Adapting to Climate Change: Lessons from Natural Hazards Planning

COASTAL HAZARDS CENTER

Governor's South Atlantic Alliance
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Overview

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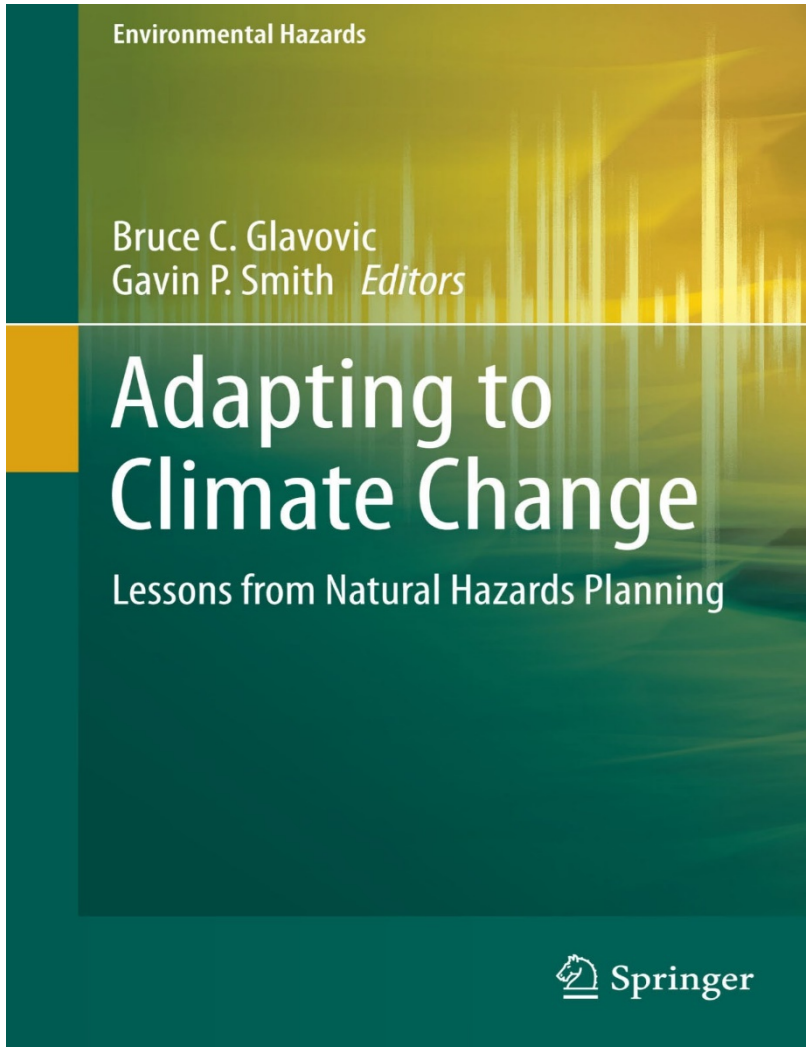
- **Climate Change Adaptation Challenges and Opportunities**
- **Linking Natural Hazards Risk Management and Climate Change Adaptation through Planning**



Organizing Principles of Book

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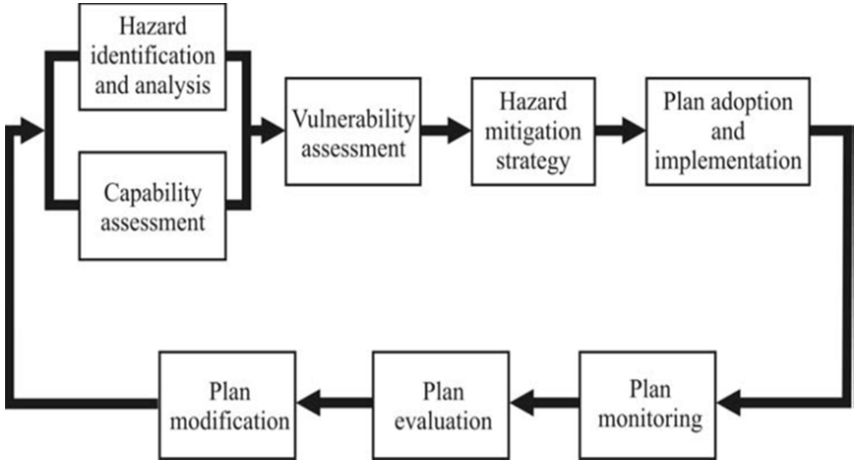
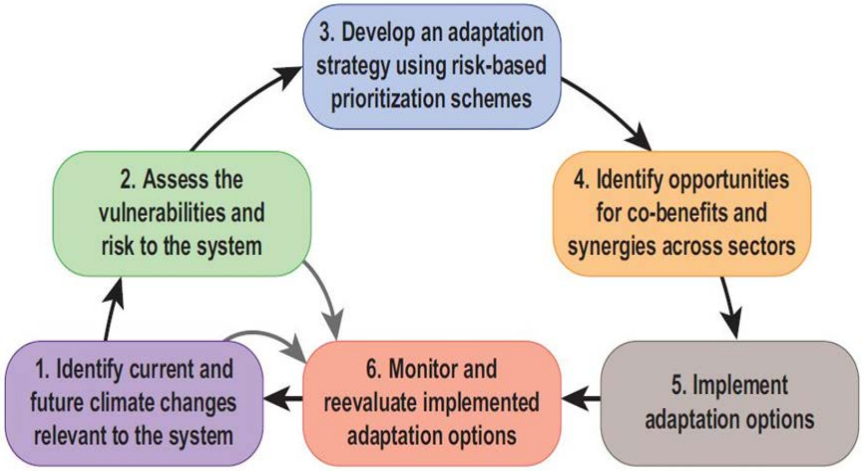
- **Poor Coordination between Climate Change Adaptation and Natural Hazards Risk Management Community (Hazard Mitigation, Disaster Recovery)**
- **Role of Planning and Resilience**





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Disaster Resilience

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- "Designed in advance to anticipate, weather and recover from the impacts of natural or terrorist hazards"
- "…built on principles derived from past experience with disasters"
- Comprised of "networked social communities and lifeline systems"
- "…adapting and learning from disasters"
- "…strong and flexible (rather than brittle and fragile)"
- "…new development is guided away from known high hazard areas and their vulnerable existing development is relocated to safe areas"
- "…buildings are constructed or retrofitted to meet code standards based on hazard threats"
- "…natural environmental protective systems are conserved to maintain valuable hazard mitigation functions"
- "…governmental, non-governmental, and private sector organizations are prepared with up-to-date information about hazard vulnerability and disaster resources, as linked with effective communication networks, and are experienced in working together (Godschalk 2003, pp. 136-137).

Case Study Themes

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- **Importance of collaborative governance**
- **Influence of pre-event conditions (culture, wealth/poverty, policy frameworks and institutions**
- **Value of establishing good vertical connectivity between national policy and local plans**
- **Adopting varied and flexible risk management strategies**
- **Viewing disasters as focusing events (including adoption of new policies and practices that reduce exposure to extreme events and confront the drivers and root causes of vulnerability)**

Adaptation Challenges and Opportunities

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- **Slow-Onset and Episodic Events**
  - **Differing timescales (episodic versus slow onset)**
  - **Differing spatial scales (global-local)**
  - **Differing camps of researchers and practitioners**
    - **Knowledge base and terminology (physical science/ engineering, social sciences, planning); hazard mitigation/ adaptation**
    - **Policy frameworks (while different, both emphasize sustainability and resilience)**
  - **Differing analytical tools**
    - **Risk assessment and risk communication**
    - **Linking global assessments and local impacts (downscaling data)**
  - **Differing funding and implementation mechanisms**
    - **Natural Hazards Risk Management versus Climate Change Adaptation**

Scenario Planning / Planning For Uncertainty (Berke)

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- **Traditional Planning Paradigm is Inadequate**
  - **Heightened uncertainty**
  - **Longer time horizons**

- **Applying Lessons from Hazard Mitigation Planning**
  - **Anticipating future impacts / future orientation (anticipatory governance)**
  - **Rapid and slow-onset events**
  - **Local government paradox (Ray Burby)**

- **New Plans should account for:**
  - **Multiple futures based on collaboratively developed scenarios**
  - **Clear monitoring and implementation strategies**
  - **Flexible strategies (robust and contingent)**

"Planning" for Hazard Mitigation, Post-Disaster Recovery, and Climate Change Adaptation?

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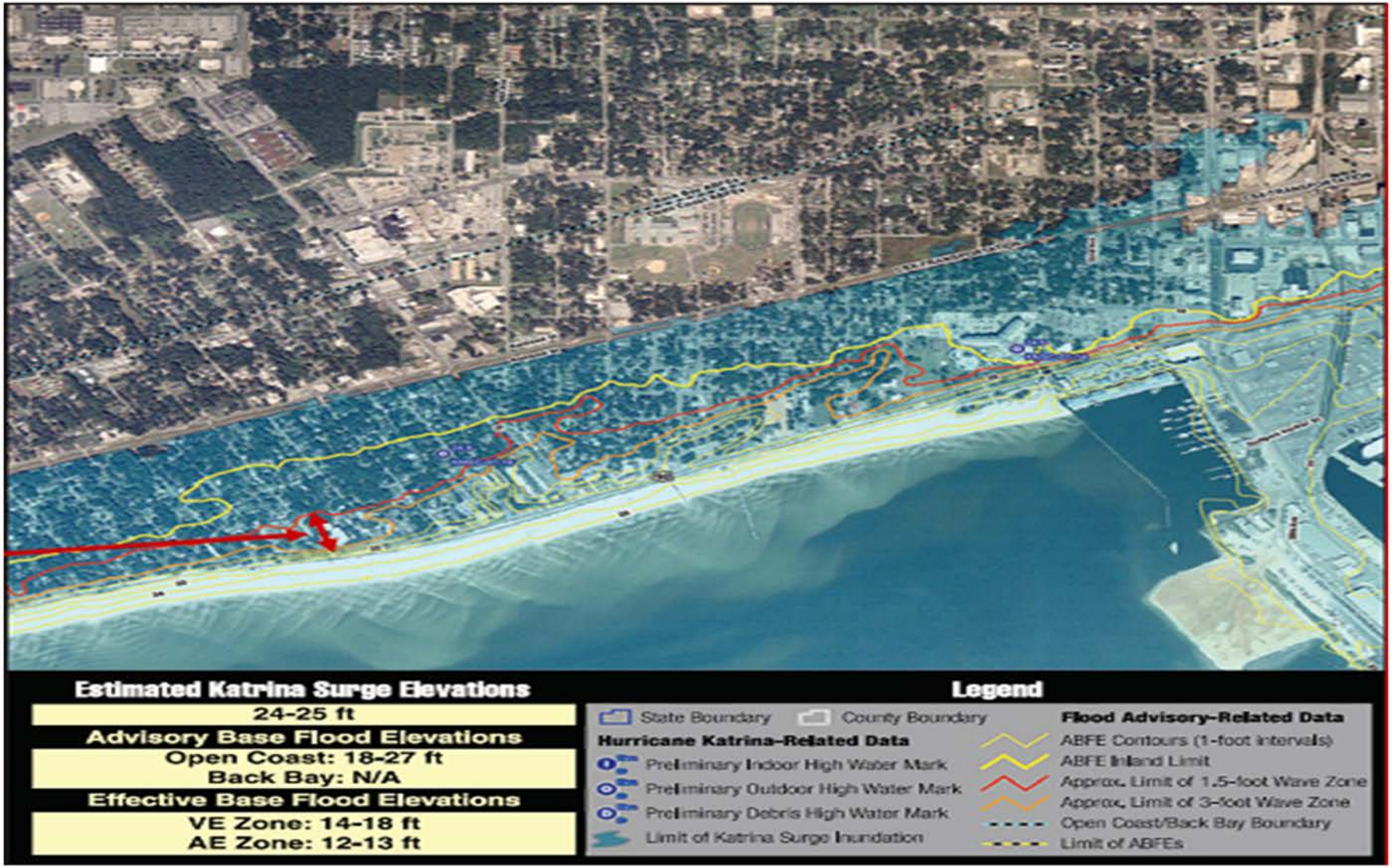

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Broad Issues Underpinning Disasters

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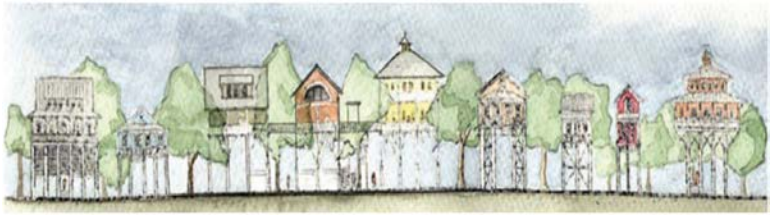
- **Demographic Change and Geographic Shifts**
  - **Aging population**
  - **Growth in high hazard areas**

- **Reactive Nature of Hazards and Disaster Policy**
  - **Post-Disaster Policy (Rubin's disaster timeline)**
  - **Politics of Disaster Declarations (Platt 1999)**
  - **Unintended Consequences / Incentivizing Development in High Hazard Areas (e.g., NFIP, post-disaster assistance)**

- **Settlement Patterns and Land Use**
  - **Urbanization**
  - **Smart Growth, New Urbanism-linkage to natural hazards risk reduction and climate change adaptation?**



Natural Hazards Risk Management: Hazard Mitigation

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- **Hazard Mitigation**
  - **Actions, steps, policies and programs that can be taken to reduce the loss of life and property damage in the event of a natural disaster (Godschalk et. al 1999)**
  - **Any sustained action taken to reduce long-term risk to human life and property from natural hazards (FEMA)**
  - **Pro-active versus Reactive Approaches**
  - **Natural Hazards Planning**
    - **Disaster Mitigation Act of 2000**
    - **Hazard Mitigation Planning**
  - **Berke, Smith and Lyles Study**
    - **Risk Assessment, Projects and Policies**
    - **Land Use as a Risk Reduction Measure is Limited**
    - **Very Limited Reference to Climate Change Adaptation**

Building Codes and Land Use: What is the Appropriate Design Standard in an Era of Climate Change?

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Natural Hazards Risk Management: Disaster Recovery

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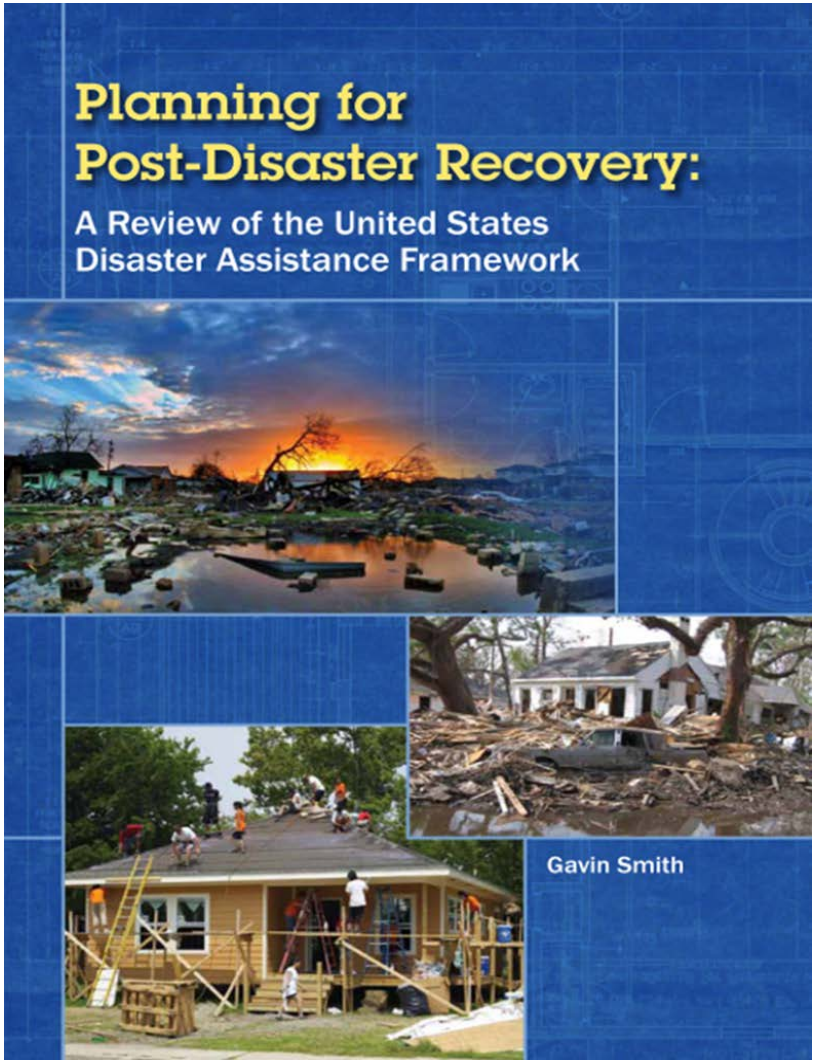
- **Disaster Recovery: The differential process of restoring, rebuilding, and reshaping the physical, social, economic, and natural environment through pre-event planning and post-event actions (Smith and Wenger 2006, Handbook of Disaster Research).**

- **Disasters Uncover/Expose Pre-Event Conditions**
  - **Hazard vulnerability, including socially vulnerable populations**
  - **Planning culture (varied application to risk reduction and disaster recovery efforts; planner/emergency manager divide)**
  - **Unsustainable development**

- **Disaster as "Opportunity"**
  - **Incorporation of sustainable development principles (resilience)**
  - **Incorporation of hazard mitigation/risk reduction**
  - **Equity/social justice**
  - **Opportunity for whom?**

- **Disaster Recovery Planning**
  - **Temporal Dimension: Speed versus deliberation, pre- and post-disaster recovery planning**
  - **Governance, resource distribution**



Disaster Recovery Assistance Network

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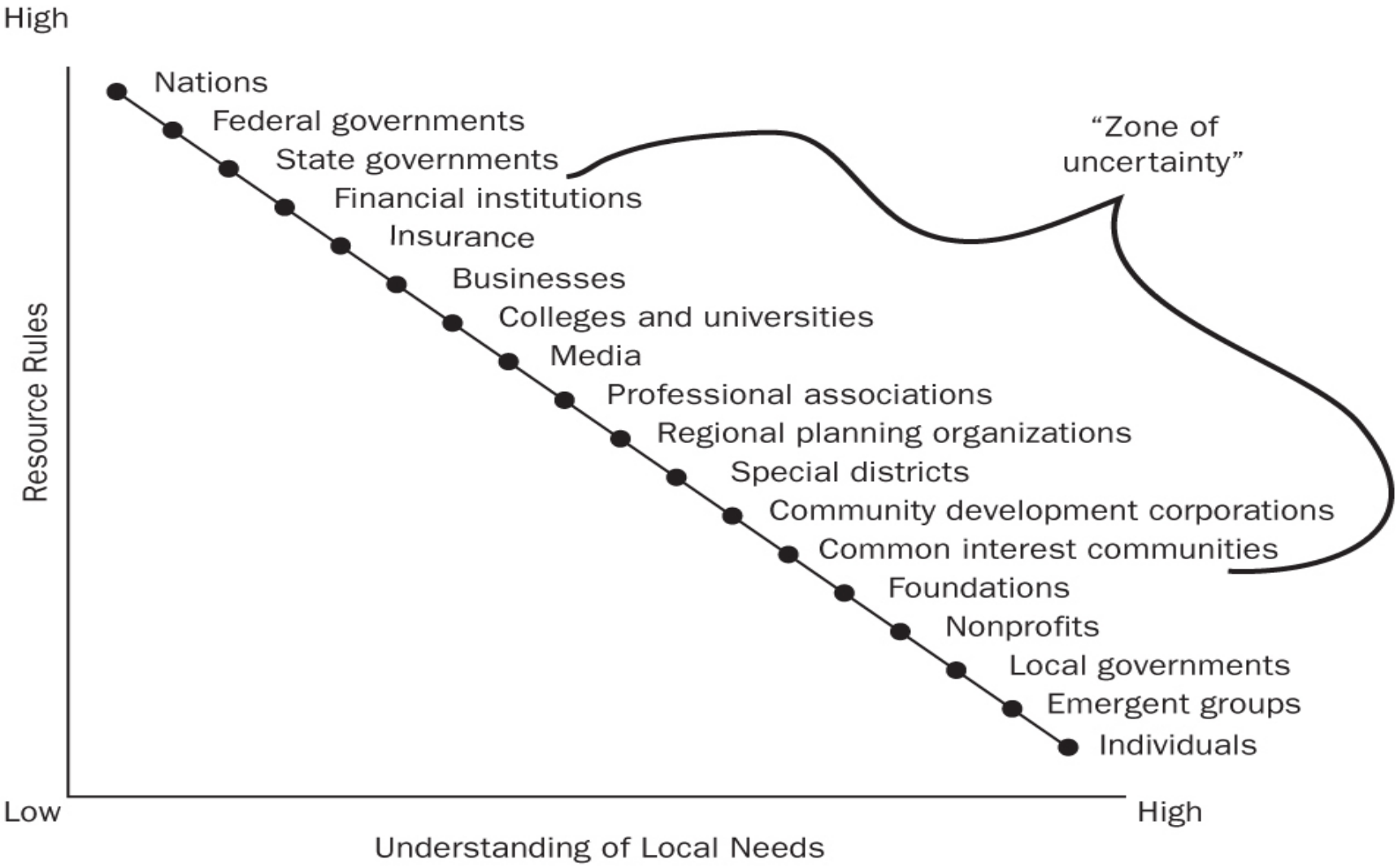

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Post-Disaster Recovery, Reconstruction and Resettlement? (Recovery as "Opportunity" -- Hazard Mitigation)

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The Role of Planning in Climate Change Adaptation and Natural Hazards Risk Management

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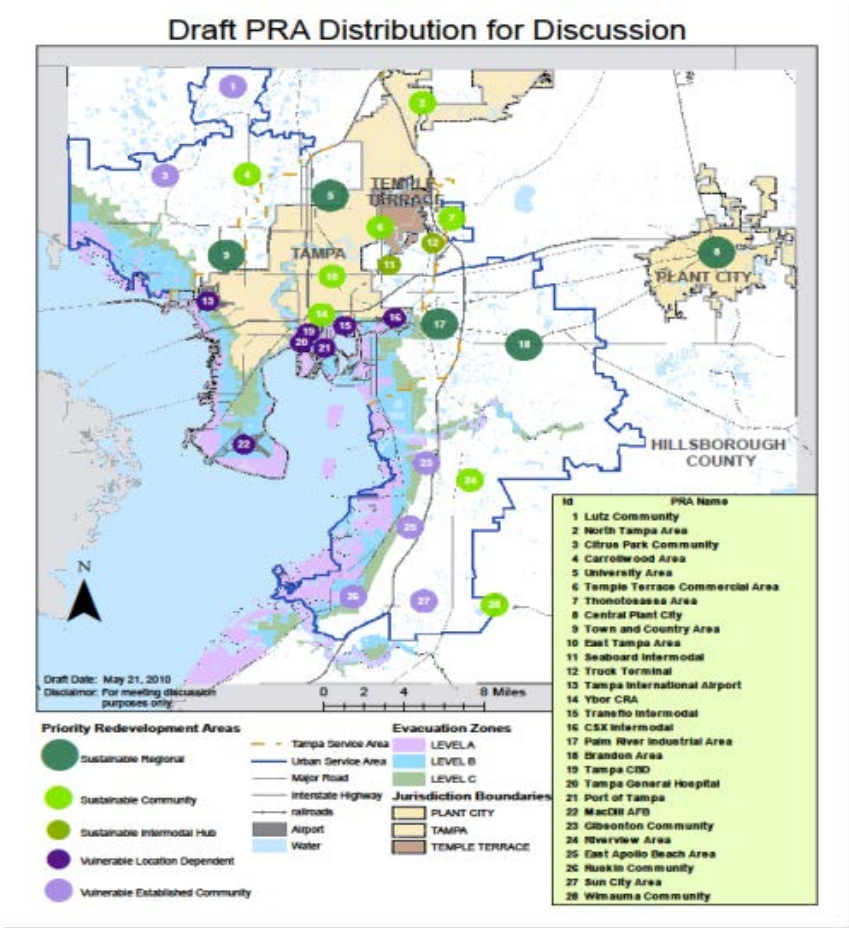
- **Improved Use of Existing Planning Tools and Processes**
  - **Pre-Event Planning (hazard mitigation and disaster recovery)**
  - **Land Use Planning Tools / Spatial Orientation**
  - **Scenario-Based Planning / Temporal Dimension**
- **Incorporating Land Use Techniques (tools and process) Among the Most Effective / Underutilized in Hazard Mitigation and Recovery**
- **Planners as Coalition Builders and Boundary Spanners**
  - **Poor Coordination between Planners and Emergency Managers / Design Professionals**
  - **Integrating Risk Reduction, Sustainable Development, Resilience and Adaptation**
- **Planning Process – Disasters as Conflict/ Altruism**
  - **Dispute Resolution, Policy Dialogue, Negotiation, Facilitation**



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