

# Managing **Risk** for Development: Building resilience to external shocks and mitigating their impact on trade and development



- **Risk = hazard  $\times$  vulnerability**
- **Risk affects sustainability of trade and development**

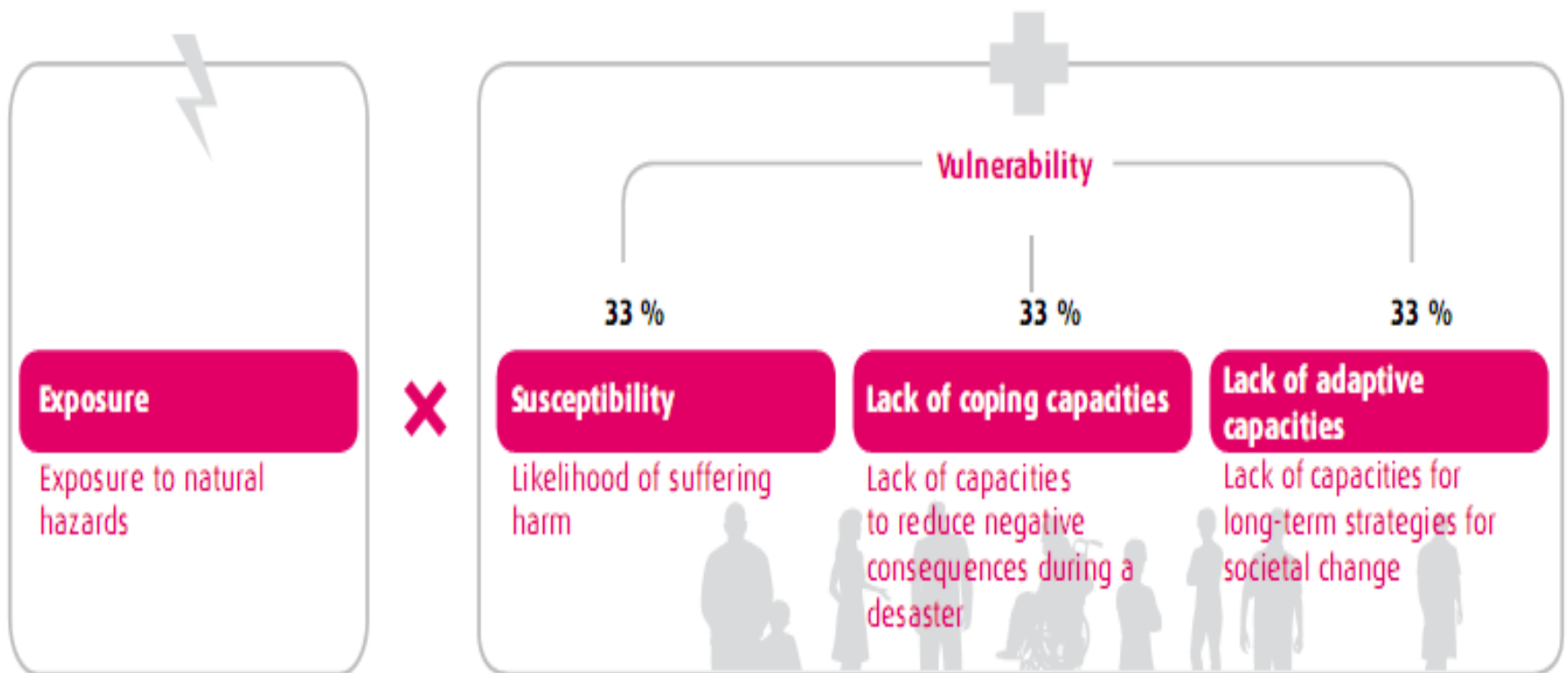
# These Risks cannot always be avoided, hence needed Managing Risk

“ Facing risk and uncertainty is one of the most difficult challenges for individuals, households, communities and countries. ....

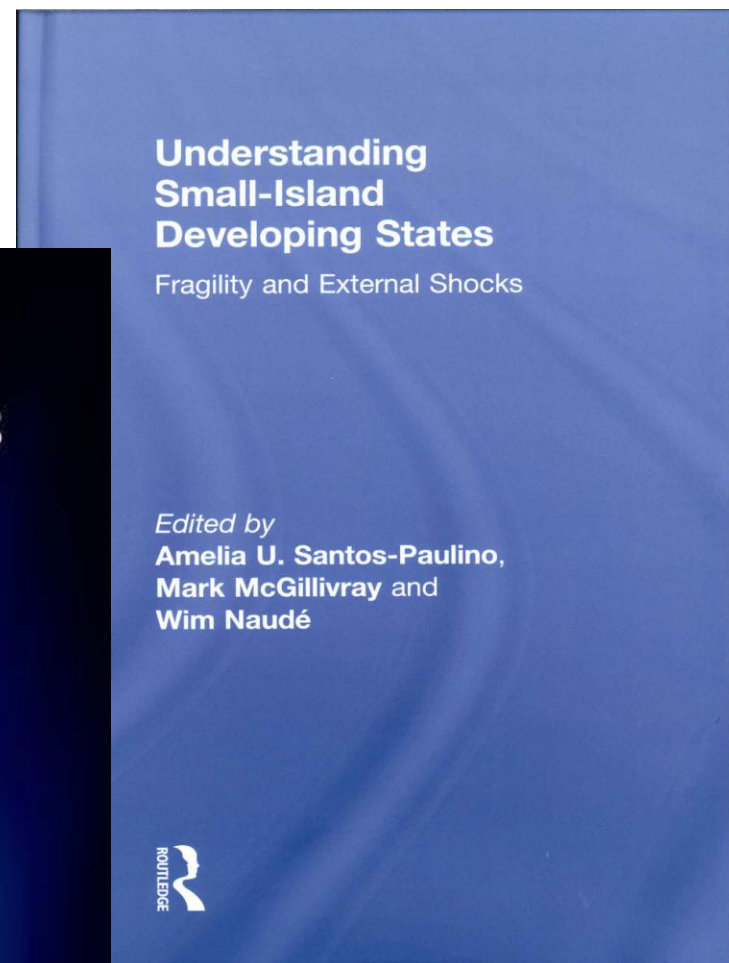
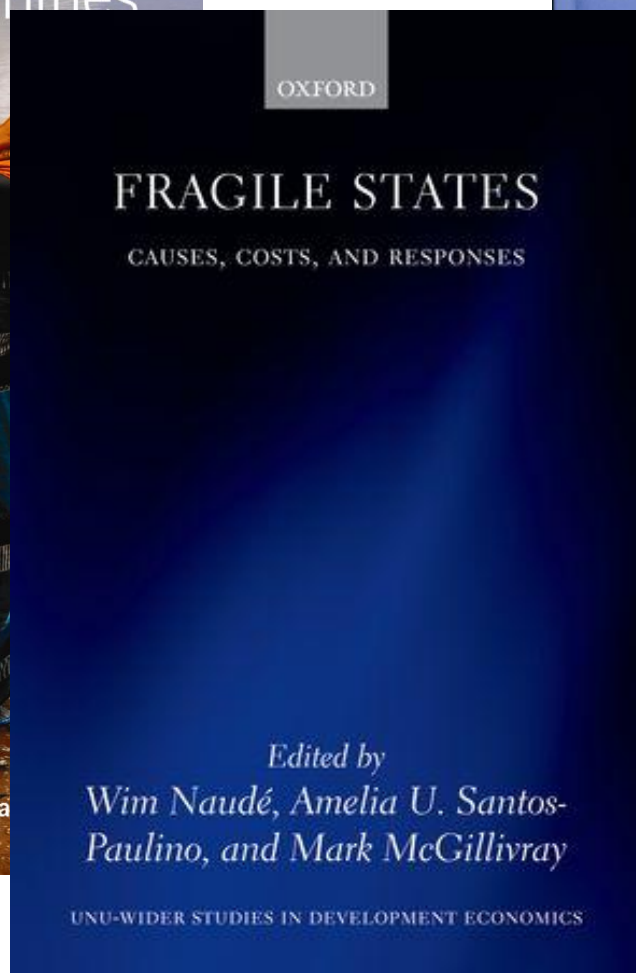
Dealing with risk and uncertainty requires resilience, which in turn can be undermined by strongly covariant or socially persistent processes. At the same time, however, embracing change and becoming resilient to risk in a rapidly evolving world can open up a number of opportunities for improvement, innovation and development at all levels.”

Motivation note for the forthcoming World Development Report  
2014

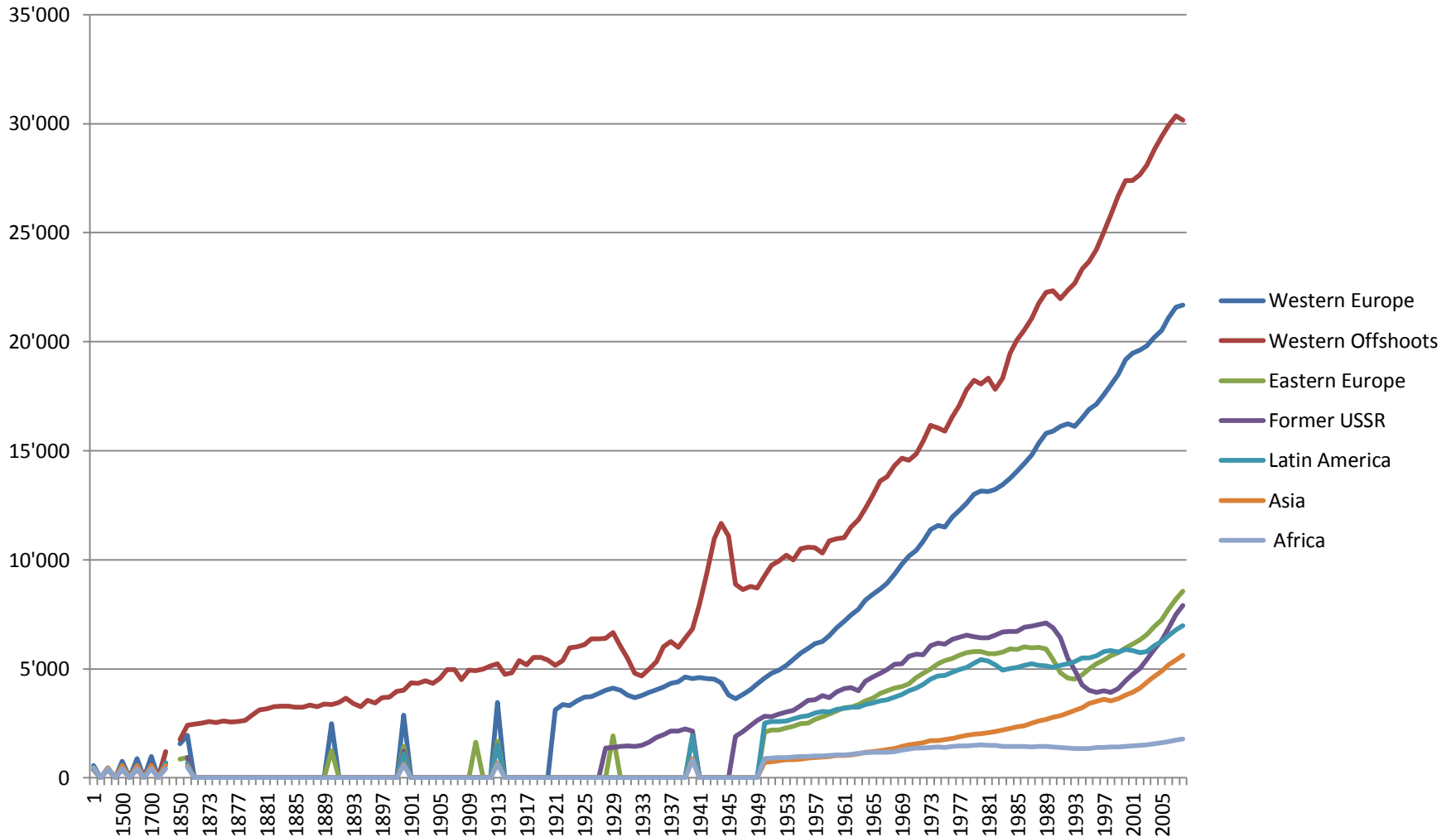
# Example of the “World Risk Index”- United Nations University



# Background Reading



# Development: Long historical view



Source of data: Angus Maddison at <http://www.ggdc.net/MADDISON/oriindex.htm> (In International 1990 *Geary-Khamis Dollars* )

# Around 20 Years Ago...

- Nelson Mandela stepped as a free man from prison
- The Berlin Wall had just fallen
- It was the end of the Cold War
- The Human Development Index was adopted by the UN
- The Hubble Telescope open up a view on the universe; and
- The Three Tenors sang for the first time...



# But then .. Disaster struck : I. Financial Crises

- **Financial crises**

- 13 Oct 1989: Friday the 13th mini-crash Wall St.
- 16 Sept 1992: Black Wednesday UK (withdrawal of pound from the ERM).
- 1992: Nordic Banking Crisis
- December 1994: The Mexican crisis of 1994-1995 (*el error de diciembre*)
- 1995 Argentinian Crisis
- July 1997: Asian Financial Crisis
- 17 August 1998: Russian Financial Crisis
- The Brazilian crisis of 1998-1999
- The Argentinian crisis of 1999-2002
- 10 March 2000: Dot-com bubble burst
- 27 February 2007: The Chinese Correction plunge
- 15 September 2008: Subprime Mortgage Crisis
- 2009 : Global Economic Crisis (global recession)
- February 2010: Greek sovereign debt crisis

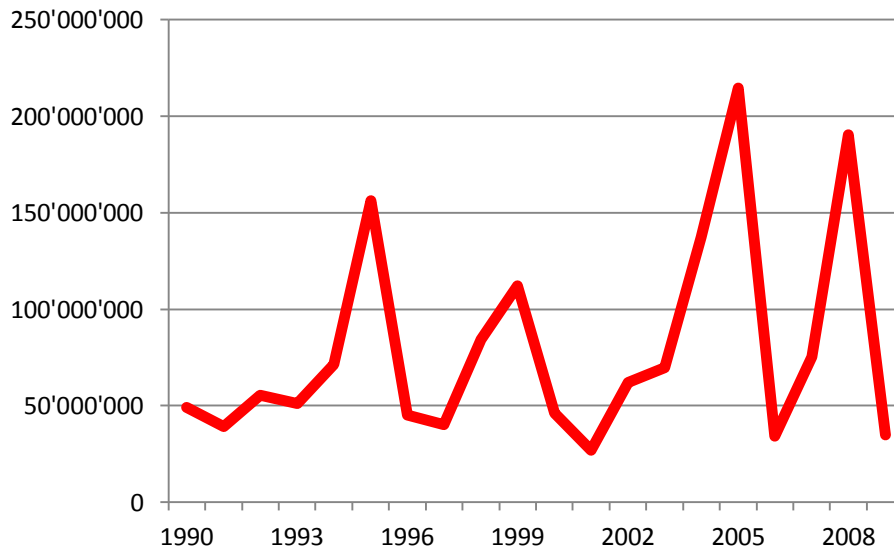
....to name but a few of the more than 120 financial crises endured since the 1970s



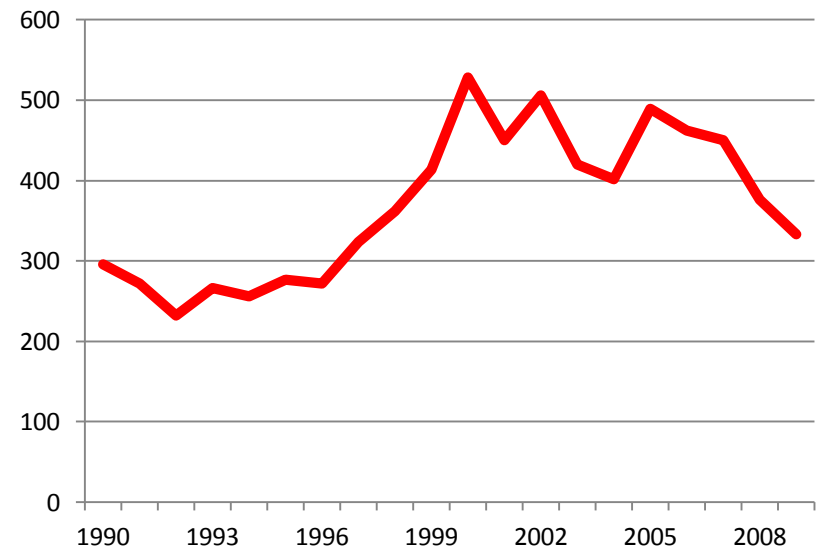
# As well as more natural disasters

- Natural disasters:

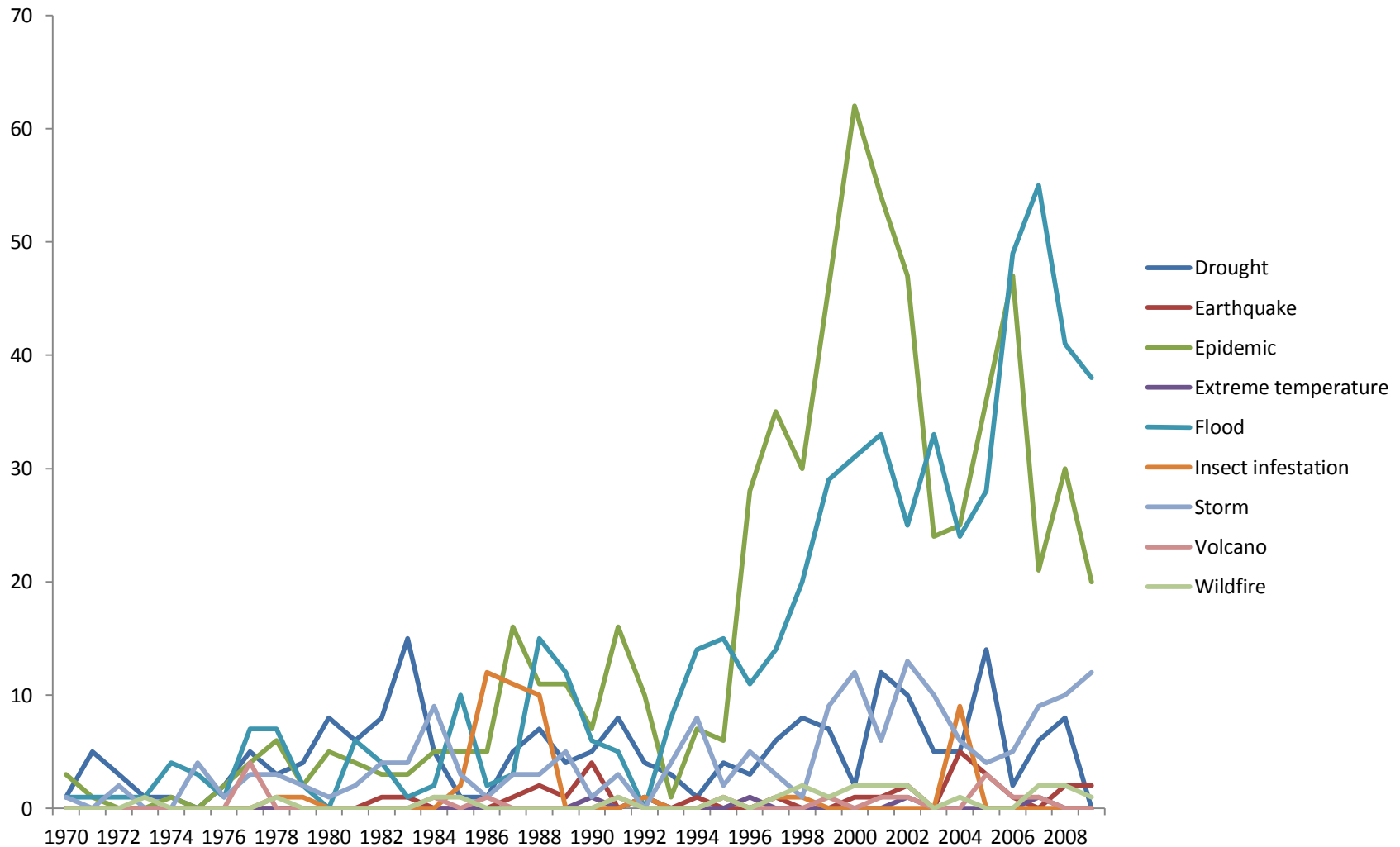
**Damage in '000 of Dollars caused by natural disasters**



**Number of natural disasters reported**



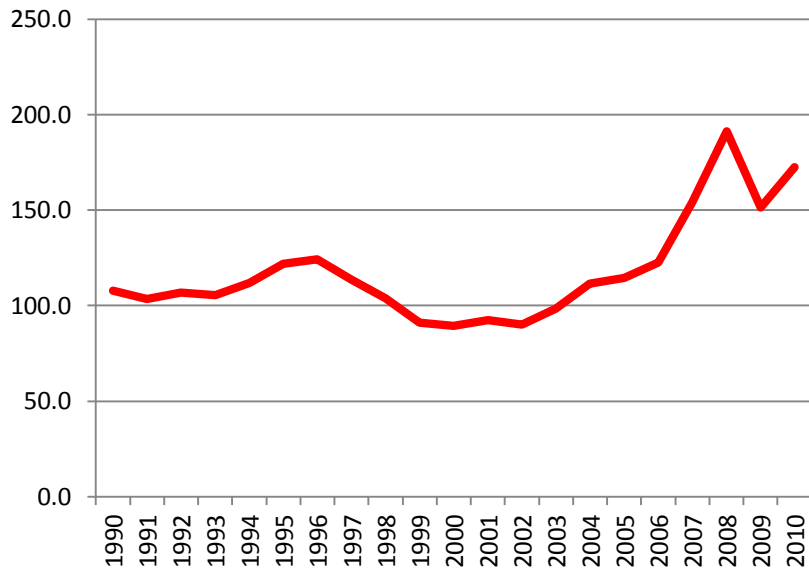
# Frequency (number) of Natural Hazards in Sub-Saharan Africa, 1970-2009



# And a food price crisis...

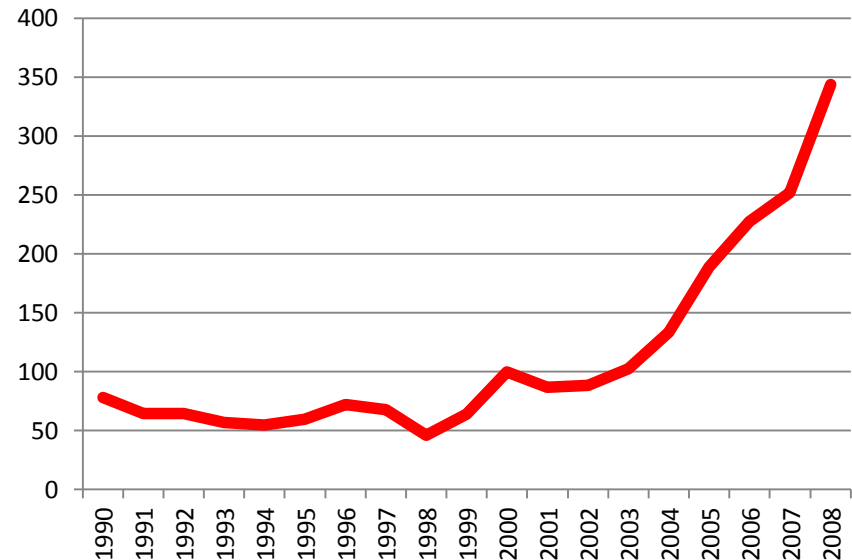
- Food and energy price shocks

## Food Price Index



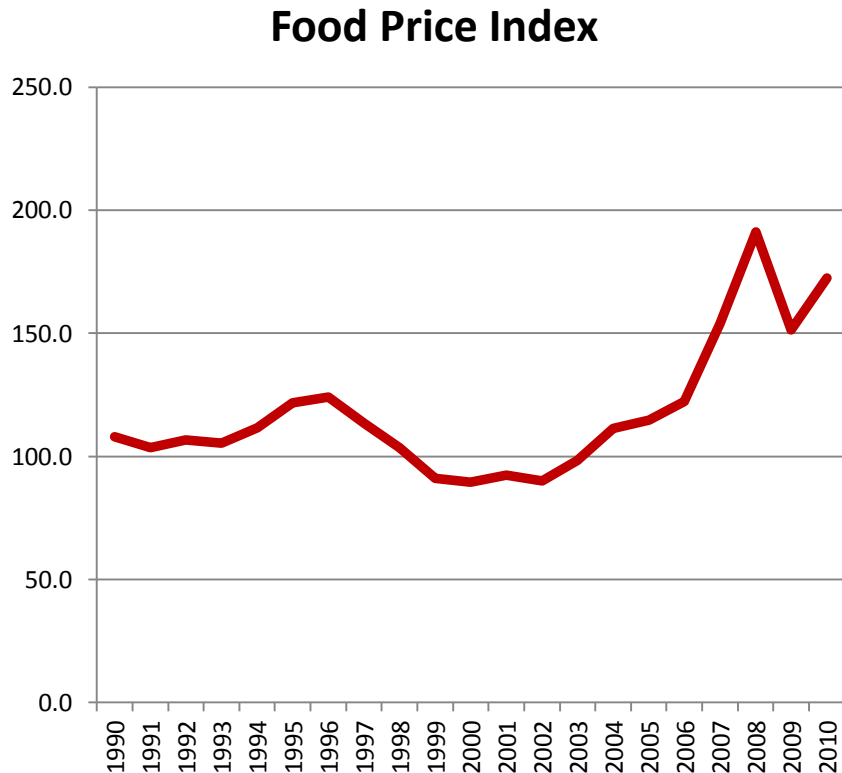
Source: FAO

## Index of crude petroleum prices



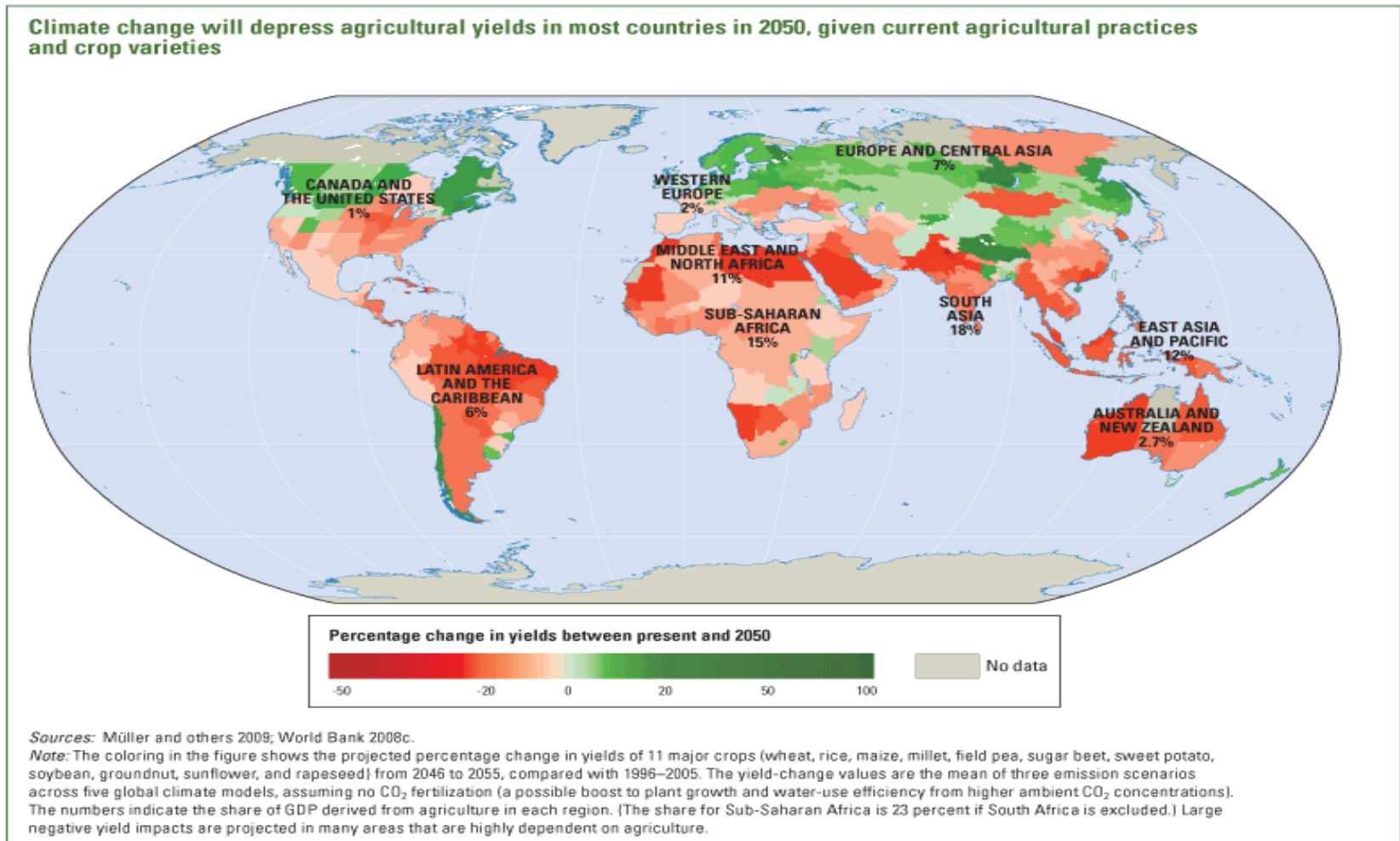
Source: UNCTAD Commodity Price Bulletin

# Food prices and food insecurity



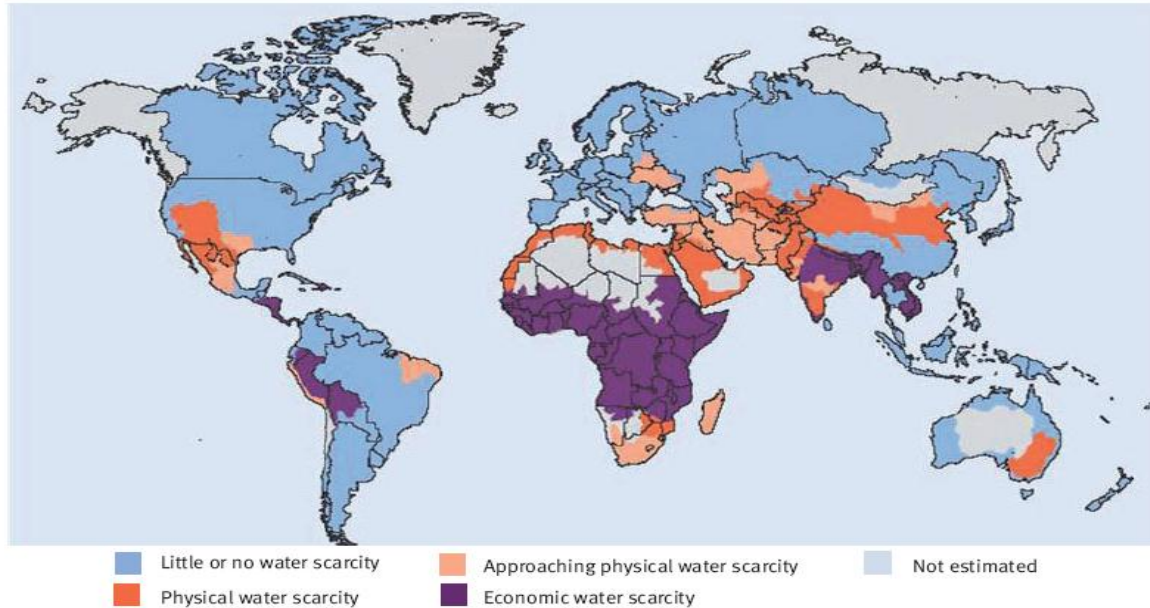
- Rising fuel prices, partly due to entrepreneurial speculation, has made production of bio-fuels profitable.
- This has made the incentives for using grain for fuel stronger, and has put strong upward pressure on food prices, as entrepreneurs allocate their efforts towards production of fuel rather than food

# And the climate change crisis looms large



# Resource Constraints: Water

*Physical scarcity: more than 75% of river flows are allocated to agriculture, industry or domestic consumption. Economic scarcity: water resources are abundant relative to human purposes but human, institutional and financial capital limit access to sufficient water and malnutrition in these areas.*



- Demand for water by expected to rise by 40% by 2030
  - Demand for food 50% (FAO)
- Food security requires development of commercial agriculture; but
  - **Large scale commercial agriculture** brings important revenues but also affects land and water use and is energy and nitrogen intensive.

# Resource Constraints: Energy

- Demand for energy expected to rise by 40% by 2030 (IEA, WEF).
- A still as yet unmet demand of around 1.5 billion people around the world who lacks access to electricity.

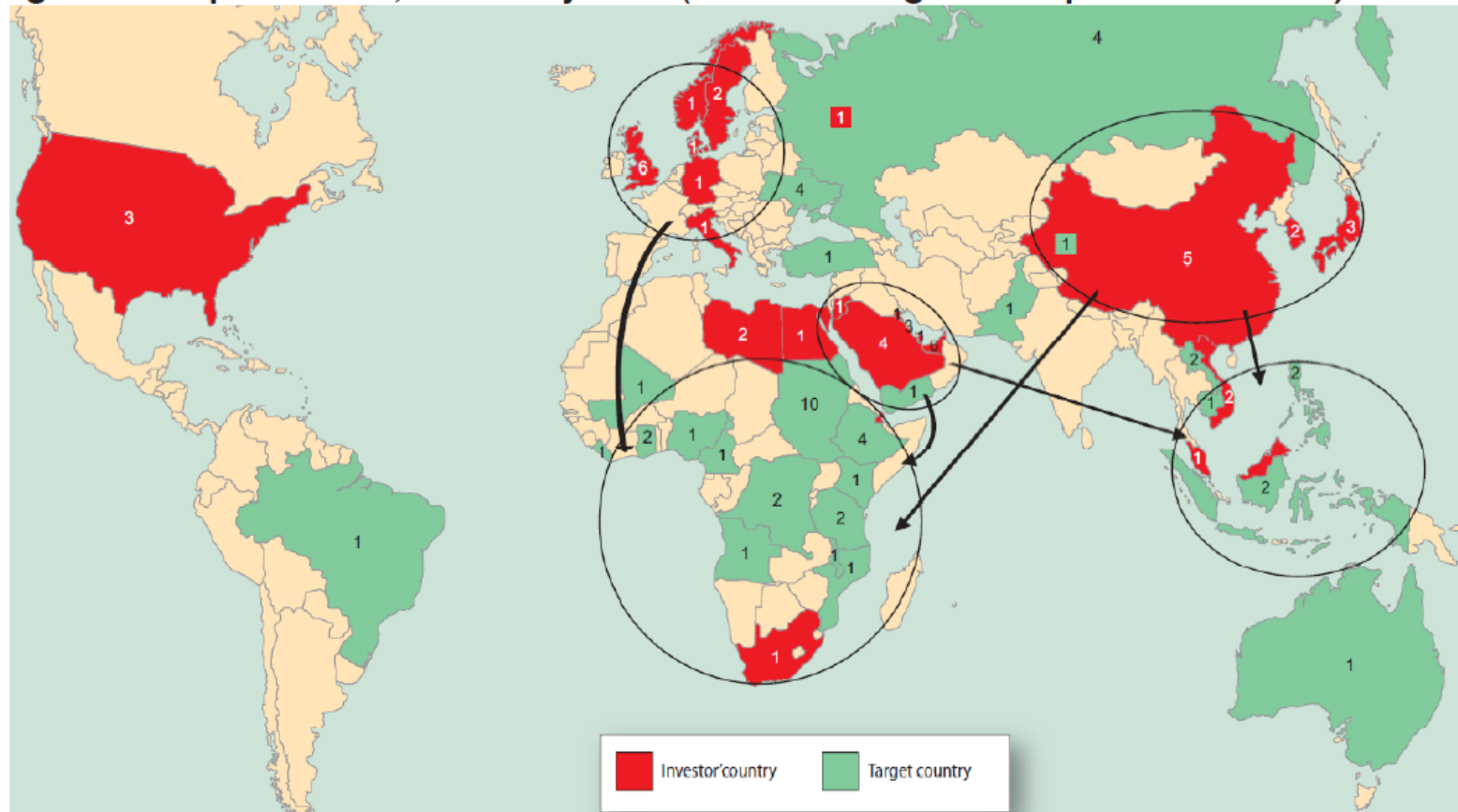
# Resource Constraints: Land

- Increases in food, water and energy demands will increase pressures on land acquisitions (land prices) and on the environment.
  - Agricultural production will have to double by 2050 (needing an estimated additional 120 million hectares for cultivation)
  - demand for biofuels is likely to increase
  - mining, the expansion of infrastructure and urbanisation will also claim considerable shares of land
- Increases in land prices and increased concentration in ownership of land
  - Land deals in sub-Saharan Africa alone affected between some 51 and 63 million hectares.

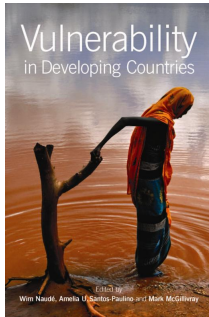


# Global Land Deals

Figure 6. Investor and target regions and countries in overseas land investment for agricultural production, 2006–May 2009 (number of signed or operational deals)



Source: UNCTAD World Investment Report (2009)



The point is that the world is seemingly a more *vulnerable* place

- “The supreme reality of our time is the vulnerability of this planet.”

- JF Kennedy



# What is 'Vulnerability'?

## (vulnerability to poverty, e.g.)

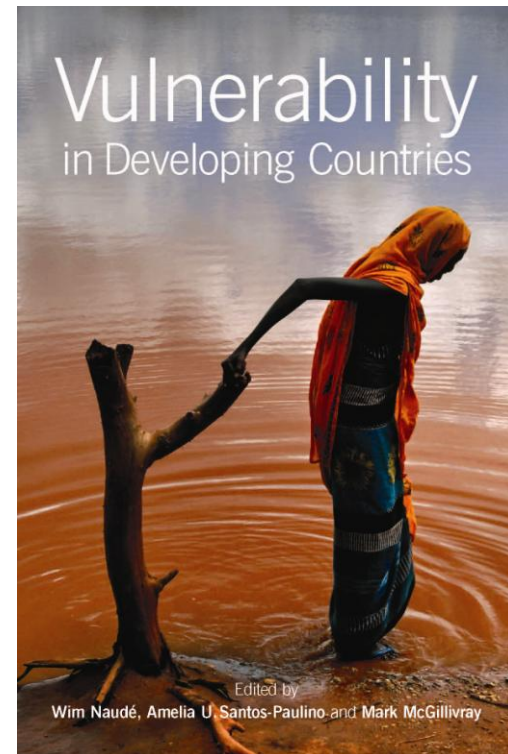
- **Micro-level view:**  $V$  = the risk of households falling in or remaining in poverty due to either idiosyncratic hazards or covariate/aggregate hazards
- =the risk that a firm will face liquidity and solvability problems or remain in such due to either idiosyncratic hazards or covariate/aggregate hazards
- **Macro-level view:**  $V$  = the risk that a 'system' (such as a country) will be *adversely affected* by a shock or 'perturbation' - which include natural hazards or macro-economic shocks.

# Note : Vulnerability $\neq$ Exposure

- People and business firms are not passive in the face of hazards. They may be exposed to hazards, but not vulnerable because they have the means to protect themselves from adverse outcomes.
- Hence, A household or a country's or a household or a firms' vulnerability is a function of its (i) exposure to hazards as well as its (ii) coping mechanisms (or resilience).

# Coping

- *Ex ante* households and firms often attempt to diversify their sources of incomes,
- *ex post* they rely on various forms of insurance and labour market options - e.g. self-employment.
- Household and firm level capabilities, assets, and the fragility of their contexts (including state and natural environment fragility) play an important role in vulnerability towards external economic and other shocks.



# Measurement of Vulnerability -I

- A household's Vulnerability to poverty can be measured either as (a) uninsured exposure to risk, (b) expected poverty or (c) lower expected utility as a result of shocks which affects income or consumption.
- A firm's vulnerability to economic loss has been more complex to measure, but refers to uninsured exposure to liquidity and solvability risks, i.e. on its balance sheet. Many measures – e.g. “Value at Risk” in the banking industry, has not been helpful.

# Measurement of Vulnerability - I

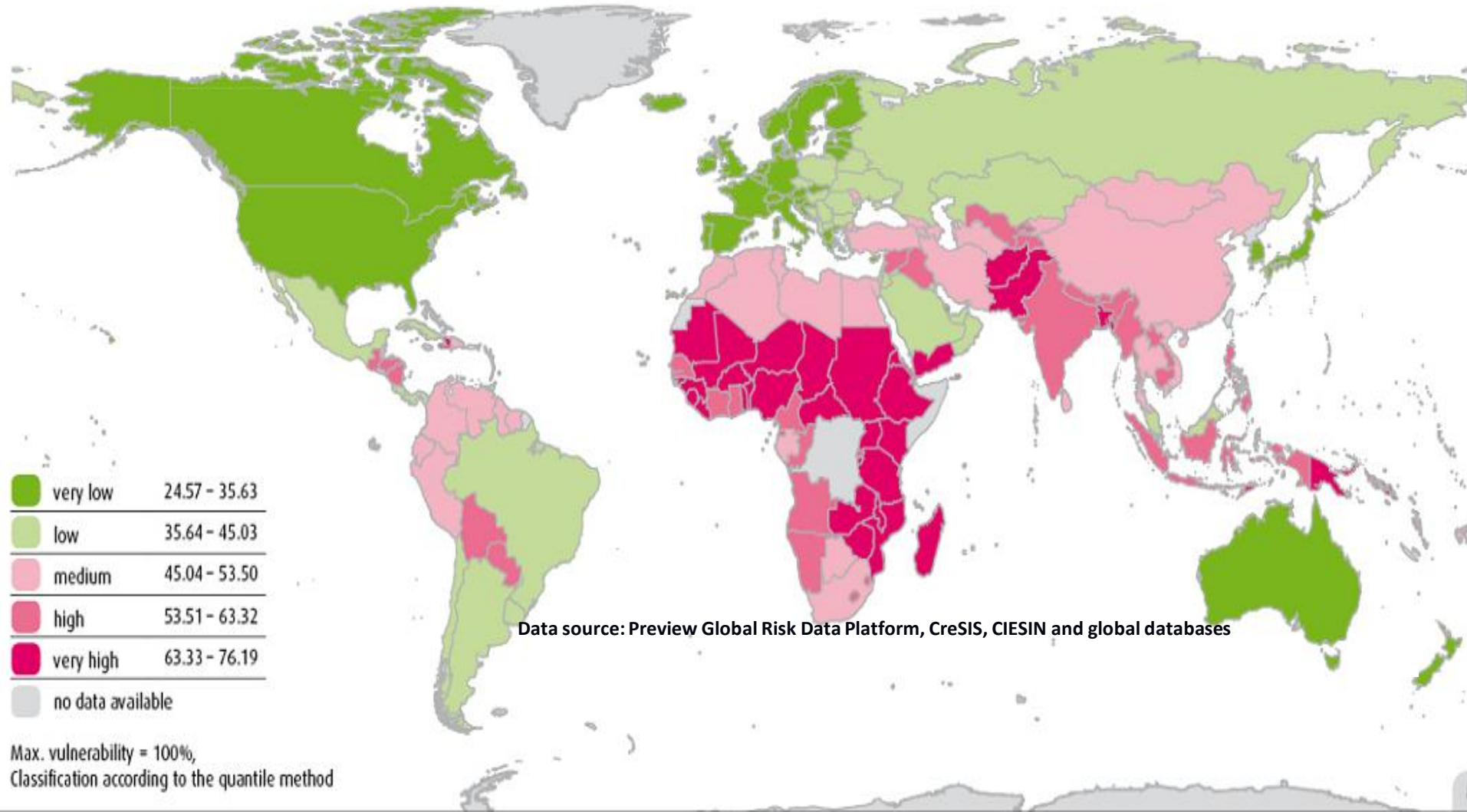
- From a macro-level perspective, risk is seen as a function of **hazard and vulnerability**.
- Various indicators are used to measure hazard potential (such as the occurrence of droughts, fires, earthquakes, floods, price rises, financial crises) and vulnerability (such as GDP, population density, sensitive environments).
- Often, indicators of community resilience are added, such as levels of education, infrastructure and assets.
- Examples
  - Commonwealth Vulnerability Index (CVI)
  - Inter-American Bank's Prevalent Vulnerability Index (PVI)
  - Environmental Vulnerability Index (EVI) developed by UNEP and South Pacific Applied Geoscience Commission (SOCAP).



# Example : Vulnerability

## Vulnerability

Vulnerability of society as the sum of susceptibility, lack of coping capacities and lack of adaptive capacities



# Some Policy Implications / Suggestions

# Challenge 1: Recognizing the important role of entrepreneurs

*Productive, innovative entrepreneurial ability in itself will contribute in important ways to global development, reduction of vulnerabilities, more resilient households and countries, and fewer crises.*

Let us provide a brief reminder of the important roles of productive entrepreneurship in this regard.

- High-impact, innovative entrepreneurship (gazelles) seems to have the most beneficial impact on employment and growth
- How?

# Entrepreneurial innovation is key to the reduction of vulnerabilities

- **Innovation and technological change** (Schumpeter):
  - “People living in the first decade of the twentieth century did not know modern dental and medical equipment, penicillin, bypass operations, safe births, control of genetically transmitted diseases, personal computers, compact discs, television sets, automobiles, opportunities for fast and cheap worldwide travel, affordable universities, central heating, air conditioning .....technological change has transformed the quality of our lives” – Lipsey et al, 2005.

# Entrepreneurship provide dynamism to economies

- **Reallocation of production factors to more efficient uses**
  - “In the absence of entrepreneurs, resources continue to be devoted to functions where returns are low, leading to an ossified economy in which resources are under used. It was the difficulties of redeploying resources to higher value functions that lay at the heart of the Soviet economic malaise” – Ács and Storey, 2004.873

# Entrepreneurship make education worthwhile

## – **Creating Incentives for Accumulation of Human Capital**

- By creating and growing firms, and innovating, entrepreneurs and intrapreneurs raise the demand for (skilled) labour, making it worthwhile for households to invest in their human capital (education and health).
- They also improve their entrepreneurial capital through learning by doing, thereby potentially raising the demand for labour further.

# Entrepreneurshi, even if it fails, can have positive learning and signalling value

- **Cost-discovery function**

- “...there is great social value to discovering that cut flowers, soccer balls, or computer software can be produced at low cost, because this knowledge can orient the investments of other entrepreneurs. But the initial entrepreneur who makes the “discovery” can capture only a small part of the social value that this knowledge generates... other entrepreneurs can quickly emulate such discoveries. Consequently, entrepreneurship of this type—learning what can be produced—will typically be undersupplied, and economic transformation delayed.” – Hausmann and Rodrik, 2003.



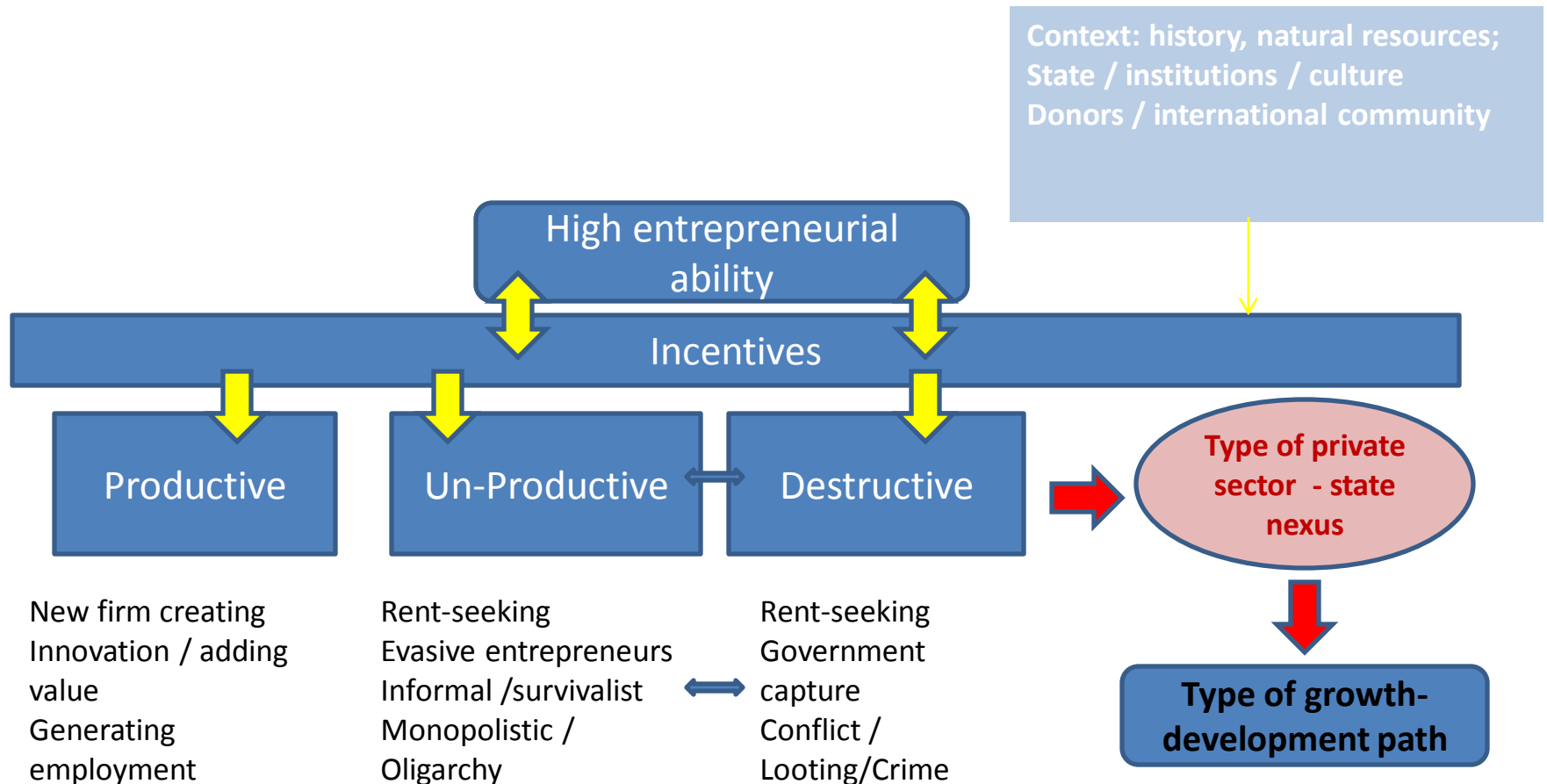
# Entrepreneurship can raise the quality of life

- *Non-pecuniary value:*
- Gries and Naudé (2011) argues that entrepreneurship may matter for broader development, where it offers non-pecuniary value, and can be freely chosen.
  - Entrepreneurship is valued in itself
  - Life-style choice (offers freedom)
  - Evidence : (i) large numbers of latent entrepreneurs, (ii) returns to entrepreneurs most often lower (Hamilton, 2000).
  - Development, in the sense of expanding people's positive freedoms (Amartya Sen) may matter for entrepreneurship.
  - And entrepreneurship may, as a resource, facilitate other human functionings such as being working, being healthy, being literate.
- Various other studies notes a positive link between entrepreneurship and happiness (subjective well-being).

# How to design Public Policies for Innovative Entrepreneurship

- Incentive alignment - institutions
- Donor / aid policy:
- Three goals (**demand and supply of Venture Capital!**)
  - Technological transfer
  - Improve position of entrepreneur in broader innovation system (to raise the demand for venture capital)
  - Raise the supply of venture capital
- No one size fits all: heterogeneity in terms of (i) firm characteristics , (ii) location and (iii) stage of development

# The entrepreneurship-incentive-institutions and development nexus



# Entrepreneurs, incentives and natural disasters

- Natural hazards need not become disasters; BUT consider the cases of deaths during droughts and earthquakes:
- Drought (most frequent natural disaster) results in food insecurity largely due to skewed incentives against entrepreneurial agriculture in many developing countries, and biased in favour of agriculture in the rich world.
- Earthquakes cannot be predicted or prevented, but mortality can, through building regulations. These are however, often not enforced where entrepreneurs can bribe officials.

# Agricultural entrepreneurs and incentives



# Food price crises and incentives

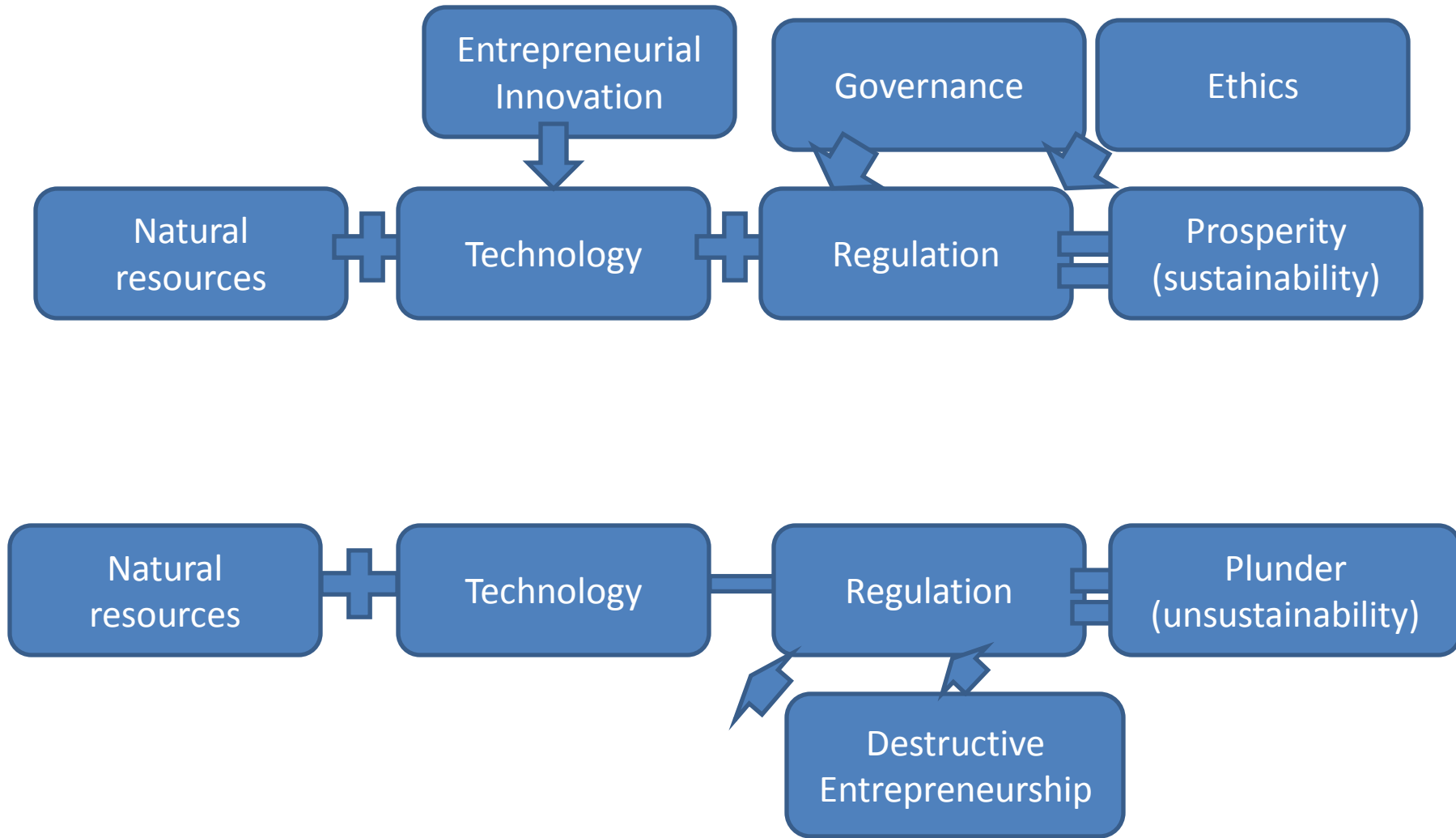
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# Incentives and building regulations

## *'Corruption made Haiti's quake worse than Chile's*

*Tue, Mar 02, 2010, AFP By Marc Burleigh*

*PORT-AU-PRINCE, March 1, 2010 (AFP) - Survivors in Haiti's camps greeted news of Chile's less deadly temblor with resignation, saying poor governance, corruption and shoddy construction magnified their own seismic disaster.'*



Based on Paul Collier "The Plundered Planet"