Decoupling growth from carbon:

How our economy needs to change

CLES Summit
Manchester, 12 July, 2010
Dr Viki Johnson
nef (new economics foundation)

About **nef**

nef
economics as if people and the planet mattered

An *independent* think-and-do-tank founded in 1986

Inspired by 3 principles

- Sustainable development
- Social justice
- People's wellbeing

'We aim to improve quality of life by promoting innovative solutions that challenge mainstream thinking on economic, environmental and social issues. We work in partnership and put people and the planet first.'

Outline

nef
economics as if people and the planet mattered

Why do we need a new economic direction?

Why aren't we decoupling carbon emissions from economic growth?

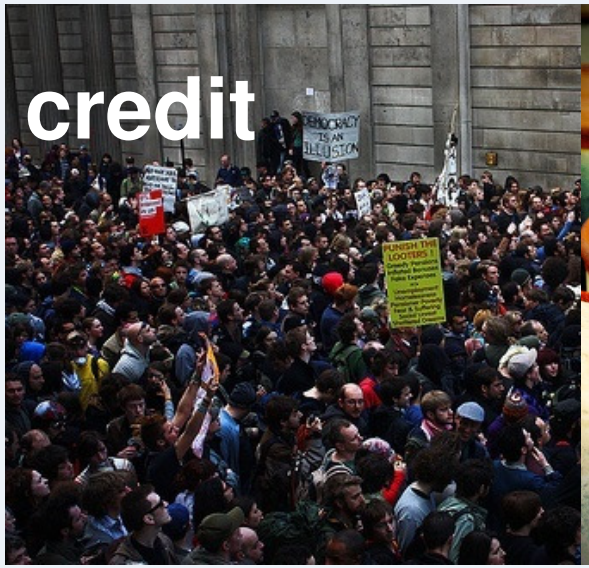
What should be the design criteria for a low carbon, high well-being economy

How can we get there?

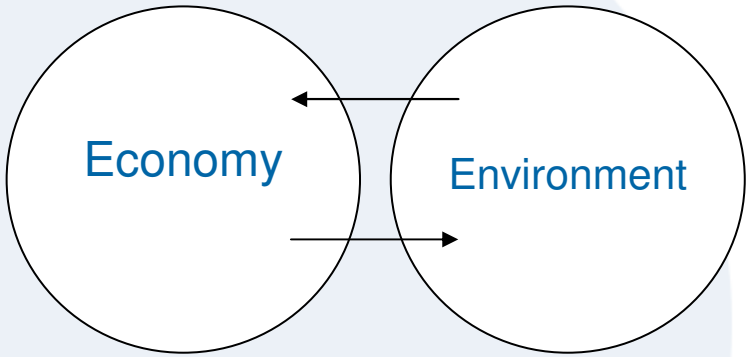
Why do we need a new economic direction?

nef
economics as if people and the planet mattered

‘ The Triple Crunch’

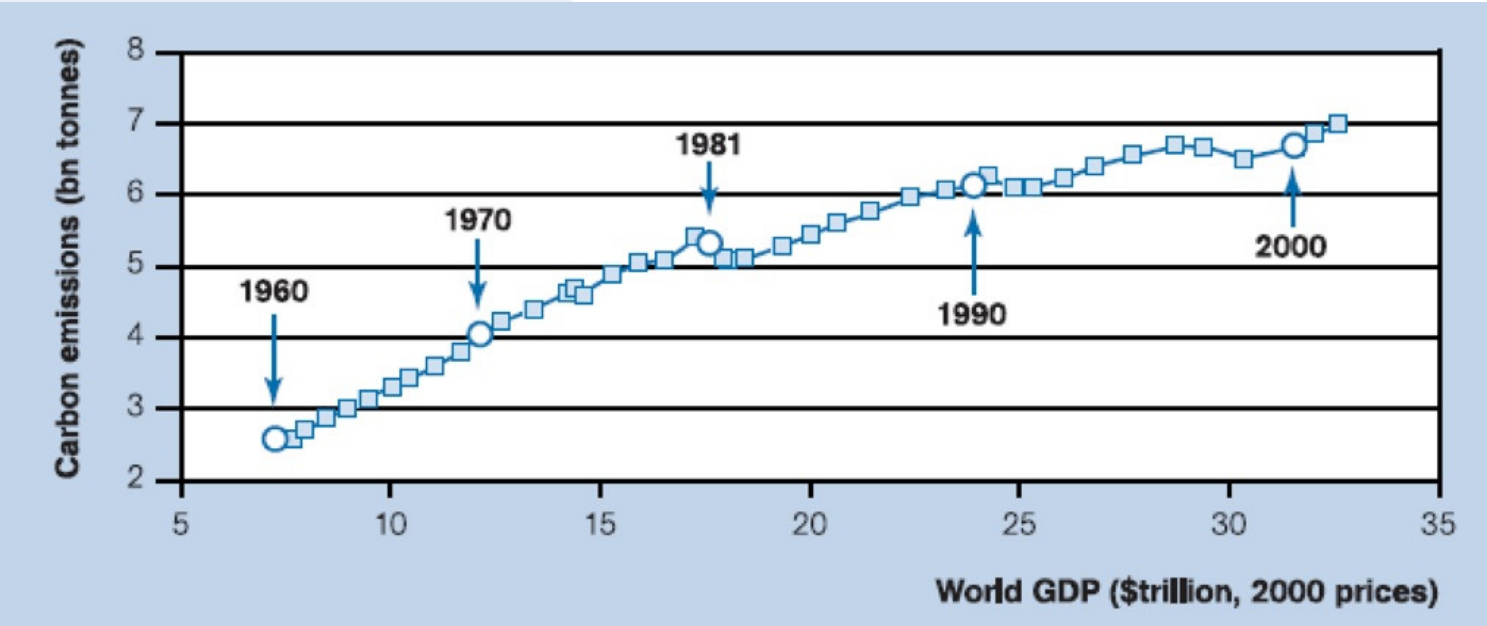


Growth and environment



Neoclassical model of economy

Relationship between World GDP and fossil fuel carbon emissions



GDP growth and carbon are not decoupling

economics as if people and the planet mattered

Kaya Identity

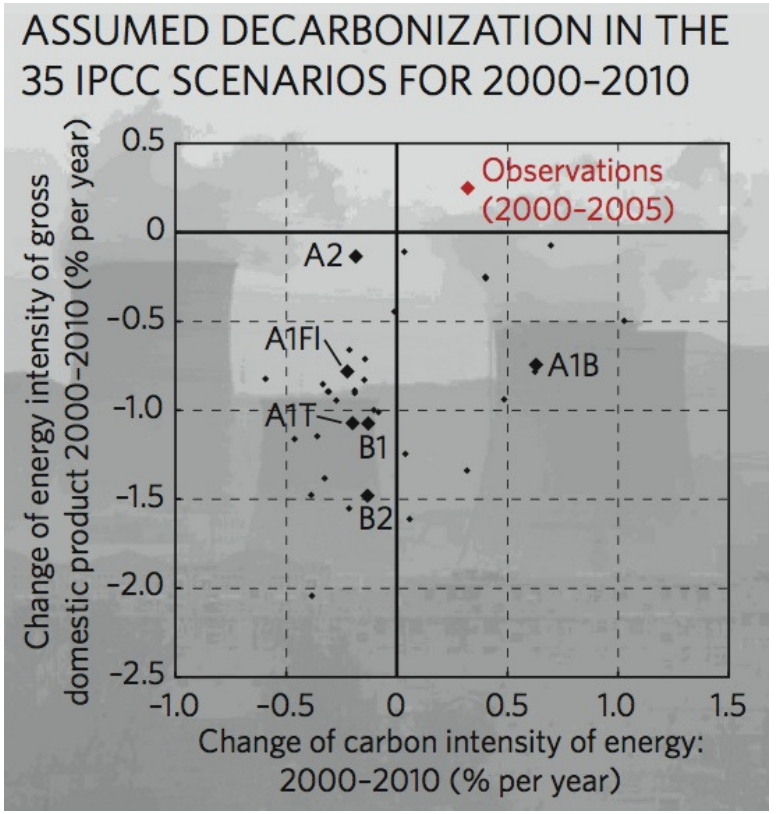
$$NetF = P\left(\frac{G}{P}\right)\left(\frac{E}{G}\right)\left(\frac{F}{E}\right) - S = Pgef - S$$

- P = population
- g = per capita GDP

- e = energy per unit of GDP (energy intensity of the economy)

- f = carbon per unit of energy (carbon intensity of energy)

- S = natural carbon sinks , ,



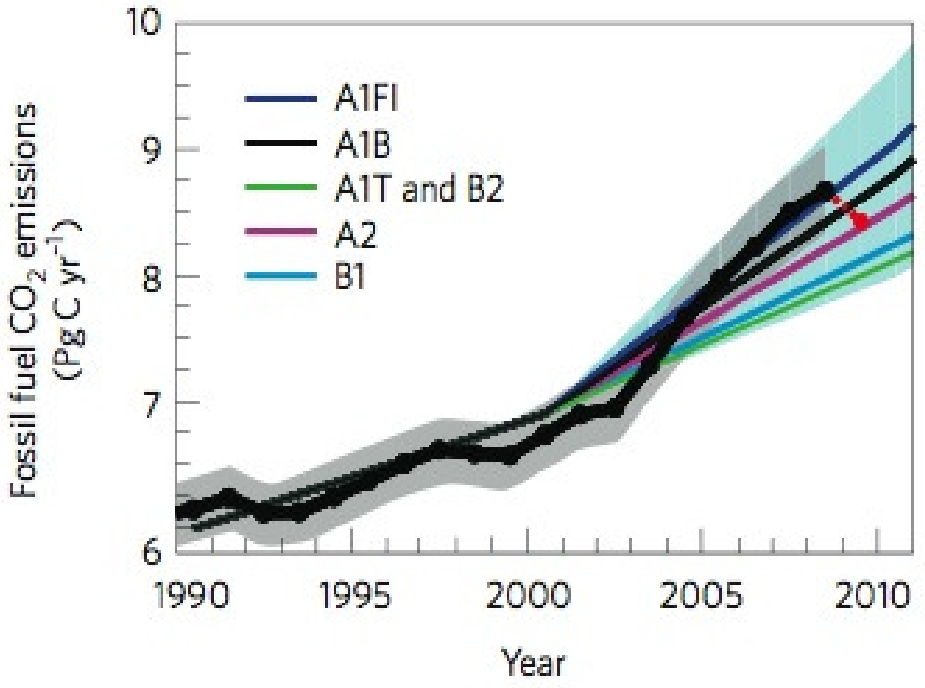
Pielke Jr *et al* (2009)

Global growth in CO_2 since the 1990s

economics as if people and the planet mattered

Between 2000 and 2008 emissions grew at 3.3 per cent / p.a.

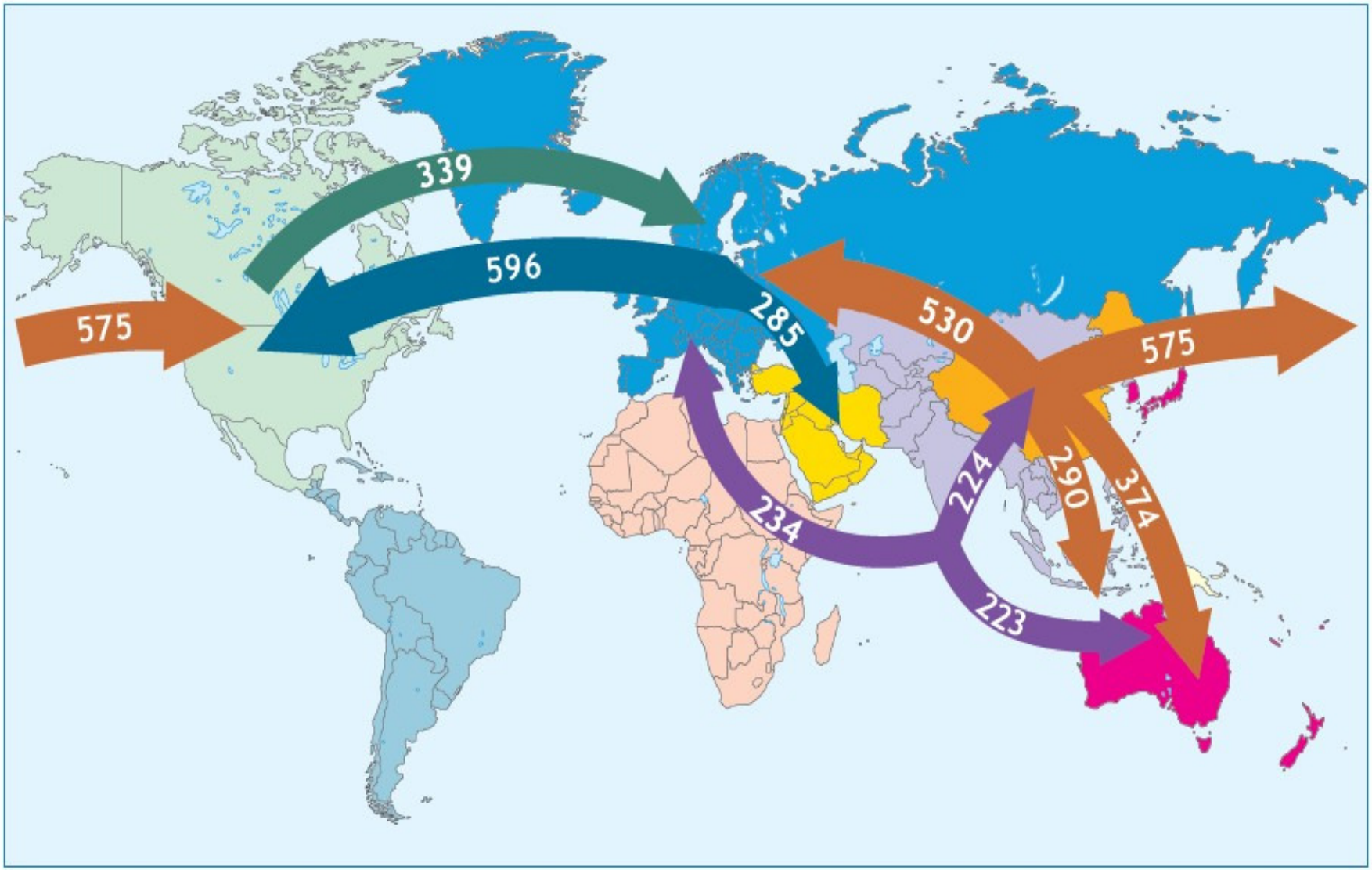
- 18 ± 15 % of annual growth due to decline in carbon-cycle feedbacks
- 17 ± 7 % of annual growth due to an **INCREASE** in carbon intensity of energy
- 65 ± 16% of annual growth due to an **INCREASE** in global economic activity



Le Quéré *et al* (2009)

Figure 16.5 ● Ten largest inter-regional flows of energy-related CO_2 emissions embedded in exports of goods and services, 2006

(Million tonnes)



The boundaries and names shown and the designations used on maps included in this publication do not imply official endorsement or acceptance by the IEA.

The “inconvenient” rebound effect

Paradox that energy-efficiency improvement leads to **more** consumption **not less.**

- Consumers

- Producers

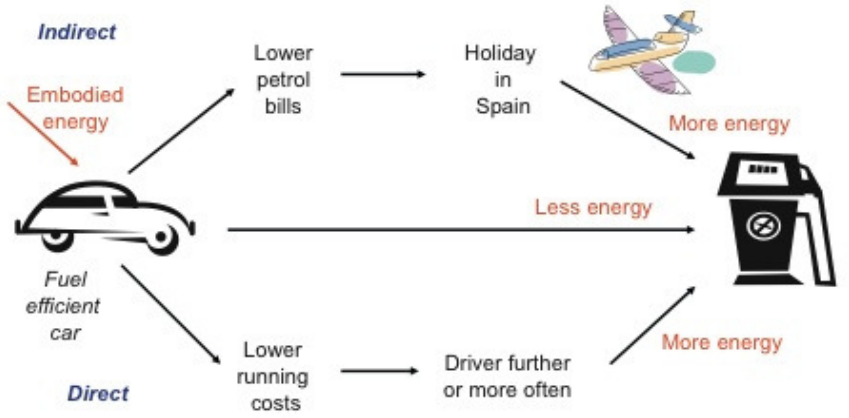


Fig. 1. Illustration of rebound effects for consumers.

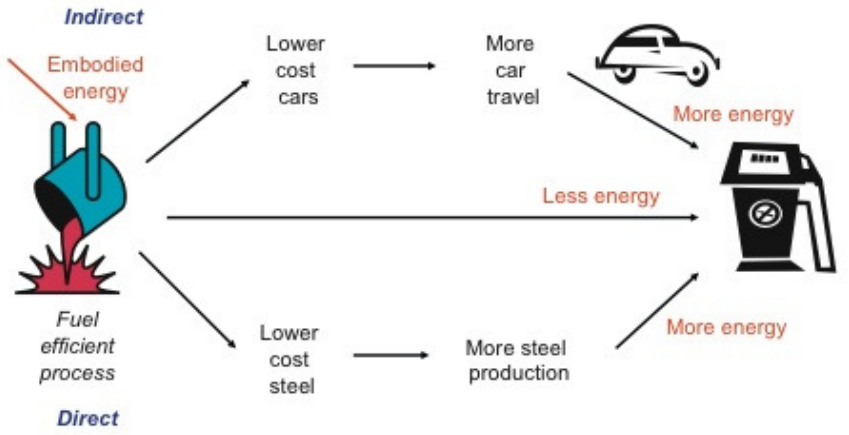


Fig. 2. Illustration of rebound effects for producers.

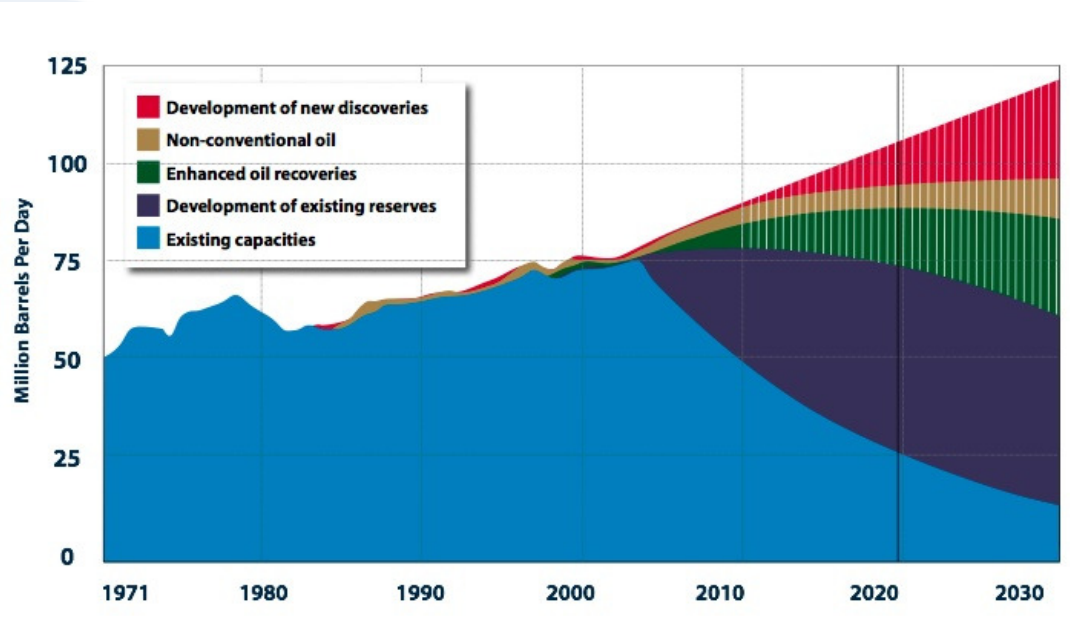
From: Sorrell, 2009

Peak oil

economics as if people and the planet mattered

‘a point in the path of the extraction and depletion of conventional oil and other fossil fuels at which world oil production will soon reach a peak, level off and then rapidly decline’

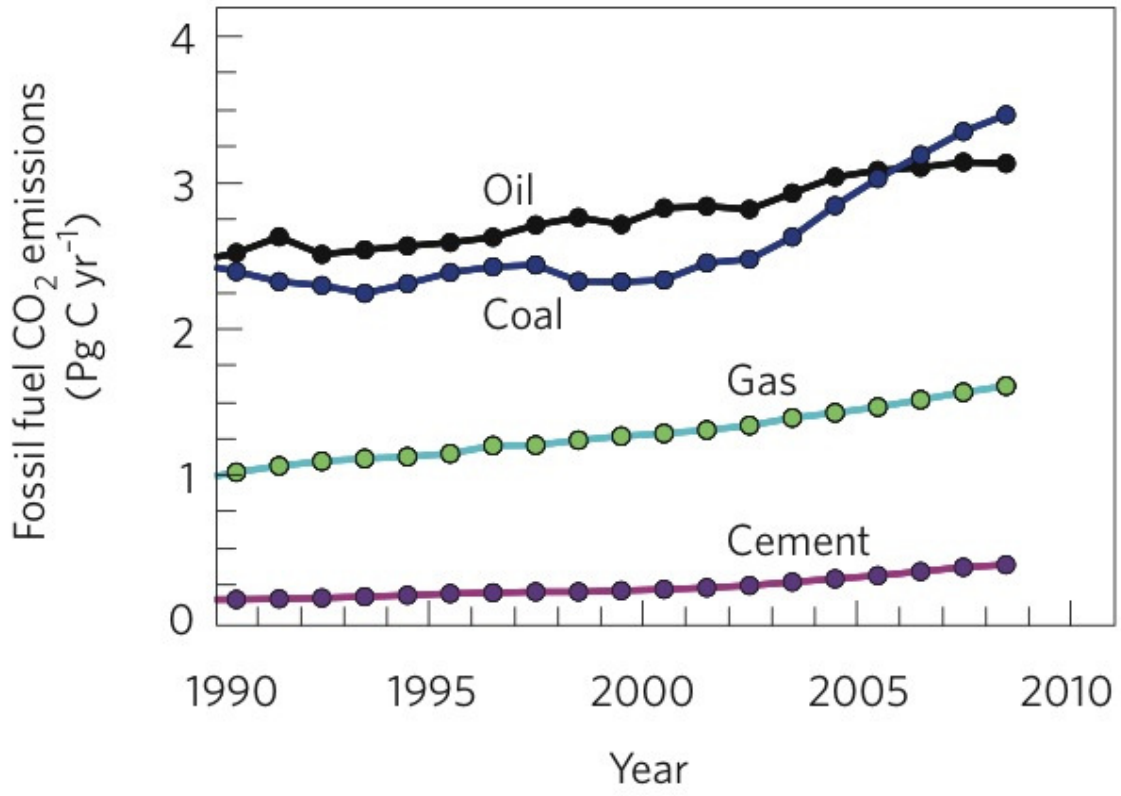
Peak oil - how soon?



United States, Joint Forces Command biennial report the 'Joint Operating Environment' (JOE) is a "*perspective on future trends, shocks, contexts and implications for… the national security field.*"

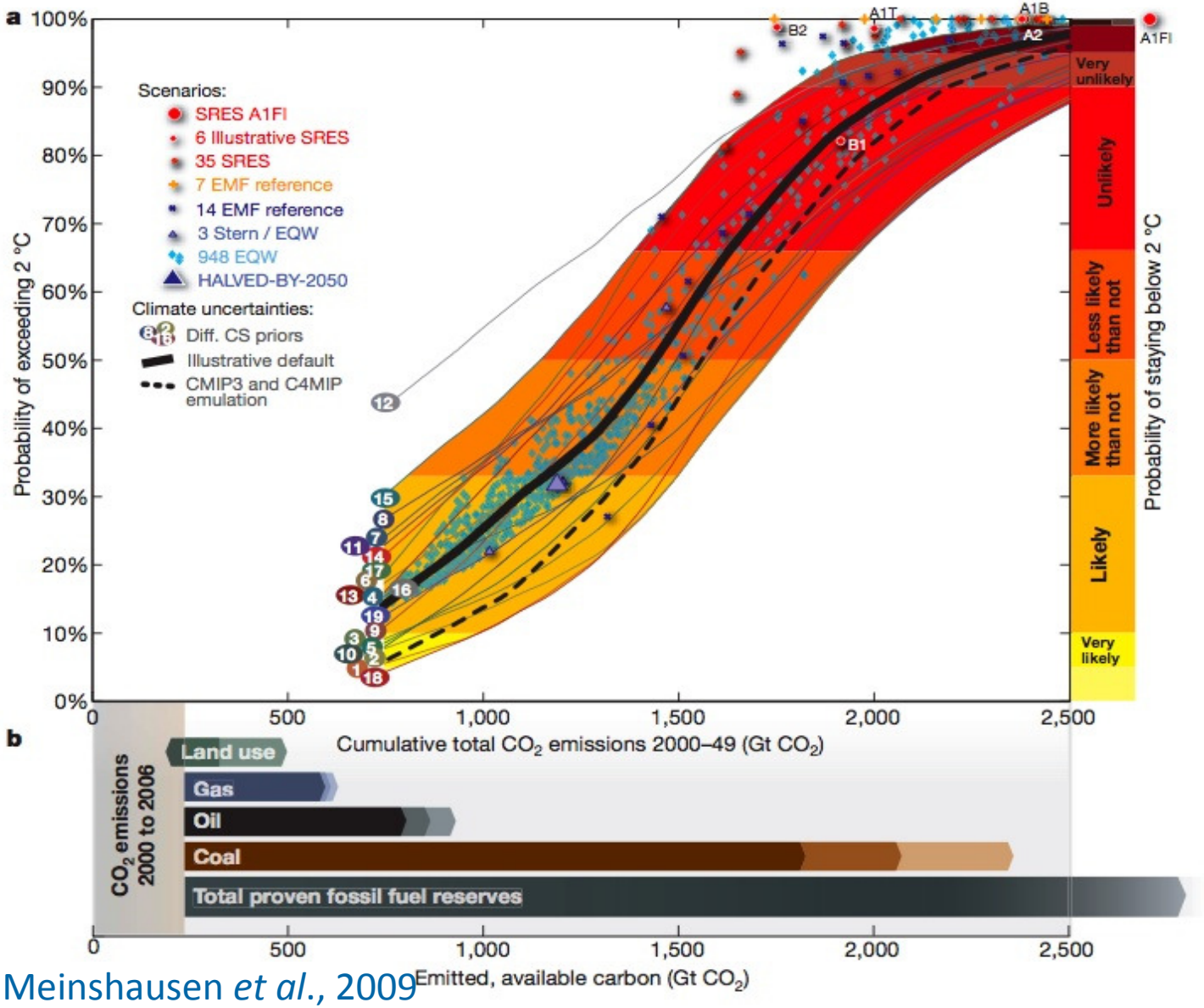
The 2010 JOE warns:"*By 2012, surplus oil production capacity could entirely disappear, and as early as 2015, the shortfall in output could reach nearly 10 MBD [million barrels a day*]" (p. 29)

Impact on emissions



Le Quéré *et al.*, 2009

Unburnable carbon?



Meinshausen *et al.*, 2009

nef

conomics as if people
nd the planet mattered

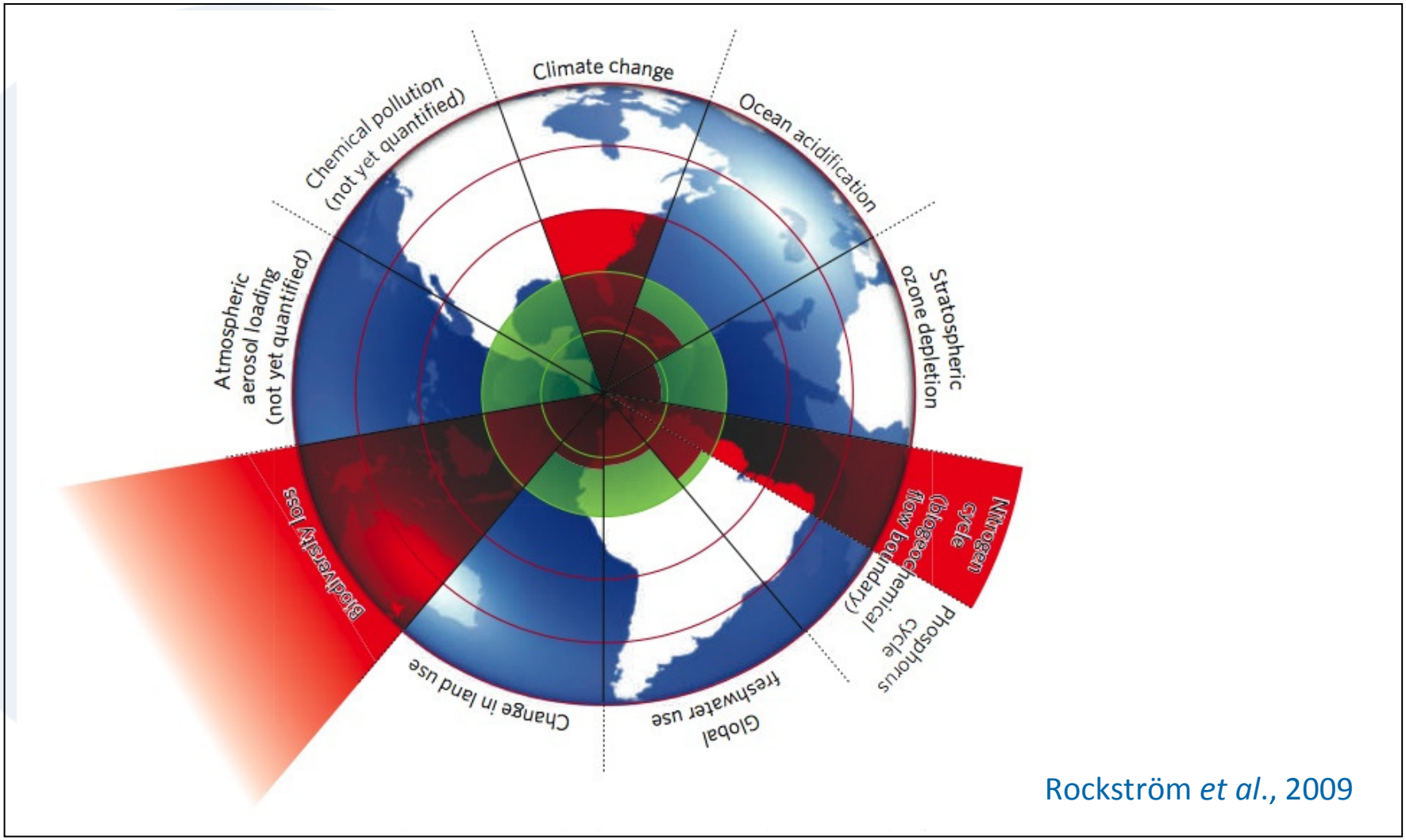
The trillionth tonne

- To have an 80 % chance of not exceeding 2 ˚C total emissions need to be capped at 1 trillion tonnes of CO_2 between 2000 and 2049.

- But, if emissions are still 25% above 2000 levels by 2020, the risk of exceeding 2 ˚C shifts to more likely than not.

Not just carbon: planetary boundaries

nef
economics as if people and the planet mattered



Rockström *et al*., 2009

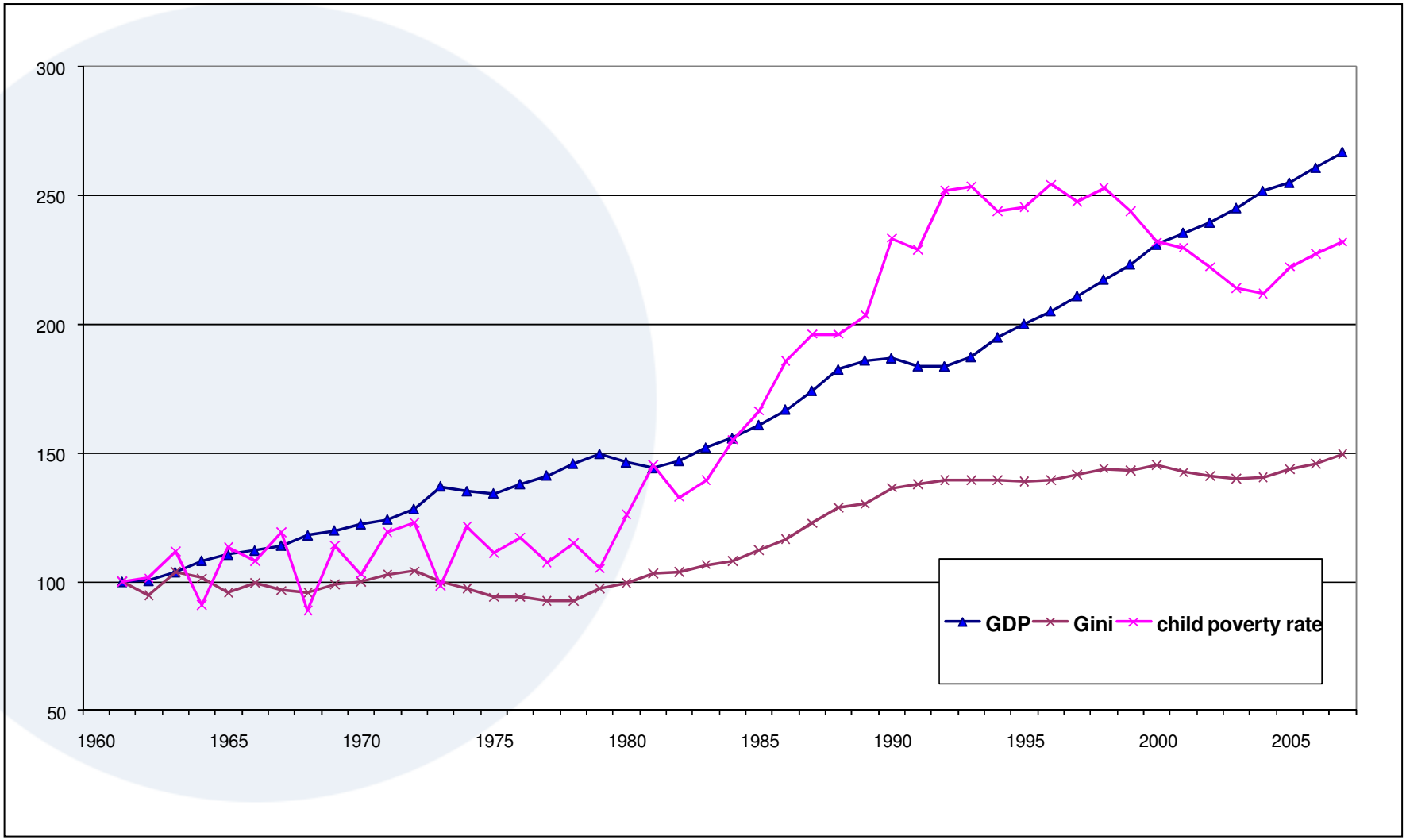
Growth isn't working

nef
economics as if people and the planet mattered

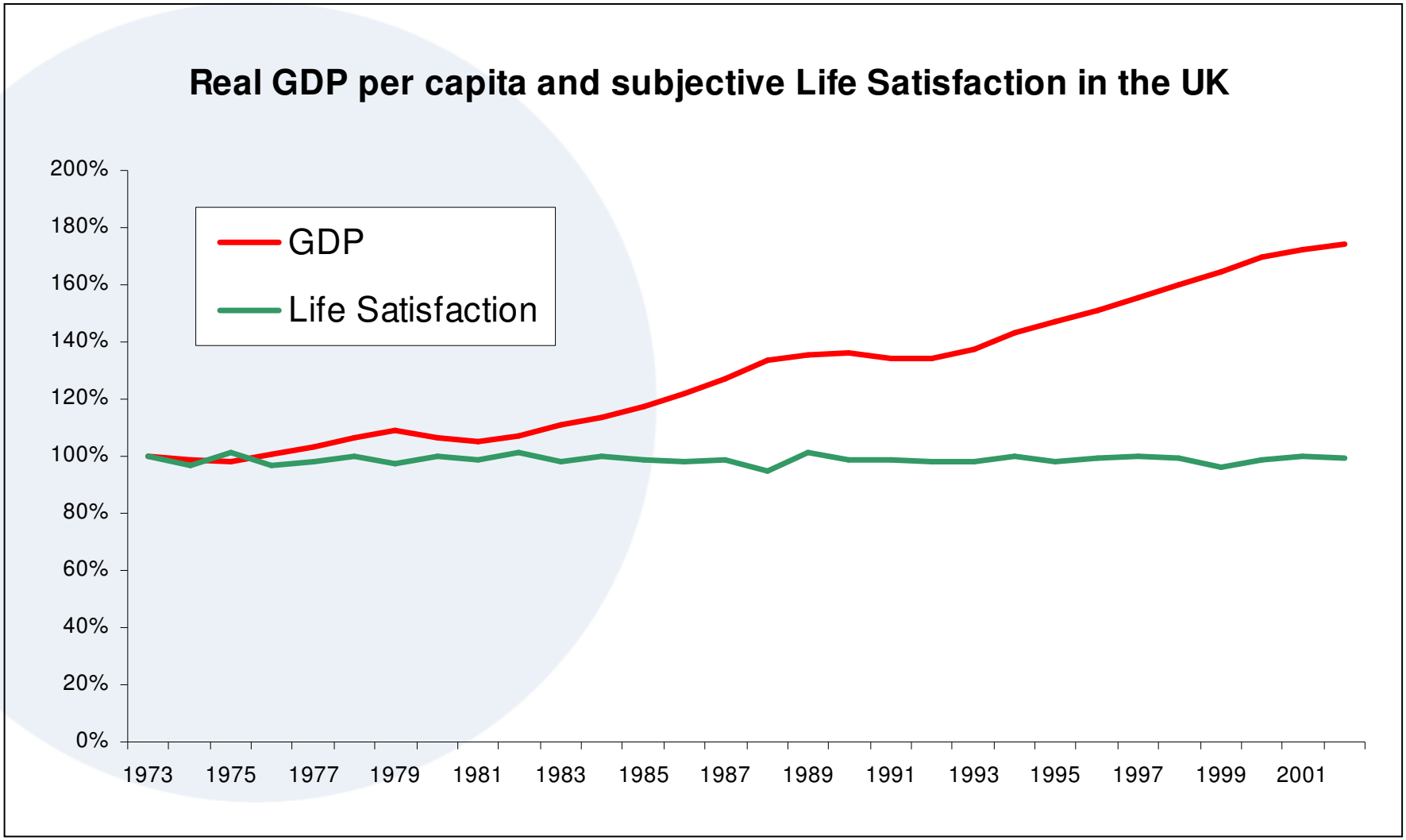
Between 1990 - 2001

- For every **$100** worth of growth in the world's per capita income, just **$0.60** found its target and contributed to reducing poverty below the $1-a-day line.
- To achieve a single dollar of poverty reduction for people living below $1-a-day, **$166** of extra global production and consumption was needed compared to around **$45** the previous decade

Growing inequality



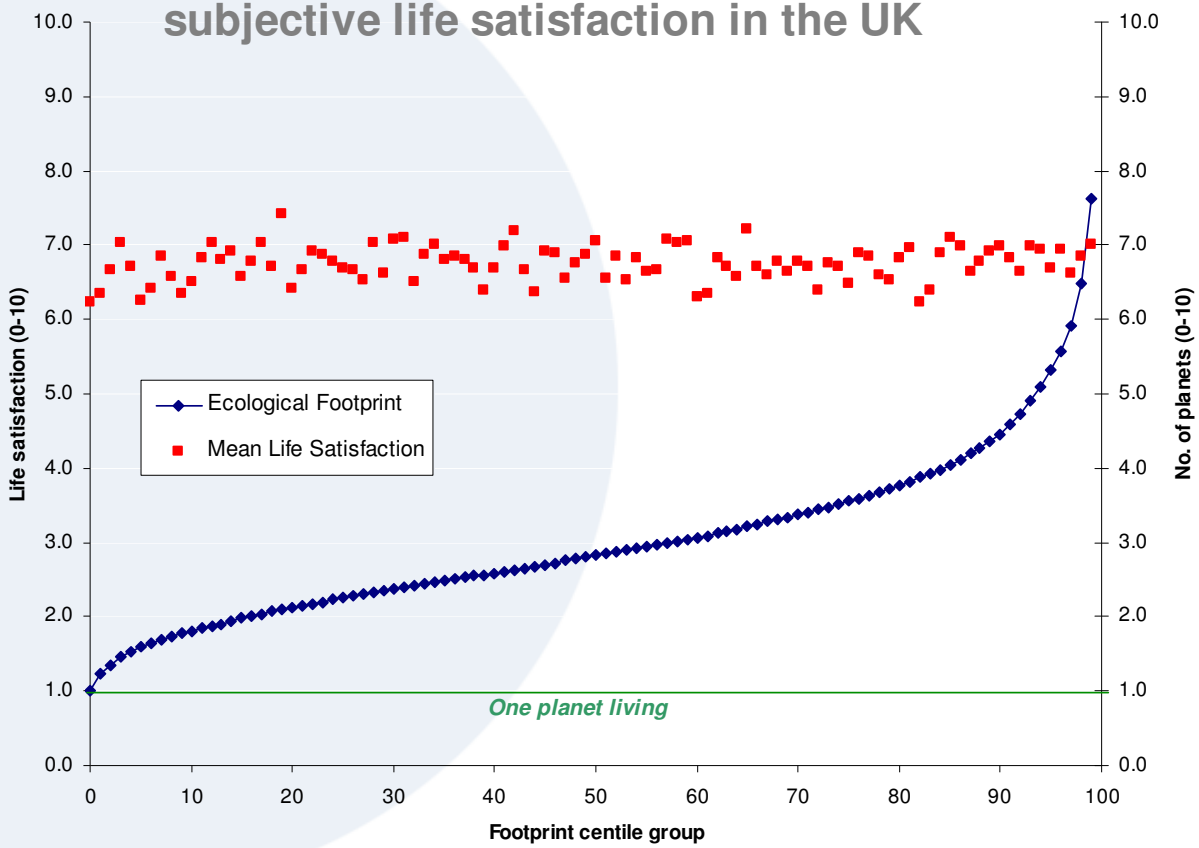
Scarce gains…



What's it all for?

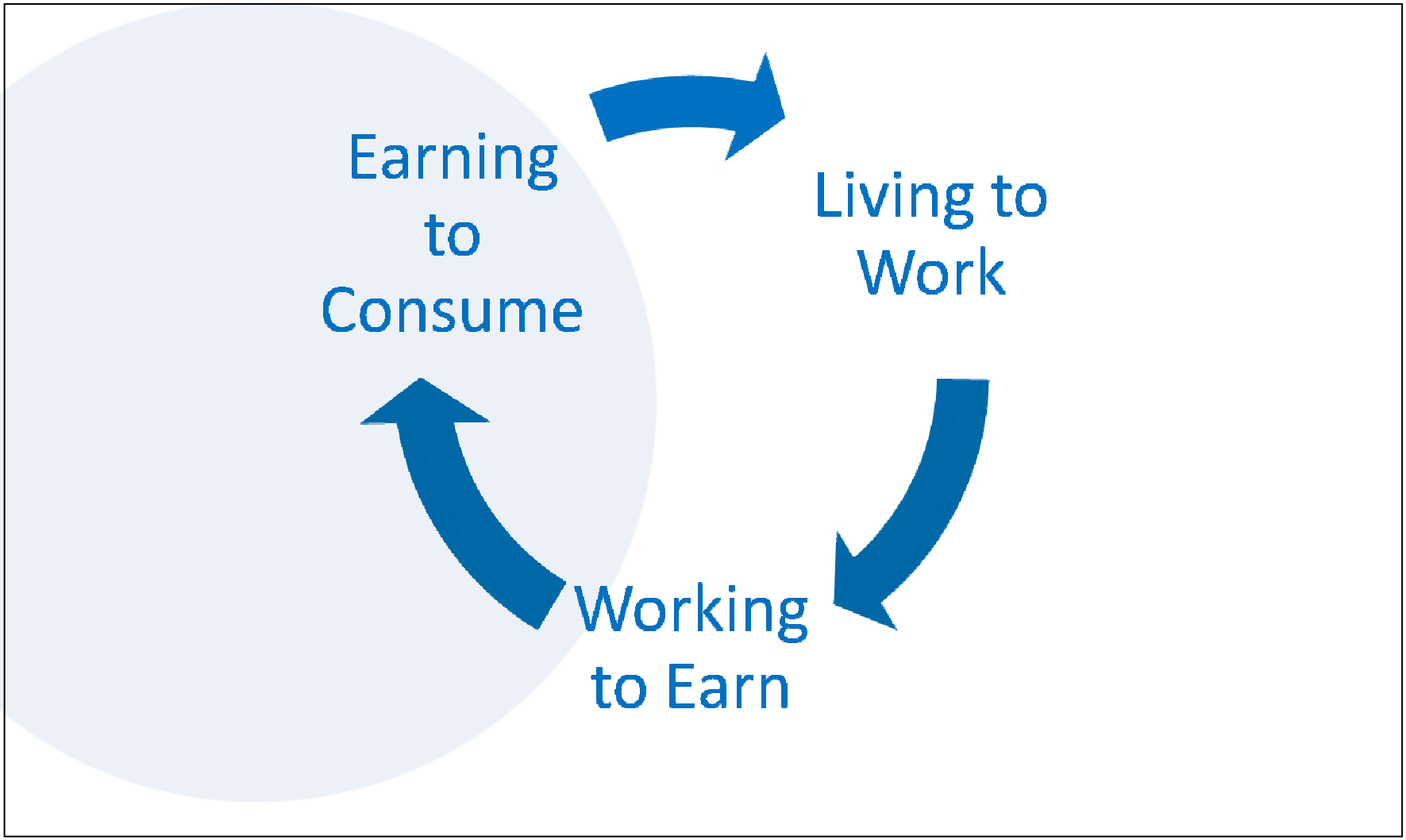
economics as if people and the planet mattered

Figure 2: Ecological Footprint and subjective life satisfaction in the UK



Breaking the carbon intensive consumption habit

nef
economics as if people and the planet mattered



The myth of economic progress

nef
economics as if people and the planet mattered

Uncritical pursuit of growth - now translated into *sustainable* economic growth

The economy, a goal in itself – or a means to an end?

Need A different model: different measures of progress

- Enhances the well-being of citizens
- Is socially just
- Environmentally sustainable

The challenge

nef
economics as if people and the planet mattered

How do we develop an economic system that:

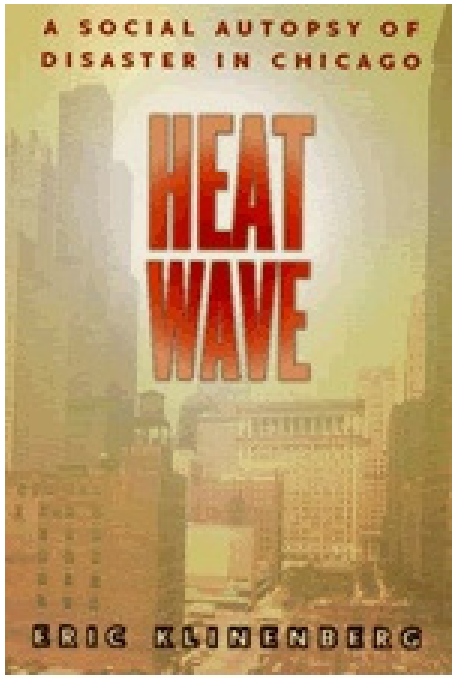
- **considers** and **adheres** to specific ecological **limits**; **and**

- is consistent with additional **societal goals** - well-being and equality?

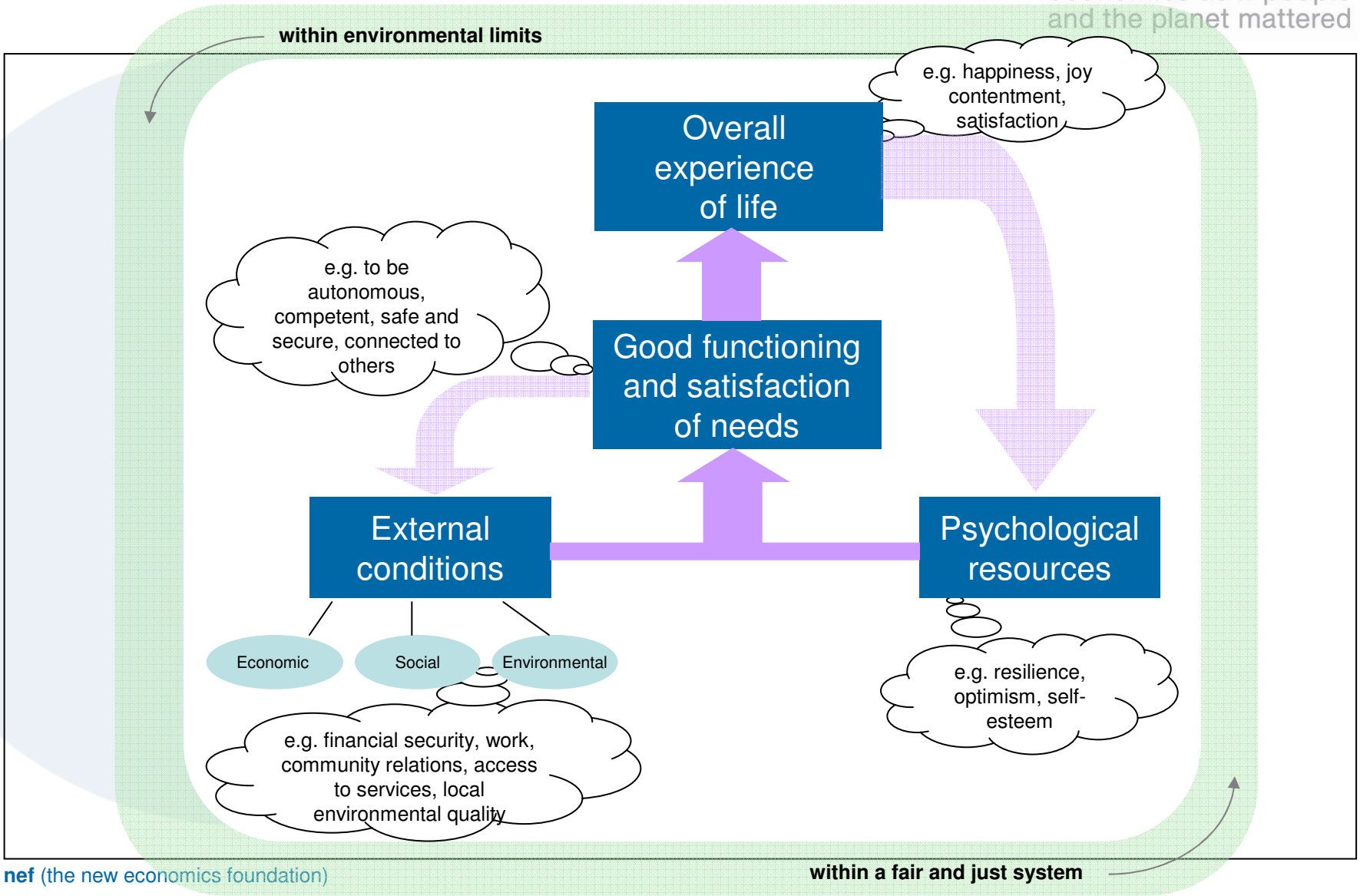
Socio-economic inequalities and vulnerability

nef
economics as if people and the planet mattered

- Translate into increased vulnerability to hazards
  - Economic well-being
  - Degree of human development
  - Education and skills
  - Health
  - Infrastructure
  - Access to other services
  - Political atmosphere



What does a new economy look like?



Adaptation

To Support and shape the structure of the economy for long term benefits – we need to design in adaptation and resilience qualities / characteristics.

Environmental transformation of infrastructure

- Energy – saving and generation
- Transport
- Waste management
- Food systems

Focus:

- Reducing reliance on fossil fuels
- Reducing negative environmental impact
- Seeking positive economic, social and environmental outcomes from *how* delivered

Resilience: ability to absorb shocks

nef
economics as if people and the planet mattered

Supporting resilience characteristics – supporting action in communities, and at appropriate scale

- **self-organise :** strong social organisations, activism, mutual models
- **Innovate:** understanding of common purpose (economic & environmental literacy), open opportunity to deliver in different ways
- **Learn:** feedback loops, supported to experiment, co-produce

Living better, using less, sharing more

Awareness to Action - communities explore

nef
economics as if people and the planet mattered

- What are the opportunities for enterprise– What do we want to do?
- How could goods and services be delivered differently?
- How can we mobilise resources to do what we want to do?
- Outcomes: local economic, social and environmental

Support action –individual & groups