State Hazard Mitigation Plans and Social Vulnerability
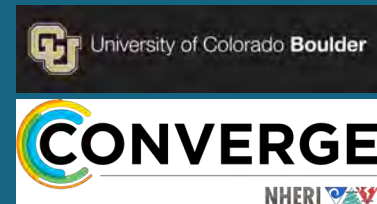
An Analysis of Inclusive Mitigation Planning

April 18, 2023
Equitable Engagement with Underserved Communities: An Update on State and Local Mitigation Planning Guidance and Research
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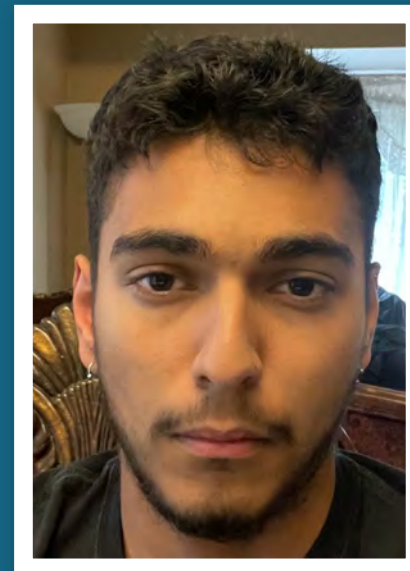
Research Team

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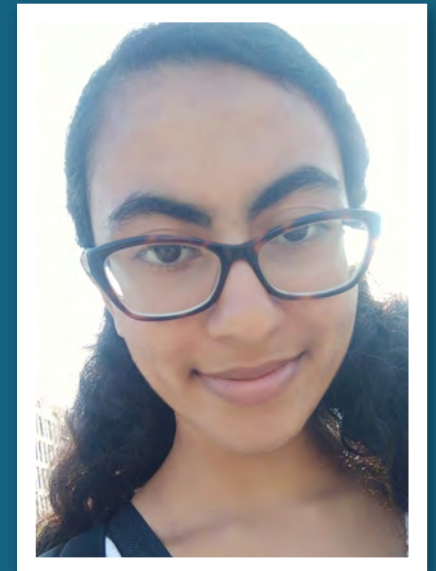Natural Hazards
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Why State Hazard Mitigation Plans and Social Vulnerability?

1 Understand how **social vulnerability** (and related terms) is conceptualized.
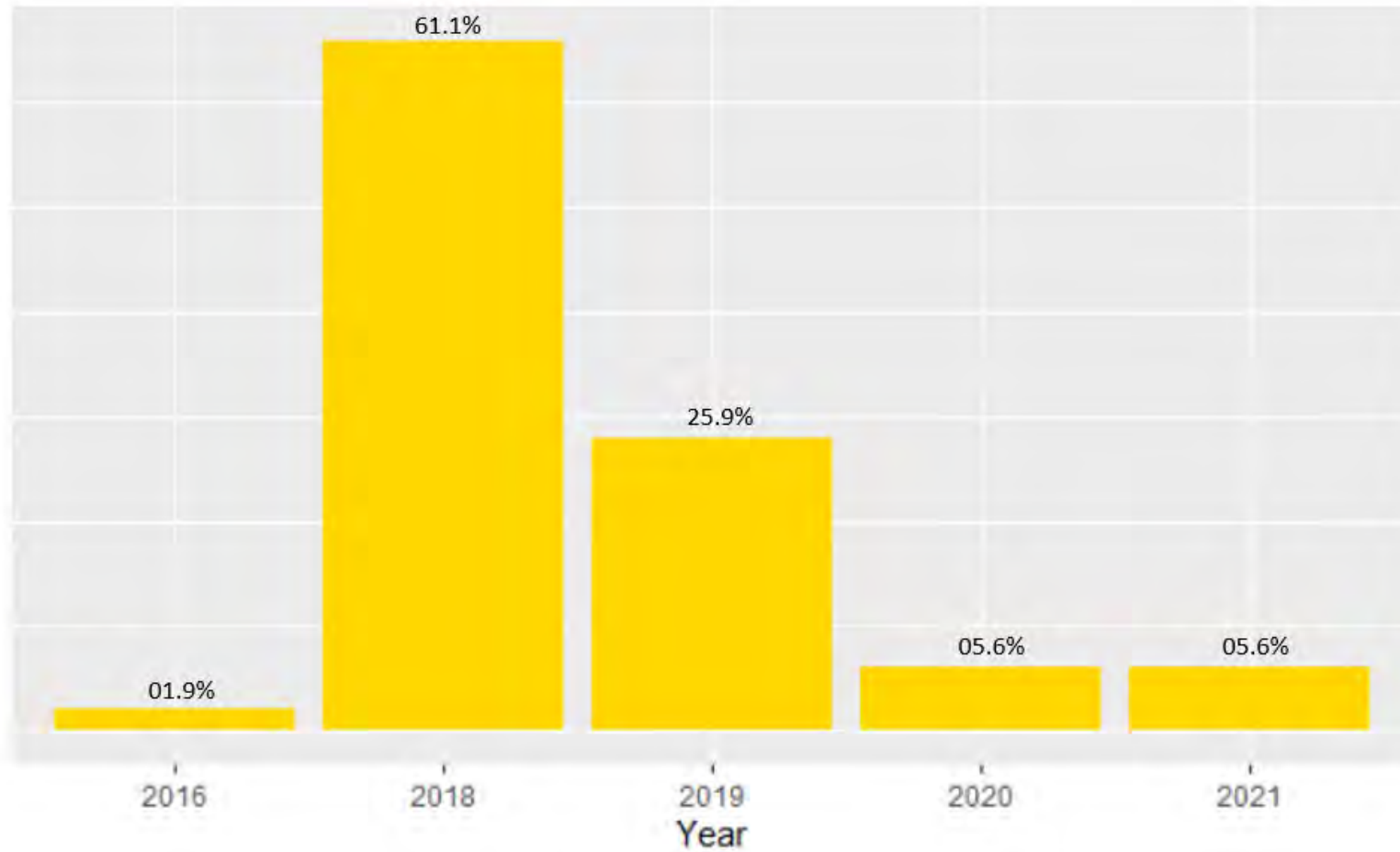
2 Assess which potentially **vulnerable populations** are included – or excluded – in the plans.

3 Review which **social vulnerability indices, tools, and data sources** are used to spatially locate, describe, or otherwise more robustly characterize the status of these populations.

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Why Now?

Nearly two-thirds (61%) of SHMP's were approved in 2018, and another one-quarter (25%) were approved in 2019. With new FEMA guidance around equitable planning, this is an important time to understand how social vulnerability and vulnerable populations have been included in the past.

State Hazard Mitigation Plan Database

- 50 state plans
- 5 territories
- 64 – 2172 pages (averaging 649 pages)

Region	State	Year	SHMP Title	Weblink	Date	Responsible Agency
South	Alabama	2018	Alabama State Hazard Mitigation Plan	https://alabamaema.files.wordpress.com/2018/11/state-of-alabama_state-hazard-mitigation-plan-2018-update_final_07182018.pdf	July 18, 2018	Alabama Emergency Management Agency
West	Alaska	2018	The Alaska State Hazard Mitigation Plan	https://ready.alaska.gov/Mitigation/SHMP	November, 2018	Alaska Division of Homeland Security and Emergency Management
Southwest	Arizona	2018	State of Arizona Hazard Mitigation Plan	https://dema.az.gov/sites/default/files/publications/EM-PLN_State_Mit_Plan_2018.pdf	2018	Arizona Department of Emergency and Military Affairs
West	California	2018	California State Hazard Mitigation Plan	https://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/hazard-mitigation-planning/state-hazard-mitigation-plan	September, 2018	California Governor's Office of Emergency Services
West	Colorado	2018	2018-2023 Colorado Hazard Mitigation Plan	https://mars.colorado.gov/mitigation/enhanced-state-hazard-mitigation-plan-e-shmp	2018 (approved on April 8, 2020)	Colorado Division of Homeland Security and Emergency Management
New England	Connecticut	2019	2019 Connecticut Natural Hazards Mitigation Plan Update	https://portal.ct.gov/DEMHS/Emergency-Management/Resources-For-Officials/Hazard-Mitigation	January 2019	Connecticut State Division of Emergency Management and Homeland Security
Mid-Atlantic	Delaware	2018	State of Delaware All-Hazard Mitigation Plan	https://www.delaware.gov/contentFolder/pdfs/HazardMitigationPlan.pdf	August, 2018	Delaware Emergency Management Agency
South	Florida	2018	Enhanced State Hazard Mitigation Plan: State of Florida	https://www.floridadisaster.org/dem/mitigation/statemitigationstrategy/state-hazard-mitigation-plan/	June 18, 2018	Florida Division of Emergency Management
South	Georgia	2019	Georgia Hazard Mitigation Strategy: Standard and Enhanced Plan	https://gema.georgia.gov/hazard-mitigation-planning#:~:text=This%20allows%20the%20state%20to.the%20aftermath%20of%20a%20disaster.&text=State%20of%20Georgia%20Mitigation%20Plan%20identifies%20twelve%20natural%20hazards%20that.strategy%20to%20reduce%20those%20vulnerabilities.	2019	Georgia Emergency Management and Homeland Security Agency
West	Hawaii	2018	State of Hawai'i 2018 Hazard Mitigation Plan	https://dod.hawaii.gov/hiema/hazard-mitigation-plans/#:~:text=The%202018%20State%20Hazard%20Mitigation.risk%20and%20vulnerability%20to%20the	October 2, 2018	Hawaii Emergency Management Agency
West	Idaho	2018	State of Idaho Hazard Mitigation Plan	https://ioem.idaho.gov/preparedness-and-protection/mitigation/state-hazard-mitigation-plan/#:~:text=The%20Plan%20is%20the%20comprehensive.losses%20through%20sound%20mitigation%20projects.	2018 (amended in 2020)	Idaho Office of Emergency Management
Midwest	Illinois	2018	2018 Illinois Natural Hazard Plan	https://drought.unl.edu/archive/plans/GeneralHazard/state/IL_2018.pdf	October, 2018	Illinois Emergency Management Agency
Midwest	Indiana	2019	2019 State of Indiana Standard Multi-Hazard Mitigation Plan	https://www.in.gov/dhs/emergency-management-and-preparedness/mitigation-and-recovery/#:~:text=The%20State%20Multi%2DHazard%20Mitigation.Emergency%20Management%20Agency%20(FEMA).	2019	Indiana Department of Homeland Security
South	Kentucky	2018	2018 Kentucky Hazard Mitigation Plan	https://kyem.ky.gov/recovery/Pages/2018-Kentucky-Hazard-Mitigation-Plan-.aspx	2018	Kentucky Division of Emergency Management
South	Louisiana	219	State of Louisiana Hazard Mitigation Guide 2019	https://gohsep.la.gov/MITIGATE/HM-PLANNING/State-Hazard-Mitigation-Plan	March 27, 2019	State of Louisiana Governor's Office of Homeland Security and Emergency Preparedness
New England	Maine	2019	Maine State Hazard Mitigation Plan	https://www.maine.gov/mema/hazards/natural-hazard-mitigation	October, 2019	Maine Emergency Management Agency
Mid-Atlantic	Maryland	2021	2021 State Hazard Mitigation Plan	https://mdem.maryland.gov/Pages/publications.aspx	August, 2021	Maryland Department of Emergency Management
New England	Massachusetts	2018	Massachusetts State Hazrd Mitigation and Climate Adaption Plan	https://www.mass.gov/service-details/massachusetts-integrated-state-hazard-mitigation-and-climate-adaptation-plan	September, 2018	Executive Office of Energy and Environmental Affairs; Excutive Office of Public Safety and Security
Midwest	Michigan	2019	Michigan Hazard Mitigation Plan	https://www.cakex.org/documents/michigan-hazard-mitigation-plan-updated-april-2019-edition#:~:text=Michigan%20Hazard%20Mitigation%20Plan%20(Updated%20April%202019%20edition)%3A%20Reducing.coordination%20of%20programs%20and%20resources.	April, 2019	Emergency Management and Homeland Security Division; Michigan Department of State Police; The Michigan Citizen-Community Emergency Response Coordinating Council
South	Mississippi	2018	State of Mississippi Standard Mitigation Plan	https://www.msema.org/about/hazard-mitigation/	2018	Mississippi Emergency Management Agency
West	Nevada	2018	The State of Nevada Enhanced Hazard Mitigation Plan 2018	https://dem.nv.gov/DEM/State_Hazard_Mitigation/	2018	Nevada Department of Emergency Management
New England	New Hampshire	2018	State of New Hampshire Multi-Hazard Mitigation Plan	https://www.nh.gov/safety/divisions/hsem/HazardMitigation/planning.html	2018	New Hampshire Department of Safety: Homeland Security and Emergency Managment
Mid-Atlantic	New Jersey	2019	New Jersey State Hazard Mitigation Plan 2019	https://nj.gov/njoem/mitigation/hazard-mitigation-plans.shtml#:~:text=The%20State%20of%20New%20Jersey's.on%20current%20science%20and%20research.	January 25, 2019	State of New Jersey Office of Emergency Management
Southwest	New Mexico	2018	New Mexico State Hazard Mitigation Plan	https://www.nmdhsem.gov/preparedness-bureau/mitigation/	September 2018	New Mexico Department of Homeland Security and Emergency Management
Mid-Atlantic	New York			https://mitigateny.availabs.org/		New York Division of Homeland Security and Emergency Services
South	North Carolina	2018	State of North Carolina Hazard Mitigation Plan	https://www.ncdps.gov/emergency-management/em-community/recovery-mitigation/hazard-mitigation/mitigation-planning	February, 2018	North Carolina Department of Public Safety
Midwest	Ohio	2019	State of Ohio Hazard Mitigation Plan 2019	https://www.ema.ohio.gov/mip/planning_sohmp.aspx#:~:text=The%20SOHMP%20contains%20information%20on.risk%20posed%20by%20those%20hazards.	February, 2019	Ohio Department of Public Safety Emergency Management Agency
West	Oregon	2020	Oregon Natural Hazards Mitigation Plan	https://www.oregon.gov/lcd/NH/Pages/Mitigation-Planning.aspx	September 24, 2020	Oregon Department of Land Conservation and Development
Mid-Atlantic	Pennsylvania	2018	Commonwealth of Pennsylvania 2018 State Hazard Mitigation Plan	https://www.pema.pa.gov/Mitigation/Planning/State-Hazard-Mitigation-Plan/Pages/default.aspx	October, 2019	Pennsylvania Emergency Management Agency
New England	Rhode Island	2019	State of Rhode Island State Hazard Mitigation Plan Update	https://riema.ri.gov/planning-mitigation/hazard-mitigation/hazard-mitigation-planning#:~:text=State%20Hazard%20Mitigation%20Plan&text=The%20Plan%20serves%20the%20people.wildfires%2C%20and%20other%20natural%20hazards.	December, 2018	State of Rhode Island Emergency Management Agency
South	South Carolina	2018	South Carolina Hazard Mitigation Plan	https://www.scemd.org/em-professionals/plans/hazard-mitigation-plan/	October, 2018	South Carolina Emergency Management Division
South	Tennessee	2018	State of Tennessee Hazard Mitigation Plan	https://www.tn.gov/tema/emergency-community/mitigation/state-mitigation-planning.html	2018	Tennessee Emergency Management Agency
South	Texas	2018	State of Texas Hazard Mitigation Plan	https://www.tdem.texas.gov/mitigation/hazard-mitigation-section	October, 2018	Texas Division of Emergency Management
West	Utah	2019	2019 Utah State Hazard Mitigation Plan	https://hazards.utah.gov/	February, 2019	Utah Division of Emergency Management
New England	Vermont	2018	2018 Vermont State Hazard Mitigation Plan	https://vem.vermont.gov/plans/SHMP	November 17, 2018	Department of Public Safety: Vermont Emergency Management
South	Virginia	2018	Commonwealth of Virginia Hazard Mitigation Plan	https://www.vaemergency.gov/divisions/planning/published-plans/mitigation-plans/	March, 2018	Virginia Department of Emergency Management
West	Washington	2018	Washington State Enhanced Hazard Mitigation Plan	https://mil.wa.gov/enhanced-hazard-mitigation-plan	October 1, 2018	Washington Emergency Management Division
South	West Virginia	2018	West Virginia Statewide Standard Hazard Mitigation Plan Update 2018	https://emd.wv.gov/MitigationRecovery/Pages/Hazard-Mitigation-Planning.aspx#:~:text=The%20West%20Virginia%20Statewide%20Standard.prevent%20injury%20from%20all%20hazards.	2018	West Virginia Emergency Management
Midwest	Wisconsin	2020	State of Wisconsin Hazard Mitigation Plan	https://wem.wi.gov/state-planning/	December, 2021	Wisconsin Emergency Management
West	Wyoming	2016	Wyoming State Mitigation Plan	https://hls.wyo.gov/programs/mitigation	2016	Wyoming Homeland Security
Washington, DC	District of Columbia					
Territory	American Samoa	2020	Hazard Mitigation Plan: Territory of American Samoa	https://odapm.as.gov/hazard-mitigation-plan	May, 2020	American Samoa Office of Disaster Assistance and Petroleum Management
Territory	Guam	2019	2019 Guam Hazard Mitigation Plan	https://www.ghs.guam.gov/programs/hazard-mitigation-program#:~:text=Hazard%20Mitigation%20Grant%20Program%20(HMGP)&text=The%20Pre%2DDisaster%20Mitigation%20(PDM).prior%20to%20a%20disaster%20event.	July 26, 2019	Guam Homeland Security Office of Civil Defense
Territory	Northern Mariana Islands	2018	Commonwealth of the Northern Mariana Islands Standard State Mitigation Plan	https://opd.gov.mp/library/reports/2018-cnmi-ssmp-update.pdf	August, 2018	CNMI Homeland Security and Emergency Management
Territory	Puerto Rico	2021	2021 Puerto Rico State Natural Hazard Mitigation Plan	https://issuu.com/coleccionpuertorriquena/docs/2021_pr_state_hazard_mitigation_plan_aug2021_1of2	July 30, 2021	Puerto Rico Central Office for Recovery, Reconstruction and Resiliency
Territory	US Virgin Islands	2019	United States Virgin Islands Territorial Hazard Mitigaion Plan	https://www.usviodr.com/wp-content/uploads/2019/09/2019-Territorial-Hazard-Mitigation-Plan.pdf	July, 2019	The Virgin Islands Territorial Emergency Management Agency

Key Variables of Analysis

- SHMP Title
- Year the Plan was Approved
- Responsible State Agency
- Definitions of Social Vulnerability
- Tools / Indices / Data Sources for Measuring Social Vulnerability
- Notes on important quotes from SHMP
- Socially Vulnerable Populations

- Age (Elderly, Children)
- Gender (Men, Women, etc.)
- LGBTQAI+
- Immigrants and Refugees
- Racial and Ethnic Minorities
- Unhoused
- Disabled
- Substance Dependent
- Poverty
- Unemployment
- Language Barriers (Non-English)
- Housing (Quality, Insurance, etc.)
- Renters
- Mobile Homes
- Transportation
- Vehicle Access
- High-Risk Occupations
- Tribal

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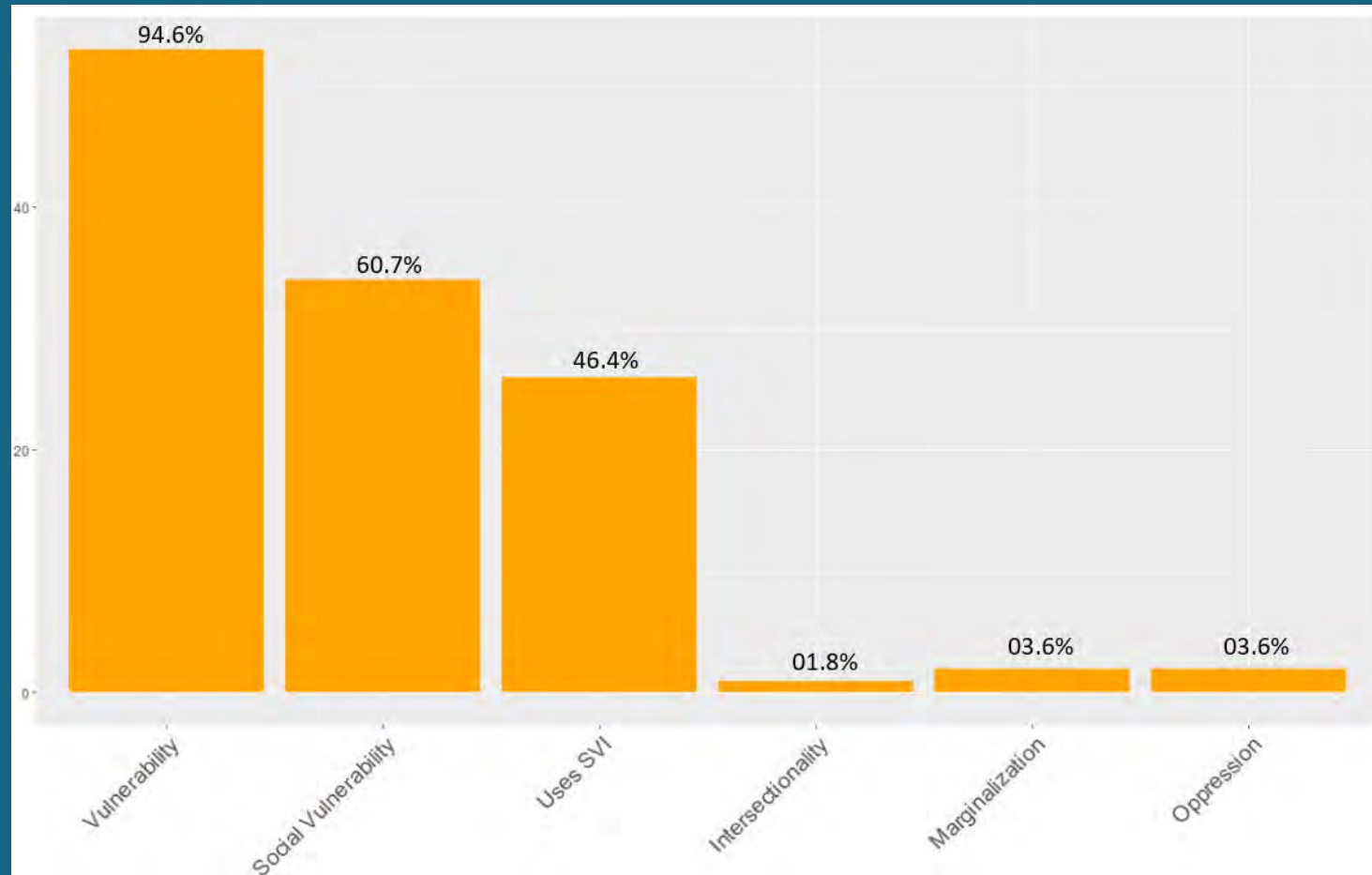
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How is Social Vulnerability Defined in SHMPs?

Some states define **social vulnerability**, pulling from established definitions of institutions that measure vulnerability through indices, such as the Centers for Disease Control and Prevention (CDC SVI) or the Hazard & Vulnerability Research Institute (SoVI).

Other states use different terms to define social vulnerability, like "**population vulnerability**" or "**vulnerable communities**" and include a much smaller defined group of people.
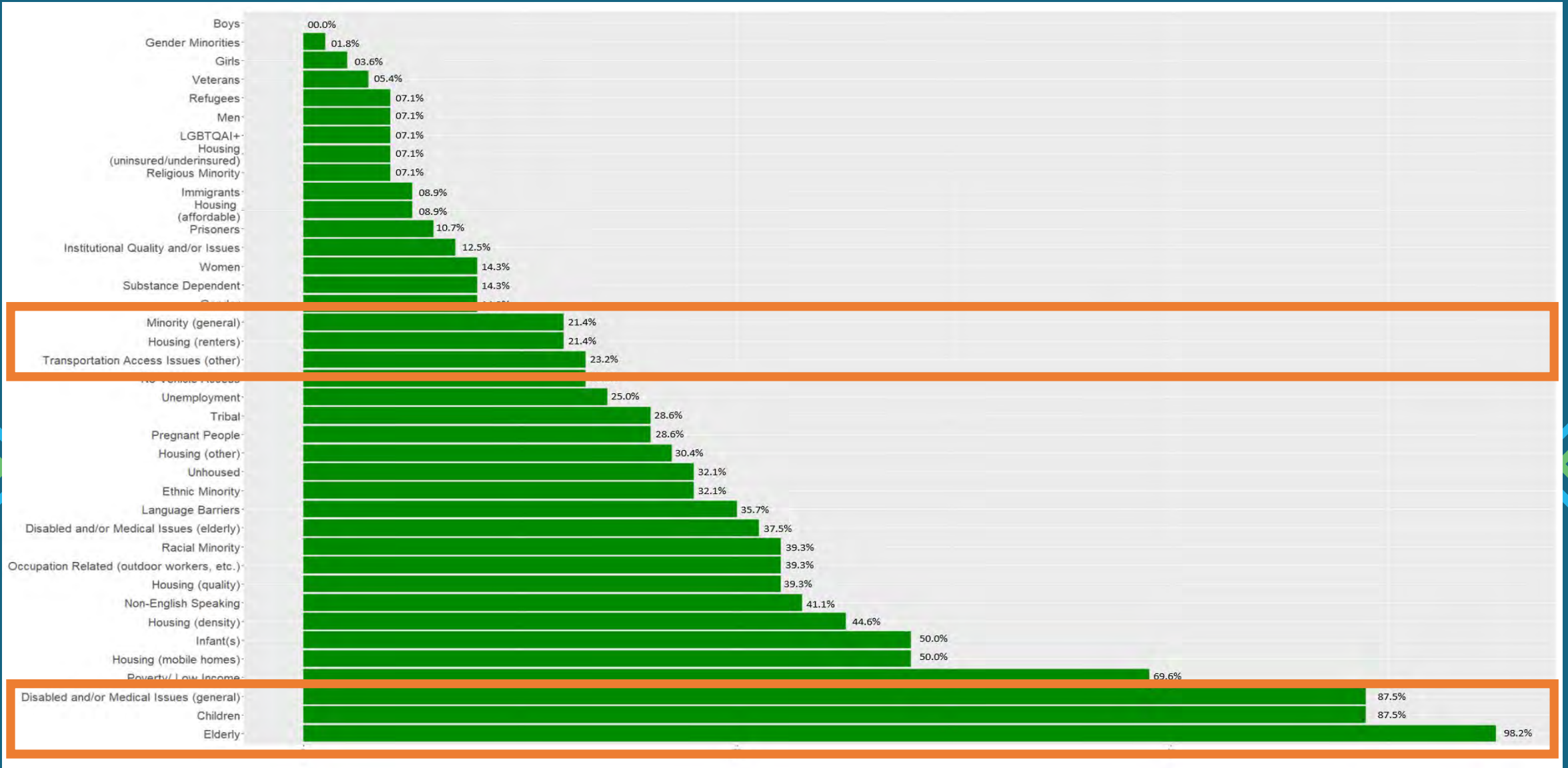
Frequency of References to Vulnerability

Social Vulnerability - Colorado
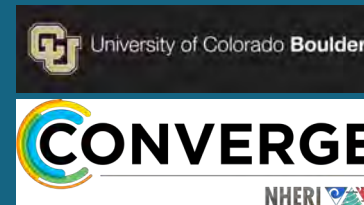
TABLE 2-2 SOCIAL VULNERABILITY INDICATORS

Social Vulnerability Factors	Indicators
Age/Elderly	65 years of Older, % population (+); People per Household (+); Renter Occupied, % of housing units (+); Social Security
Special Needs	Group Quarters, % population (+); Mobile Homes, % occupied housing units (+); Under 18 Under, % population (+); 5 years old, % population (+)
Ethnicity	Hispanic, % population (+); Native American, % population (+); Other Races, % population (+); Pacific Islander, % population (+); Linguistically Isolated, % population (+)
Race, Class, Poverty	African American, % population (+); Female Headed Households, % households (+); No Vehicles, % households (+); No High School diploma, % over 25 years old (+); Poverty, % population (+) Unemployment Rate (+)
Wealth	Asian, % population (-); Household earnings > $200K, % households (-); Housing Density (+); Per capita income (-); Population Density (+); White, % pop (-)

Source: U.S. Census Bureau, 2006-2010 American Community Survey and the 2010 Census

"Social vulnerability to disasters refers to "the characteristics and situation of a person or group that influence their capacity to anticipate, cope with, resist, or recover from the impact of a hazard" (Wisner et al. 2004). [...] The concept of social vulnerability helps explain why communities often experience a hazard differently, even when they experience the same amount of physical impacts. The pre-existing social conditions that contribute to disaster losses can be identified using social vulnerability indicators." (Colorado, 2-13)

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Frequency of Socially Vulnerable Population Mentions

Boys — 00.0%
Gender Minorities — 01.8%
Girls — 03.6%
Veterans — 05.4%
Refugees — 07.1%
Men — 07.1%
LGBTQAI+ — 07.1%
Housing (uninsured/underinsured) — 07.1%
Religious Minority — 07.1%
Immigrants — 08.9%
Housing (affordable) — 08.9%
Prisoners — 10.7%
Institutional Quality and/or Issues — 12.5%
Women — 14.3%
Substance Dependent — 14.3%
Minority (general) — 21.4%
Housing (renters) — 21.4%
Transportation Access Issues (other) — 23.2%
Unemployment — 25.0%
Tribal — 28.6%
Pregnant People — 28.6%
Housing (other) — 30.4%
Unhoused — 32.1%
Ethnic Minority — 32.1%
Language Barriers — 35.7%
Disabled and/or Medical Issues (elderly) — 37.5%
Racial Minority — 39.3%
Occupation Related (outdoor workers, etc.) — 39.3%
Housing (quality) — 39.3%
Non-English Speaking — 41.1%
Housing (density) — 44.6%
Infant(s) — 50.0%
Housing (mobile homes) — 50.0%
Poverty/ Low Income — 69.6%
Disabled and/or Medical Issues (general) — 87.5%
Children — 87.5%
Elderly — 98.2%

Takeaways

- As states and territories begin the process (or continue updating) their plans, these findings can be useful to think about the range of ways that **social vulnerability and vulnerable populations can be integrated**.

- Not every state or territory includes the same vulnerable populations. There are tools and indices that can help states to make their plans more specific and equitable when it comes to vulnerable populations.

Project Next Steps

- Presenting Findings at the 48th Annual Natural Hazards Workshop Poster Session (please join us! https://hazards.colorado.edu/workshop/2023)

- Publishing Dataset and Metadata on DesignSafe Cyberinfrastructure

- Developing and Publishing an Article of Findings

- New Study: How State Hazard Mitigation Officers (SHMOs) (and their partners and contractors) Develop SHMPs

Thank You!