Barriers to Adaptation: What Are They
Science Research Needs

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Introduction

• Based on work for U.S. National Assessment – led by Rosina Bierbaum
• Adaptation team pulled this together
• *Mitigation and Adaptation Strategies for Global Change* has accepted a manuscript that includes discussion on barriers to adaptation
Barriers to Adaptation

- CC Information and Decision Making
- Divergent Perceptions, Cultures, Values
- Fragmentation of Decision Making
- Institutional Constraints
- Lack of Leadership
- Insufficient Resources to Sustain Adaptation
CC Information and Decision Making

- Two Aspects to This:
  - A. Information quality
    - Many projections
      - Often do not agree on sign
      - Quite different magnitudes
      - Low Resolution
    - Disparate information
  - B. Decision Making
    - How make investments given the uncertainties?
Research on Information and Decision Making

• Two parallel tracks here

• Improving Information
  – More precision and agreement on projections
    • Barriers: Emissions and Climate Sensitivity
  – Ways to organize and present projections to aid decision makers
    • For example, organize downscaled projections
Research on Information and Decision Making

• Aid Decision Making Process
  – Improve understanding of decision making process in light of uncertainty
    • Understand how to use information to inform
  – Public education
    • How to effectively communicate uncertainty to the public
  – Decision making approaches and options
    • Adaptive management, risk management, portfolio management....
    • Portfolios of adaptations
Divergent Perceptions, Cultures, Values

• A key barrier to adaptation
• 6 Americas; increasing polarization
  – Even adaptation is becoming politicized
• Are also key issues about perceptions and acceptance/understanding of change
Research on Perceptions, Cultures, Values

• Increasing attention on communication
  – Who presents
  – How is information presented

• How people learn
  – “Smart learning”

• How to find common ground
Fragmentation of Decision Making

- Fragmentation across levels of gov’t
  - Feds, states, municipalities, private sector
- Within gov’t
  - Different agencies
    - e.g., Army Corps, BuRec, EPA, USGS, have jurisdiction, research on water resources
    - BLM, Forest Service, Park Service, manage lands
- Differing authorities, capacities, objectives
Research on Decision Making

- Understand decision making process
  - Role of fragmentation
  - CC twist is addressing changing conditions
- Mechanisms for information sharing
- Analyze mechanisms for cooperation, coordination
  - e.g., Landscape Conservation Cooperatives; COGs, NIDES
Institutional Constraints

- Institutions often impede change
  - Lock in regulated behaviors
  - Favor certain groups/organizations over others
- Can institutions enable or encourage change as conditions change?
  - Land use regulations
  - Environmental regulations
Research on Institutional Constraints

• Approaches for enabling or encouraging adaptation
  • Adaptive management
    Allow resource management to change as climate or related conditions change
    Effective monitoring networks
    Be able to access and use information to support decision making
Leadership

• Adaptation has worked best where chief executive publicly committed to it
• The problem: adaptation efforts can be reversed with new administration
• The challenge is how to codify adaptation
Insufficient Resources to Sustain Adaptation

• Inadequate funding and staff to implement adaptations
  – Carmin/ICLEI survey of municipalities found this mentioned as top barrier
  – Part of larger problem
    • ASCE estimates $2 trillion needed for US infrastructure
Resources Research

• Financing options
• Expand options e.g., demand management; not just new water supply
• Economies of scale and leveraging existing resources and mechanisms
• Increase public support for investments, e.g., infrastructure
• Low cost measures
Barriers in Developing Countries

- Poor knowledge of resource and limited data
- Development Deficit
  - 30% of metro Iloilo has water
  - Limited WWT
  - Vulnerability to flooding
- Problem of Governance
Developing Country Research Issues

- Development paths and implications for CC vulnerability
- Appropriate role for considering CC
- Are many opportunities for incorporating CC
  - Particularly where infrastructure being built
Thank you!

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