Strengthening Environmental Health Protections through Climate Change Planning: Lessons from the National Health Security Preparedness Index

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Collaborative on Health and the Environment – Boston University Superfund Research Program
Superstorms and Superfund Sites: Preventing Toxic Exposures from Climate Change Disasters Webinar
13 March 2018
2017 was a hot and disaster-filled year for the United States, NOAA says.
Extreme Weather Disasters

The Threat: Hazardous Waste Sites

EPA finds damage at Superfund site from Hurricane Harvey
By Lisa Olsen and Brooke A. Lewis  Updated 9:34 am, Friday, September 29, 2017

America Has a Toxic Waste Hurricane Problem

Desperate Puerto Rico struggles to protect water from a hazardous waste site

AP finds climate change risk for 327 toxic Superfund sites

By John D. Sutter, CNN
Updated 1:05 AM ET, Sat October 14, 2017
Superfund National Priorities List Sites

Source: National Geographic: https://www.nationalgeographic.com/superfund/#charts/
About Superfund Legislation

- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)
  - Establishes liability of potentially responsible parties (PRP)
  - Authorizes U.S. Environmental Protection Agency (US EPA) and other federal agencies, states, and tribes to recover damages caused by hazardous substances
  - Creates Agency for Toxic Substances and Disease Registry (ATSDR)

Kentucky's Valley of the Drums
Archive Photo: US EPA
• Superfund Amendments and Reauthorization Act of 1986 (SARA)
  • Increases state involvement in the Superfund program
  • Increases focus on human health (e.g., Superfund Research Program/SRP)
• Emergency Planning and Community Right-to-Know Act (EPCRA)
  • Sets requirements for local and state emergency planning
  • Establishes right of public access to risk information on chemical hazards in communities
Measuring Environmental Health Protections: National Health Security Preparedness Index

KEY
- ABOVE NATIONAL AVERAGE
- MEETS NATIONAL AVERAGE
- BELOW NATIONAL AVERAGE

NATIONAL PREPAREDNESS LEVEL 7
NATIONAL CONFIDENCE INTERVAL 6.4 - 7.5

Map of the United States showing states colored according to their level of preparedness.
• More than 40% of states have experienced declines in EOH protections since the first Index release in 2013

• 17% of top-tier states in overall health security are below the national average in EOH protections

• More than 1/3 of top-tier states in overall health security have experienced declines in EOH protections since the first Index release

• By 2016, the top EOH state reflected EOH protections 2.4X higher than its lowest-scoring counterpart
<table>
<thead>
<tr>
<th>Measure Name</th>
<th>Does state have a climate change adaptation plan?</th>
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<tbody>
<tr>
<td>M334</td>
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<tr>
<th>Measure Source</th>
<th>Center for Climate and Energy Solutions (C2ES), State and Local Climate Adaptation</th>
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<tbody>
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<td>Data date(s)</td>
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<td>Limitations</td>
<td>The measure is an indicator of state planning for climate change; however, it only indicates if a state has a plan. The quality of the plan is not evaluated. The degree to which the plan is being implemented is also not evaluated.</td>
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Environmental and Occupational Health Domain and Climate Adaptation Planning

Coastal States

Index Values

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<thead>
<tr>
<th>Year</th>
<th>National Average</th>
<th>No Climate Plan</th>
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All States

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Environmental & Occupational Health Domain and Climate Adaptation Planning

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Timelines
- Plan finalization dates range from 2008 to 2016
- 75% of coastal states had finalized plans before the first non-coastal state plan was finalized in 2011
- Only 1 new plan since the first Index release in 2013

Length: from 12 pages to >400

Leadership
- Most authored by governor-appointed commissions/task forces
- Some by state environmental agencies
- One by a state health agency

Collaborative Roles
- Less than half of steering committees included public health sector representation
- Stakeholder-engaged processes often included public health sector representation on workgroups
Common Themes: Adaptation Goals

• Public Health Goals
  – Extreme Heat
  – Other Extreme Weather Health Hazards
  – Surveillance (Food, Water, Air)
  – Water Quantity and Quality
  – Vector Control
  – Smoke Emergencies
  – Vulnerable Populations
  – Preparedness Planning

• Emergency Management Themes
  – Early Warning Systems
  – Information Sharing
  – Emergency Response Planning
State Adaptation Plan finalized in 2011
- Public Health Goals = 8%, including
  - Walkable communities
  - Proactive planning for heat stress, flooding, & droughts
  - Strengthen Environmental Health Tracking Program
  - Improve surveillance data and databases
- Emergency Preparedness Goals = 1%
  - Include response in future climate plans
- Public Health Steering Committee Reps = 1 (state)
- Included a public health & safety working group
Implications

• Existing data can assist in analyzing and prioritizing climate-related vulnerabilities and capabilities

• The National Health Security Preparedness Index can help climate adaptation planning by:
  – Identifying gaps and helping prioritize environmental health protections needed to mitigate climate impacts on health
  – Tracking progress over time in target areas

• Because state climate adaptation plans vary across a number of dimensions, it is important to examine whether health goals are explicitly included

• Including public health expertise in collaborative climate adaptation planning and similar long-range strategic initiatives can help identify relevant protections to strengthen health security
• What environmental health and other health security protections does your state have in place? Visit the National Health Security Preparedness Index website at [www.nhspi.org](http://www.nhspi.org), then navigate to your state’s page to download measure-level details in your state profile.

• Does your state or locality have finalized climate adaptation plans in place? If so, what is in them? Visit the Georgetown Climate Center’s website at [http://www.georgetownclimate.org/adaptation/plans.html](http://www.georgetownclimate.org/adaptation/plans.html) to download plans.
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Acknowledgements

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National Health Security Preparedness Index
www.nhspi.org
HealthSecurity@uky.edu
Massachusetts Climate Adaptation Plan

• Timeline
  – Plan finalized: 2011
  – Status
    • ~59% of plan goals have been achieved (March 2018)
    • ~66% of public health goals have been achieved
    • ~35% of emergency preparedness goals have been achieved

• Leadership and Collaborative Roles
  – Authorship: Executive Office of Energy and Environmental Affairs and the Adaptation Advisory Committee
  – Advisory Committee included representation from Massachusetts Emergency Management Agency and Harvard Medical School
  – State Agencies Steering Committee included Department of Public Health representation

• Chapter Six Is Devoted to Human Health and Welfare
  – Identifies vulnerabilities (e.g., infrastructure, vector-borne diseases, air quality, algae blooms, water demand, food security, extreme weather)
  – Describes long- and short-term mitigation strategies for each set of vulnerabilities
Relevant Massachusetts Adaptation Goals

• Public Health Goals include
  – Climate-related needs assessments of public health infrastructure, vulnerable populations, provider capacity, etc.
  – Climate-related education campaigns
  – Asthma action programs
  – Workforce development on climate-related health threats
  – Enhancing electronic reporting procedures for laboratories
  – Strengthening vector surveillance systems
  – Promoting telecommuting during air quality alerts
  – Supporting the planting of hypoallergenic trees and use of porous pavement
  – Work with communities on water supply issues related to extreme weather
  – Strengthen runoff controls
  – Monitor pesticides and pursue integrated pest management strategies

• Emergency Preparedness Goals include
  – Evaluate and update hazard mitigation, evacuation, and emergency response plans for climate vulnerabilities
  – Assess and enhance emergency management tools and capabilities for addressing extreme weather events
Massachusetts Climate Adaptation Plan Goals by Sector

- Public Health: 19%
- Infrastructure: 29%
- All Others: 47%
- Emergency Preparedness: 5%
Colorado Climate Adaptation Plan Goals by Sector

- Environmental: 57%
- Infrastructure: 24%
- All Others: 19%

- Public Health Goals = 0
- Emergency Preparedness Goals = 0
- Public Health Steering Committee Reps = 0