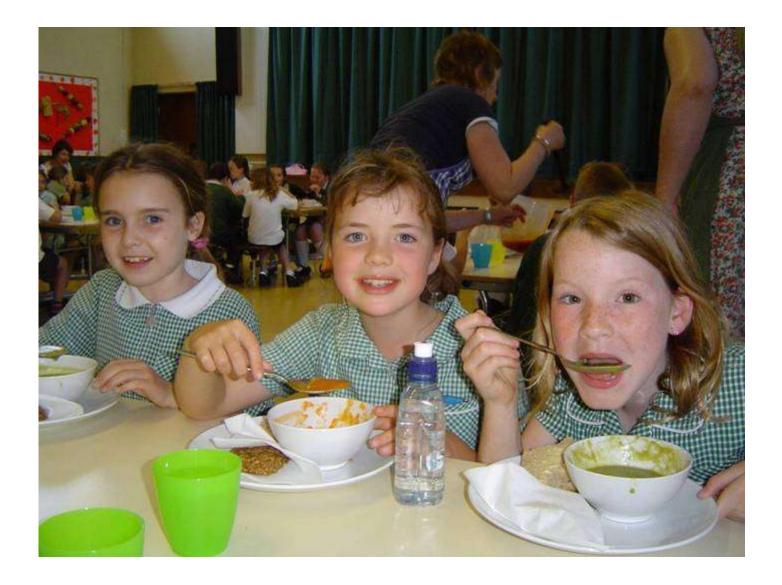
Building a Co-operative Economy Closer to Home

#### **BASIC NEEDS:** Food Energy Shelter **KEY FUNCTIONS** Reclaiming Finance Reclaiming the Commons Democratizing Pool C. & Localizing **Ownership**

## **Thich Nhat Hanh**

"The twentieth century was the century of individualism, but we don't want that anymore. Now we try to live as a community. We want to flow like a river, not a drop of water. The river will surely arrive at the ocean, but a drop of water may evaporate halfway."

#### Soup Lunch Pilot



### Local Food Links – 2013 - 14

- Two hub kitchens
- 25 staff
- 24 schools, 3 nurseries, 1 day centre, 8 lunch clubs
- 1200 meals per day
- Turnover: over £500,000 p.a.
- 2014 15: turnover will double due to free school meals programme

### Wessex Reinvestment Trust group

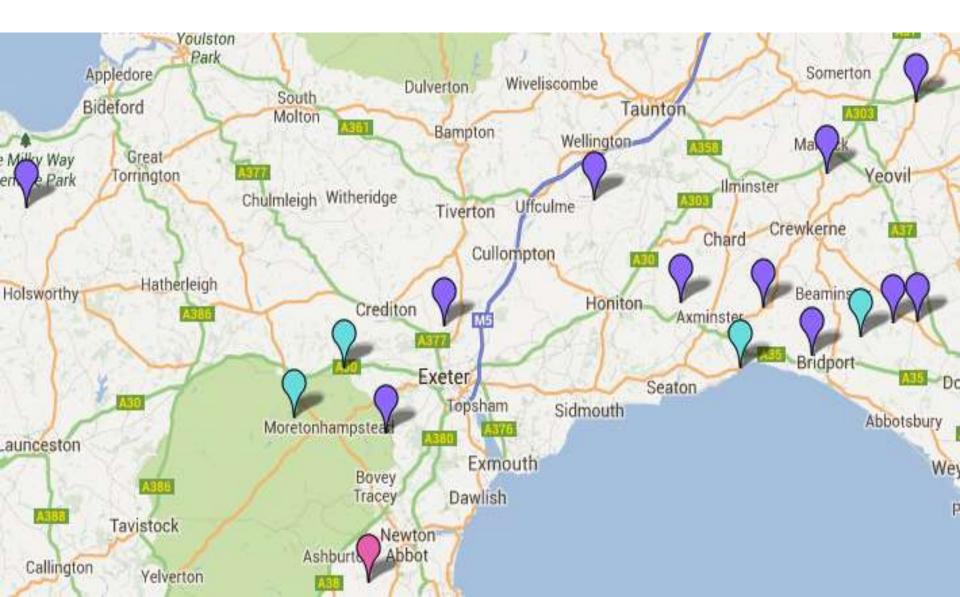
- Established in 2002, the group has 5 separate structures:
- Wessex Reinvestment Trust, a registered charity.
- Wessex Community Assets, which supports local economic development.
- Wessex Reinvestment Society, which provides business loans.
- Wessex Resolutions CIC, which provides home improvement lending.
- An LLP with 3 associates.



### Wessex Community Land Trust Project

- Established in 2010
- CLT Network award winner in 2012
- Now supporting 12 projects
- To build 123 affordable homes for local people – mostly for rent
- All on community-owned land
- With up to £5m of grant
- And generating incomes for communities.

#### Wessex Community Land Trust Project





#### Blackdown Hills – Upper Culm CLT and Hastoe Housing



#### Somerset – Norton CLT and Yarlington Housing

Wessex Community Land Trust Project

Dartmoor – Christow CLT and Teign Housing

Wessex Community Land Trust Project architects



#### BRIDPORT AREA DEVELOPMENT TRUST

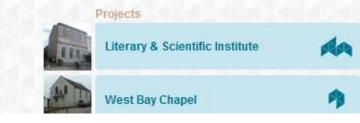
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**About the Trust** 

The Bridport Area Development Trust was set up in 2009 with the





# **Dorset Community Energy**



 Funding was secured from the Big Lottery to set up a new co-operative, Dorset Community Energy

• Initial target 6 community owned solar PV projects on schools and community buildings in Bridport, Dorchester and surrounding parishes

Partners



BRIDPORT RENEWABLE ENERGY GROUP









**Network members: A Team Foundation Biodynamic Land Trust Bulmer Foundation** Buzzbnk **Campaign for Real Farming Charity Bank Centre for Innovation in Voluntary Action Cooperative and Community Finance Community Shares Unit** Ethex Federation of City Farms & Community Gardens **Fresh Management Solutions** Gaeia, Global and Ethical Investment Advice **Holly Hill Trust International Centre for Social Franchising Real Farming Trust Schumacher College** Shared Assets **SLM Partners LLP Triodos Bank Wessex Community Assets** 

# FEA's Just Growth Programme

- A funding and support programme, designed for the food/farming sector.
- Aims to provide a combination of grant finance, loan finance and specialist business support. The grant figure per successful application is up to £20,000, matched with a similar loan, plus a similar amount raised by the group through a community share issue or crowd-funding.
- Cooperative & Community Finance, and the Real Farming Trust, representing the Funding Enlightened Agriculture (FEA) network, jointly put forward this proposal to the Esmee Fairbairn Foundation.
- It has been accepted, subject to the proviso that funds (£281,000) must be drawn down and spent within an 18 month period.



### WORKSPACE



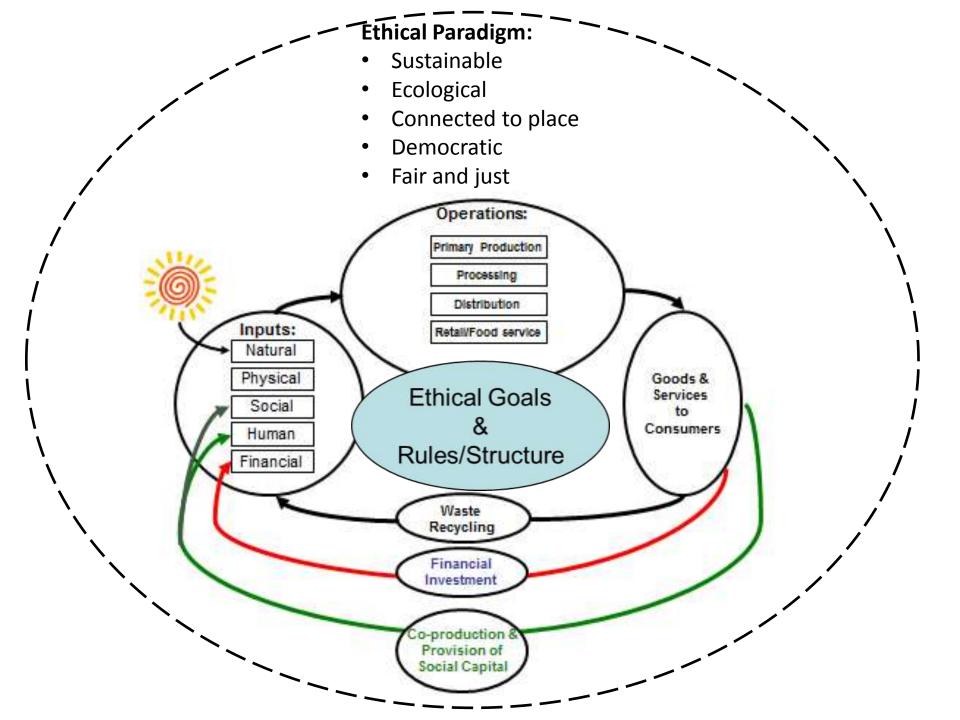
#### **FINANCE**



### CAPACITY BUILDING

Wessex Community Land Trust Project

> Dorset Community Energy



INSTALLATION	Collapse & Readjustment	DEPLOYMENT	
INDUSTRIAL REVOLUTION 1771	CANAL PANIC 1797 (BRITAIN)	<ul> <li>Diffusion of manufacturing with water power</li> <li>Full network of waterways (canals, rivers, oceans, Development of public companies</li> </ul>	
STEAM & RAILWAYS 1829	RAILWAY PANIC 1847 (BRITAIN)	Economies of scale     Joint stock companies     Repeal of tariff laws/free trade	
STEEL, ELECTRICITY & HEAVY ENGINEERING 1875	GLOBAL COLLAPSES OF THE 1890'S (ARGENTINA, AUSTRALIA, U.S.)	<ul> <li>Transcontinental rail, steamships and telegraph</li> <li>Gold standard, global finance</li> </ul>	
AUTOMOBILES, OIL & MASS PRODUCTION 1908	GREAT CRASH OF 1929 (U.S.)	<ul> <li>Interstate/international highways and airways</li> <li>Welfare state, Bretton Woods, IMF, World Bank</li> </ul>	
INFORMATION & TELECOMMUNICATIONS 1971	NASDAQ CRASH 2000 & GLOBAL COLLAPSES (ASIA, ARGENTINA, U.S.)	<ul> <li>Global digital telecommunications network</li> <li>Institutional framework, facilitating globalization</li> </ul>	

### Features of the new economy

Distributed

Modularisation

Aggregation

Crowd intelligence

Produsage

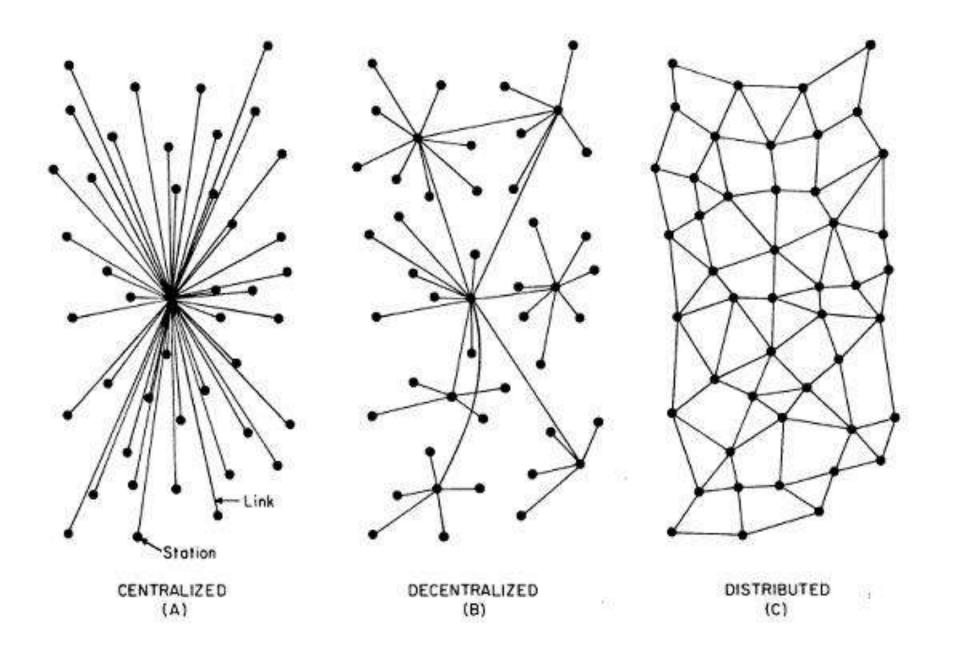
Self organising

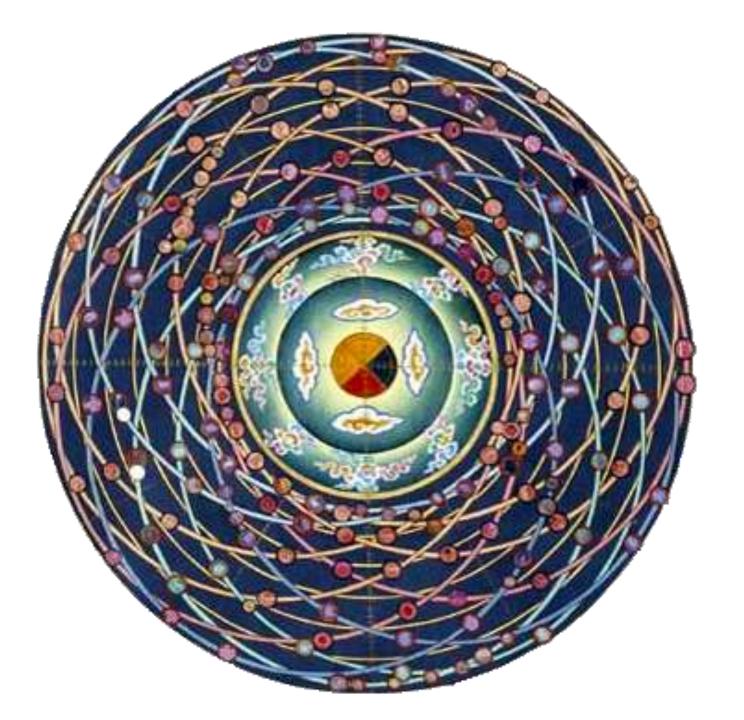
Curation

**Open licence** 

Version control

Attention economy





## Networks and diffusion

• Random networks (rapid, viral, fashion)

Scale free (short links but some with longer & many links who act as hubs)

 Small world (primarily short term links, diffusion slower & by groups)

## From scaling to complexity

Starting point not a particular project or technology but emerging ecology of projects each of which has its own generative capacity, and constanly creating new networks with other projects

# Mondragon, Spain

84,000 employed in 256 co-operatives

Supported by Mondragon Co-operative Corporation



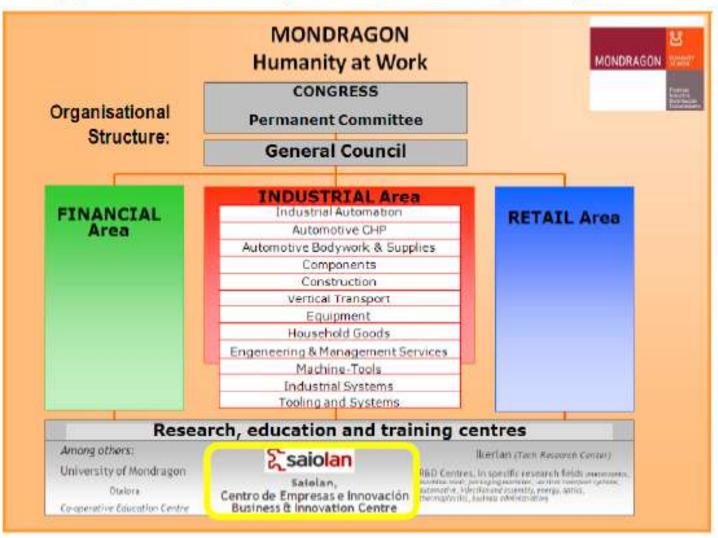




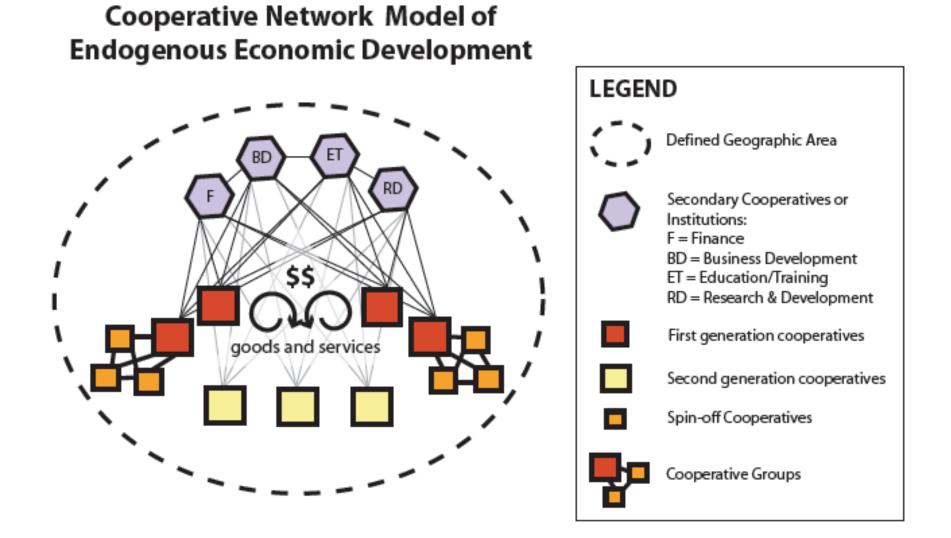




### Mondragon: 1st Basque industrial group; 7° in Spain







# The firm: a new economics perspective

- The economy is an evolving (or "complex") process, not a static machine. Cf Brian Arthur's paper (2013).
- The organisation (= a network of people and technology - not just the corporation) is a crucial unit of economic activity.
- Organisations are like species in an ecosphere there is variation and evolution.

#### Ten characteristics of 'enlivened' civil economy

- *i.strong element of the voluntary*
- *ii.driven by idea* (mission).
- *iii.process as significant as outcomes*
- iv.management as mobilisation.
- v.formation
- vi.collective intelligence & sharing of know how
- vii.human centred technology
- viii.not scale but organic distributed growth.
- *ix.expansion of network rather than expansion of enterprise x.social financing*

	Neo-classical economics	"New" economics	Buddhism
The individual	Utility maximising. Rational agents, not influenced by others.	Not wholly rational. Social being, networked. Well-being not solely equated with consumption.	Seeks to maximise well-being, but needs a clear "path" to avoid suffering. Altruism can moderate selfishness.
The firm	Share-holder owned. Key objective is to accumulate capital.		
The macro- economy	Increase in GNP is key aim. Markets are best co-ordinating mechanism.		

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The macro- economy	Increase in GNP is key aim. Markets are best co- ordinating mechanism.	Complexity analysis. Systems thinking. Alternative economic indicators. Core economy & the commons.	Impermanence – no equilibrium. Build a frame: compassion, altruism, generosity. GNH.



>> About

#### Initiators



MAX PLANCK INSTITUTE UP20



### Kiel Institute

Partner

#### From Homo Economicus towards a Caring Economics

The aim of this research program, funded by the Institute for New Economic Thinking (INET), is to explore new avenues of how psychological and neuroscientific knowledge about human motivation, emotion and social cognition can inform models of economic decision making in addressing global economic problems. In particular, the program seeks to generate a new generation of economic models that explore the opportunities for more cooperative, pro-social and sustainable economic behaviors. This research aims at providing a new vision of a "caring economics."

The Kiel institute for the World Economy and the Department of Social Neuroscience at the Max Planck Institute for Human Cognitive and Brain Sciences build a

multi-disciplinary collaboration that questions fundamental assumptions of mainstream economic models, such as



context-independent and table preferences, means-end rationality, and strictly individualistic and self-interested decision making. We assume that all behavior is motivated and explore how external and internal conditions can activate different, discrete motivational systems that can in turn prime different sets of behavior patterns. Hereby, we also focus on studying the plasticity of motivational systems in

