

Drought and Vulnerable Populations

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Drought and Health

- Drought is a natural phenomenon in which rainfall is lower than average for an extended period of time
- Results in inadequate water supply leading to health effects
- Health effects are numerous and far reaching

How drought can affect health

Drought can have many harsh effects on plants, animals, and the environment. This can contribute to increased risk to human health. Here are only a few examples of what drought can do:



Cause stress, anxiety, and depression. Drought causes economic losses to businesses that rely on water (for example, farms and landscape companies) and job loss for people who work in these areas.



Change the amount and patterns of certain diseases. For example, mosquitoes carrying West Nile virus can move into new areas when stagnant bodies of water create new breeding grounds. Also, dry and dusty soil conditions can increase the risk of Valley Fever, a lung infection caused by a fungus in the soil.



Intensify wildfires and dust storms, thus increasing the number of particulates in the air. This can worsen asthma and other heart and lung diseases.



Intensify heatwaves causing increased risk of injury and death from heat exhaustion or heat stroke.



Stress city- or county-wide water systems that supply water not only to households but also at-risk populations such as people in hospitals and nursing homes.

Drought and Health

- **Disasters are triggered by natural hazards; however, social, historical and economic situations determine the scale and scope of disasters and effects on diverse populations**
- **Drought can affect communities differently depending on several variables**
 - Structure and capacity of existing water systems
 - Local governance of water use
 - Economic development
 - At-risk populations living within the affected area
 - Other societal factors, such as local social networks

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At-Risk Populations



What is an At-Risk Population?

- Individuals or groups of people who may not be able to access and use the standard resources offered in emergency preparedness, response, and recovery
 - Individuals with access and functional needs
 - Groups of individuals who are likely to have access and functional needs defined by socio-demographic characteristics
- Previous disasters have shown that certain groups of people face disproportionate risks during and after public health emergencies

Access and functional needs

- Includes wide range of individuals who may need additional support before, during and after an emergency
 - Irrespective of diagnosis, status, label
 - Access includes accessibility to information, services, and support
 - Functional refers to restrictions or limitations an individual may have requiring assistance
- Overlap between access and functional needs (e.g., older adult uses a cane and needs information in large print)
- Helpful for resource allocation (CMIST)



At-Risk Populations

- Populations likely to have individuals with access and functional needs
- Example populations*
 - Children
 - Pregnant women
 - Older Adults
 - Persons with chronic diseases or disabilities
 - Persons with limited English proficiency
 - Economically disadvantaged persons
 - Racial and ethnic minorities

*not an exhaustive list

Planning for Vulnerable Populations

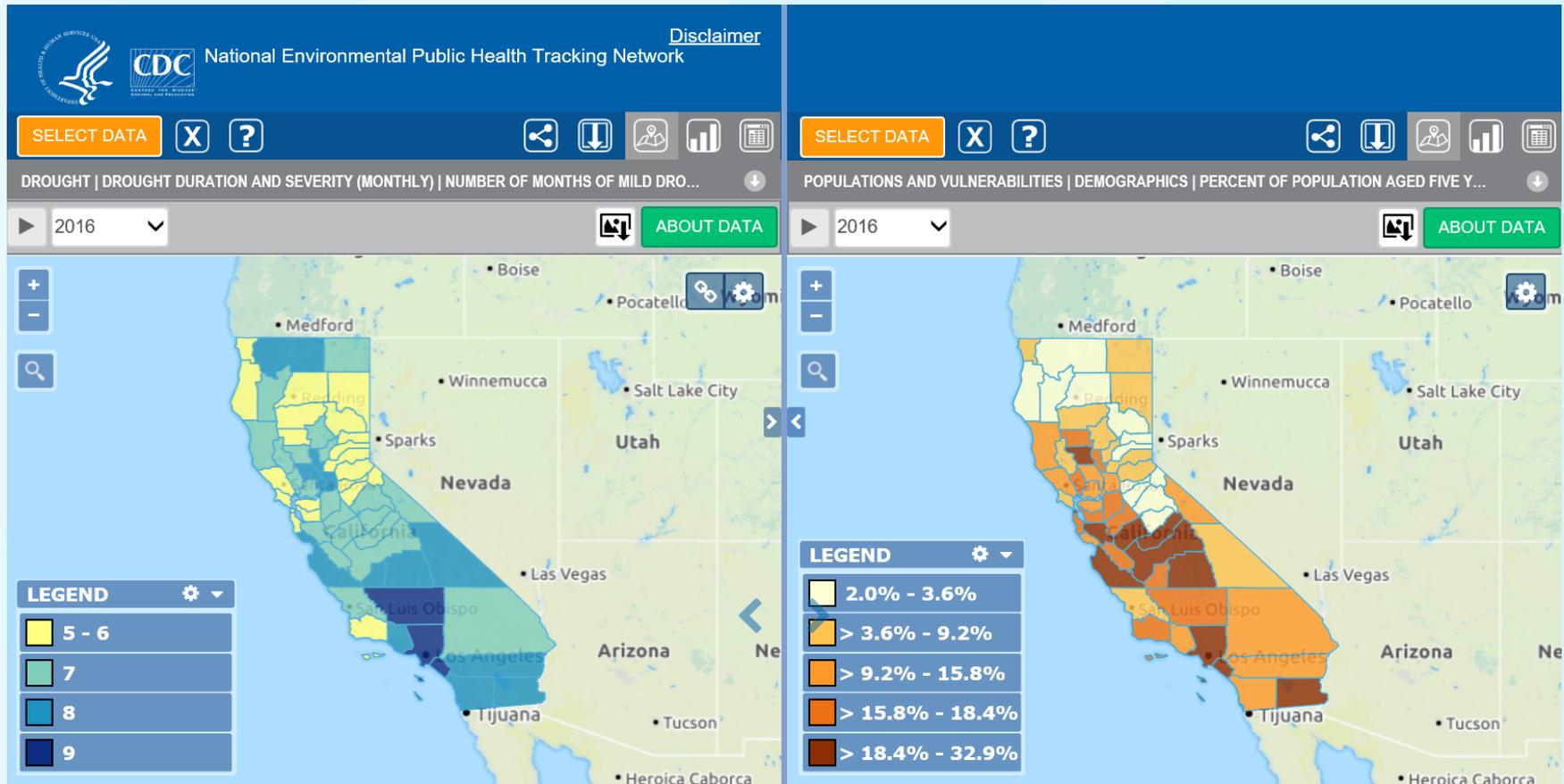
- There are actions we can take to reduce risk and increase resiliency (the ability to recover quickly and fully)
- Important aspect of planning is the intentional inclusion of vulnerable populations in preparedness and response; these efforts can build more resilient communities
- Tools that we can use to help us plan



Mapping Vulnerabilities

- **Mapping tools designed to assist in identifying vulnerable populations**
- **Ability to assessing population-level statistics to provide a snapshot of community and estimate the number of people in various vulnerability categories within that community**
- **Mapping allows you to visualize vulnerabilities, hazards and assets to identify gaps and hot spots**
- **Compare areas using indices of socio-economic variables**

National Environmental Public Health Tracking Network



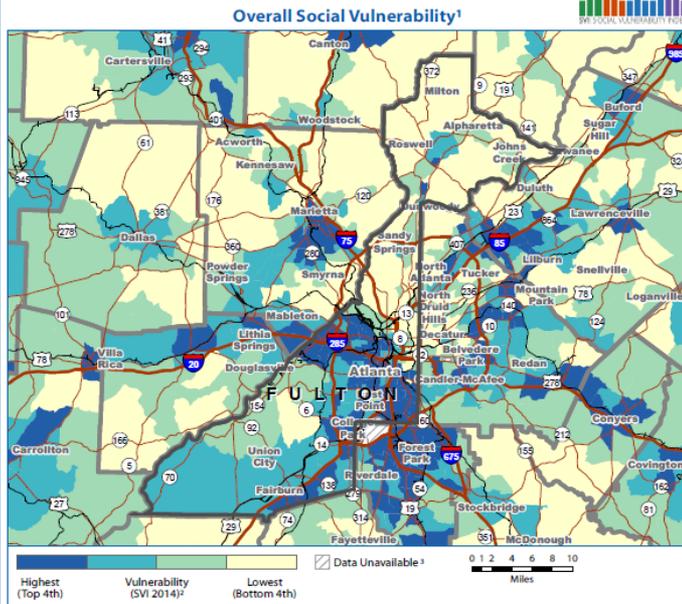
<https://ephtracking.cdc.gov>

Social Vulnerability Index

Social Vulnerability Index 2014

Fulton County, Georgia

PART 1



Social vulnerability refers to a community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human-caused threats, such as toxic chemical spills. The **Social Vulnerability Index (SVI 2014)⁴ County Map** depicts the social vulnerability of communities, at census tract level, within a specified county. SVI 2014 groups **fifteen census-derived factors** into **four themes** that summarize the extent to which the area

is socially vulnerable to disaster. The factors include economic data as well as data regarding education, family characteristics, housing, language ability, ethnicity, and vehicle access. Overall Social Vulnerability combines all the variables to provide a comprehensive assessment.

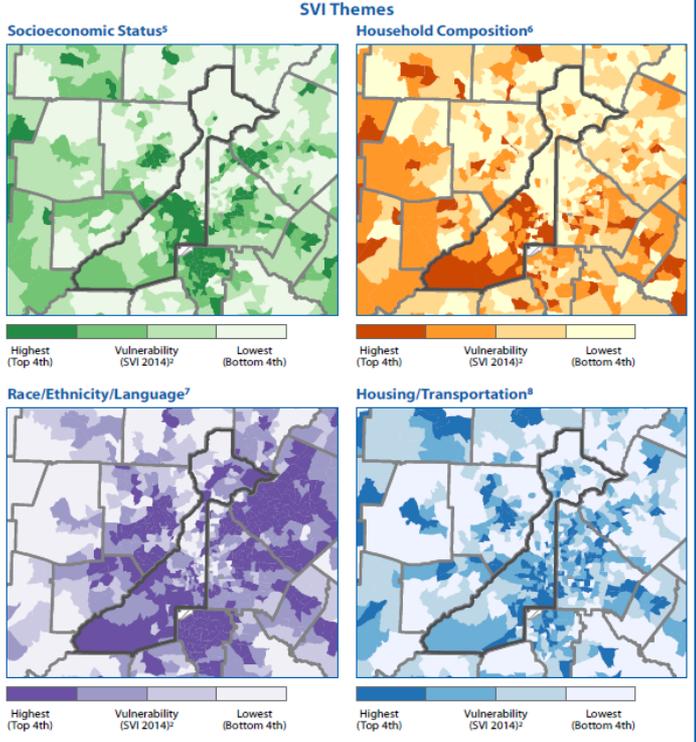


MAP PRODUCED BY: GRASP
 Agency for Toxic Substances and Disease Registry
 Division of Toxicology and Human Health Sciences

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SVI 2014 - FULTON COUNTY, GEORGIA

PART 2



Data Sources: ATSDR GRASP.
Notes: ¹Overall Social Vulnerability: All 15 variables. ²Census tracts with 0 population. ³The SVI combines percentile rankings of US Census American Community Survey (ACS) 2010-2014 variables, for the state of interest, at the census tract level. ⁴Socioeconomic Status: Poverty, Unemployed, Per Capita Income, No High School Diploma. ⁵Household Composition/Disability: Aged 65 and Over, Aged 17 and Younger, Single parent Household, Aged 5 and over with a Disability. ⁶Race/Ethnicity/Language: Minority, English Language Ability. ⁷Housing/Transportation: Multi-unit, Mobile Homes, Crowding, No Vehicle, Group Quarters.
 Projection: NAD 1983 Georgia Statewide Albers.
 Reference: Panagari, B.E., et al. A Social Vulnerability Index for Disaster Management. *Journal of Homeland Security and Emergency Management*, 2011, 8(1).

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Understanding Vulnerability

$$\text{Risk} = \text{Hazards} * \text{Vulnerability}$$

- **Biophysical vulnerability: physical exposure to hazards**
- **Social vulnerability: susceptibility of social groups to potential losses from disasters**
- **Vulnerability influenced by root causes (class structure), dynamic pressure (differential community investments), and unsafe conditions (unsafe building conditions)**

Research Needs

- **Understand vulnerabilities and intersection between vulnerabilities and hazards**
- **Identify vulnerabilities that have greatest impact on disaster outcomes and determine ways to address**
- **Translate research needs into practice**
- **Disseminate evidence-based practices**

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Practice

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