

# Climate Change Adaptation and Equity

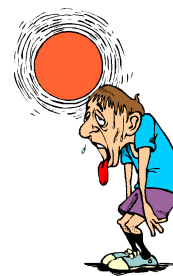


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Toward a Well-Adapted Future in Puget Sound:  
A Symposium on Climate Change  
Adaptation and the Law

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# The Impacts of Climate Change



## Assessing Vulnerability

Vulnerability =  
Exposure to Risk x Capacity to Cope

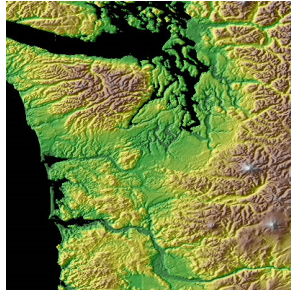
“Catastrophe is bad for everyone. But it is especially bad for the weak and disenfranchised.”

Robert R. M. Verchick, *Facing Catastrophe: Environmental Action for a Post-Katrina World*  
(Harvard University Press 2010)

## Overview

- Sea Level Rise and Extreme Precipitation
- Public Health Threats
- Additional Socioeconomic Concerns
  - Agricultural Sector
  - Energy Costs

## Sea Level Rise and Extreme Precipitation



Disaster Planning



Chehalis River, 2009

Land-use Planning

## The Disaster Framework

- Pre-Disaster Preparedness
- Risks During the Disaster
- Recovery and Reconstruction

## Disaster Preparedness

- Disparities in Preparation
- Disparities in Access to Emergency Preparedness Information and Organizing Opportunities
- Adaptation Implications:
  - Appropriate translation
  - Community-based outreach strategies

## Risk During a Disaster

Geographic Exposure

Socioeconomic factors that increase risk

## Geographic Exposure: An Equity Concern??



## Geographic Exposure to Flooding Risk

- Hurricane Katrina: disproportionate impact on African-Americans
- California projections: disproportionate impacts on low-income communities in some counties
- Adaptation implications: Assess demographic characteristics of flood-risk zones to better predict vulnerability/consequences

## Geographic Exposure to Indirect Risks

- Hazardous exposures from flooded wastewater treatment facilities and hazardous waste sites
- Handling of debris
  - Landfills
  - Incineration
- Adaptation Implications:
  - Assess and minimize future hazardous exposures
  - Develop equitable debris management plans



## Risk During a Disaster: Additional Vulnerability Factors

Linguistic isolation  
Evacuation – transportation  
Evacuation – shelter

Adaptation Implications:

- Response planning that addresses reliance on public transit and few resources for shelter



Louisiana Superdome Post-Katrina

## Recovery and Reconstruction

Substantial Disparities in:

- Obtaining information about recovery options
- Capacity to reconstruct
- Capacity to find affordable rental options
- Risk of homelessness and enhanced poverty



Post-Katrina FEMA Trailer

## Recovery and Reconstruction

Adaptation Implications:

- Ensure equal access to information and resources
- Provide assistance to renters as well as homeowners
- Develop affordable housing options



## Preparing for Extremes: Land Use Planning



## Public Health Threats

- Increased Heat
  - Heat-related illness and death
  - Increased ozone pollution
- Increased Vector-Borne Disease



## Heat-Related Illness and Death



## Heat: Adaptation Implications

- Land use planning to reduce heat island effect



- Cooling Options



- Occupational Exposures



## Heat: Increased Ozone Pollution



### Adaptation Implications:

- Incorporate into clean air planning

## Vulnerability to Disease



### Adaptation Implications:

- Public information in multiple languages
- Community-appropriate outreach strategies
- Availability of health care

## Agricultural Shifts: Farmworker Impacts



## Impact of Rising Energy Costs



## Conclusions

- Need for integrated ecological/social/economic approach to adaptation planning
- Problems like poverty, insufficient affordable housing, cultural isolation, and access to health care transcend climate change
- If adaptation planning can make inroads in these areas, than it could provide important co-benefits

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