

# Environmental Opportunities in times of the triple crises in Financial, Energy, & Ecosystems.

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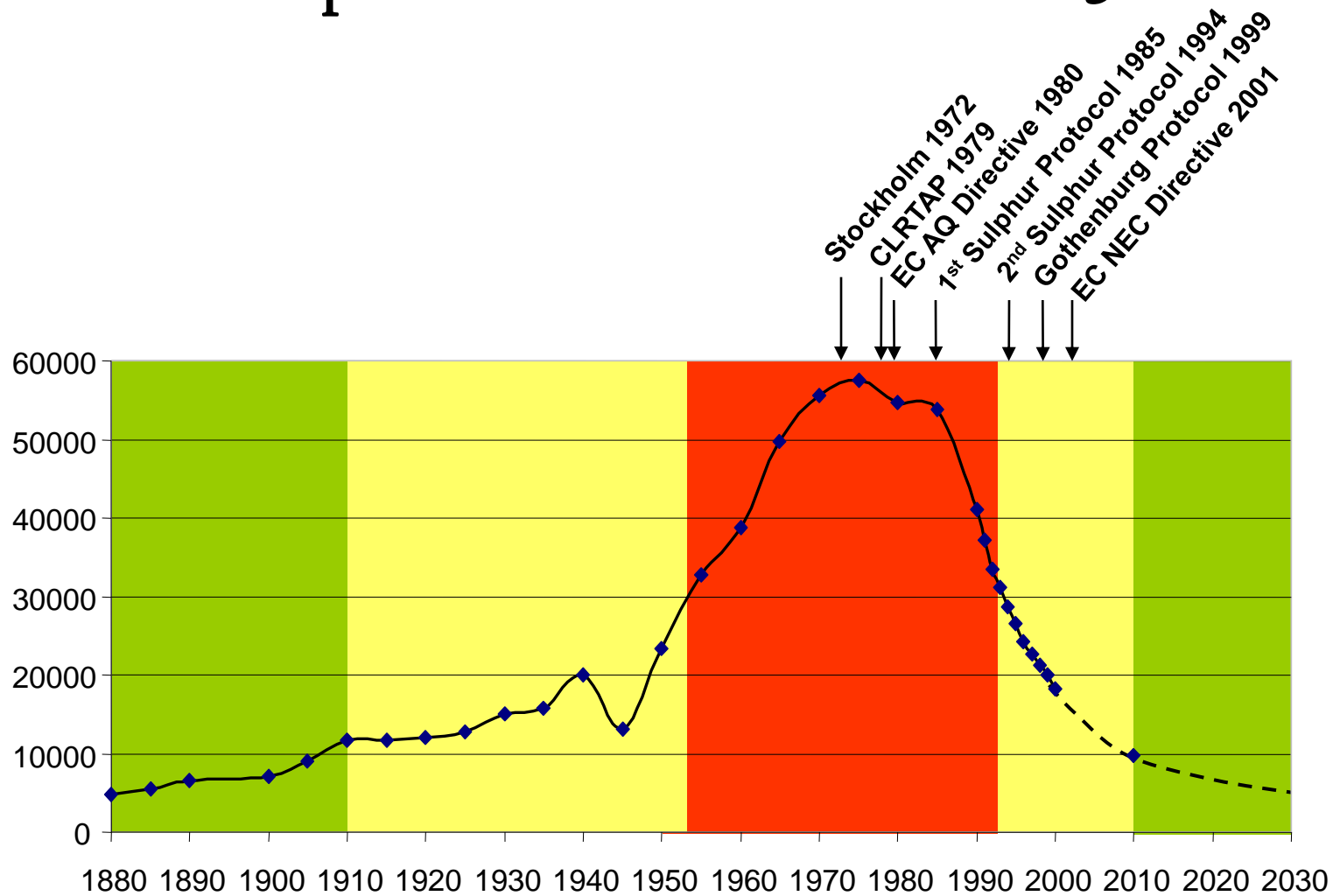
# Rationale for a 3 Crises Analysis

- The 3 crisis are interconnected, but often dealt with in separate worlds
- **Environment can reach across to Finance with common concepts/language.**
- **Need to identify and understand underlying causes to design and implement effective measures**
- Mutual Learning about how to live with **complex socio-ecological systems.**

# Summary of Presentation

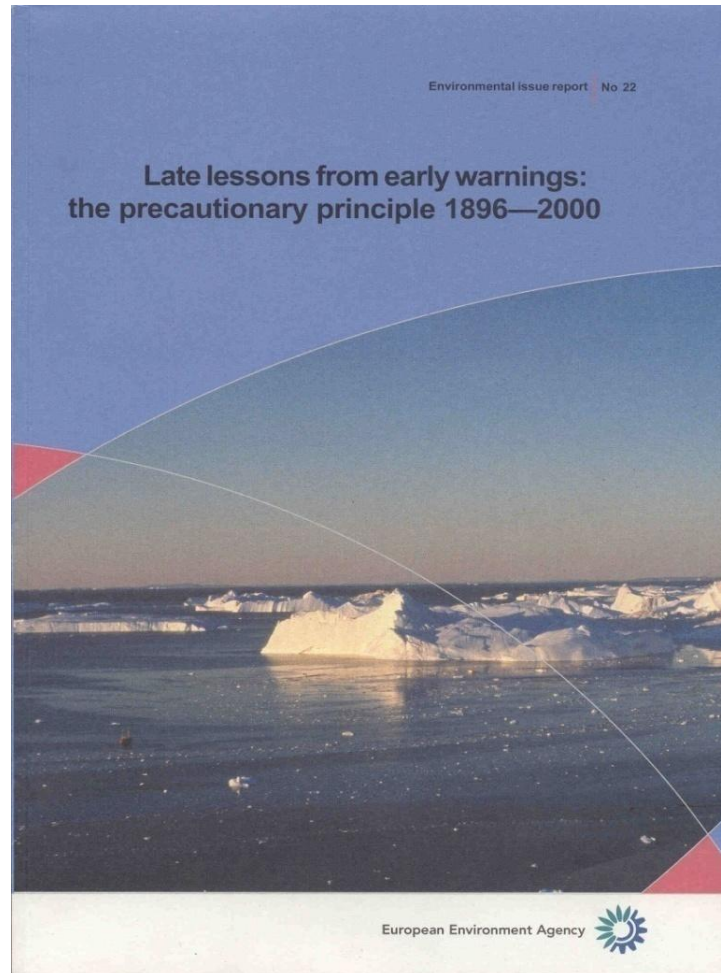
- Learning from History
- Some Common underlying Causes of the 3 Crises...
- Key Differences.....
- Some Common Avenues for Action on the 3 Crises

# Sulphur dioxide emissions 1880-2030



...100 years to return to a sustainable level-can we do better....?

# Homo Stupidus as Slow Learners, 1896-2000? EEA, 2001



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# Learning From Financial History, 1934?

*“Boom and slump..has gone on decade after decade.. as every fresh crop of small accumulators saved sufficient to invest.. there appeared **plausible leaders of finance with a get rich quick scheme**, casting it before his victims as an angler casts his flies for trout”.*

*Thomas Johnstone ,Lord Privy Seal; BBC Governor; Minister for Scotland, in “The Financiers and the Nation” 1934: cited in “Boom & Bust: House Prices, Banking and the Depression of 2010”, F. Harrison, 2005.)*

# Learning from History 2007-10: ***“look beneath the surface...”***

...the mistake of most of the economics profession was a failure to see what was really going on ***beneath the surface***”

C Bean, Dep Gov Bank of England, “The Great Moderation, Panic, and Contraction”, Schumpeter Lecture, Euro Econ Ass., Barcelona, Aug 09

# Financial Meltdown, 2007-10: Kotlikof's, “surface” & personal causes.....

- *implicit **bribing** of rating agencies;*
- ***incompetence** of regulators;*
- ***complicity** of corporate directors,*
- ***collusion** of bankers & politicians*
- ***naivete** of investors..”*
- ***greed & corruption***
- *sales based **compensation** of management.....*
- ***“complexity** of securities;*
- *A “web of interconnected financial, political, and regulatory **malfeasance**.. culminated in financial meltdown.. a system designed for **hucksters**”*

L.J. Kotlikoff, former Senior Economist, President's Council Economic Advisors; Boston Uni., in “Jimmy Stewart is Dead: ending the world's ongoing financial meltdown with Limited Purpose Banking”, 2010, preface, p4.



# Beneath the Surface: Twelve Common Causes of the 3 Crises

- 1. Free market ideology and deregulation**
- 2 Early Warnings & late lessons ignored**
- 3 Debt driven consumption in US/Europe, excess savings in Asia.**
- 4 Imbalances between stocks & flows**
- 5 Socially malign private incentives**
- 6 Misleading market prices that exclude many costs & risks**
- 7 Misplaced faith in models**
- 8 Intransparent products & impacts**
- 9 Poorly understood complex systems**
- 10 Lack of knowledge of tipping points & systemic risk**
- 11 “Toxic” Debts/Risks created but passed on to “distant others”**
- 12 Not accounting for what really matters**

# 1. The free market, deregulatory, ideology that failed

- Financial deregulation 1980-99 especially of US Regs created to deal with malign banking activities that helped cause the Depression 29-33.
- eg US Financial Modernisation Act 1999 which repealed Glass-Steagall Act, 1934

*Source: "Circle of Greed", The spectacular rise and fall of the lawyer who brought corporate America to its knees", Dillon & Cannon, 2010*

## 2. Early Warnings Ignored: Financial Crisis, 2003-6

« This **credit bubble** based on nothing more than expectations, cannot be maintained forever,

**There will be a crash.** People will no longer be able to pay their debts, **particularly if the values of the assets they hold against those debts start to fall.** »

*(Real World Economic Outlook, NEF, 2003,p29)*

See also “early warnings” from Borio & White 03; White 06, of **Bank of International Settlements; Stiglitz; Nourbino etc.**

# Early Warnings: Climate Change

- Arrhenius (**1896**) estimated that a doubling of the quantity of CO<sub>2</sub> in the atmosphere would raise the average global temperature by about 5°C.
- The National Academy of Sciences of the USA report on global warming (Charney et al., **1979**) concluded that the impact of doubled atmospheric CO<sub>2</sub> concentrations, would increase global mean equilibrium surface temperature increase of between 1.5°C and 4.5°C.
- Largely confirmed by IPCC in **2007**: likely range 2.0 to 4.5°C.



# Early Warnings: Fish Ecosystems

The Newfoundland Cod fishery is being overfished (Keates, **1986**) ...

...dismissed by Canadian Dept of Fisheries & Oceans as “biased pseudoscience written to support a political agenda”.

*MacGarvin, “Fisheries: Taking Stock”, in Late Lessons from Early Warnings (EEA, 2001)*



**1992**

# Why are early warnings routinely ignored?

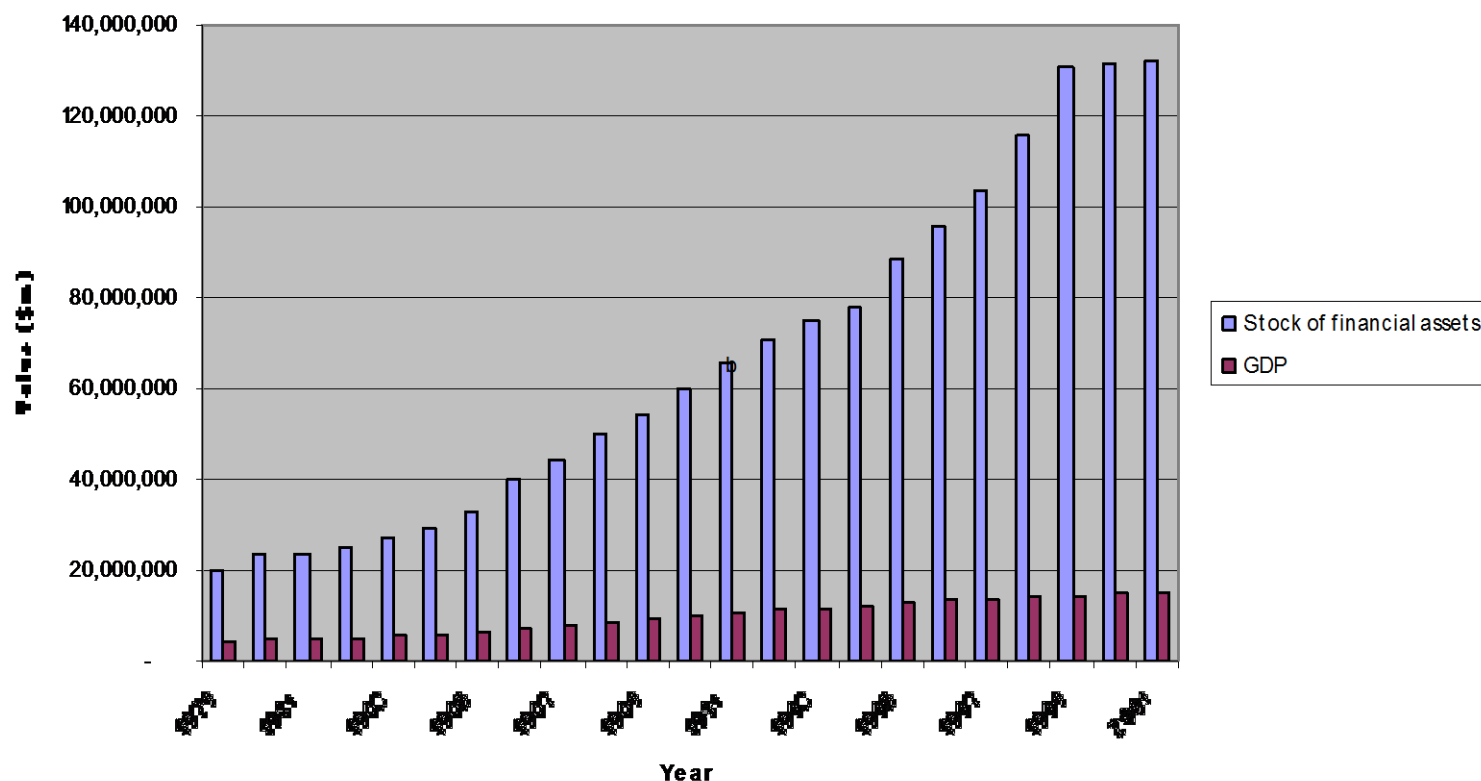
- Powerful economic/political stakes in *status quo*
- Unethical behaviour, e.g. greed
- “We don’t want to know” / “Don’t spoil the party”
- Early warners sidelined or silenced
- Short term thinking/decisionmaking
- “Things are different now”
- Uncertainties create real and “manufactured” doubt about realities of risks
- Group think
- “Immediate past predicts the future”
- Limited use of scenarios

See also “Collapse”, J. Diamond, 2005 ; “The March of Folly”, B Tuchman, 1984; “Fishing for Truth”, Finlayson, 1994; “Sustainability or Collapse?”, Costanza et al 07

# 4. Imbalances between Stocks & Flows

- **Finance:** focus on **flow indicators** eg interest rates & inflation not on quantity /quality of **financial assets** (led to “Troubled Asset Relief” etc.)
- **Energy:** focus on **stocks** of fossil fuels not on **flows** of renewables
- **Ecosystems:** focus on **flows** of food & fibre not on environmental **assets**.

## GDP and the stock of financial assets in G7 minus Japan and UK



© nef (new economics foundation), *Real World Economic Outlook*, 2003

Chart extracted from *Real World Economic Outlook, the legacy of globalization: debt and deflation*, edited by Ann Pettifor for nef (the new economics foundation),

published by Palgrave Macmillan, England, 2003.

© nef (the new economics foundation)

Source: US Federal Reserve: Flow of Funds Accounts; Statistics Canada: National Balance Sheet Accounts by Sector; Banque de France: National Financial Accounts; OECD: National Financial Accounts; Banca d'Italia: Supplements to the Statistical Bulletin, Financial Accounts; Deutsche Bundesbank: Financial Accounts for Germany 1991-2001; IMF: International Financial Statistics.



## 6. Misleading market prices...

- “low interest rates and low apparent risk created strong incentives for **financial** institutions to become highly geared..”  
(Bean, Bank of England, Barcelona, 09).
- AIG: “we didn’t know how to price our financial products to capture full risks & “toxic debts”(“Fortune” Mar. 10);
- **Energy & Ecosystems** externalities not in market prices

# 7. Misplaced faith in models: Financial

- **Keynes:** “Too large a proportion of mathematical economics are a mere concoction, **as imprecise as the initial assumptions they rest on..** which allows authors to **lose sight of the complexities and interdependences** of the real world... 1936.
- “Beware of geeks bearing formulas”  
**Warren Buffet 2008.**

# Limits of Models:Ecosystems-Fisheries

- “Harris likened Fisheries science to the Ptolemaic model of the solar system where **when observations did not fit the theory, an additional layer of complexity was added**, rather than questioning the basic theory”
- “Increasingly complex maths and computational power **created optimism** that past mistakes of the 70s could be avoided..

(“Fisheries: taking stock”, Macgarvin ,EEA Late Lessons, 2001)

# 8. Intransparent Products & Impacts

- Complex & ill understood Financial products
- Full costs of Energy and Ecosystem products not visible at point of purchase.

# 9. Poorly understood Complex Systems

A complex system is characterised by many small elements/components (eg atoms, molecules, cells, consumers, investors, particles) which interact at the local/micro level and produce

**emergent properties at the system level that cannot be understood or predicted from the actions at the micro level.**

***“Bug, not cog, worlds”***

# Complexity and Uncertainty

Complex financial, biological & ecological systems..

eg bee colony; herding in financial markets; tumours, clouds, climate systems etc. are characterised by:

**indeterminancies, uncertainties and ignorance, thresholds, tipping points, and unstable, non-linear dynamics.**

# Some implications of complexity

- “**Paralysis by Analysis**” needs to be avoided and the **precautionary principle** used to justify action when there is **plausible** risk of serious and irreversible harm to peoples, ecosystems or the planet.
- Actions taken in the face of uncertainty/ignorance/complexity need to be based on **broad not narrow assessments** (see biofuels case);
- activities/policies need to be **resilient, and adaptive** in the face of **surprises and unintended consequences**

# Resilience thinking for Sustainable Resource Use?

- Short term optimising part of a system can cause system failure in longer term

(See Everglades; Caribbean corals; Wisconsin Lake; Murray-Darling basin; Kristianstads wetlands: “Resilience Thinking”, *Walker & Salt, 2006*)

- **Resilience Alliance** case studies



# Features of “Resilience Thinking”

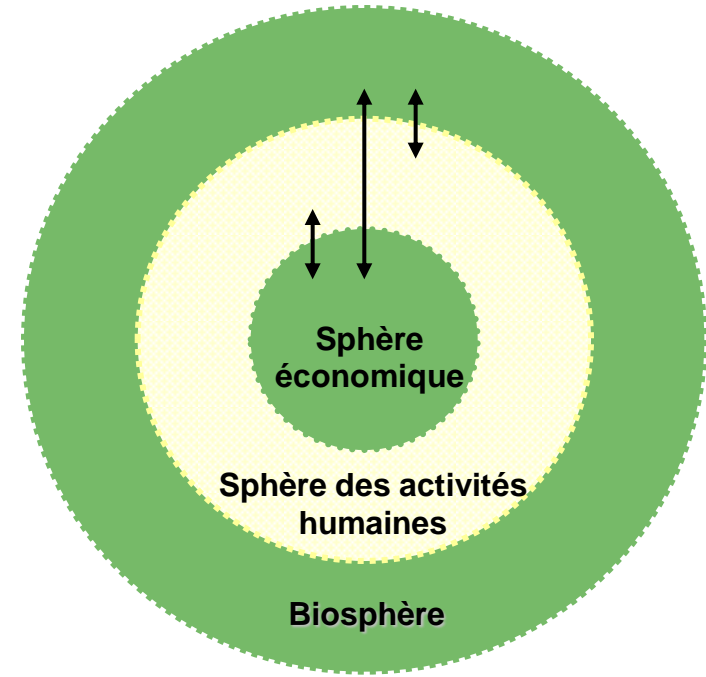
- Socio-ecological diversity & variability
- Combining components with coherence.
- Strong & overlapping social networks at local, regional, national levels
- Tight feedback of consequences (monitoring for “surprises”)
- Adaptive management
- Humility & precaution

# **11. Debts/Risks passed on to “distant others”**

- “toxic” financial debts passed on & on...  
within complex products
- Ecological debts & risks largely passed  
onto to the poor & future generations

# Some key differences between the 3 Crises

- Financial and energy systems are (hu)manmade... the biosphere is not.
- Financial crisis is visible; short term; largely reversible ...  
Climate and biodiversity crises are not so visible; longer term; mostly irreversible.
- Financial systems are more volatile: perceptions, expectations & behaviour rapidly change the **systemic risks**-a lesson for Energy & Ecosystems
- **Financial, energy, and social systems depend on ecosystems, not vice-versa**



René Passet, 1979

# Some Common Avenues for Action

<u>GOVERNANCE</u>	<u>FINANCIAL SYSTEMS</u>	<u>ENERGY SYSTEMS</u>	<u>ECOSYSTEMS</u>
<b>CONSUME FLOWS WHILST MAINTAINING QUALITY AND QUANTITY OF STOCKS</b>	Conservative asset / liquidity / debt ratios	From stocks of fossil fuels to flows of renewables	Maintaining natural capital stocks while securing flows of ecosystem services
<b>RISKS AND DEBTS INTERNALISED INTO MARKET PRICES</b>	Realistic asset / debt pricing Up front liabilities bonds	Externalities internalised into price Up front liabilities bonds	Externalities internalised into prices Up front liabilities bonds
<b>ECOLOGICAL TAX &amp; SUBSIDY REFORMS</b>	Financial transactions tax on currency & commodities speculation Bank levies. Abolish tax havens Fair and transparent corporation taxing	From taxing people to taxing energy Remove perverse subsidies.	From taxing people to taxing resources and use of services. Remove perverse subsidies.
<b>TRANSPARENT TRANSACTIONS</b>	Understandable financial products Transparent flows & stocks	Realistic market prices Consumer information /labels	Realistic market prices Consumer information /labels

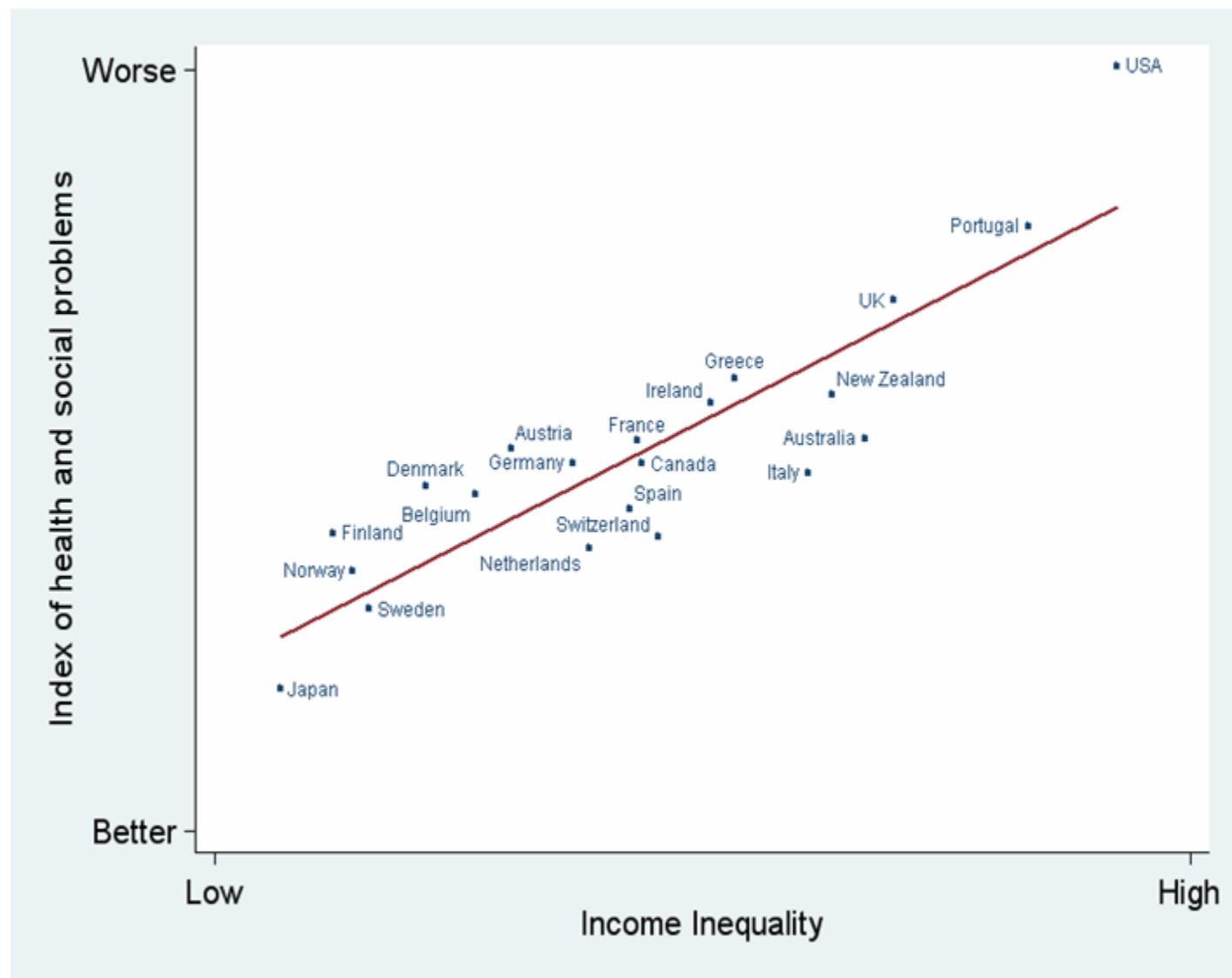
# Some Common Avenues for Action

<u>GOVERNANCE</u>	<u>FINANCIAL SYSTEMS</u>	<u>ENERGY SYSTEMS</u>	<u>ECOSYSTEMS</u>
<b>ACCOUNTING FOR WHAT MATTERS</b>	Quantity and Quality		
	Assets & incomes	All costs & subsidies Stock depletion & maintenance	Ecosystem goods, Services, subsidies Stock depletion & maintenance
	Beyond GDP: Wellbeing, <b>social equity</b> , ecological sustainability		
<b>LATE LESSONS FROM EARLY WARNINGS?</b>	<b>Precautionary action on “Inconvenient truths”</b> based on appropriate and strengths of evidence Ethics of responsibility; equitable sharing of risks, benefits ,costs, burdens of proof .		
<b>COMMUNITY LEVEL INITIATIVES</b>	Micro-finance Community banks	Locally controlled distributed networks Micro-energy systems	Participatory, ecosystem management
<b>DECISION-MAKING</b>	Tools for taking competing values into account Participatory methods. <b>Rebuilding Trust.</b>		

# Health and Social Problems are Worse in More Unequal Countries

## Index of:

- Life expectancy
- Math & Literacy
- Infant mortality
- Homicides
- Imprisonment
- Teenage births
- Trust
- Obesity
- Mental illness – incl. drug & alcohol addiction
- Social mobility



# The Current Meltdown of Trust in Elites

*“There has been a massive breakdown of trust: trust in the financial system, trust in bankers, trust in business and business leaders, trust in politicians, trust in the media, trust in the whole process of globalisation-all have been severely damaged, in rich countries and poor countries alike.”*

“Reflections on Money, Morality, and an Uncertain world” (Green, ex chair, HSBC, 2009, p x1).