



U.S. DEPARTMENT OF
ENERGY

Strategic Intelligence in an Age of Nonlinear Risks and Opportunities

The Challenge of Energy and Environmental Security

“Green Conversations”

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Harvard University Center for Environment

Carol Dumaine, U.S. Department of Energy
carol.dumaine@in.doe.gov



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The Challenge

The Context of National Security and Intelligence

Imperatives and Opportunities

Emerging Responses



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Challenge

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)**



Adaptation to novel security threats often occurs *after* major disasters:

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)

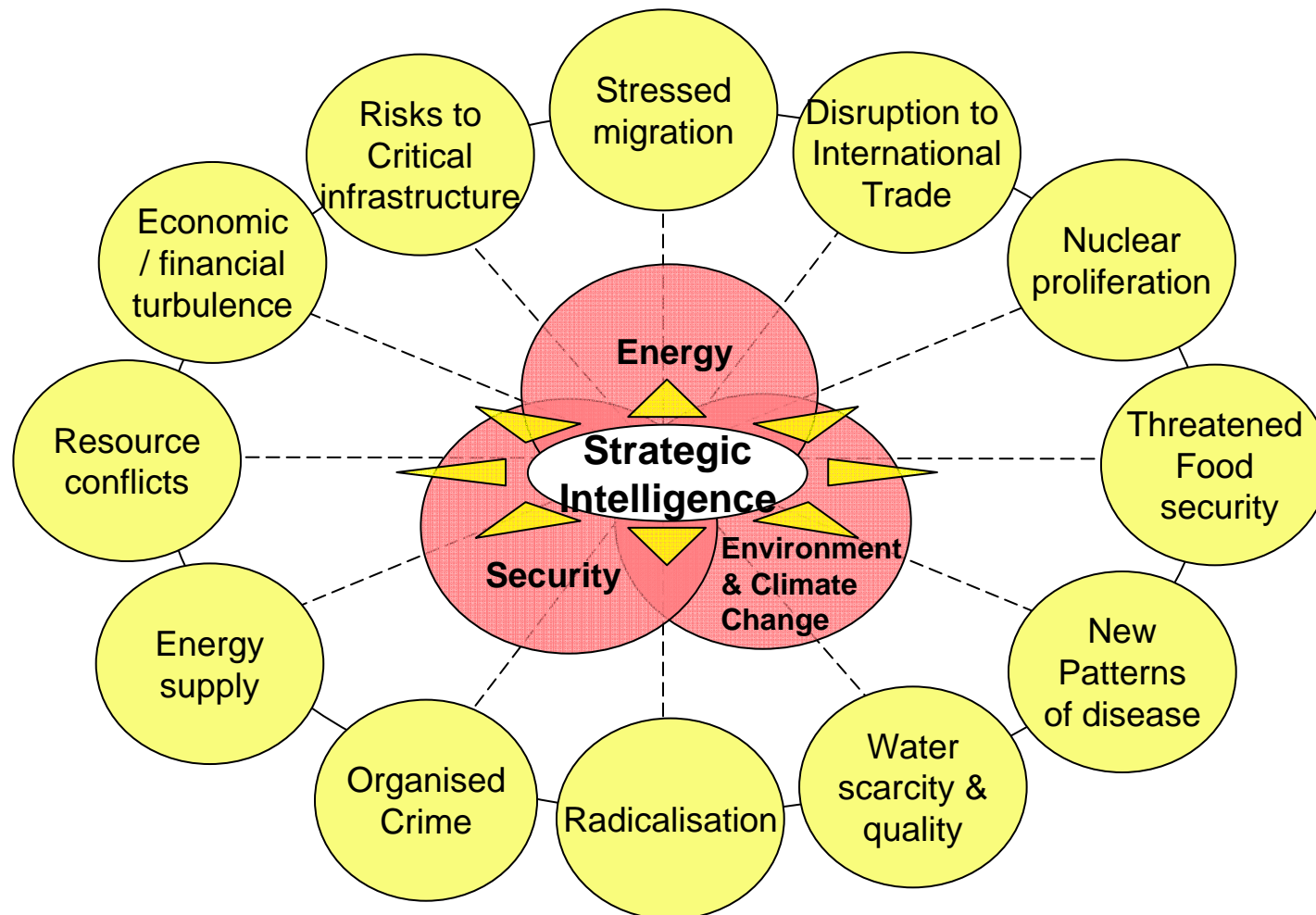


Security problems facing nations in the 21st century increasingly spill over geographic, disciplinary, and institutional boundaries, making concerted attention to the challenges of updating methods for delivering and acting upon strategic warnings an imperative. Many of these global problems are:

- a) “Owned” by no nation
- b) Challenge existing national and international security frameworks
- c) Contain the potential for abrupt and catastrophic change affecting every nation’s security



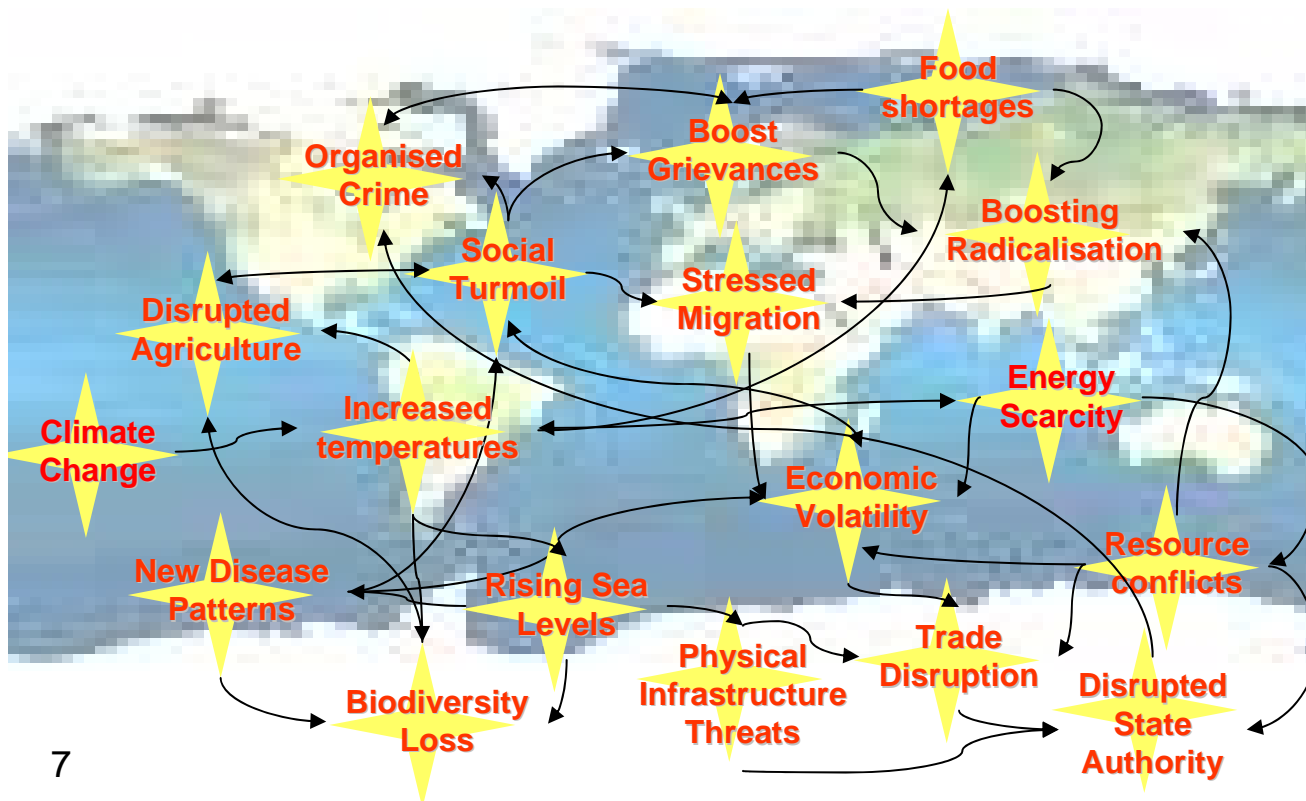
Governments often lack sufficient knowledge of how Energy and Environmental Security affects local, regional and global stability





Energy and Environmental Security . . . a Global security challenge

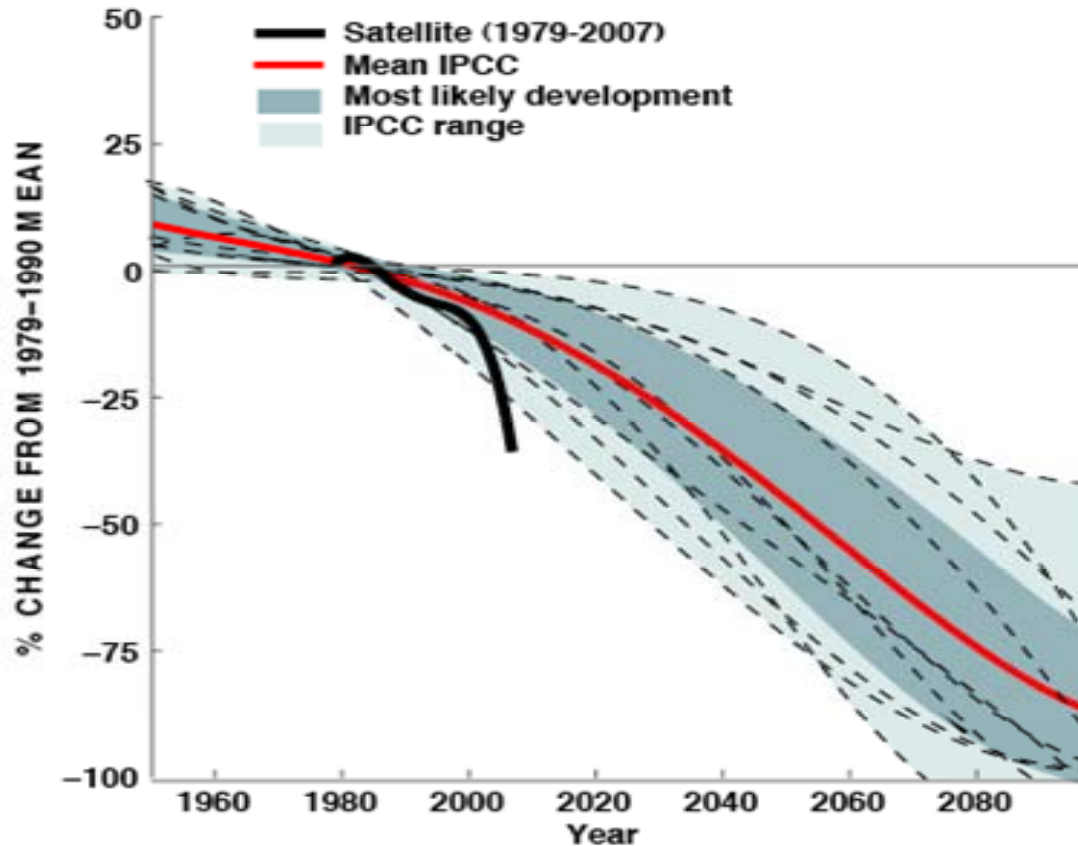
- Multiple – Unexpected – Systemic - Interconnected threats
- Traditional approaches to analysis and collection are insufficient





Energy & Environmental Security . . .

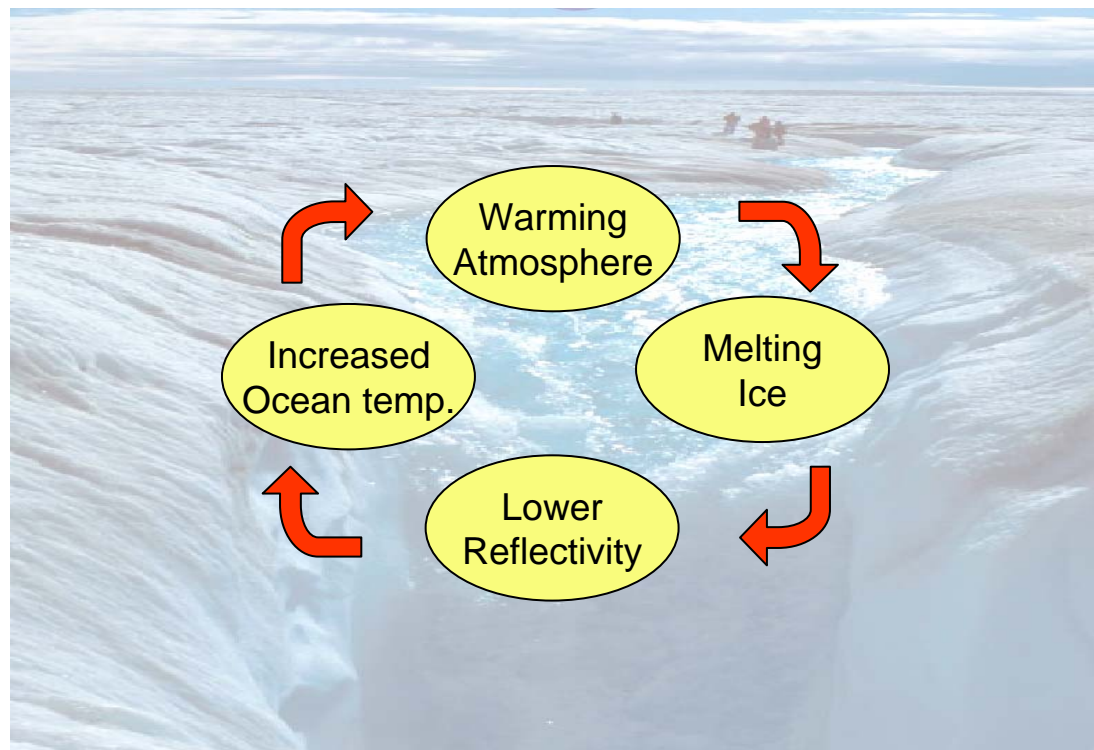
- **Arctic Sea Ice Melt - actual 2007 vs. IPCC model**





Inherent complexity makes climate science difficult to assess in terms of quantifiable probabilities

E.g. “Nonlinear” positive feedbacks are interactive and pose uncertainties about rate and time scales of changes





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 ←

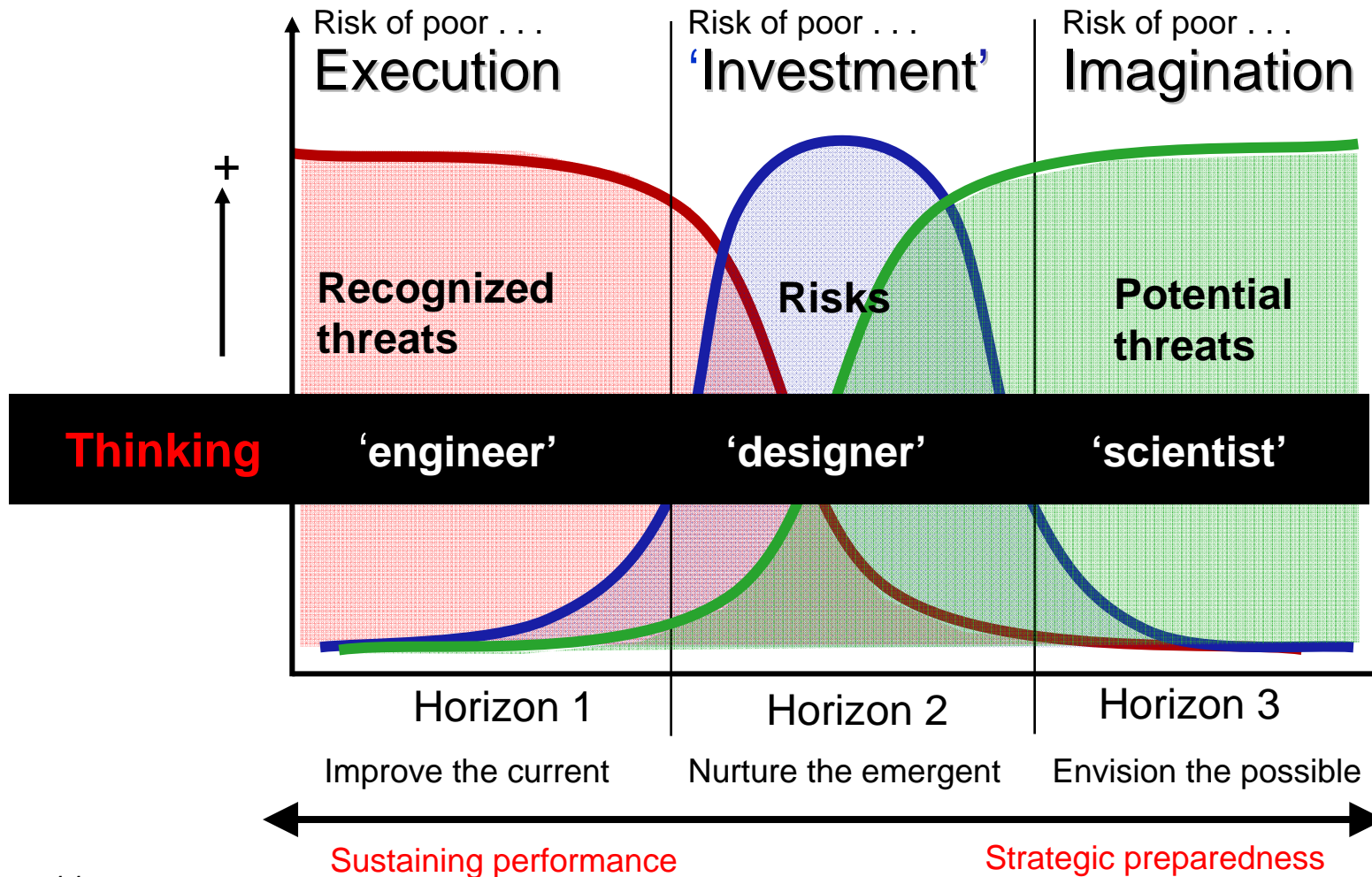
Develop '*Strategic*' intelligence
Complement current security frameworks
Nurture an adaptive knowledge 'ecosystem'
Leverage diversity and connect knowledge
Engage open participation - Gov, industry, NGOs
Develop resilient and adaptive systems

By 2015 we will need **integrated and collaborative capabilities** that can anticipate and rapidly respond to a wide array of threats and risks. . . a **globally networked** Intelligence Enterprise will be essential to meet the demands for greater forethought and improved **strategic agility**.

Vision 2015 – A Globally Networked and Integrated Intelligence Enterprise, DNI



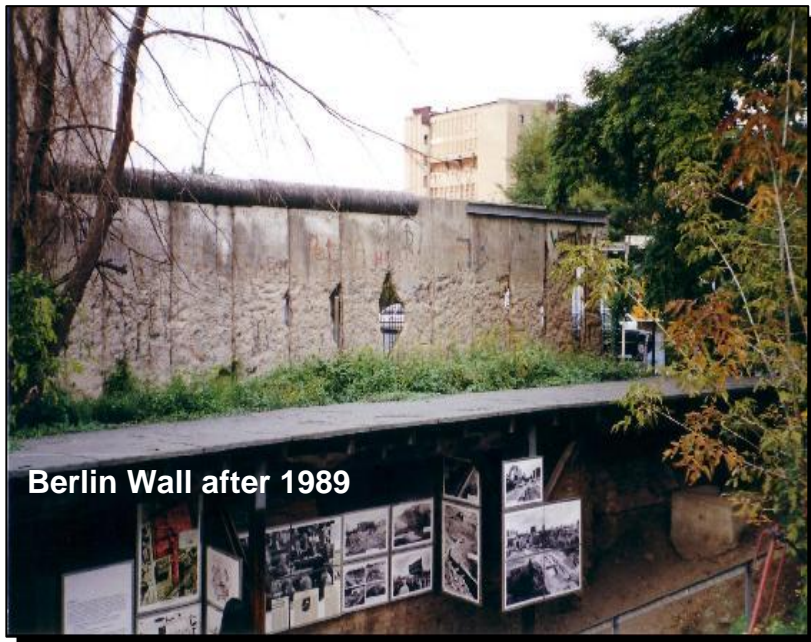
Three Horizons of risk:





The Changing Environment of Intelligence . . . Globalization of Security

1989 was the turning point . . .
. . . how far have we progressed?



Berlin Wall after 1989

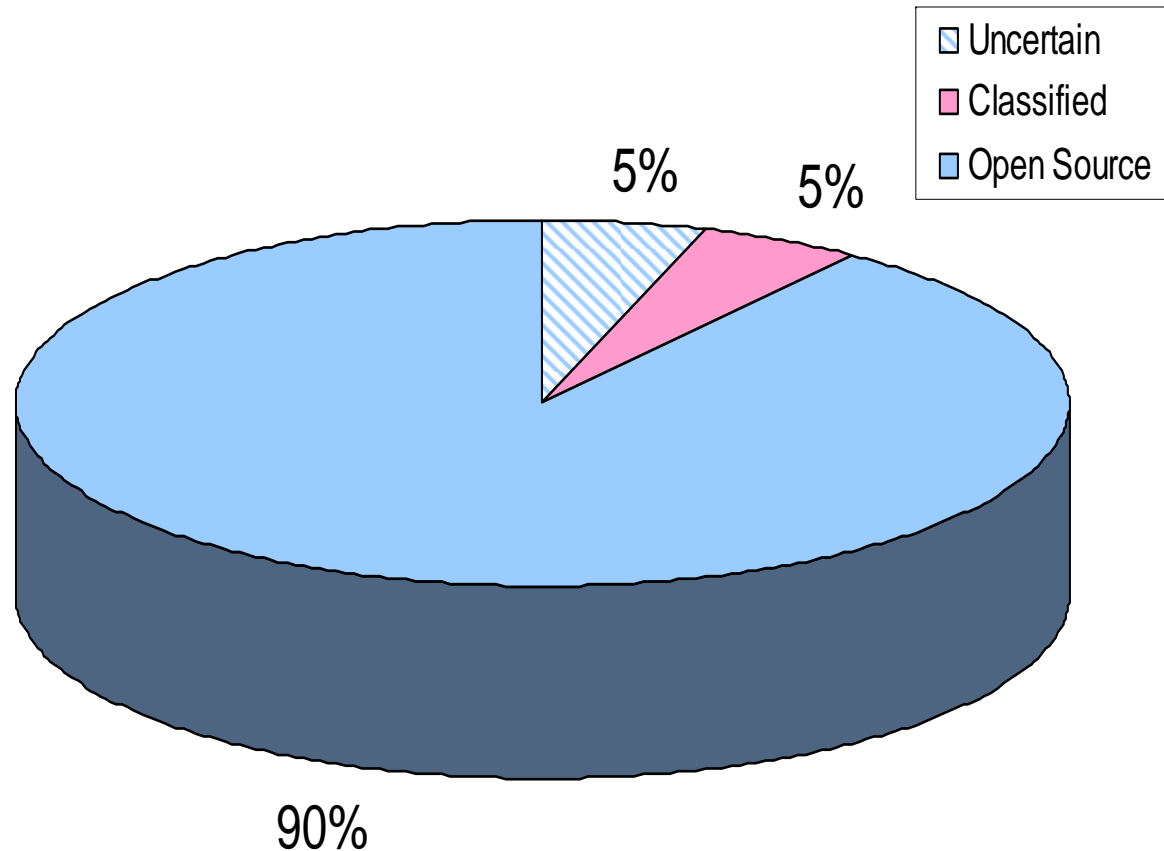
- Non-state actors
- Networked communications
- Non-government organizations
- Alternative information sources
- Unpredictability, volatility of world events
- Blurring of foreign and domestic issues
- Interconnections, complexity
- Asymmetries affecting strategy, conflict
- Nontraditional intelligence issues
- Organizational adaptive disabilities



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 Hedgpath, *The Washington Post*, November 3, 2007.).



“[The U.S. Intelligence Community should] anticipate developments of strategic concern and identify opportunities as well as vulnerabilities for decision-makers” and “develop, sustain, and have access to expertise on every transnational issue and every threat to the American people.”

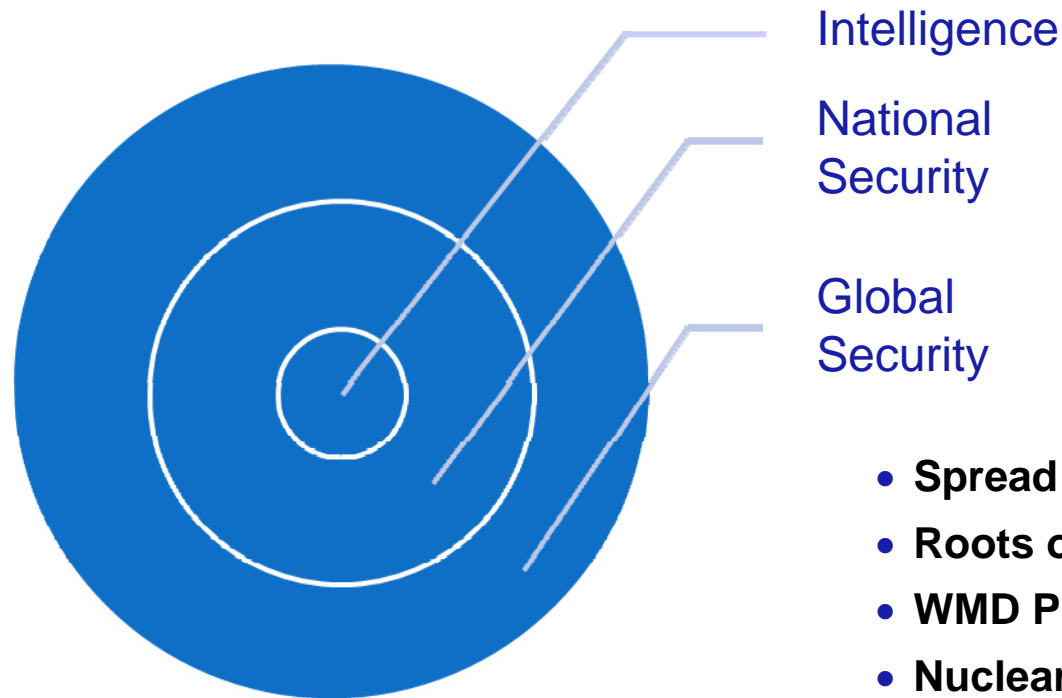
National Intelligence Strategy, 2005

*“Over the next 20 years, the **lack of access to safe, reliable supplies of water** will reach unprecedented proportions. The problem will worsen because of the **rapid urbanization** that we’ll experience worldwide...Based on the many estimates, **climate change** is expected to exacerbate these **resource scarcities...decreased agricultural output** will be devastating for many...given the confluence of factors, we predict an **increased likelihood of conflict...**”*

Director of National Intelligence, 30 October 2008



Global and National Security Issues and Contexts



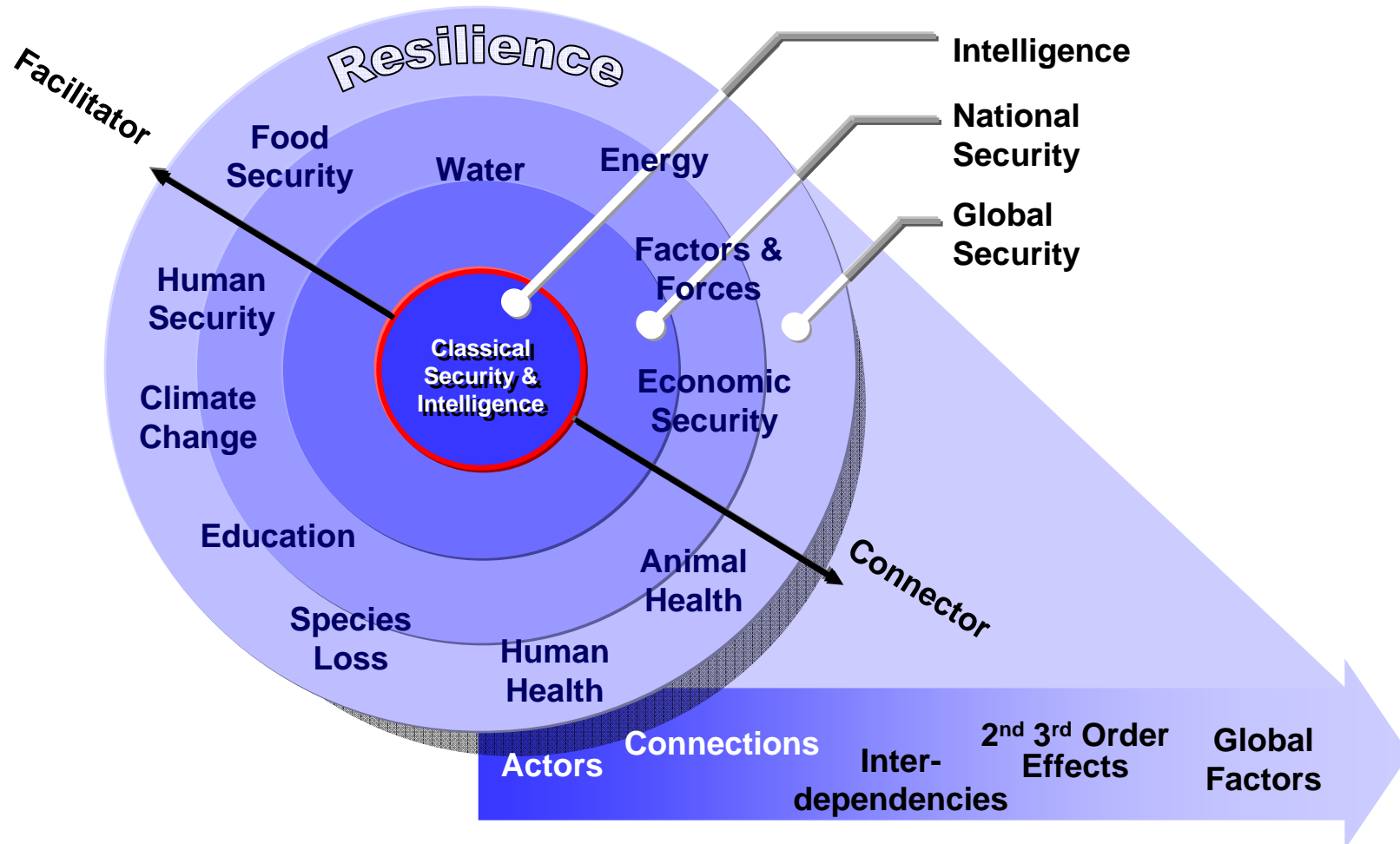
- Are there interdependencies?
- How to leverage multi-sector, international expertise?
- How to strengthen readiness and resiliency?



- Spread of disease
- Roots of radicalisation /violence
- WMD Proliferation
- Nuclear terrorism risk
- Bioterrorism, cyber vulnerabilities
- Climate change, biodiversity loss
- Energy sources and access
- Global markets, finance
- Regulation, economic activity



Resilience - beyond Classical Intelligence





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**



Multi-disciplinary collaboration essential . . .

- Most of the smart people don't work for you
- Gain access people you couldn't . . . or wouldn't employ
- Diversity is as important as ability*
- Network effects – e.g. Metcalf's law - $Vn \propto N^2$
- Leverage the law of 'requisite variety'

Collaboration is . . . 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.



Energy & Environmental Security . . .

- Energy Security and Climate Change threats span multiple boundaries:
 - Geographic – Generational - Governance jurisdiction - scientific, social, political - Public vs. Private
- Globalisation of economies, mobility of people, ubiquitous technology - enables rapid transmission of risks across the globe
 - Avian Flu, Credit Crunch, Banking Collapse, Oil price volatility
- Energy and Environmental Security-related multiple 2nd and 3rd order impacts and threats:
 - food/water security
 - stressed migration
 - armed conflict
 - collapsed states
 - spread of disease





Risk Implications of Energy/Environmental Issues

- Rapid summer melt of Arctic ice, far greater than IPCC projections
- Accelerating growth in human carbon emissions, above worst IPCC projections
- Decline in natural carbon sinks
- Large increase in projected sea level rise
- Increased response to climate forcing, with potentially greater temperature increases
- Higher methane levels
- Increased ocean acidification
- Accelerated natural loss of species by more than 100 fold

“Tipping points are irreversible.”

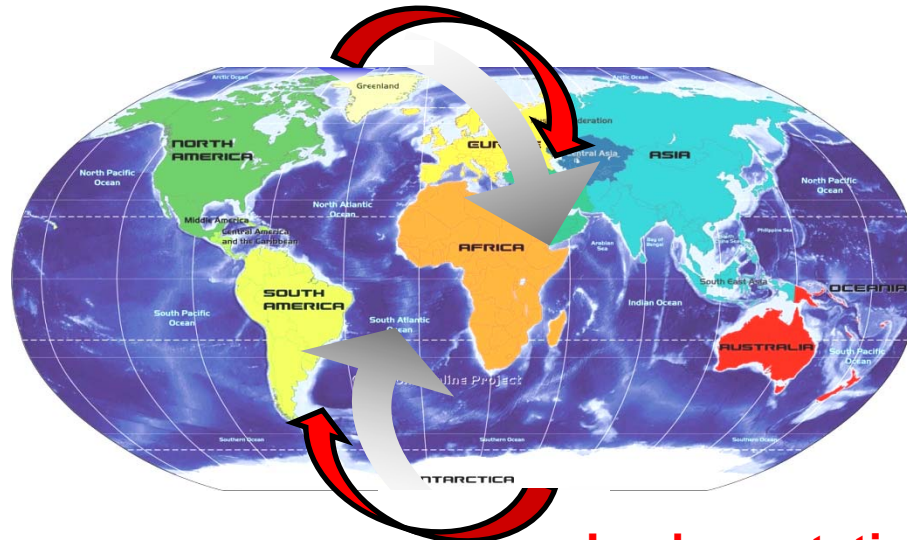


Energy & Environmental Security . . .

- Focusing on “pieces” makes global risks invisible; need to emphasize generalists who are “specialists of the whole”
- Shifting emphasis *from* “collecting intelligence *to* “collective intelligence”
- The threat is systemic *and* non-linear . . . only a system can address a system
- Leverage technology and global participation to aggregate systemic awareness, insights, and intelligence...
- It is not about secrets . . . judge the risks of releasing information in return for gaining understanding
- Framing national security preoccupations within a global context



Energy and Environmental Security Ecosystem (Global-EESE)



Principles:

- Global & Co-evolutionary
- Recombinant international networks
- “Bottom-up” organization
- Collaborative foresight techniques
- Public sphere

Implementation during 2008:

- US Leading an International Partnership
- On-line Platform and Face to Face
- 200 people across 25 Nations
- Projects to reveal 2nd 3rd order threats
- Unclassified, Open, Multidisciplinary



Critical Issues

Fragility/Resilience

Investigating attributes that contribute to fragility or resilience of complex systems

Regional Vulnerabilities

Understanding regional vulnerabilities to energy choices, environmental impacts and their implications for security

Tipping Points

Exploring “tipping points” and non-linear feedbacks among energy, environment, and security issues

Common Strategy

Exposing the implications of a common international strategy on energy, environment, and security issues

Financial Turbulence

Unfolding the implications of the current turbulence in international financial markets for energy, environment, and security issues



“... many of the economic and investment decisions which will face the future path of global climate change will need to be made in the next five years.”

Global Risks 2008, - World Economic Forum

“The world may have only seven years to start reducing the annual build-up in greenhouse gas emissions that otherwise threatens global catastrophe within several decades”

‘7 Years to Climate Midnight’ - Washington Post, Aug 28



**‘We cannot solve our problems with the same
thinking we used when we created them’**

Albert Einstein

carol.dumaine@in.doe.gov