



U.S. DEPARTMENT OF
ENERGY

Security in A World in Which

“There is No More Normal”

**“Climate Change & Security At Copenhagen
New Thinking on the Atlantic Contribution to Success”**

**Institute for Environmental Security
Brookings Institution, Washington, D.C.
Tuesday, 17 March 2009**

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Key Learnings From Our Approach So Far:

- Need for shift to a concept of security focused on **systemic risks and vulnerabilities**
- Benefits include **raising global awareness and inter-generational collaboration** on energy and environmental risks and needed responses
- Need for **changed information architectures** enabling more participatory and rapid scientific discovery, communication, and assessment of security risks and impacts
- The possibilities of Web 2.0 make **Science 2.0 and even Intelligence 2.0 necessary**
- When dealing with **“high-impact/unknown probability” risks**, traditional approaches to risk assessment are inadequate
- **“We cannot solve our problems with the same thinking that created them.”** (Einstein)



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“Strategic intelligence is that intelligence necessary to create and implement a strategy, typically a grand strategy, what officialdom calls a national strategy.”

**The State of Strategic Intelligence:
The Intelligence Community's Neglect of Strategic Intelligence
(John Heidenrich, *Studies in Intelligence*, 2007)**



The Mounting Costs of Ill-Preparedness...Adaptation to novel security threats often occurs *after* major disasters/unexpected developments

Pearl Harbor
Post-WWII Soviet Influence in Europe
Korean War
Berlin and Cuban crises
Vietnam War
Yom Kippur War
Soviet invasion of Afghanistan
Fall of the Shah in Iran
Dissolution of the Soviet Union
Iraqi invasion of Kuwait
9-11
Iraq WMD
2004 Tsunami...
Hurricane Katrina
Global Financial Crisis 2008 -

Disasters serve to wake us up to reality... but, by definition, the wake up call comes too late. - adapted from Natural Security (2008)



Readiness for Predicted Disasters: Hurricane Katrina



“the United States will be less affected and is better equipped than most nations to deal with climate change...”

National Intelligence Assessment on the National Security Implications of Climate Change

25 June 2008



Simultaneous Shocks and Stresses, Unprecedented Velocity

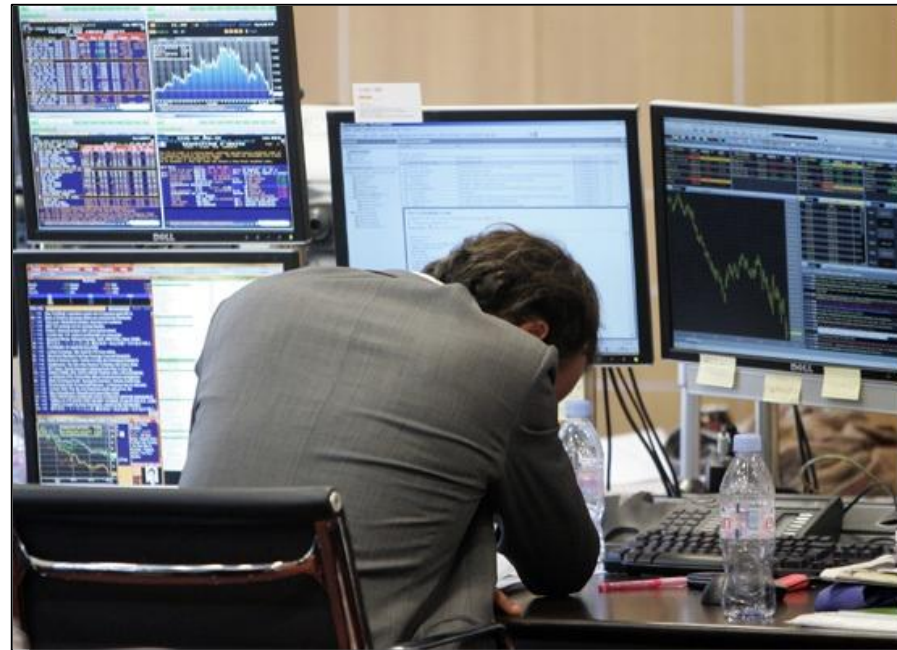
Global Financial Crisis

"This is the first financial crisis of the global age. And there is no clear map that has been set out from past experience to deal with it."

UK Prime Minister Brown February 2009

"The primary near-term security concern of the United States is the global economic crisis and its geopolitical implications...

Time is probably our greatest threat." U.S. Director of National Intelligence (DNI) Blair February 2009





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Interlinked, non-linear, self re-enforcing, systemic

“The single most important problem is our misguided focus on identifying the single most important problem”

Jared M. Diamond, Author; Collapse: How Societies Choose to Fail or Succeed



The Changing Environment of Intelligence . . . requires a new approach

Information scarcity and abundant resources

. . . . Information abundance and scarcity of resources

Discrete threats

. . . . Non-linear systems

Intelligence = the means of collection

. . . . Intelligence = the means of sense-making

Understanding the pieces

. . . . Understanding the whole



Governments often lack sufficient knowledge of how Energy and Environmental Security affects local, regional and global stability.





The Security Challenge . . . To Match the Threat



Challenge

Direct & indirect security challenges
'Beyond' traditional national security
Global, systemic, interdependent
Knowledge exists in multiple areas
Intelligence available from 'open sources'
Vulnerable social, economic & natural systems

Response

Develop '*Strategic*' intelligence
Complement current security frameworks
Nurture an adaptive foresight 'ecosystem'
Leverage diversity and connect knowledge
Engage open participation - Gov, industry, NGOs
Develop resilient and adaptive systems



“...while energy, food and climate security are thoroughly integrated, the same cannot be said of either the international institutions or the government bureaucracies meant to tackle them.”

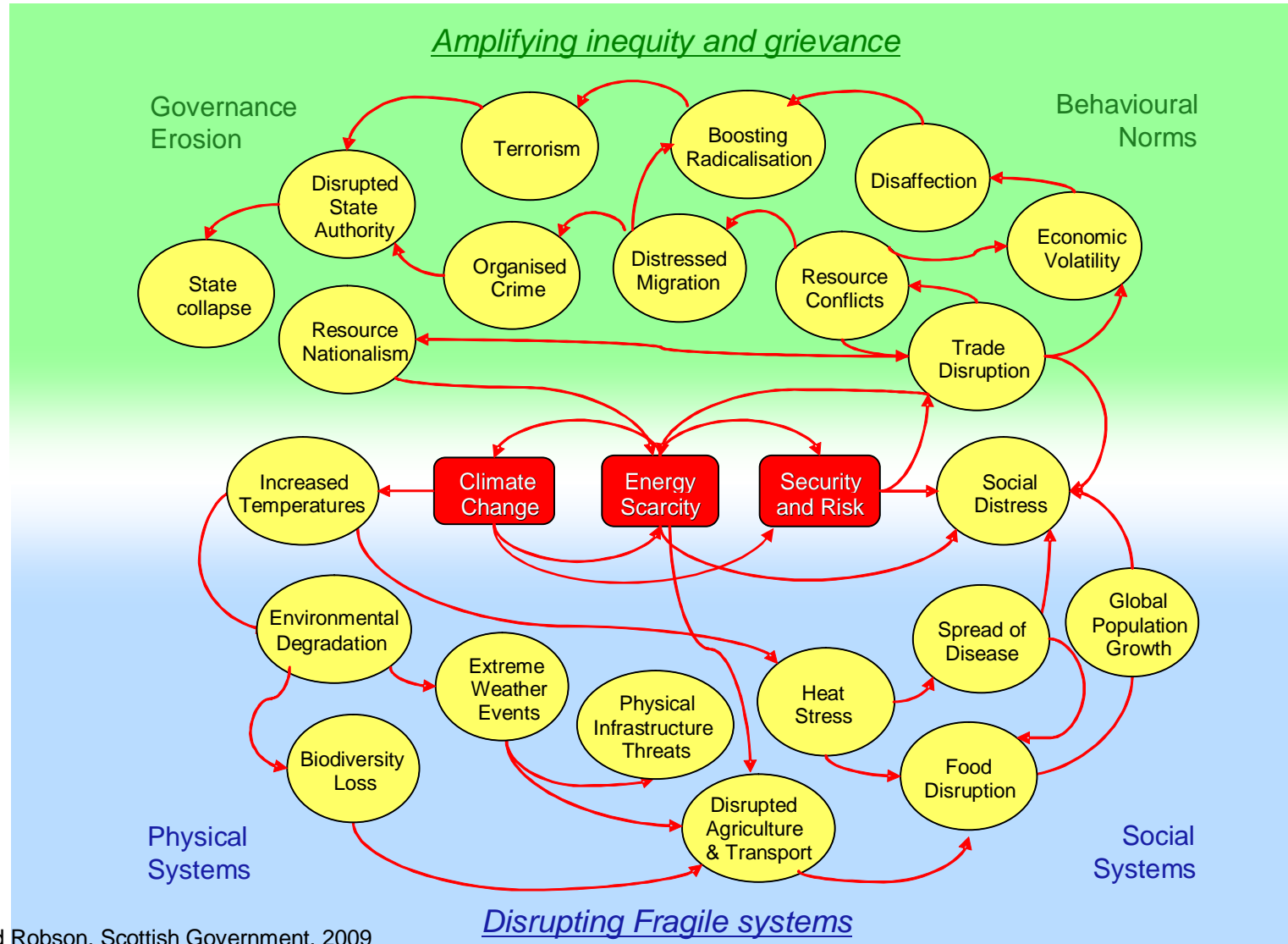
Alex Evans, **Multilateralism for an Age of Scarcity**, 2008



Understanding Dynamic Feedbacks and Connections

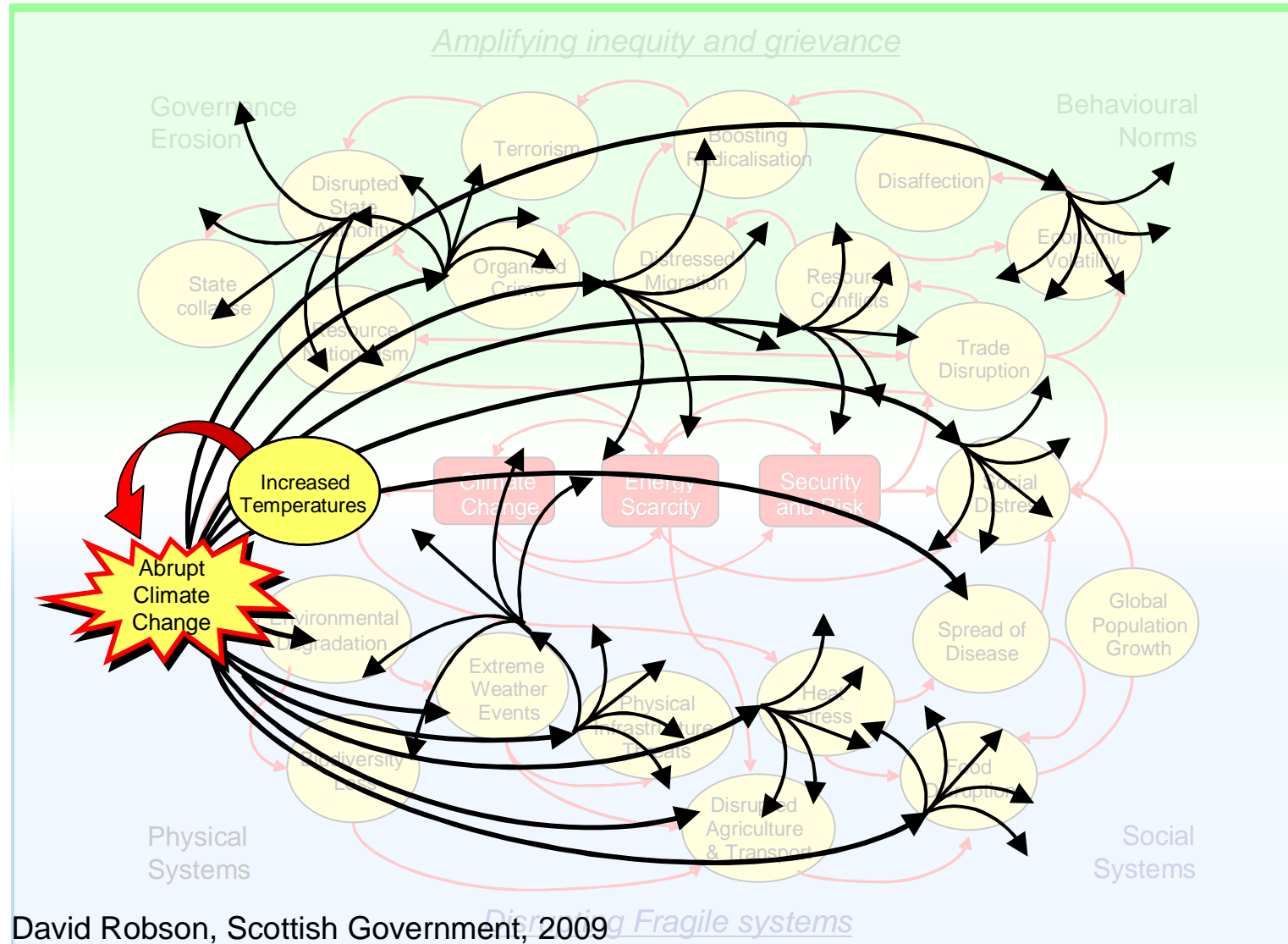
RESPONSES

STRESSES





Understanding Dynamic Feedbacks Connecting Security Challenges



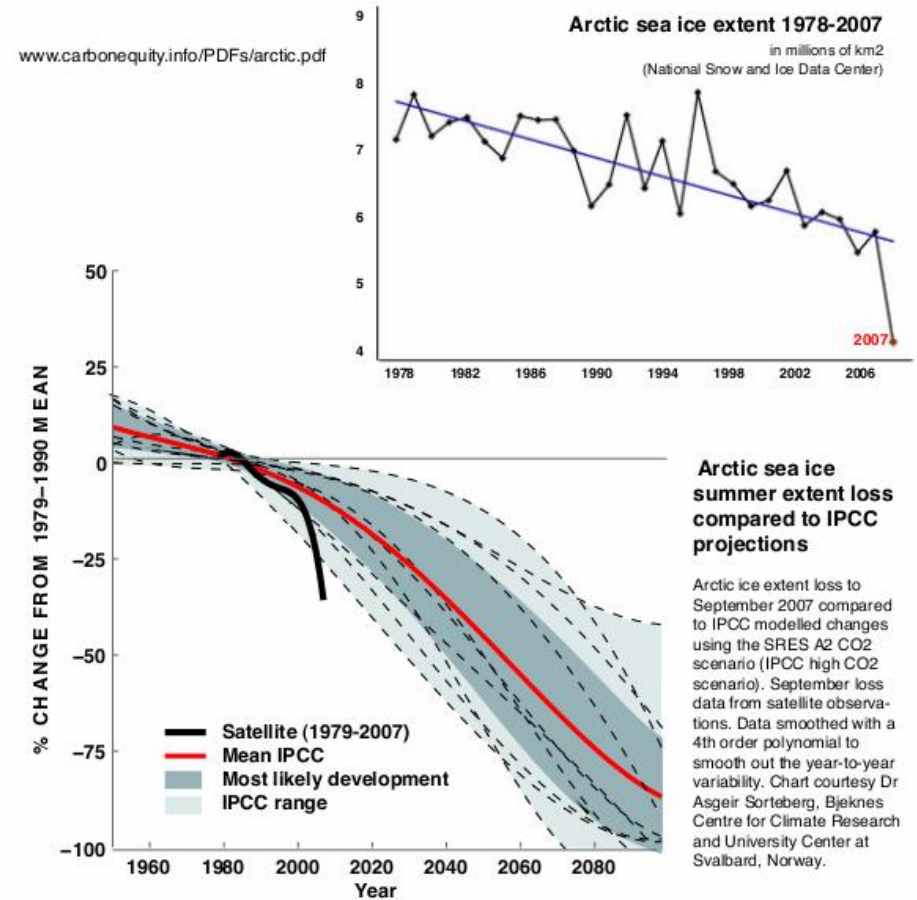


- Climate change will not be a smooth or gradual process
- Focusing on climate models' predictions of "most likely" impacts could be reckless
- Developed countries will experience severe climate impacts
- Climate change is global, but all impacts are local: we must identify at the local level the systems most vulnerable to climate change
- The effect of discrete extreme weather events pose enormous security risks
- Climate change impacts could have unanticipated cascading effects that disrupt interconnected systems
- We don't understand how biological systems may react
- The perception of guilt could have security consequences for the industrialized world
- Climate change impacts could have unanticipated cascading effects that disrupt interconnected systems
- Understanding the security risks of climate change requires multi-disciplinary, open, international collaboration



Climate change will not be a smooth and gradual process

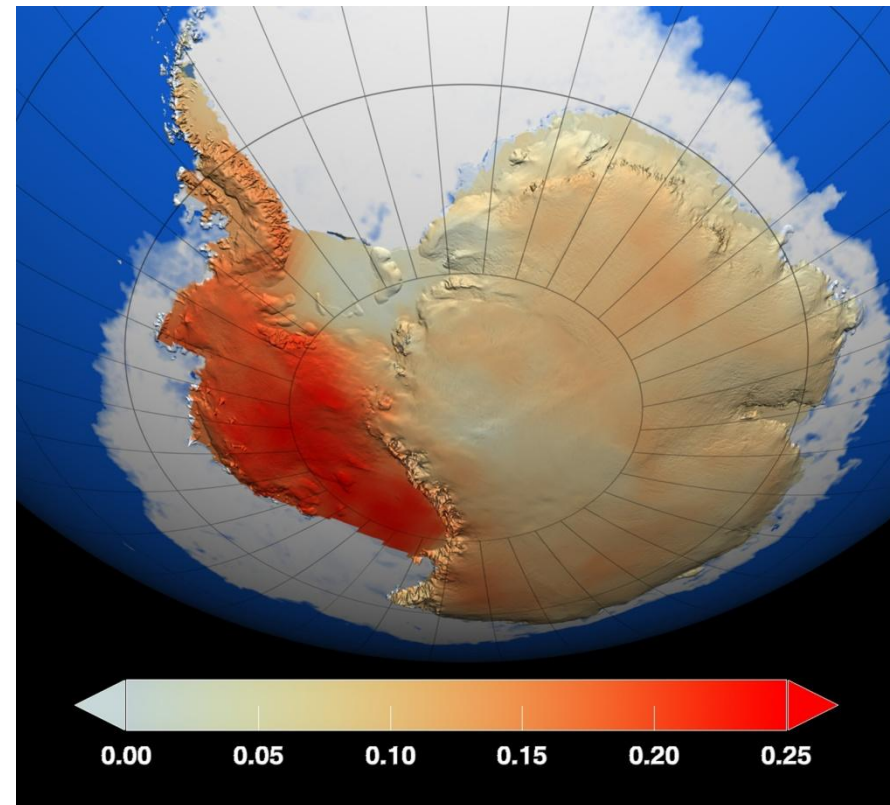
- The loss of summer sea ice in the Arctic has been non-linear and went beyond the outer bounds of the IPCC's range of possibilities.
- Climate changes will not follow linear trend lines. Preparations should anticipate greater variability, not gradual changes.
- *How can a city prepare for a 100 year flood when we don't know what a 100 year flood means any more?*





Focusing on climate models' predictions of "most likely" impacts could be reckless

- The IPCC's 4AR concluded that Antarctica was not warming. It is. If the West Antarctic ice sheet melted, sea level would rise 5-6m.
- Climate models don't incorporate poorly understood feedback mechanisms, like methane release from thawing permafrost.
- *What emissions reduction targets are appropriate when we don't understand the feedbacks, tipping points, and potential for abrupt changes?*





Developed countries will likely experience severe climate impacts

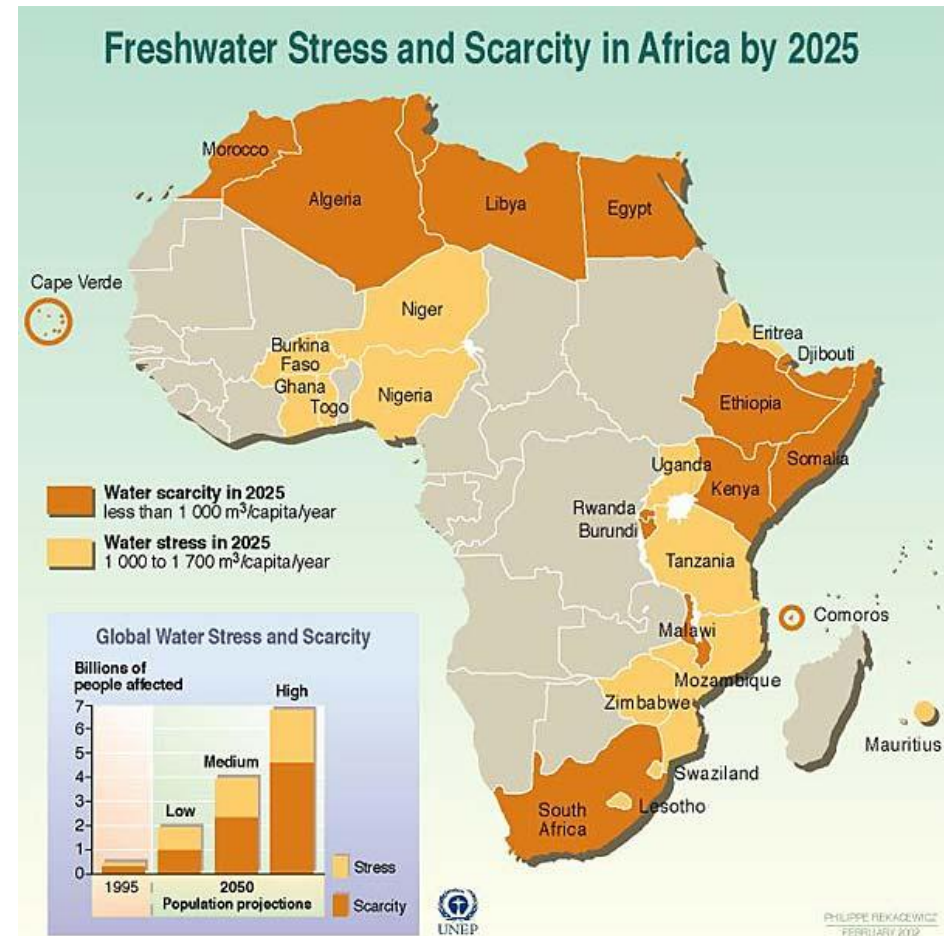
- The drought, heatwaves and wildfires that struck Southern Europe in 2007 are expected to be more common and severe.
- Sea level rise will be particularly disruptive for the U.S. and some European states.
- Dependence on highly developed infrastructure and systems arguably make us *more* vulnerable to climate changes.
- *How will we prioritize adaptation investments? At what cost?*





Understanding the security risks of climate change requires multi-disciplinary open, international collaboration

- Climate scientists project less fresh available freshwater in North Africa in the future, but this information means little without the input of demographers, economists, engineers, sociologists, political scientists and many others to make sense of the complexities and what the security implications may be.
- Without international, multi-disciplinary collaboration to provide strategic foresight, we will be surprised by crises.





The effect of discrete extreme weather events pose enormous security risks

- Hurricanes Katrina and Cyclone Nargis are possibly a taste of the system shocks that will likely become more frequent.
- *What systems—physical, social, and political—are vulnerable to failure under stress and with what consequences?*





Climate change impacts could have unanticipated cascading effects that disrupt interconnected systems

- Heat waves in both Europe and the US have forced the shutdown of nuclear power plants when demand is highest
- Hurricane Ike (Class 2) shut down nearly $\frac{1}{4}$ of U.S. fuel production capacity.
- *Could food distribution be disrupted by damage to energy infrastructure?*
- *How will changing precipitation and glacial melt patterns impact food and hydropower production? And what would be affected by those impacts?*

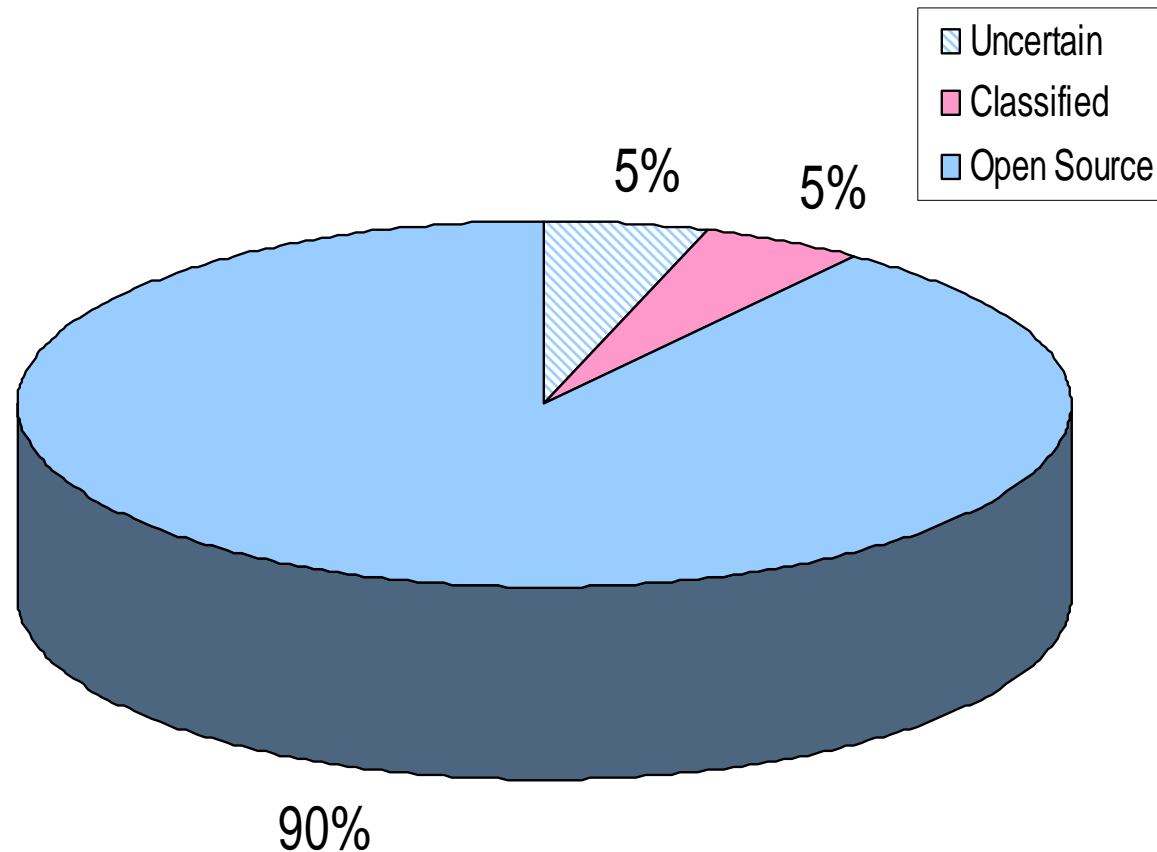




The Open Source Imperative: Knowing Secrets is Not Enough

"In a classified area, there's an assumption that if it is open, it can't be as good as if you stole it. I'm seeing [in the private sector] that at least 80% of what we stole was open."

Former Associate Deputy
Director of Operations (until
2005), CIA**



Sources include:

Fixing the Spy Machine, Arthur S. Hulnick

(Praeger/Greenwood, 1999); "Why Spy?", John Perry Barlow, *Forbes*, 07 October 2002; "Blackwater's Owner Has

Spies for Hire,"** Dana Hedgpeth, *The Washington Post*, November 3, 2007.).



Collective Intelligence - according to the Wikipedia

Collective intelligence is a form of intelligence that emerges from the collaboration and competition of many individuals. Collective intelligence appears in a wide variety of forms of consensus decision making in bacteria, animals, humans, and computers. The study of collective intelligence may properly be considered a subfield of sociology, of business, of computer science, and of mass behavior — a field that studies collective behavior from the level of quarks to the level of bacterial, plant, animal, and human societies

“Collective intelligence” – Not collecting intelligence



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“Working with Outsiders”

**The
Economist**

2007 Corporate “Open Innovation” Award: Procter&Gamble

The Economist’s Annual Innovation Award in the Category of “Corporate Use of Innovation” went to Procter&Gamble for “its pioneering use of the open-innovation model in its “Connect + Develop” program to find ideas for new products inside the company.

The Economist, December 8th-14th, 2007

The Procter & Gamble logo, consisting of the letters "P&G" in a bold, blue, serif font.

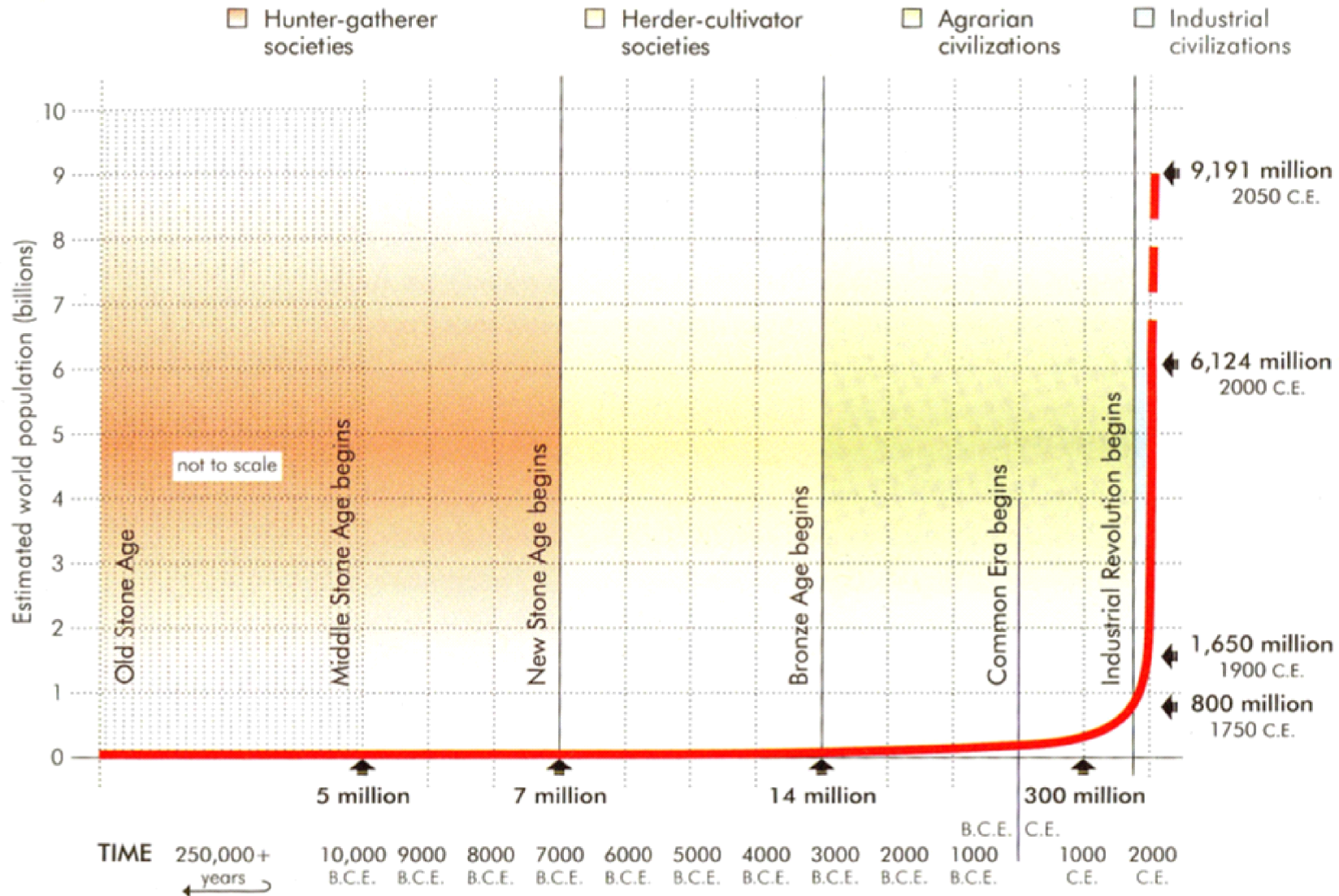


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Collaboration requires a foundation of trust and shared return . . .

A purposeful, **strategic** way of working that leverages the **resources of each party for the benefit of all** by **coordinating activities and communicating information** within an environment of **trust and transparency**.

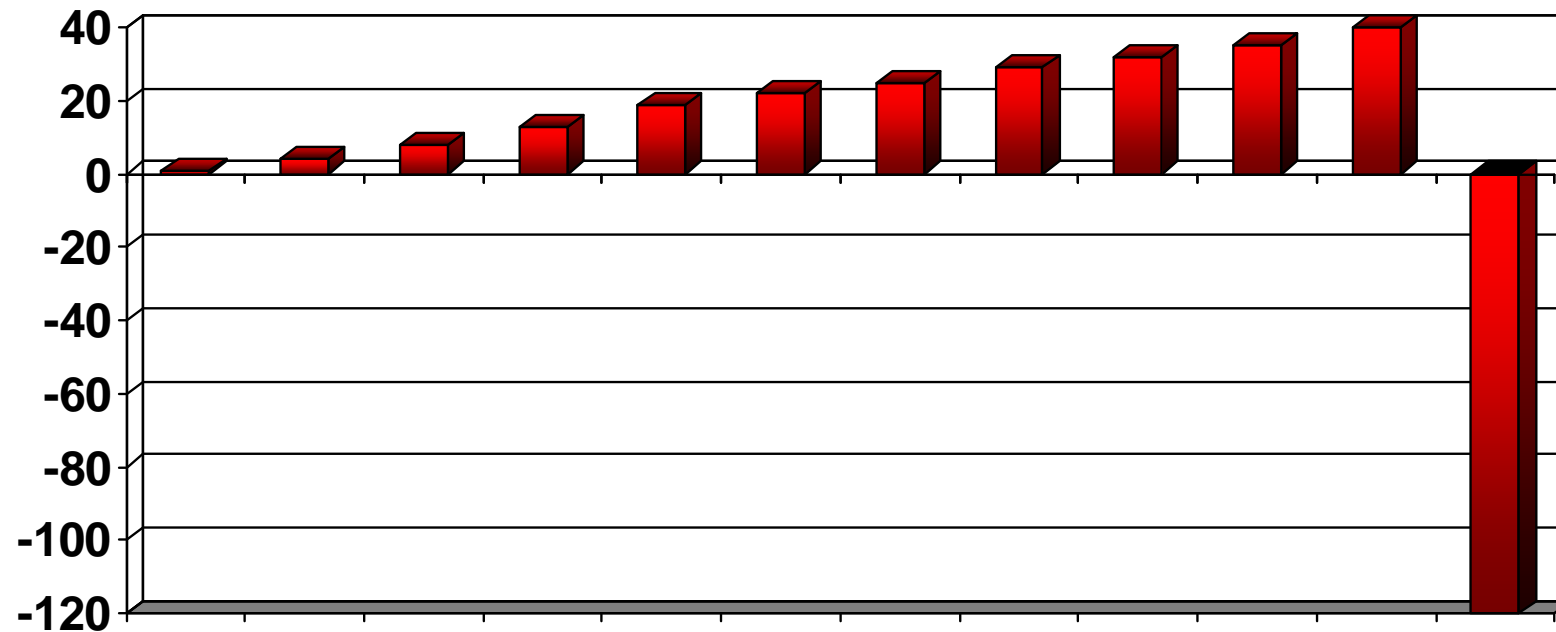
**Judge the risk of releasing information . . .
. . . against the return of gaining understanding**



Source: Evolution's Edge, Graeme Taylor, New Society Publishing, Canada. 2008



Anatomy of a Blow-Up



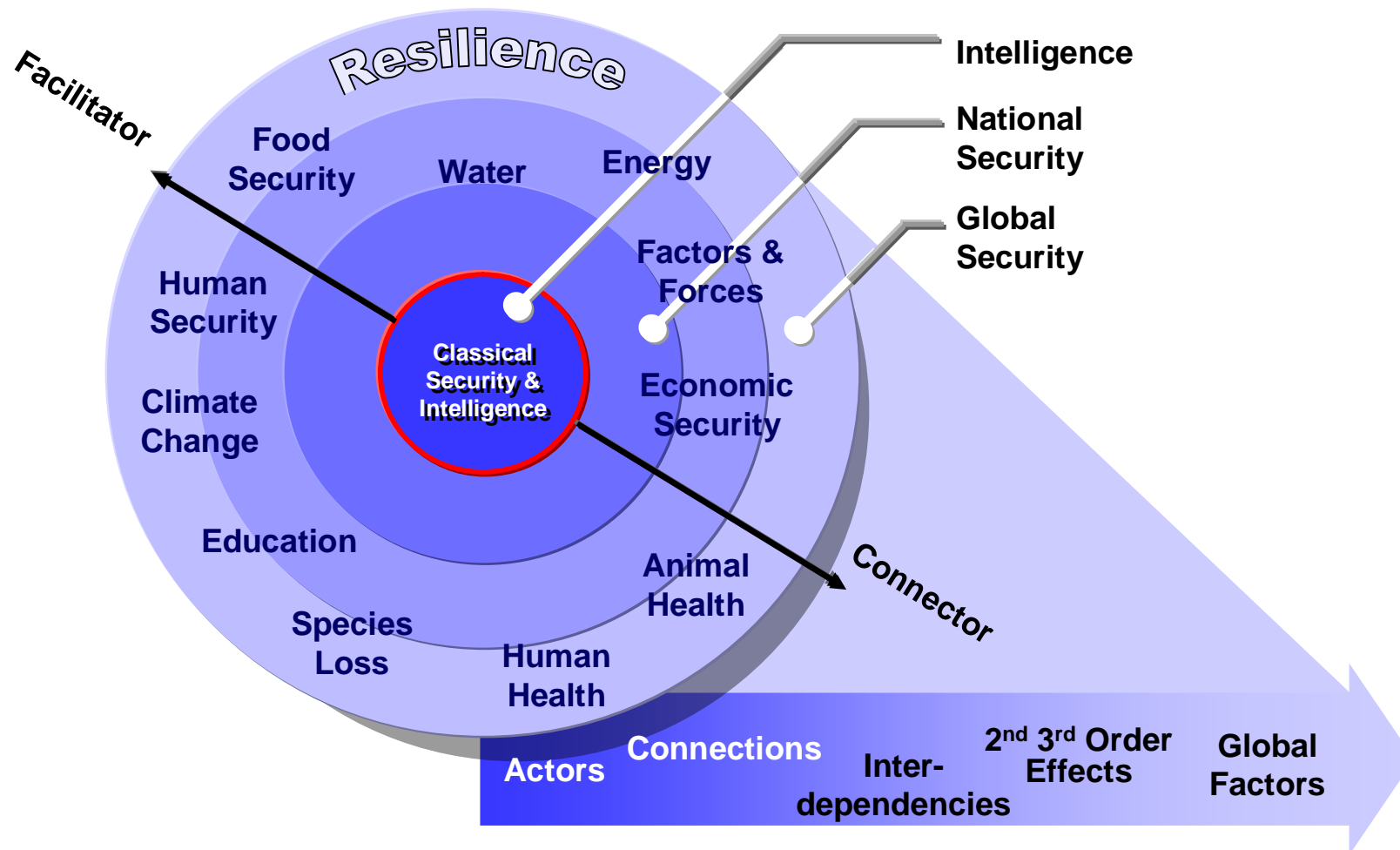
“A turkey is fed for a 1000 days - every day confirms to its statistical department that the human race cares about its welfare ‘with increased statistical significance’. On the 1001st day, the turkey has a surprise.”

- Nassim Nicholas Taleb

‘The Fourth Quadrant, a map of the limits of statistics’, The Edge, Sep 15th 2008



Beyond Classical National Security





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HOW MUCH IS AT STAKE?

“Soon it will be abundantly clear that it is business as usual that is utopian, whereas creating something new and different is a practical necessity.”

James Gustave Speth, Yale University
The Bridge at the Edge of the World, 2008

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