

Environmental Security as a Growing Nexus of U.S. Homeland Security & Emergency Management Theory



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Motivation... in a nutshell

“...the White House and Pentagon continue to treat the war on terrorism as an overseas military campaign... Our top national priority must be to ensure that our society and our infrastructure are resilient enough not to break under the strain of natural disaster or terrorist attacks.”



-Stephen Flynn
The Edge of Disaster (2007), p. 110

An interesting thought...

“The economy is a wholly-owned subsidiary of the environment. All economic activity is dependent on the environment and its underlying resource base. When the environment is finally forced to file for bankruptcy under Chapter 11 because its resource base has been polluted, degraded, dissipated irretrievably compromised, then the economy will bankrupt with it.”



-Tim Wirth
Former U.S. Under Secretary of
State for Global Affairs (1994)

Emerging Environmental Security Paradigm

2010 Quadrennial Defense Review (QDR)

- The *Quadrennial Defense Review (QDR)* is the US Military's primary planning document and is published every four years.
- The 2010 QDR recognized for the first time the National Security implications of climate change and energy dependence by stating:

"The rising demand for resources, rapid urbanization of littoral regions, the effects of climate change, the emergence of new strains of disease, and profound cultural and demographic tensions in several regions are just some of the trends whose complex interplay may spark or exacerbate future conflicts."

-- The QDR: <http://www.defense.gov/qdr/>, pg 7.

Emerging Environmental Security Paradigm

2010 Quadrennial Defense Review (QDR)

- ***"Climate change and energy are two key issues that will play a significant role in shaping the future security environment."***
- *Although they produce distinct types of challenges, climate change, energy security, and economic stability are inextricably linked. The actions that the Department takes now can prepare us to respond effectively to these challenges in the near term and in the future. Climate change will affect DoD in two broad ways:..."*

Emerging Environmental Security Paradigm

2010 Quadrennial Defense Review (QDR)

- ***First**, climate change will shape the operating environment, roles, and missions that we undertake... Climate-related changes are already being observed in every region of the world, including the United States and its coastal waters.*
- *Among these physical changes are increases in heavy downpours, rising temperature and sea level, rapidly retreating glaciers, thawing permafrost, lengthening growing seasons, lengthening ice-free seasons in the oceans and on lakes and rivers, earlier snowmelt, and alterations in river flows.*

-- The QDR: <http://www.defense.gov/qdr/>, pg 7.

Emerging Environmental Security Paradigm

2010 Quadrennial Defense Review (QDR)

- **Second**, DoD will need to adjust to the impacts of climate change on our facilities and military capabilities...
- **Although the United States has significant capacity to adapt to climate change, it will pose challenges for civil society and DoD alike**, particularly in light of the nation's extensive coastal infrastructure.

-- The QDR: <http://www.defense.gov/qdr/>

- "Climate change has the potential to make natural disasters more frequent, adding more missions to the already heavy burdens of our military."

-- former Senator John Warner (R-VA) spokesperson for the Pew Project on National Security, Energy and Climate.

Overview

- Defining environmental security (ES) using a “building block” approach.
- Tying environmental security to strategic planning.
 - ❖ Using the Army War College national strategy planning model to help determine where ES might fit into the planning process.
- Tying ES to national and homeland security strategy:
 - ❖ Risk mitigation from natural environment hazards involves similar actions to risk mitigation from terrorist attacks.
- Q&A

Recent Events

- Since 2000, worldwide economic losses from disaster have reached almost \$1.4 trillion.
- In the last 5 years alone, costs have topped \$800 billion
- 21 countries broke heat records in 2010 – the most in history (including Pakistan's 128 degrees)
- 2011 was the costliest year on record globally, with insured losses alone of more than \$350 billion.

Recent Events

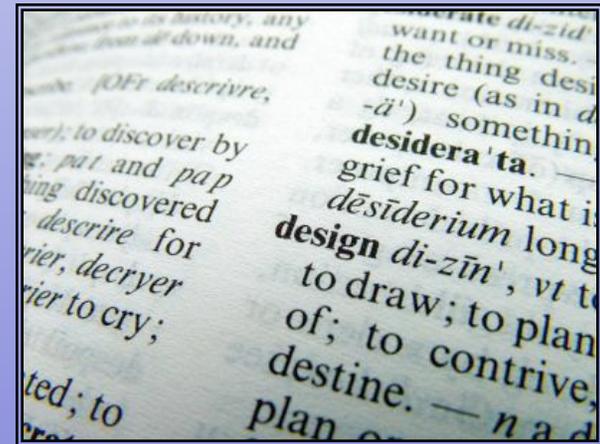
- In the United States, weather disasters set records over the last two years: Tornadoes, floods, drought, wildfires, and other weather events
- Increasingly, such events may be tied to climate change, as well as human behavior and policies putting more people and things in danger.

Defining Environmental Security

- From *Understanding International Environmental Security: A Strategic Military Perspective*, by COL W. Chris King (2000), pp. 14-18:
 - ❖ There are numerous ES definitions, ranging from remediation- compliance-, and restoration-oriented, to safety-related definitions.
 - ❖ King defined Environmental Security as “*a process for effectively responding to changing environmental conditions that have the potential to reduce peace and stability in the world and thus affect US national security*”.
 - King puts ES in terms of national security interests.
 - The **environment** in King’s context encompasses atmosphere, land, and oceans/water bodies.

Environmental Security Definition

- We propose a definition similar to King (2000), but with some differences:
 - ❖ Environmental security can be thought of as: *“an interdisciplinary study of the affects of extreme environmental or climatic events which can act locally or trans-nationally to destabilize countries or regions of the world resulting in either geopolitical instability, resource conflicts or vulnerabilities in critical infrastructure, or some combination of these.”*



ES Principles

1. Failure to secure the environment likely acts as a **threat multiplier** – especially in fragile nations or regions with pervasive conflict – so knowing how to avoid/offset catastrophic env. changes is in the nation's vital interest → objective.
2. ES may **act differentially** across nations; that is, failure to secure the environment may destabilize the political economy of less developed countries potentially leading to radicalization, but may instead act to create vulnerabilities in critical infrastructure in more developed countries → policy.
3. ES can be used as a **nexus** for both an overseas-focused counter-terrorism strategy as well as a long-term homeland security strategy.

Some History Regarding ES

- ES began as an interdisciplinary study in the 1970's when researchers (e.g., N Myers) were trying to understand what happened in the Sahel region of sub-Saharan Africa.
 - ❖ Early ES research efforts tried to understand the interactions among the climate, geography, people, and the implications of these changes on *human security* in the region; noticing the fall of multiple governments during the droughts in this region during the 1970s-80s.

- ES research was largely ignored at the policy level unless there were potential Cold War implications.

- After Cold War, debate began in U.S. policy community about whether the environment should be considered a security issue.

ES begins to get visibility after end of Cold War

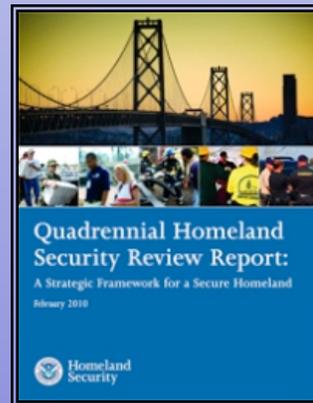
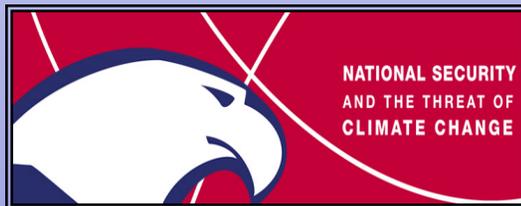
- Sec State Warren Christopher makes ES a part of the U.S. State Department's priority list in 1996.
 - ❖ Tri-agency MOU among the Departments of State, Energy, and Defense resulted in dedicated resources being spent on ES.

- U.N. Millennium Project lists "Ensure Environmental Sustainability" as one of its 8 primary goals in the mid 1990s.
 - ❖ For ex. "Integrate the principles of sustainable development into country policies and programs & reverse the loss of environmental resources".



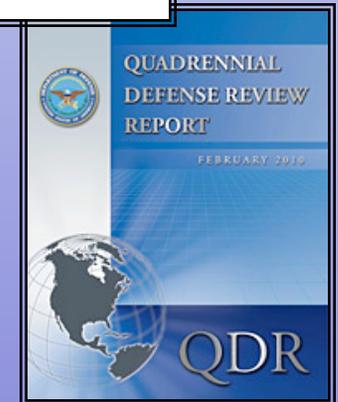
ES Regaining Momentum Post 9/11

- The Global War On Terrorism (GWOT) takes center stage in U.S. foreign policy.
- GWOT prosecution has been mainly in a “kinetic” phase last 8+ years, but needs to transition at some future point...
- A number of high-level reports have been published in U.S. and Europe suggesting linkages between climate change and national/international security.



CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

**Climate Change and National Security
An Agenda for Action
Joshua W. Busby
Council on Foreign Relations
2007**





Defining ES using a “building block” approach

Environment building blocks

Environmental health basics

Food Production/Consumption

Population Dynamics

Energy Production/Consumption

Natural Hazards & “Disasters”

Security building blocks

U.S. Grand National Security

Ends, Ways, & Means

Instruments of U.S. National Power

- Diplomatic
- Informational
- Military
- Economic

National Security Interests

- Vital
- Important
- Peripheral

How can environmental events destabilize an area?

- To understand this, let's look at key *environmental health (EH)* concepts; including:
 - ❖ **Stability** - The ability to withstand environmental changes and stresses. Consists of *Inertia*, which is resistance to change; *Constancy*, the ability to maintain a specific dimension, such as population; and *Resilience*, the ability to recover from environmental shocks (see Flynn's work re CIKR).
 - ❖ **Sustainability** - The basic premise that the earth's resources are finite.
 - ❖ **Supply and demand** - see ex from food production.
 - ❖ **Carrying capacity** - The maximum population of a particular species that a given habitat can support over a given time period.
- When one or more of these is violated, whether through a single environmental catastrophe, or prolonged climatic anomaly, the results to an ecosystem can be disastrous.

4 rules of Environmental Health

1st rule - change is constant in nature.

Ecosystems try to maintain *homeostasis & ecological succession*.

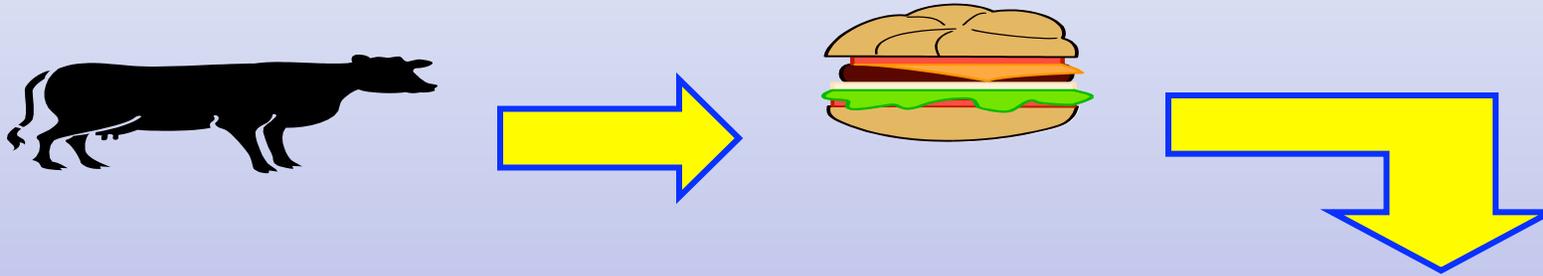


2nd rule - sustainability does not imply a static condition.

3rd rule - what's demanded is supplied.

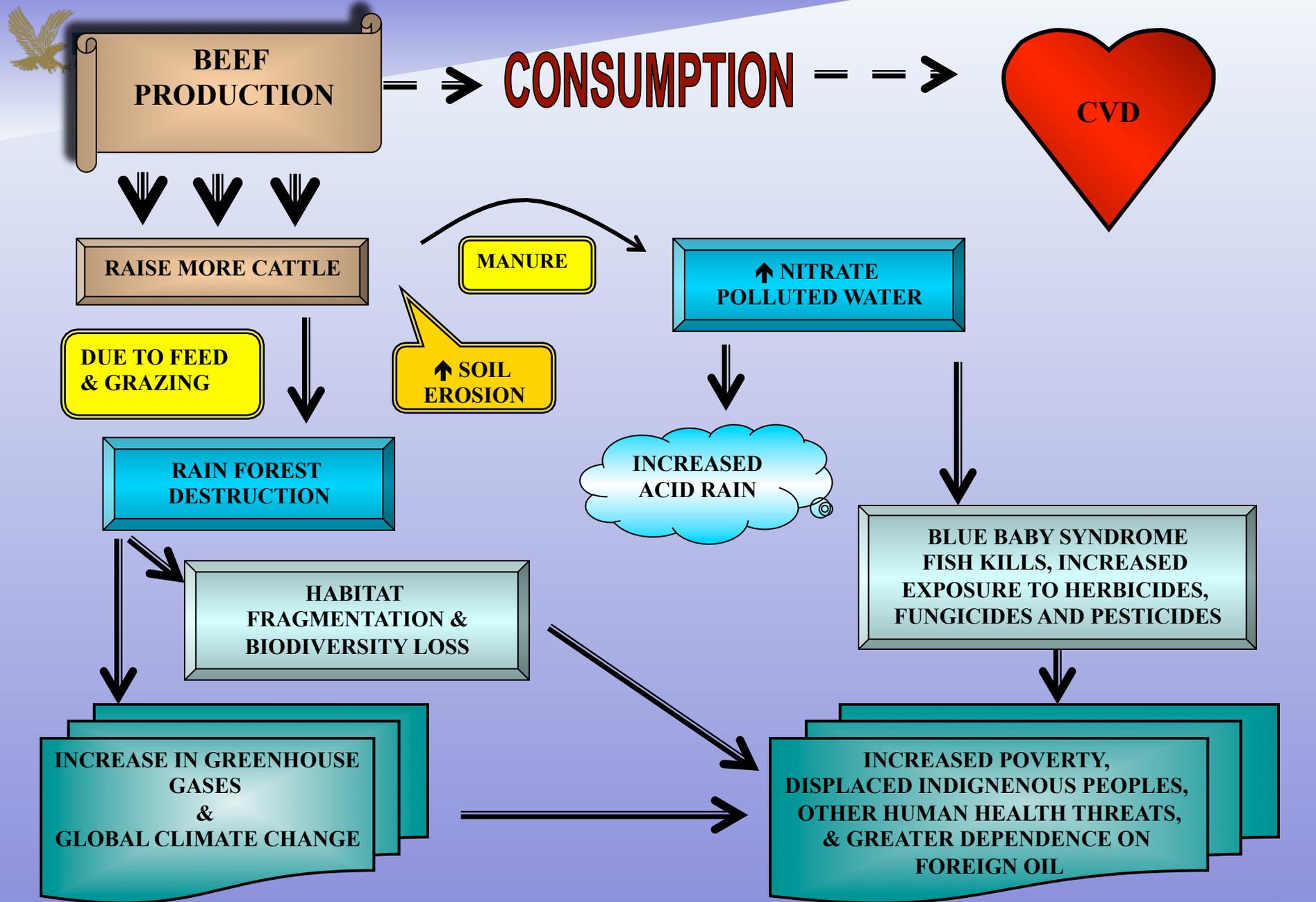
4th rule - sustainability is often about relative rates.

For example: Food Production and the environment



But at what cost?





Natural Hazards & Disasters

- Can be best summarized by statement “disasters occur when hazards meet vulnerability”.*
- Hazards can be categorized as single events or climatic anomalies.
 - ❖ Tropical cyclones, severe thunderstorms, severe winter storms, avalanches, floods, earthquakes/tsunamis, volcanic eruptions, space weather disturbances.
 - ❖ Droughts, coastal erosion, floods, wildfires, prolonged cold/heat waves.
- Will impact developed countries/regions differently than developing countries/regions.

* B. Wisner, P. Blaikie, T. Cannon, and I. Davis (2004). *At Risk - Natural hazards, people's vulnerability and disasters*. Wiltshire: Routledge.

Sustainability & Carrying Capacity

- How is economic/political/env. sustainability affected by stressors such as land overuse, deforestation, above/below normal temperatures and/or rainfall, or some combination of these?
- What about factors such as migration, territorial disputes, and external influences (e.g., discovery of valuable natural resources and influx of outsiders to exploit those resources, etc.)?
- We are now starting to link environmental issues to **security**... **radicalization**....
➔ GWOT??



Let's Now Focus on the Security Side



Environment building blocks

Environmental health basics

Food Production/Consumption

Population Dynamics

Energy Production/Consumption

Natural Hazards & "Disasters"

Security building blocks

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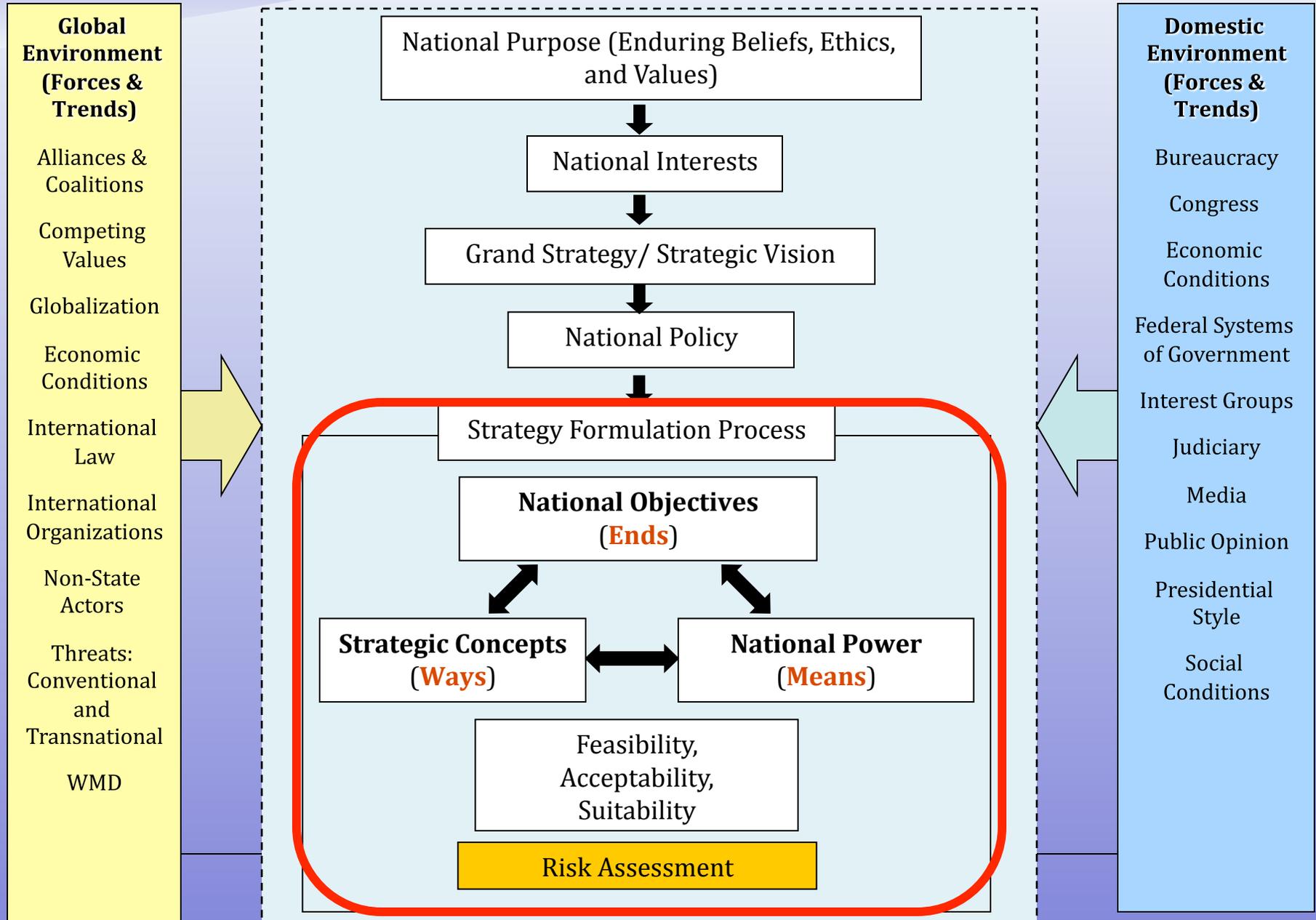
What is “national security strategy planning”?

- National security strategy planning is not a well-documented, “repeatable” process.
- What planning is done occurs at the National Security Council level with the President, and mainly encompasses the preparation of various Presidential Directives & the National Security Strategy.
- Latest NSS is from March 2006 and is due to be revised – NSS reflects lessons learned.

Hmmm.
Sausage
...



US Army War College Strategy Formulation Model



Strategy = Ends + Ways + Means

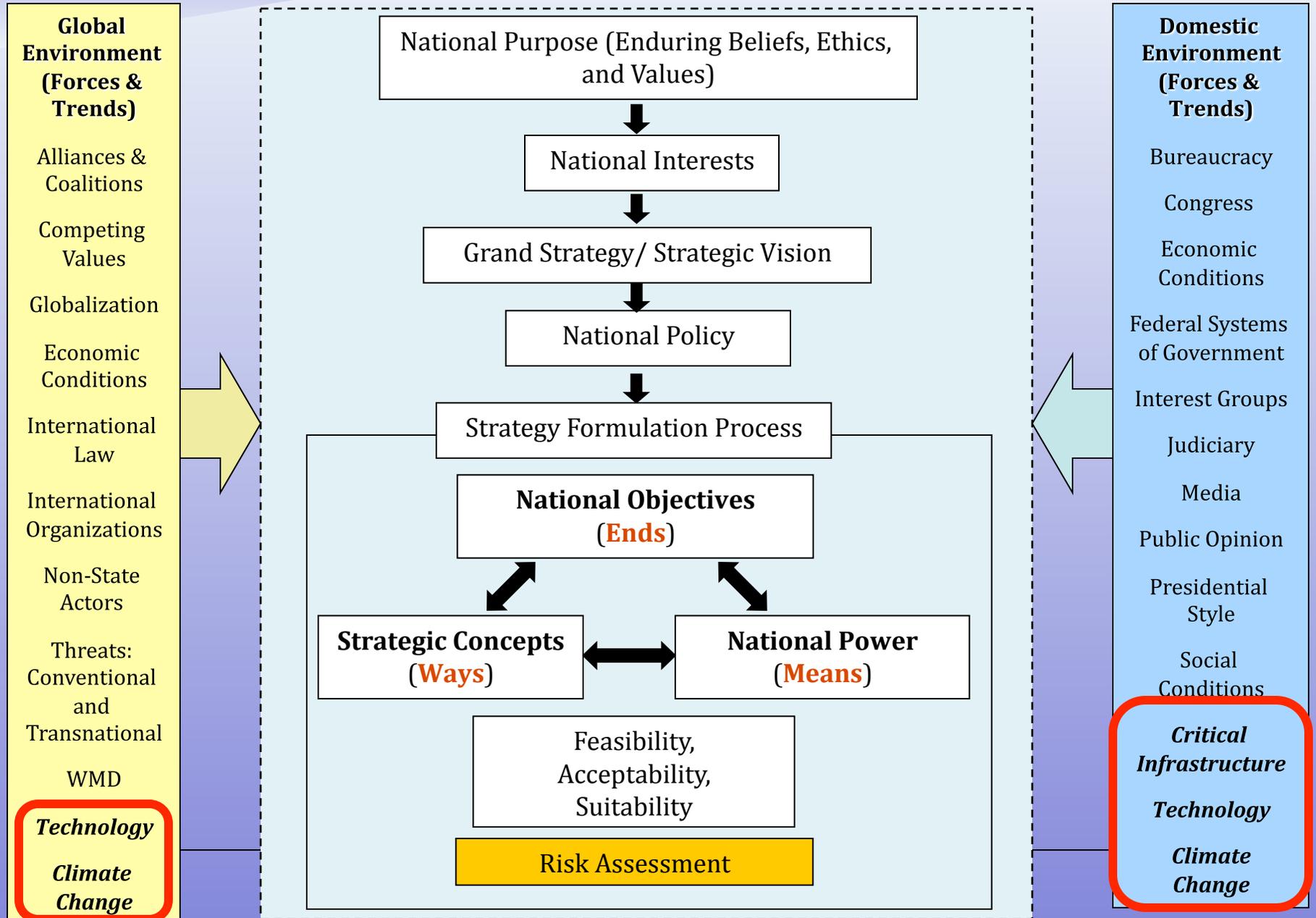
- **Ends** are the objectives being sought.
 - ❖ Example: Preserve American Security.

- **Ways** are concepts by which the *ends* are attained.
 - ❖ Example: Truman's policy of *containment* of the USSR during Cold War.

- **Means** are the resources needed to achieve the objectives.
 - ❖ Diplomatic, Informational, Military, Economic (**DIME**).

- Methodology moves from defining broad objectives (Ends) through analysis of Means supporting objectives.
 - ❖ Strategy formulation becomes focused on specific regions.
 - ❖ Interests defined as Vital, Important, or Peripheral to U.S.

Strategy Model with Additional Drivers



We would argue that ES is an emerging strategic issue

- In a Post Cold War, post 9/11, globalized world, a broader view of security, to include environmental issues (i.e., sustainable security), is needed to address resource contention, vulnerability and economic sustainability.
 - ❖ Interdependence issues are further enhanced by the present Global War on Terrorism (GWOT).

- Emerging threats to nations/regions continue to develop from water and cropland shortages, rapid industrialization, population growth, and urbanization.

- Transnational threats exist from natural resource depletion, pandemics, climate change, & migration, etc.

ES is an emerging strategic issue

| RANGE OF MILITARY OPERATIONS | | | |
|--|--|--|---|
| Military Operations | General US Goal | Examples | |
| C O M B A T | War | Fight & Win Large-scale Combat Operations: Attack / Defend / Blockades | |
| | N O N C O M B A T | Military Operations Other Than War | Deter War & Resolve Conflict Peace Enforcement / NEO Strikes / Raids / Show of Force Counterterrorism / Peacekeeping |
| | | Promote Peace | Antiterrorism / Disaster Relief Peacebuilding Nation Assistance Civil Support / Counterdrug NEO |

Legend

NEO Noncombatant Evacuation Operations

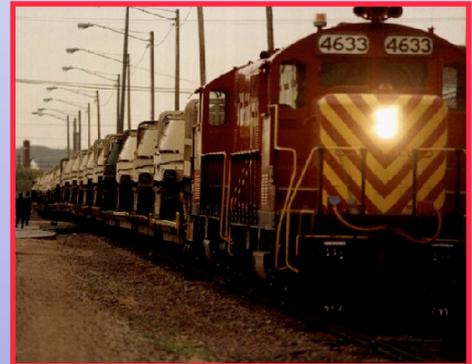
Since 9/11, where has the military been spending **most** of its resources?

Environmental Security and the US Military

US Transportation Command's (USTRANSCOM)

Operations Tempo

1989-2001



1989

5/12/12
Fall of the Berlin Wall

Ramsay & O'Sullivan-15th FEMA
Higher Education Conference

2001

Enduring Freedom
Noble Eagle
India Earthquake
USS Cole

Nigeria

Atlas Response

East Timor

Kosovo Ops

Desert Fox

Hurricane Mitch

Desert Thunder III

Hurricane Georges

African Embassy Bombings

Florida Wildfires

Desert Thunder II

N.E. Ice Storms

Desert Thunder I

Typhoon Paka

Bevel Edge

ND Flood Relief

Zaire/Rwanda

Chinese Immigrants

Kurdish Refugees

Desert Strike

Bertha/Fran

Dhahran Bombing

Liberia NEO

Joint Endeavor

Hurricane Marilyn/Opal

Vigilant Sentinel

Oklahoma City

SWA Return

Rwanda

LA Earthquake

Somalia/Bosnia

Andrew/Iniki/Omar

Iraqi No-Fly Zone

Former Soviet Union Relief

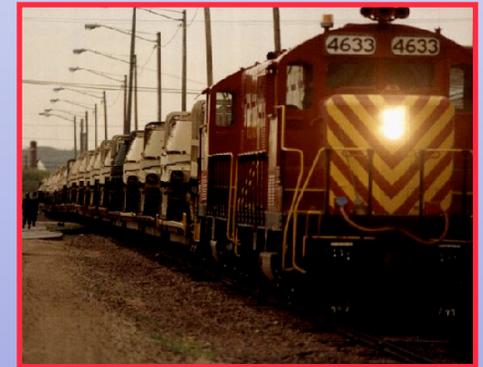
Kurdish Relief

Desert Storm

Desert Shield

Just Cause

Nearly *one quarter*
of USTRANSCOM ops driven
by natural disaster/humanitarian
relief operations
before 9/11



1989

5/22/12
Fall of the Berlin Wall

Just Cause

Desert Shield

Kurdish Relief

Former Soviet Union Relief

Iraqi No-Fly Zone

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Somalia/Bosnia

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Rwanda

SWA Return

Oklahoma City

Vigilant Sentinel

Hurricane Marilyn/Opal

Joint Endeavor

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Dhahran Bombing

Bertha/Fran

Desert Strike

Kurdish Refugees

Chinese Immigrants

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ND Flood Relief

Bevel Edge

Typhoon Paka

Desert Thunder I

N.E. Ice Storms

Desert Thunder II

Florida Wildfires

African Embassy Bombings

Hurricane Georges

Desert Thunder III

Hurricane Mitch

Desert Fox

Kosovo Ops

East Timor

Atlas Response

Nigeria

USS Cole

India Earthquake

Noble Eagle

2001

Enduring Freedom

United States Transportation Command, 2002: Presentation given to U.S. Air Force Air War College by General John W. Handy, Commander, during Academic Year 2001-2002

An ex of a conceptual flow of environment/security relationship

(adapted from *National Security and the Threat of Climate Change*, by the CNA Corporation, 2007)

Extreme environmental events and climatic anomalies (traditional threats)

- Flooding, storms, droughts, heat/cold waves, wildfires, earthquakes/tsunamis.



Destabilizing effects from extreme events or climatic anomalies (disruptive threats)

- Reduced access to fresh water.
- Impaired food production -> famine.
- Increased risk of health catastrophes -> pandemics.
- Land loss and flooding (desertification, etc).



Security impacts of the environmental factors (irregular and catastrophic threats)

- Failed states and growth of terrorism - increased radicalization.
- Mass migration and regional instabilities.
- Potential escalation for resource-based conflicts within a nation or region.

Integrating ES into the Both Emergency Management and NSS

- We propose **ES** as a nexus of Emergency Management and homeland security (part of national security strategy) that emphasizes sustainability & that uses each of the instruments of national power more evenly.
 - ❖ *For ex. can the principles of environmental sustainability be used as a nexus for a GWOT strategy that has **both** an overseas as well as a domestic component?*
- Q1 - Examine environmental threats/hazards **transnationally**:
 - ❖ How do these threats become security issues for the U.S. and its allies? Can we predict this? What about in LDCs?
- Q2 - Examine environmental threats/hazards **domestically**:
 - ❖ To what degree do these threats become security issues for the U.S. due to vulnerabilities in our infrastructure?

Summary and Conclusions

1. ES should be part of an integrated emergency management and multinational national (“homeland”) security strategy.

- ❖ But, we do not suppose that environmental effects are causal or single points of failure—ES is NOT a panacea; But ES vulnerabilities both create **and** multiply threats.
- ❖ ES can help integrate traditional precepts of freedom, human dignity & democracy (Ackerman ‘08).
- ❖ More research needs to be done to determine how climate change may influence “*multiple chronic conditions, occurring globally within the same time frame*” (CNA Corp ‘07) – that would lead to traditional, irregular, disruptive and catastrophic threats which would overwhelm our ability to respond.

Summary and Conclusions

2. ES can employ environmental science/health principles such as sustainability and carrying capacity to analyze and evaluate environmental vulnerabilities to natural disasters or prolonged climatic anomalies in areas of US security interest.

- ❖ W/ 18 sectors of CI, how can we protect everything all the time from everything?
- ❖ ES can help foster **unity of effort** domestically (DOD, DHS, USAID, State, etc working together) and help the US take a leadership role internationally to use **the instruments of power (DIME)** more evenly.

Summary and Conclusions

3. ES principles can be connected to HS strategic planning by using the same types of vulnerability analysis and assessment tools used to evaluate risks to local or regional populations from natural disasters to build resiliency/sustainability.

- ❖ E.g., desertification and drought threaten the livelihoods of 1B people in more than 110 countries, and another 1B are at risk. Yet according to the Convention to Combat Desertification, also the United Nations Environment Program, a 20-year global effort would cost no more than \$22B/year, with savings for agriculture alone worth \$42B/year (N Myers, 2002).

Summary and Conclusions

4. National security should reflect the reality (as the QDR recognizes) that environmental effects can cause security impacts in areas already stressed by resource scarcity, overpopulation, deforestation/land overuse, population migration, and political instability, such as the Middle East and Sub-Saharan Africa.

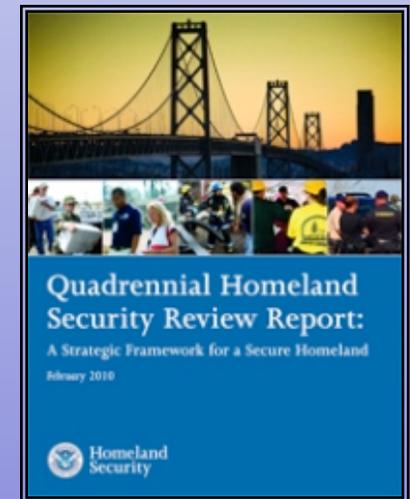
- ❖ Where is radicalization occurring? Why? How to abate it? How to **sustain** abatement?
- ❖ Can we think of ES as a process that helps us achieve National Security objectives?

Post Script

From the QHSR, Feb, 2010

Dependence on fossil fuels and the threat of global climate change that can open the United States to disruptions and manipulations in energy supplies and to changes in our natural environment on an unprecedented scale.

Climate change is expected to increase the severity and frequency of weather-related hazards, which could, in turn, result in social and political destabilization, international conflict, or mass migrations. (pg 7).



Thank you!

“A modern concept of national security demands more than an ability to protect and defend the United States. It requires that we expand our goal to include the attainment of sustainable security.” (Ctr for American Progress, 2008).



“It’s not hard to make the connection between climate change and instability, or climate change and terrorism.” (General (Retired) Anthony C. Zinni, U.S. Marine Corps).