Environmental Security as a Nexus of Global Climate Change and US National Security

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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
One more thought...
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
Defining Environmental Security


- 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.
Our 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”.

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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.
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

1\textsuperscript{st} rule - change is constant in nature.

Ecosystems try to maintain \textit{homeostasis & ecological succession}.

2\textsuperscript{nd} rule - sustainability does not imply a static condition.

3\textsuperscript{rd} rule – what’s demanded is supplied.

4\textsuperscript{th} rule – sustainability is often about relative rates.
Supply & Demand - Simply put, what’s demanded is supplied (3rd rule of EH...).

Example thesis from food production:
1) Societal dietary choices affect food production.
2) Food production affects the environment.
3) Ergo, social dietary choices affect the environment.
For example:

Food Production and the environment

But at what cost?
BEEF PRODUCTION

RAISE MORE CATTLE

DUE TO FEED & GRAZING

RAIN FOREST DESTRUCTION

INCREASED ACID RAIN

HABITAT FRAGMENTATION & BIODIVERSITY LOSS

INCREASE IN GREENHOUSE GASES & GLOBAL CLIMATE CHANGE

INCREASED POVERTY, DISPLACED INDIGENOUS PEOPLES, OTHER HUMAN HEALTH THREATS, & GREATER DEPENDENCE ON FOREIGN OIL

CVD

CONSUMPTION

MANURE

↑ NITRATE POLLUTED WATER

↑ SOIL EROSION

INCREASED POISONING

BLUE BABY SYNDROME

FISH KILLS

INCREASED

EXPOSURE TO HERBICIDES, FUNGICIDES AND PESTICIDES

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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.

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

- U.S. Grand National Security
- Ends, Ways, & Means
- Instruments of U.S. National Power
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  - Informational
  - Military
  - Economic
- National Security Interests
  - Vital
  - Important
  - Peripheral
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.
US Army War College Strategy Formulation Model

National Purpose (Enduring Beliefs, Ethics, and Values)

- National Interests

- Grand Strategy/ Strategic Vision

- National Policy

Strategy Formulation Process

National Objectives (Ends)

- Strategic Concepts (Ways)

- National Power (Means)

Feasibility, Acceptability, Suitability

Risk Assessment

Domestic Environment (Forces & Trends)
- Bureaucracy
- Congress
- Economic Conditions
- Federal Systems of Government
- Interest Groups
- Judiciary
- Media
- Public Opinion
- Presidential Style
- Social Conditions

Global Environment (Forces & Trends)
- Alliances & Coalitions
- Competing Values
- Globalization
- Economic Conditions
- International Law
- International Organizations
- Non-State Actors
- Threats: Conventional and Transnational
- WMD

Risk Assessment

Suitability
Strategy = Ends + Ways + Means

- **Ends** are the objectives being sought.

- **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.
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

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

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### RANGE OF MILITARY OPERATIONS

<table>
<thead>
<tr>
<th>Military Operations</th>
<th>General US Goal</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>War</strong></td>
<td>Fight &amp; Win</td>
<td>Large-scale Combat Operations: Attack / Defend / Blockades</td>
</tr>
<tr>
<td><strong>Military Operations Other Than War</strong></td>
<td>Deter War &amp; Resolve Conflict</td>
<td>Peace Enforcement / NEO Strikes / Raids / Show of Force Counterterrorism / Peacekeeping</td>
</tr>
<tr>
<td><strong>Noncombat</strong></td>
<td>Promote Peace</td>
<td>Antiterrorism / Disaster Relief Peacebuilding Nation Assistance Civil Support / Counterdrug NEO</td>
</tr>
</tbody>
</table>

Legend

- **NEO**: Noncombatant Evacuation Operations
Environmental Security and the US Military

US Transportation Command’s (USTRANSCOM) Operations Tempo
1989-2001

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

1989
Fall of the Berlin Wall

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4th Annual CHDS Summit
Nearly one quarter of USTRANSCOM ops driven by natural disaster/humanitarian relief operations before 9/11
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 NSS

- We propose integrating ES into a 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, multinational national security strategy.
   - But, we do not suppose that environmental effects are causal or single points of failure—ES is NOT a panacea; rather failure to address ES may enhance vulnerabilities (multiply threats).
   - ES can help integrate traditional precepts of US NSS of freedom, human dignity and democracy (Ackerman ‘08).
   - And, we wish to explore more specifically 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.

- For ex. 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 Programme, 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. Our NSS should reflect 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?

5/7/2010
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).
Climate change will affect DoD in two broad ways. First, climate change will shape the operating environment, roles, and missions that we undertake. The U.S. Global Change Research Program, composed of 13 federal agencies, reported in 2009 that climate-related changes are already being observed in every region of the world, including the United States and its coastal waters.

Assessments conducted by the intelligence community indicate that climate change could have significant geopolitical impacts around the world, contributing to poverty, environmental degradation, and the further weakening of fragile governments. Climate change will contribute to food and water scarcity, will increase the spread of disease, and may spur or exacerbate mass migration.

Working closely with relevant U.S. departments and agencies, DoD has undertaken environmental security cooperative initiatives with foreign militaries that represent a nonthreatening way of building trust, sharing best practices on installations management and operations, and developing response capacity.
“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).