

ENERGY
STUDIES
INSTITUTE



Bridging Atlantic Policy and Academic Communities



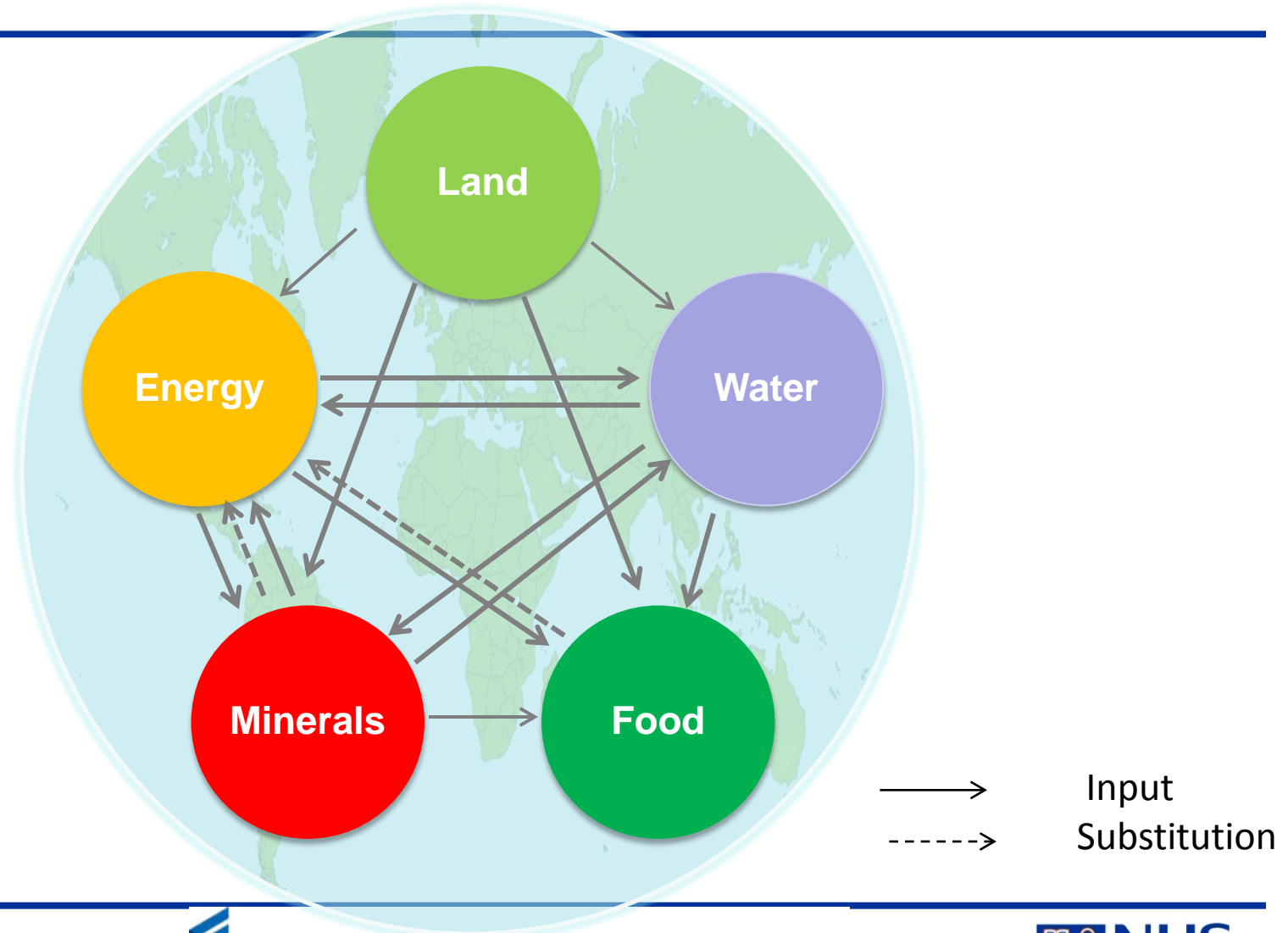
**The Global Resource Nexus:
The Struggles for Land, Energy, Food,
Water and Minerals**



The Research

- **Observations:**
 - Accelerating demand for natural resources will lead to growing scarcities and possibly conflict
 - Increasing complexity of linkages between resources
- **Premise:**
 - Today is different: economics, politics, Anthropocene
 - Most challenges arising from the resource nexus have their origins in failures of governance/collective action
- **Aim:**
 - To identify challenges and opportunities (for Transatlantic Community) arising from the nexus of land, energy, food, water, and minerals

The Resource Nexus



Three “realms” of the nexus

- Managing Markets under Stress:
 - Inter-connected markets transmit effects between resources and between regions
 - Risks of supply interruptions and price volatility; illicit trade
- Strategic Interests and Interstate Conflict:
 - Governments ignoring transnational governance institutions; e.g. freshwater and seas;
 - Risk of tensions and armed conflict
- The Nexus on the Ground: Human Security
 - Local resource depletion: competition, migration, violence
>> ungovernable spaces
 - International repercussions

MANAGING MARKETS UNDER STRESS

Analyzing Markets - The Three “I’s”

Integration

- Supply chain management for materials not yet in full swing
- Recycling rates low (< 20% worldwide for most metals)
- Material Flows cut across product chains, need for material flows innovations

Information

Information deficits in resource markets



E = Energy; M = Materials; W = Water; F = Food; L = Land. Green indicates good information; yellow indicates some deficits; red indicates major deficits.

Internalizing externalities



Agricultural goods and biotic materials as well as mass metals are as environmental intensive as fossil fuels.

The risks and opportunities

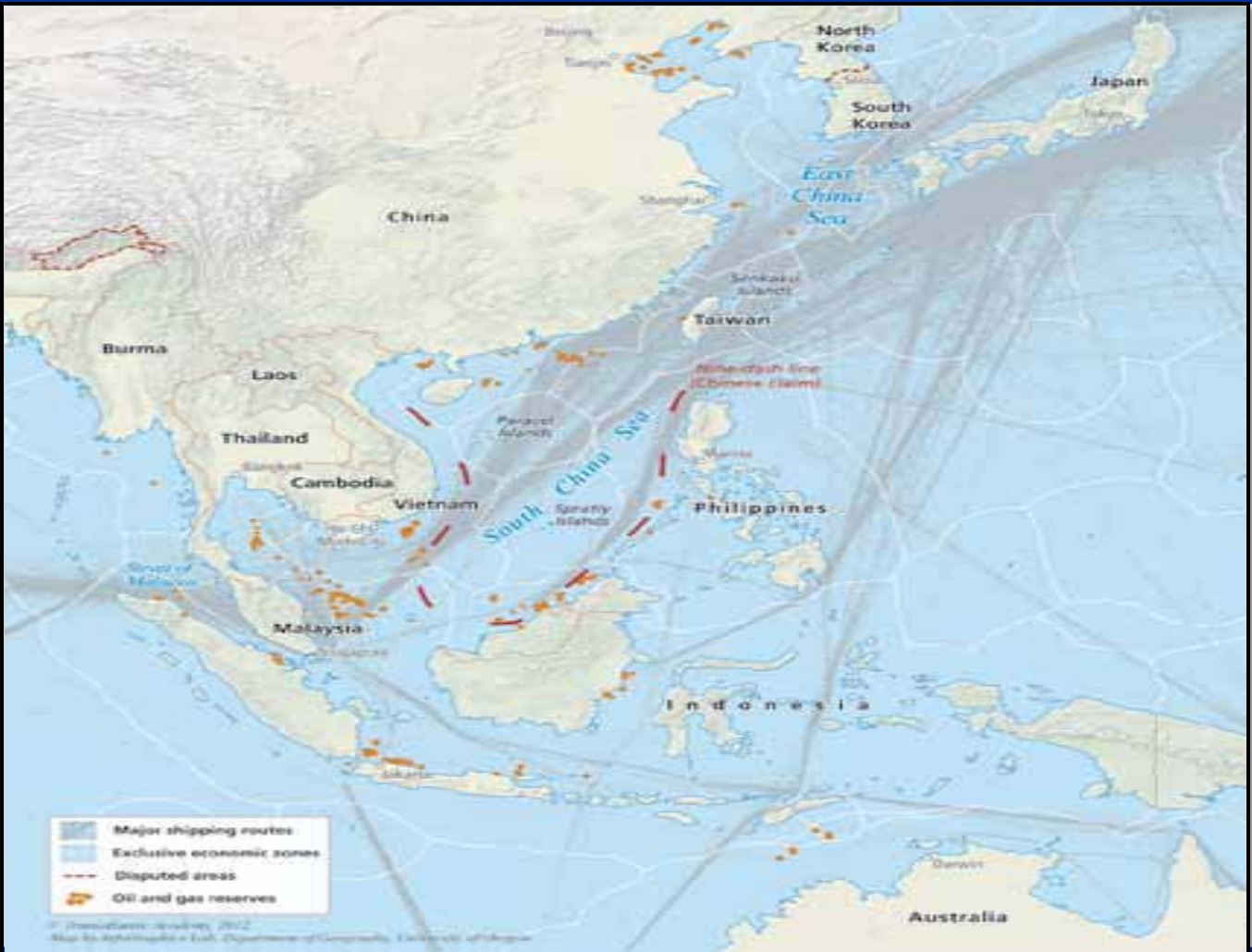
- Risks:
 - High and/or volatile prices
 - Environmental damage, land degradation
 - Illicit trade, fragile supply, failing states
- Existing governance tools are fragmented and inadequate:
 - Prevalence of ‘silo’ policy analysis and policy making
- Opportunities for better supply chain management

STRATEGIC INTERESTS AND INTERSTATE CONFLICT

Water is the key

- Oceans/seas:
 - Fisheries
 - Energy and minerals
 - Trade routes
- Fresh water:
 - Energy
 - Food
 - Water supply
 - Livelihoods

China Seas



Eastern Mediterranean



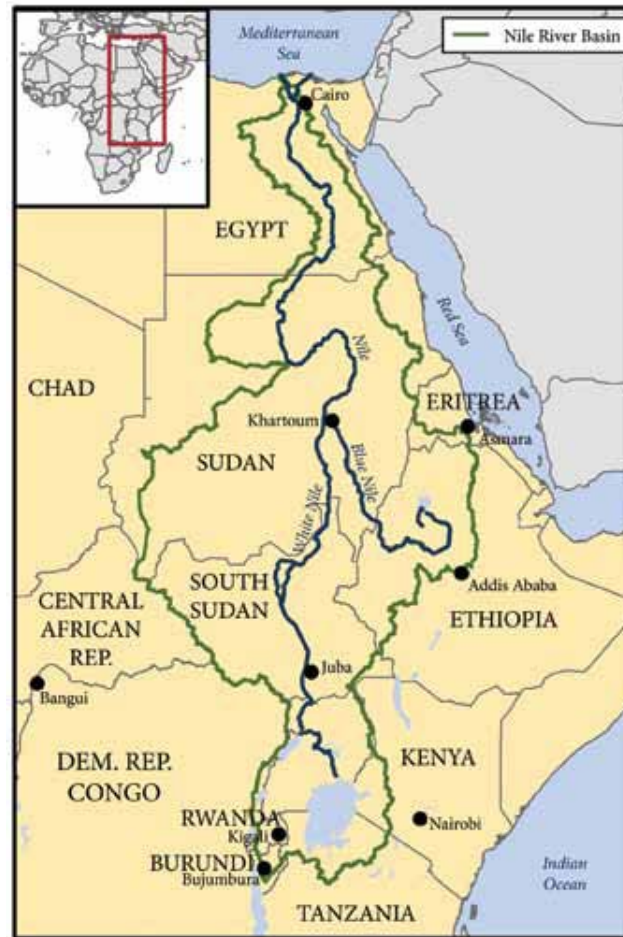
Mekong River Basin



South Asia Waterways



Nile River Basin



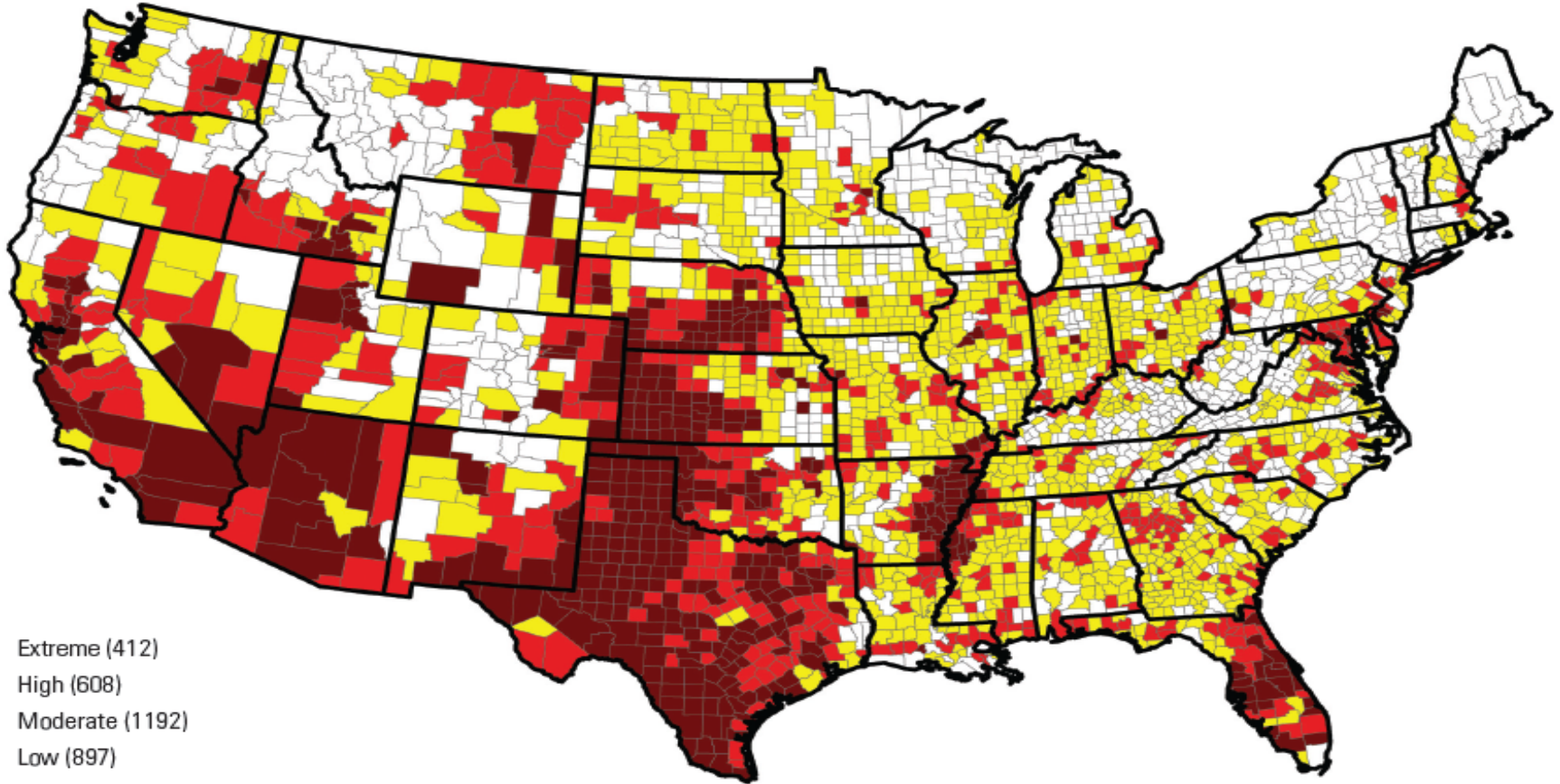
THE NEXUS ON THE GROUND: HUMAN SECURITY

The Nexus on the Ground: Human Security

- Everyday politics of local struggles for multiple resources
- Degradation of local ecosystems, biodiversity
- Falling/changing rainfall patterns, Submergence of deltas
- Poor state capacity/resource governance
- Increasing vulnerability of many populations
- Domestic & international repercussions

Water sustainability risk in the USA

Water Supply Sustainability Index (2050)



Source: NRDC, 2010

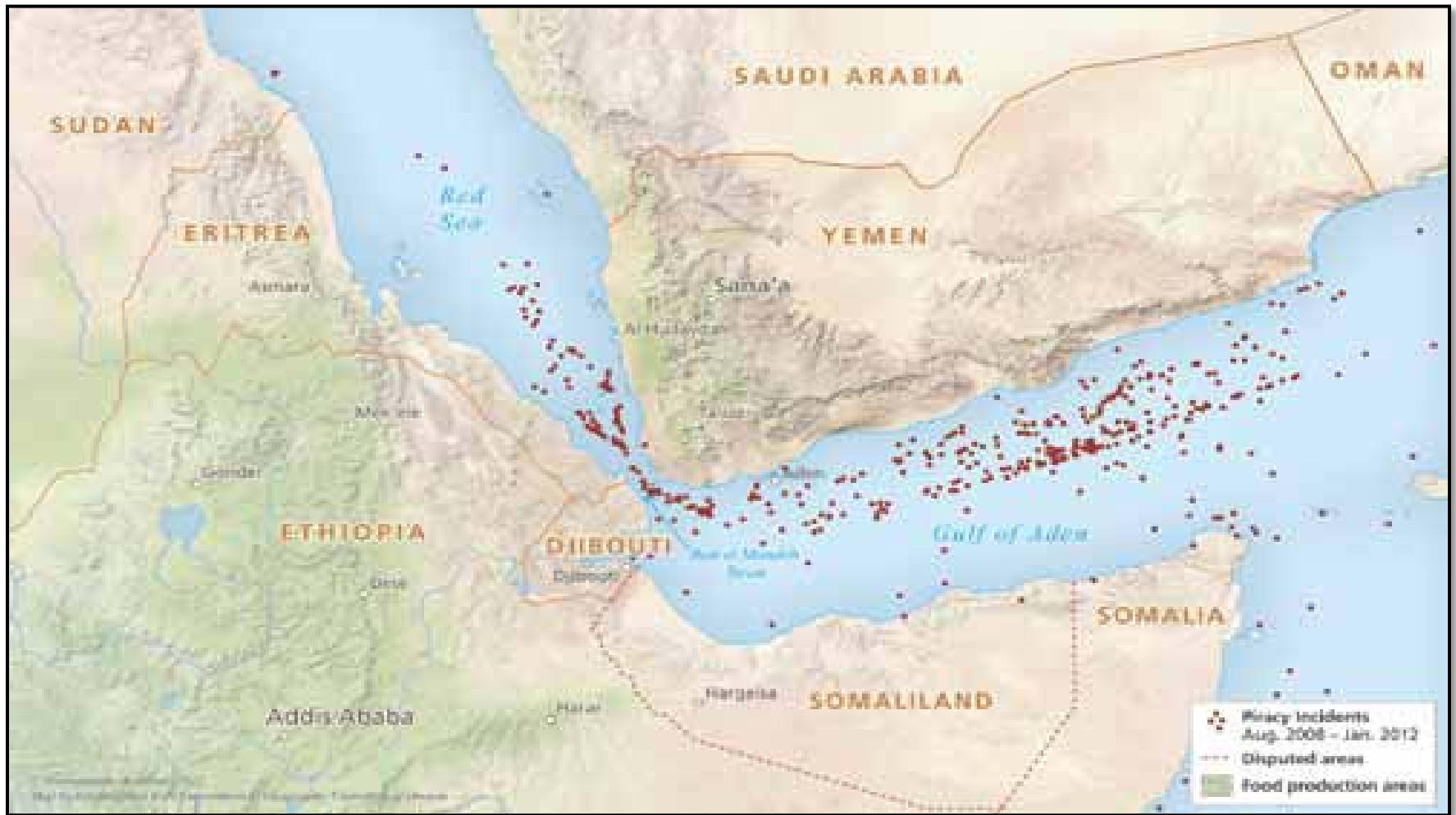
The Nexus on the Ground: Human Security

- Three themes:
 - Migration:
 - Expected growth of environmental migrants
 - Proliferation of walls and fences
 - Urban spaces:
 - Cities magnify nexus challenges
 - Urbanization provides threats and opportunities
 - Ungovernable spaces:
 - Vicious spiral of poor governance, resource scarcity and ‘small wars’
 - Compounded by “land rush”

25 Barriers Erected or Substantially Fortified Since 2000

Year Started	Initiating Country	On Border With
2000	Israel	Lebanon
2001	Uzbekistan	Afghanistan
2001	Turkmenistan	Uzbekistan
2002	India	Bangladesh
2002	Israel	West Bank
2003	India	Pakistan
2003	China	North Korea
2003	Botswana	Zimbabwe
2003	Saudi Arabia	Yemen
2004	India	Burma
2004	Thailand	Malaysia
2004	Kuwait	Iraq
2005	Brunei	Malaysia
2005	United Arab Emirates	Oman
2006	United States	Mexico
2006	Kazakhstan	Uzbekistan
2006	Saudi Arabia	Iraq
2007	Pakistan	Afghanistan
2007	Iran	Pakistan
2009	Uzbekistan	Kyrgyzstan
2009	Burma	Bangladesh
2010	Israel	Egypt
2010	Iraq	Syria
2011	Greece	Turkey
2011	Azerbaijan	Armenia

Piracy Incidents around Yemen



RESPONSIBILITIES AND OPPORTUNITIES

The Transatlantic Community: Key Recommendations on Managing the Resources Nexus

Put our Own House in Order



- Resource Efficiency
- Energy Transitions
- Get Prices Right:
- Rethink Prosperity and Growth
- Resolve Disputes
- Ratify Treaties, e.g. the Law of the Sea
- Reinvest in Shared leadership

Engage the New Players



- Supply Chain Due Diligence
- Partnerships on Supply and Recovery
- Work with New Players to Protect Sea Lanes
- Aid in Resolving Resource Disputes

Strengthen Global Cooperation

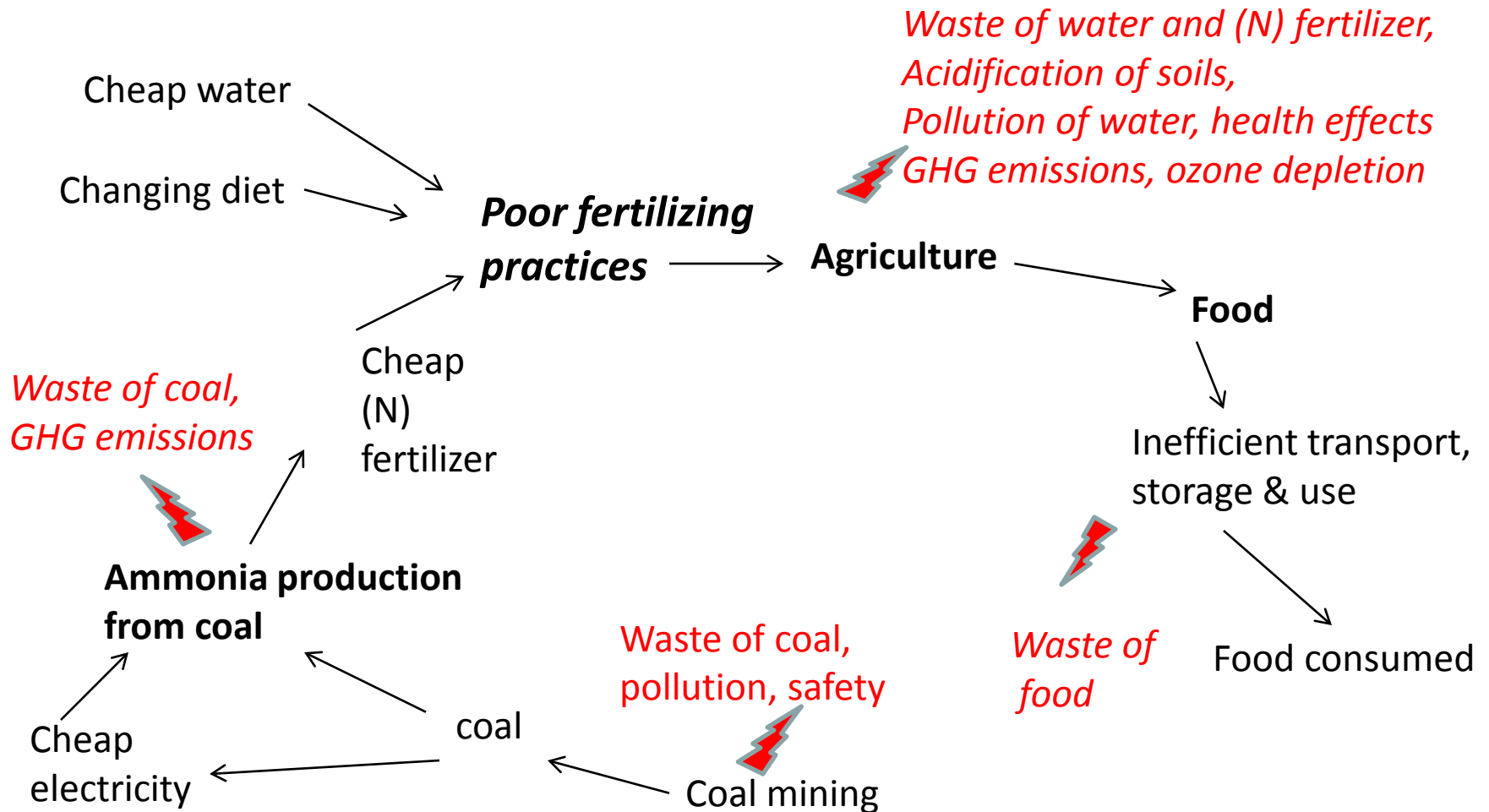


- International Data Hub
- Form a Hanseatic League of Urban Governance
- Establish a Global Food Security and Water Facility
- Codes of Conduct on Land Use and Purchase
- Convene Multi-Stakeholder Fora on the Resource Nexus and Governance

Relevance to China

- Markets under stress:
 - China is a major importer and exporter of raw materials of all types
 - Business opportunities in supply chain efficiency
- Strategic interests and interstate conflict:
 - China is a party to actual or potential disputes; maritime and river basin
- The nexus on the ground - human security:
 - Many of China's domestic resource and environmental challenges are interconnected
 - Urbanization and agriculture

Agriculture- Nitrogen fertilizers



Conclusions

- Three realms of the nexus
 - Managing Markets under Stress
 - Strategic Interests and Interstate Conflict
 - The Nexus on the Ground: Human Security
- Most challenges arising from the resource nexus have their origins in failures of governance/collective action:
 - ‘Silo’ thinking
 - Poor supply chain management
 - Disregard for others
- Leadership required: richer nations & IOs

The Report

- http://www.transatlanticacademy.org/sites/default/files/publications/TA%202012%20report_web_version.pdf