1. THE CONTEXT

2. ASPECTS of CLIMATE CHANGE

3. POLICY ISSUES GOVERNANCE ANALYSIS
17.181/17.182
SUSTAINABLE DEVELOPMENT
Week 8 Outline
Climate Change & Sustainable Development

1. THE CONTEXT

2. ASPECTS of CLIMATE CHANGE

3. POLICY ISSUES GOVERNANCE ANALYSIS
The Context

- State sustainability in various parts of the world is a source of threat to national security
  - Every case is unique; but there are common processes

- The global system is increasingly volatile
  - There are more actors, agents, countries, firms, institutions, opportunities, challenges ... and greater interdependence

- This new global volatility creates greater interdependence
  - more mutual sensitivity and mutual vulnerability
  - more potentials for loss of control
  - but more opportunities

- Need for better preparedness, some examples:
  - “We learned that the institutions charted with protecting national security did not understand how grave this threat can be, and did not adjust their policies, plans, and practices to deter or defeat it” [9/11 Commission Report]
Some Legacies of 20\textsuperscript{th} C.

- More People
- More Countries
- More IGO’s and NGO’s
- More Trade
- More Technology
- More Energy Use
- CO2 – GHGs - Pollution
TABLE 1 COMPONENTS OF THE TOTAL ENVIRONMENT OF A POLITICAL SYSTEM

The total environment of a political system

The intra-societal environment

- Ecological system
- Biological system
- Personality systems
- Social systems

The extra-societal environment
(The International Society)

- The international political systems
- The international ecological systems
- The international social systems

Cultural system

- Social structure
- Economic system
- Demographic system
- Other subsystems

Individual political systems

- NATO
- SEATO
- United Nations
- Other subsystems

International cultural system

- International social structure
- International economic system
- International demographic system
- Other subsystems

Easton, David. A System of Analysis of Political Life. John Wiley & Sons, Ltd, 1965. © John Wiley & Sons, Ltd. All rights reserved. This content is excluded from our Creative Commons license. For more information, see https://ocw.mit.edu/help/faq-fair-use/.
State Sustainability

• The sustainability of a state is a process
  States can be at different stages of ‘sustainability’ – depending on the measures of performance reflecting the ratio of loads to capacity. Various variables combine to generate loads & reflect capacity.

• ‘Good’ state changes & ‘Bad’ state changes
  ‘Bad’ changes include Somalia, Ruwanda, Burundi.
  ‘Good’ changes include Czechoslovakia and USSR

• Multiple modes of fragility, different paths and ‘end points’
  We need a strategy to model complex state stability in policy relevant terms
The Extended Enterprise

- **By Definition:**
  - Operates cross boundaries and cross jurisdictions
  - Functions at various levels of economic and political organization
  - Encounters uncertainties and unanticipated conditions

- **By Choice:**
  - Prefers to reduce uncertainty
  - Seeks certain stability in business environment
  - Remains hostage to the realities of host states

- **By Necessity:**
  - Requires good assessments of exposure to potential risk
  - Calculates risks to global volatility and host state stability
  - Needs robust and reliable estimates of stability conditions
1. THE CONTEXT

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Climate Change Vulnerability Index 2011

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## Matrix of Possible Climate Change/Security Interactions over Time - Strong Interactions

<table>
<thead>
<tr>
<th></th>
<th>Direct impact</th>
<th>Indirect Consequences</th>
<th>Slow-onset</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Long history of development-induced displacement from 1950s</td>
<td>Nation states begin to lose credibility due to inability to prevent large disasters</td>
</tr>
<tr>
<td>Short term</td>
<td></td>
<td>Failure to meet MDGs</td>
<td>Failure to meet MDGs</td>
</tr>
<tr>
<td>(2007-2020)</td>
<td>Local conflict over water</td>
<td>Failure to meet MDGs</td>
<td>Significant political unrest due to failure of DRR &amp; inadequate recovery in many countries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failure to develop food production problems</td>
<td>Major urban upheaval and other political fall out from mega-project displacement</td>
</tr>
<tr>
<td>Medium term</td>
<td>Increased local &amp; some international conflict over water</td>
<td>Significant displacement due to famine</td>
<td>Displacement of rural poor due to CDM &amp; large scale dams &amp; other state based mitigation &amp; adaptation projects</td>
</tr>
<tr>
<td>(2021-2050)</td>
<td></td>
<td>Interacts with food production problems</td>
<td>Major urban upheaval and other political fall out from mega-project displacement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Major displacemen &amp; political upheaval</td>
<td>Major urban upheaval and other political fall out from mega-project displacement</td>
</tr>
<tr>
<td>Long term</td>
<td>Major international conflict over water</td>
<td>Major displacemen &amp; political upheaval</td>
<td>Major urban upheaval and other political fall out from mega-project displacement</td>
</tr>
<tr>
<td>(2051-2100)</td>
<td></td>
<td>Major displacemen &amp; political upheaval</td>
<td>Major urban upheaval and other political fall out from mega-project displacement</td>
</tr>
</tbody>
</table>

Wisner, Ben, Maureen Fordham, et al. "Climate Change and Human Security." April 15, 2007. © Ben Wisner, Maureen Fordham, et al. All rights reserved. This content is excluded from our Creative Commons license. For more information, see [https://ocw.mit.edu/help/faq-fair-use/](https://ocw.mit.edu/help/faq-fair-use/).
<table>
<thead>
<tr>
<th>Organization</th>
<th>Range</th>
<th>Year</th>
<th>CO₂ vs. other</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Research Council, 1979</td>
<td>3 ± 1.5</td>
<td>By 2050²</td>
<td></td>
</tr>
<tr>
<td>Department of Energy, 1979</td>
<td>2–3</td>
<td>By 2050³</td>
<td></td>
</tr>
<tr>
<td>National Research Council, 1983</td>
<td>1.5–4.5</td>
<td>By 2050⁴</td>
<td>Will contribute⁵</td>
</tr>
<tr>
<td>Environmental Protection Agency, 1983</td>
<td>3 ± 1.5</td>
<td>By 2050⁶</td>
<td>May contribute⁷</td>
</tr>
<tr>
<td>Department of Energy, 1985 “State of the Art” Reports</td>
<td>1.5–4.5</td>
<td>By 2075⁸</td>
<td>May contribute⁹</td>
</tr>
<tr>
<td>SCOPE/Villach, 1985</td>
<td>1.5–5.5</td>
<td>2050–2100¹⁰</td>
<td>Can contribute</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2030¹¹</td>
<td></td>
</tr>
<tr>
<td>Environmental Protection Agency, 1989</td>
<td>1.5–4.5</td>
<td>By 2030¹²</td>
<td>Can contribute</td>
</tr>
<tr>
<td>Intergovernmental Panel on Climate Change</td>
<td>1.5–4.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Torrance, Wendy E. F. "Science or Salience: Building an Agenda for Climate Change." In Global Environmental Assessments: Information and Influence. Edited by Ronald B. Mitchell, William C. Clark, et al. © MIT Press. All rights reserved. This content is excluded from our Creative Commons license. For more information, see https://ocw.mit.edu/help/faq-fair-use/.
"Changing Climate," *National Geographic*, October 2007. © National Geographic Partners. All rights reserved. This content is excluded from our Creative Commons license. For more information, see [https://ocw.mit.edu/help/faq-fair-use/](https://ocw.mit.edu/help/faq-fair-use/).
Climate Change – Potential Effects

• Differential impacts within & across countries
  – more burdens on the poor everywhere
  – more social cleavages

• Erosion of governance & institutions
  – Loss of law and order
  – Growth of individual ‘self-help’ actions
Climate Change Index (CCI) for 189 countries

- The 10 countries of highest overall risk account for 2% of GHG Emission
  Djibouti, Egypt, Pakistan, Cuba, Iraq, Morocco, Dominica, Antigua and Barbuda, Mozambique and Somalia.

- Of the 31 countries with extreme risk, only 3 are industrial
  Netherlands, Canada & USA

The index consists of 3 equal components; (i) Coastal exposure; (ii) Inland exposure (iii) Health exposure. Socio-economic or other impacts not covered/. Source: Mapplecroft Maps
Distribution of CCI Impacts

Climate change - levels of exposure to the impacts of climate change. Darker shades represent higher levels of exposure.

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Some Potential Dangers

Global sea levels rise as oceans warm & sea ice melts
  – uninhabitable conditions
Increase in rainfall intensity will increase tropical storms
  – more risk of weather-relate disasters
  – Infectious disease
Infrastructure must adapt to these changes
  – more social & economic pressures
  – more stresses on resources

N. Choucri
The Dark Side: Countries at Risk of Conflict - 2005

Global map of conflict risk

Colors: High-Intermediate-Low
Triangle: Significant terrorist risk

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New Global Agenda

• Salience of Environment – Growth in Environmental Treaties
• Framing New Objectives “Sustainable Development”
• Re-Visiting the Fundamentals Equity Matters– not only efficiency
• Addressing New Realities Connecting Climate Change & Sustainability Issues
ONCE MORE:

Requisites for Sustainable Development

DE-MASSIFICATION
DE-SPACIALIZATION
DE-CENTRLIZATION
DIS-AGGREGATION
DE-NATIONALIZATION
DIS-INTERMEDIATION