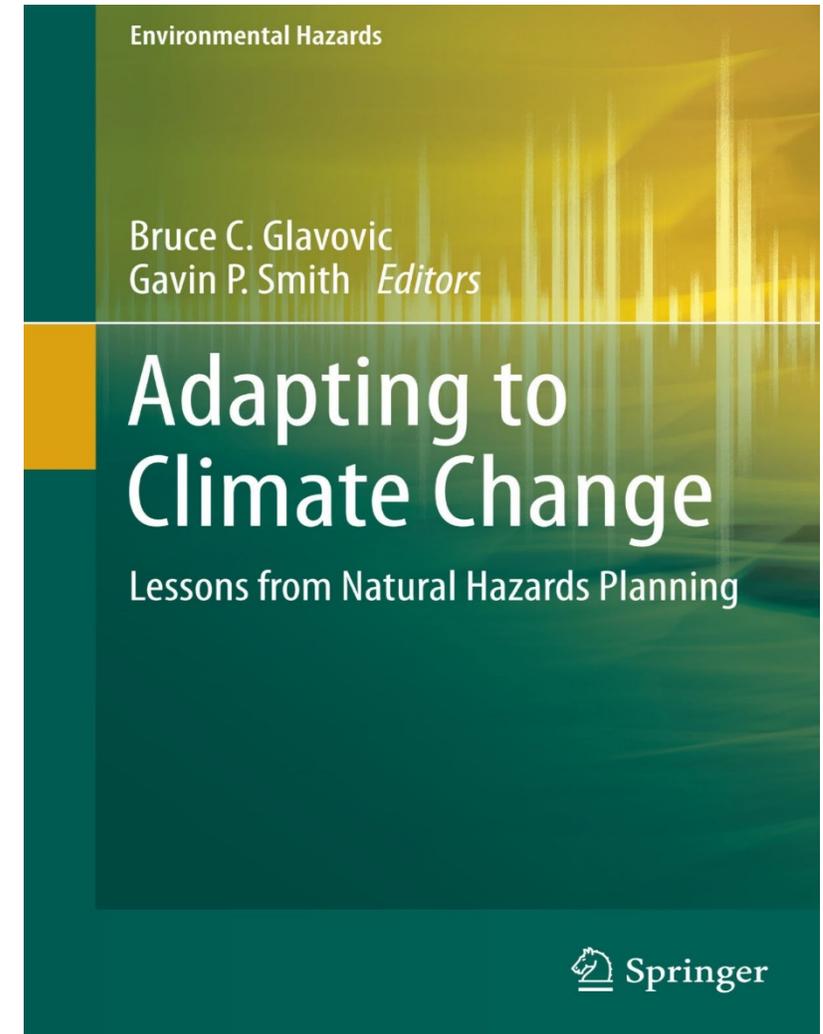


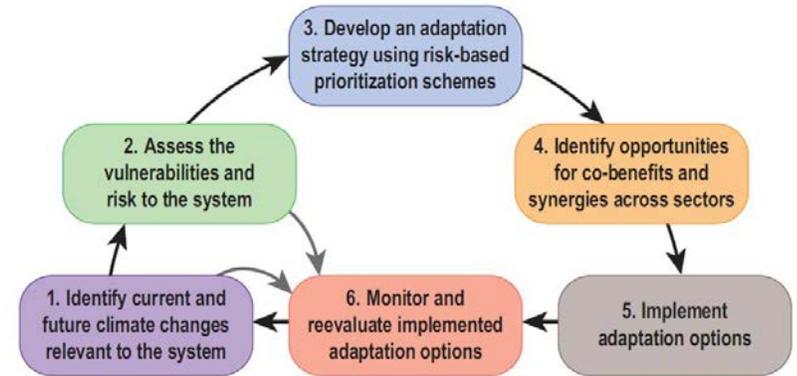
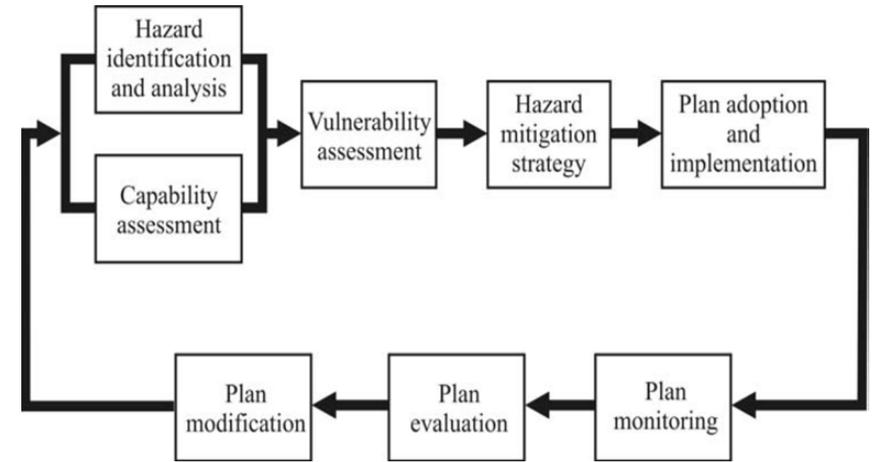
Introduction

- **Climate Change**
 - **Climate Change, Natural Hazards and Disasters**
- **Concepts and Terms**
 - **Resilience**
 - **Hazard Mitigation**
 - **Disaster Recovery**
 - **Principles of Resilience**
 - **Overcoming Barriers to Resilience**



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 (policies and projects)
- **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



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).**
- **Disasters Uncover/Expose Pre-Event Conditions**
 - **Hazard vulnerability, including socially vulnerable populations**
 - **Planning culture (varied application of planning practice to risk reduction and disaster recovery efforts)**
 - **Local Needs**
- **Disaster as “Opportunity”**
 - **Incorporation of sustainable development principles; resilience**
 - **Incorporation of hazard mitigation/adaptation**
 - **Equity/social justice**
 - **Opportunity for whom?**
- **Temporal Dimension: Speed versus Deliberation**

Resilience

- **“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).**

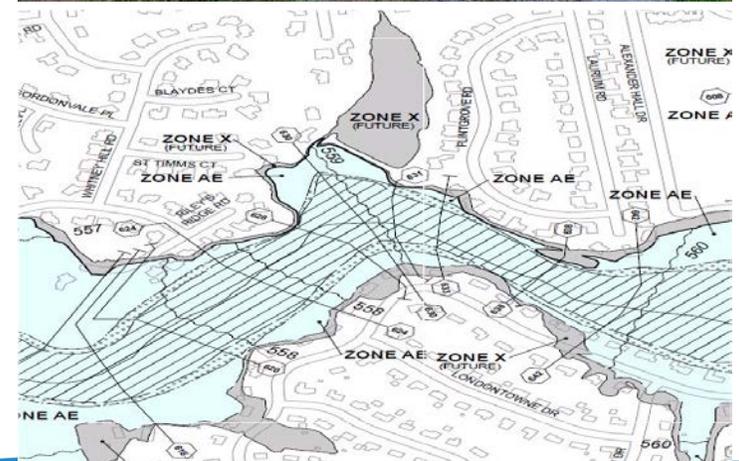
Principles of Resilience

- **Long-Term, Multi-Scaled Approach**
 - Respect episodic and slow-onset change
 - Future orientation (sustainability)
 - Nested system (individual-regional-national-global)
- **Create Compelling Vision of the Future**
 - Stakeholder buy-in (dialogue/participatory decision making), achieving multiple objectives



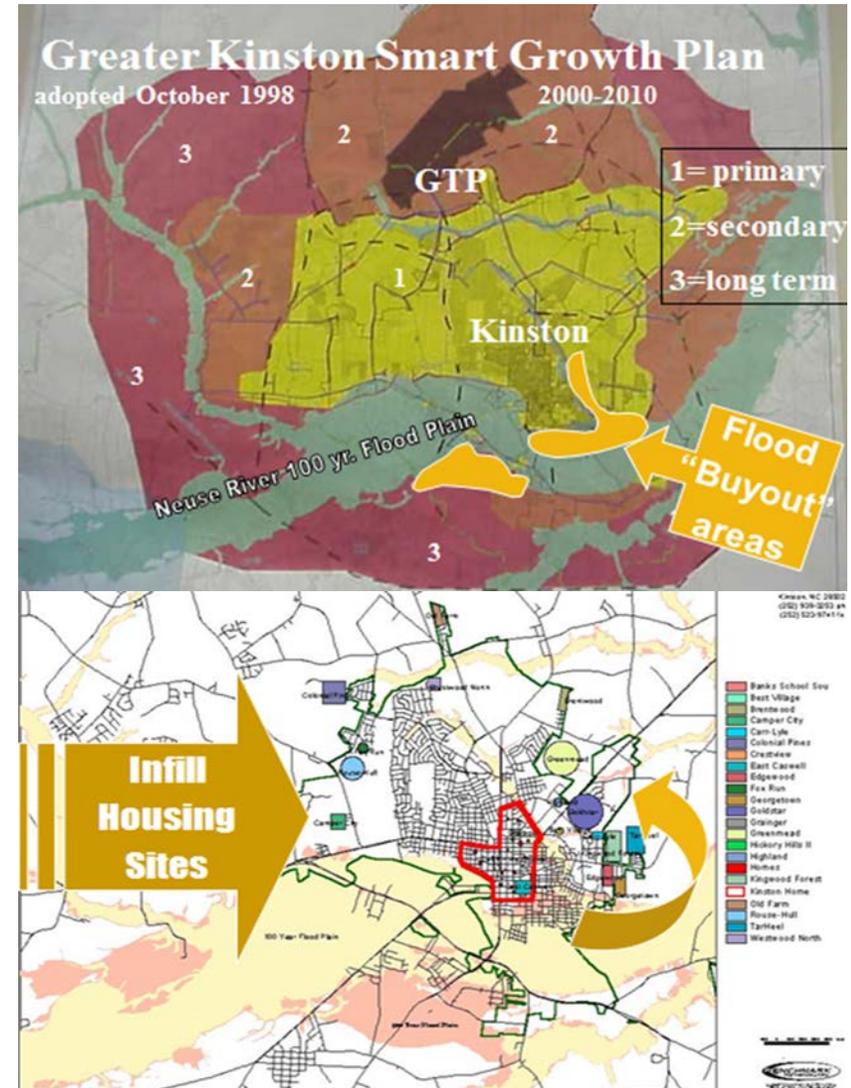
Principles of Resilience

- **Ensure that Critical Facilities are Located out of or Away from High-Risk Locations**
 - Design and siting of critical facilities, infrastructure
- **Plan Ahead for a Resilient Recovery and Growth**
 - Recovery and reconstruction/reducing future exposure/enhancing resilience
 - Maximizing and effectively applying post-disaster resources
- **Preserve and Restore Ecosystems and Ecological Infrastructure**
 - Wetlands coastal marshes, barrier islands, coral reefs
 - Green infrastructure
- **Role of Negotiation in Natural Hazards Risk Management**



Principles of Resilience

- **Plan for Long-Term Community Sustainability**
 - Sustainability and resilience as mutually reinforcing ideas
 - Think holistically
- **Guide Growth and Development Away from High-Risk Locations**
 - Pre and post-disaster planning (hazard mitigation and disaster recovery)



Principles of Resilience

- **Promote Social Resilience – Nurturing Social Networks and Institutions**
 - **Maintain strong social relationships**
 - **Social capital (formal and informal relationships in a community)**
 - **Communication/participatory planning/collective action**
- **Engage the Community through Forward-Looking Leadership**
 - **Community engagement, political will, collaborative leadership**



Barriers to Resilience

- **Low importance given to natural disasters and hazards vulnerability**
- **Limited ability or willingness to confront big issues looming in the future**
- **Limited resources and “competing” priorities**
- **Limited / weak planning (federal, state and local)**
- **Perceptions of upfront costs associated with resiliency measures**



Ideas for Overcoming Barriers to Coastal Resilience

- **Integrate hazard reduction and coastal resilience into community projects with strong community support**
- **Insert references to future vulnerability into current policy and planning**
- **Employ land use tools and community planning techniques**
- **Find creative ways to make resilience visible and tangible**
- **Build and support local constituents for resilience**
- **Incorporate natural disasters and disaster preparedness into elementary, high school, and college curricula as an antidote to local apathy**

COASTAL RESILIENCE CENTER

A U.S. Department of Homeland Security Center of Excellence



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