On the Brink:
Examining Preemptive Indicators of Disaster Vulnerability in Connecticut

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Today's Discussion

Climate Change and Preparedness in Connecticut
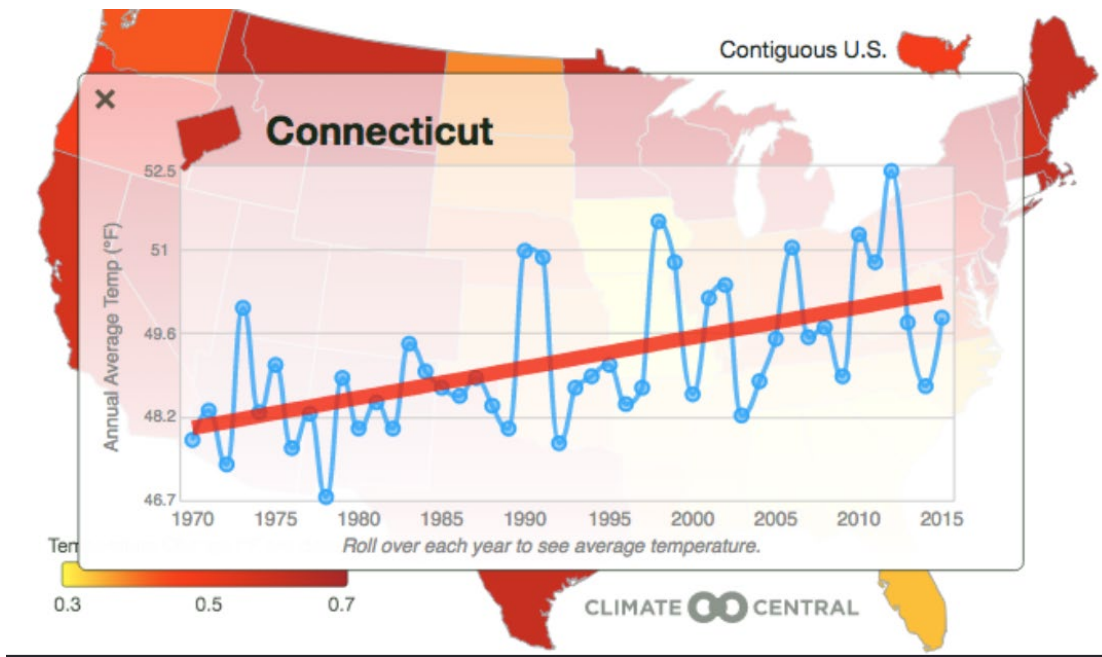
DISASTER Research Group

ESS Vulnerability Assessment
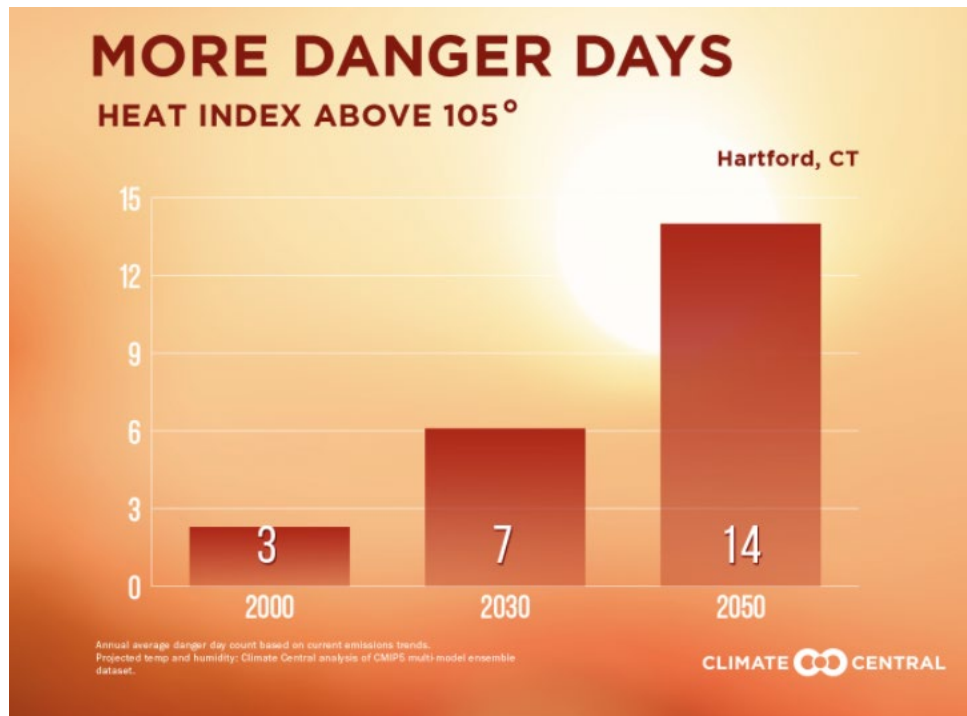
Ethnographic Interviews

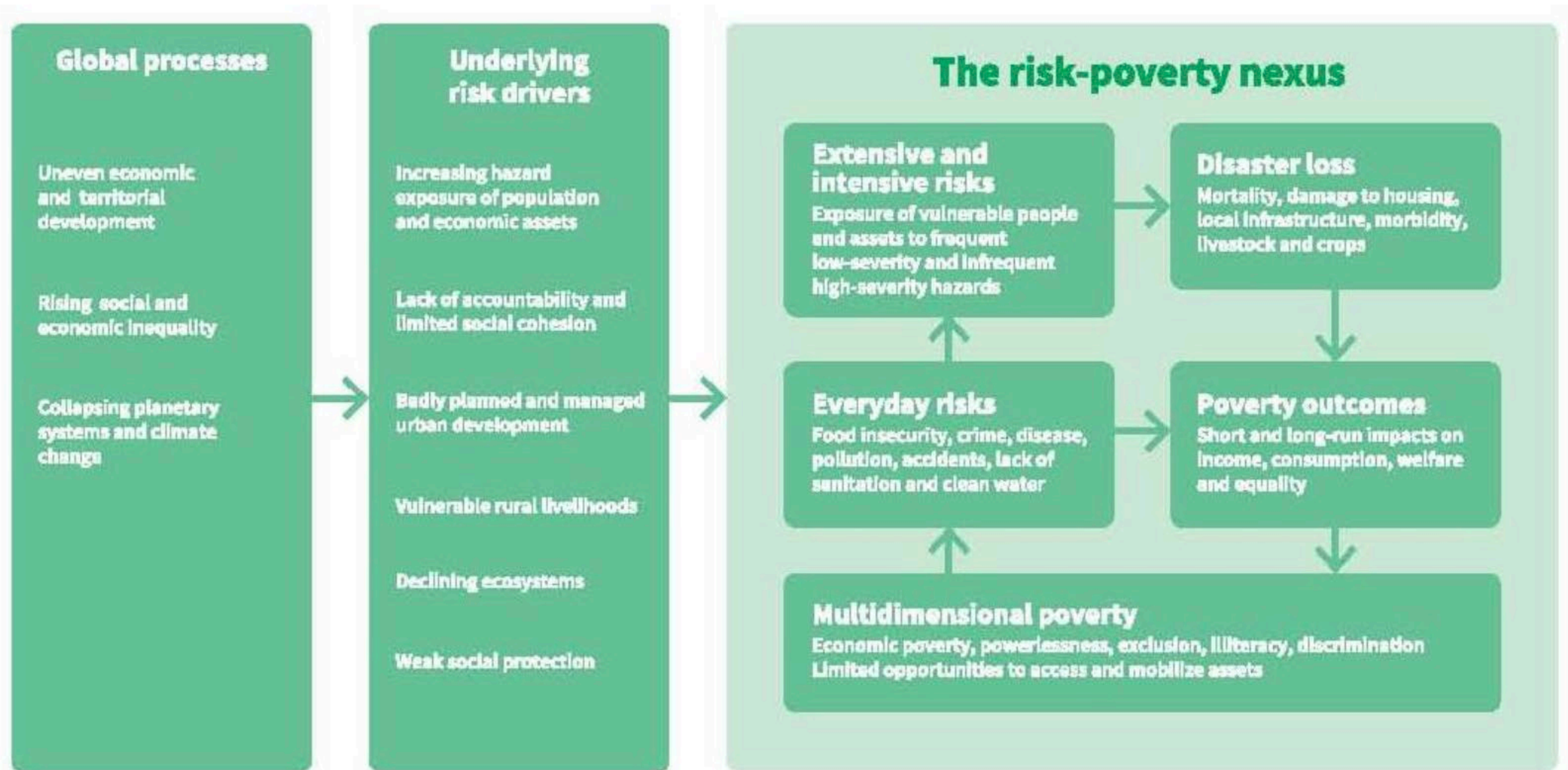Survey Research

Results and Implications

Extreme Weather and Preparedness in Connecticut, USA

"Warming faster than the world as a whole"

- Winters have warmed **three times faster than summers**

- Some of the **highest rates** of sea level rise and ocean warming

- Among the **top three areas** in the U.S. at risk for billion-dollar winter storm disasters associated with nor'easter events

- Facing ever-increasing **hurricane risks** (Seth et al 2019; Lowe and Marx 2020; Young and Young 2021)

- The region is also among the top three areas in the U.S. at risk for billion-dollar winter storm disasters associated with nor'easter events (Lowe and Marx 2020)

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Global processes

Uneven economic and territorial development

Rising social and economic inequality

Collapsing planetary systems and climate change

Underlying risk drivers

Increasing hazard exposure of population and economic assets

Lack of accountability and limited social cohesion

Badly planned and managed urban development

Vulnerable rural livelihoods

Declining ecosystems

Weak social protection

The risk-poverty nexus

Extensive and intensive risks
Exposure of vulnerable people and assets to frequent low-severity and infrequent high-severity hazards

Disaster loss
Mortality, damage to housing, local infrastructure, morbidity, livestock and crops

Everyday risks
Food insecurity, crime, disease, pollution, accidents, lack of sanitation and clean water

Poverty outcomes
Short and long-run impacts on income, consumption, welfare and equality

Multidimensional poverty
Economic poverty, powerlessness, exclusion, illiteracy, discrimination Limited opportunities to access and mobilize assets

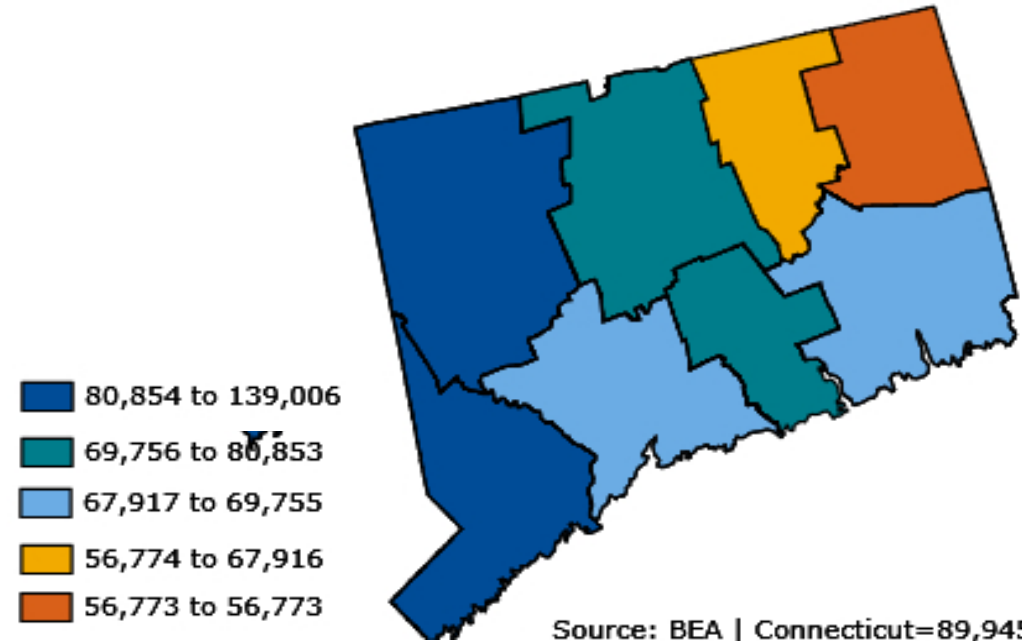The disaster-risk poverty nexus. Source: **UNDRR, 2015a**

Risk-Poverty Nexus, cont'd

CT has one of the **largest wealth gaps by race and ethnicity** in the United States and **ranks second in the nation for overall wealth inequality.**

(Connecticut By The Numbers 2022; U.S. Bureau of Economic Analysis 2023)

Connecticut , Per capita personal income, 2023

- 80,854 to 139,006
- 69,756 to 80,853
- 67,917 to 69,755
- 56,774 to 67,916
- 56,773 to 56,773

Source: BEA | Connecticut=89,945

Connecticut ranks #3 of the 50 states in income inequality, based on the ratio of top 1% to bottom 99% income.

Inequality at the national level

- Minimum annual income to be in the top 1%: **$421,926**
- Average annual income of the top 1%: **$1,316,985**
- Average annual income of the bottom 99%: **$50,107**
- Ratio of top 1% to bottom 99%: **26.3x**

Metropolitan areas

The **Bridgeport-Stamford-Norwalk metro area** is the most unequal metro area in Connecticut.

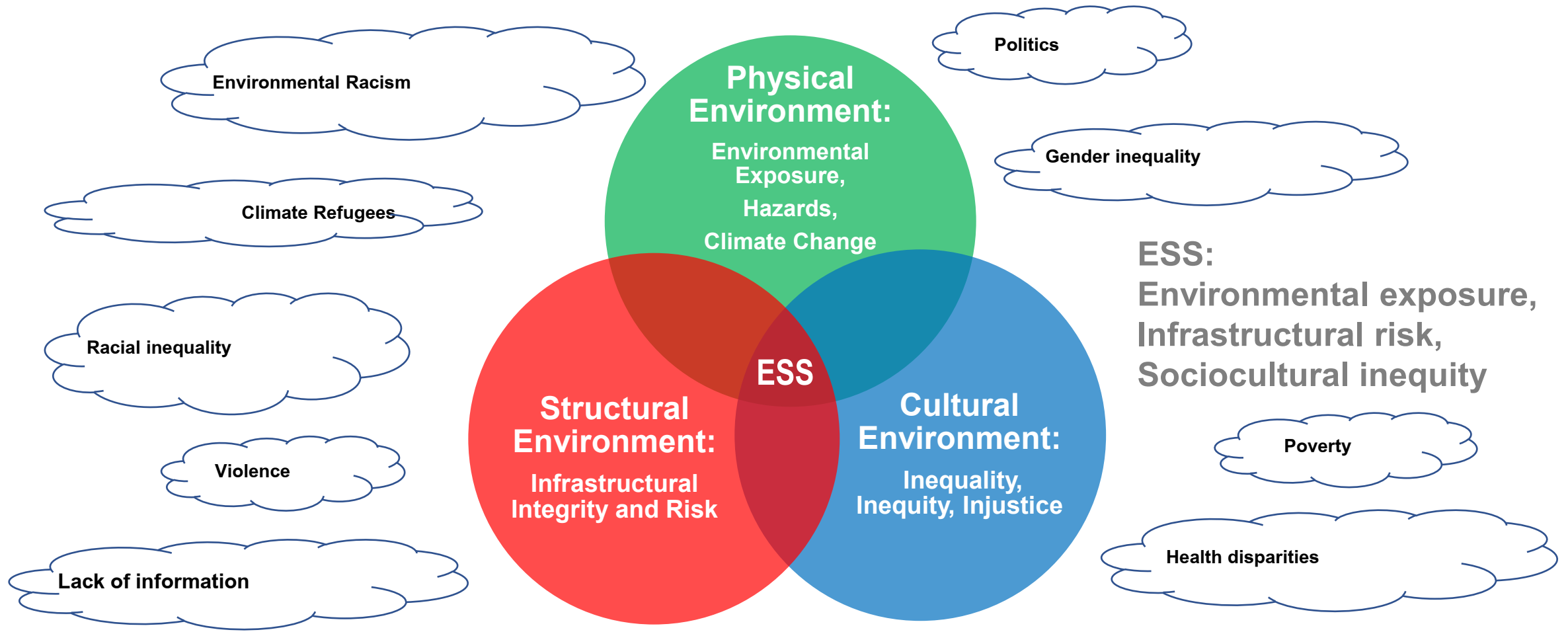- The top 1% make **62.2** times more than the bottom 99%.
- Average income of the top 1%: **$6,290,951**.
- Average income of the bottom 99%: **$101,213**.

Counties

Fairfield County is the most unequal county in Connecticut.

- The top 1% make **62.2** times more than the bottom 99%.
- Average income of the top 1%: **$6,290,951**.
- Average income of the bottom 99%: **$101,213**.

Connecticut's State Response Framework (SRF)

- Describes "how the State of Connecticut and its partners will work together to support local governments and their residents in response to disasters and emergencies."
- States that:
  - "**volunteerism is also a crucial element** in successful emergency management"
  - "the majority of local emergency management directors are **part-time directors** with no staff support' and "many of these **part-time directors are volunteers**"
- Planning Assumptions of SRF:
  - during emergencies/disasters, local officials will "initiate actions that **save lives and protect property** and the environment while maintain[ing] direction and control of resources within their areas"
  - The planning involved before incidents is "based on **pre-incident identification** of at-risk populations and facilities and the determination of resource shortfalls and contingencies"

D.I.S.A.S.T.E.R
(Designing Interdisciplinary Science And Strategies To Enhance Resilience) Research Group

Eco-Social-Structural (ESS) Vulnerability

Environmental Racism

Politics

Climate Refugees

Gender inequality

Physical Environment:

Environmental Exposure, Hazards, Climate Change

ESS:
Environmental exposure,
Infrastructural risk,
Sociocultural inequity

Racial inequality

ESS

Structural Environment:
Infrastructural Integrity and Risk

Cultural Environment:
Inequality, Inequity, Injustice

Poverty

Violence

Health disparities

Lack of information

Eco-social-structural (ESS) vulnerability lives here

DISASTER Research to Date

- Identified study region through environmental exposure, infrastructural risk, and geospatial mapping of socioeconomic vulnerability via SoVI and Justice 40 mapping tool
  - → 2022: 4 CT counties at various levels of risk for future hazard events (Tolland, Windham, New London and Middlesex)
  - →2024: Additional 4 CT counties (Hartford, Fairfield, Litchfield, New Haven)

- Study Methods:
  1. **Ethnographic Interviews** with EMDs, PWDs, and Emergency Services on preparedness
  2. **Focus groups** with residents
  3. **Resident Survey** to assess risk awareness, information sufficiency, and preparedness (New London, Windham, Tolland, and Middlesex, n=519; Fairfield, Hartford, Litchfield, New Haven, n=533)

Goal:

Identify areas for resident level research and inform state and municipal level crisis communications and emergency services

Ethnographic Interviews with EMDs, PWDs, and Emergency Services on Preparedness

2022-2023 Interviews:
- 17 Town Emergency Management Directors
- 4 Regional Coordinators of Emergency Management
- 19 Town Public Works Directors
- 27 towns represented

2024-2025 Interviews:
- 28 Town Emergency Management Directors
- 4 Regional Coordinators of Emergency Management
- 28 towns represented

Ethnographic Interviews with EMDs, PWDs, and Emergency Services on Preparedness

Themes:
- Declining numbers, over-burdened volunteer-based Emergency Management system
- Issues of communication with communities, including changing community demographics
- Lack of community knowledge of what to do in disasters
- Lack of centralization of priorities: One-size does not fit all
- Lack of municipal resources
- Lack of diversity among emergency management (predominantly white males with background in military, fire, police)
- Isolationism
- Over-reliance on mutual aid between towns
- Reluctance to discuss climate change, fear of politicization of emergencies
- History of emphasis on Civic Preparedness doesn't equate to extreme weather

Resident Survey (First Round)

- Online survey distributed through Qualtrics to residents from municipalities in southeast Connecticut. (N = 519) between the dates of September 27, 2022, and October 25, 2022. Participants were compensated with $5.00 for a fully completed and usable survey.

  - **Age:** 45.21 (SD = 17.45)

  - **Race/Ethnicity:** White (82.9%) followed by Black or African American (7.1%) and Hispanic/Latinx (4.4%)

  - **Education:** over one-quarter (27.9%) had completed some college while 19.1% received their bachelor's degree

  - **HHI:** varied with less than one-quarter (24.3%) making between $25,000 and $49,999 and 18.9% making over $100,000.

  - **Justice40:** more than one-third (37.4%) lived in a zip code with at least one Justice 40 burden threshold.

- Survey data included measurements of Risk Perception (Lachlan & Spence, 2010), Information Sufficiency (Kahlor et al., 2006), Source Importance (Lachlan et al., 2010), Source Reliance (Lachlan & Gilbert, 2022), and Trust in Public Health (Eisenman et al., 2011)

Discussion of Results

Ethnographic and Survey Research Findings:

- A **high degree of self-awareness of marginalization** is being reflected in the desire for information concerning extreme weather amongst CT residents

- **70.3% of African Americans and 43.4% of Hispanics** surveyed responded either *no* or *unsure* to awareness of their town's emergency management plan

- Nearly half (48.7%) of those who **responded no as to whether their needs are being served** by their town's emergency services programs, make less than $49,999/year

What we see is that those who are **most marginalized express the greatest degree of concern** in terms of their own knowledge base and resources.

Wealthier and predominantly white residents conversely overestimate the emergency services and management plans in place to respond in advance of and following a disaster scenario.

Resident Survey (Second Round)

- Qualtrics online survey (N = 533) from February 8, 2025, to February 28, 2025
- Participants compensated $5.00 for a fully completed and usable survey
  - **Age:** 48.80 (SD = 16.98)
  - **Race/Ethnicity:** White (69.2%) followed by Black or African American (16.9%) and Hispanic/Latinx (8.3%)
  - **Education:** over one-quarter (28.5%) were high school graduates while 22.1% received their bachelor's degree or completed some college
  - **HHI:** $25,000 to $49,999 (25.1%) followed by making over $100,000 (20.4%)

- Those with a high school degree are more **reliant** on low reliability media (e.g., *Breitbart, Infowars, Mother Jones*) than those with a bachelor's degree
- Participants making $100,000 or more indicate **greater** trust in the government's response

Discussion of Results

Racially minoritized and impoverished residents who score higher on social vulnerability indices are:

- **Seeking more preparedness information** than less vulnerable residents.
- **More likely to feel as though their needs are not being served** by their town's emergency services.
- Are **more likely to feel outrage and distrust** towards municipal preparedness strategies and officials
- **Prefer person-to-person sources of emergency and disaster-related information**, ideally from friends, family, church, libraries, schools, food banks and shelters, etc.
- Are less likely to be aware of their community's emergency management plan.

From the residents and Emergency Management Directors:
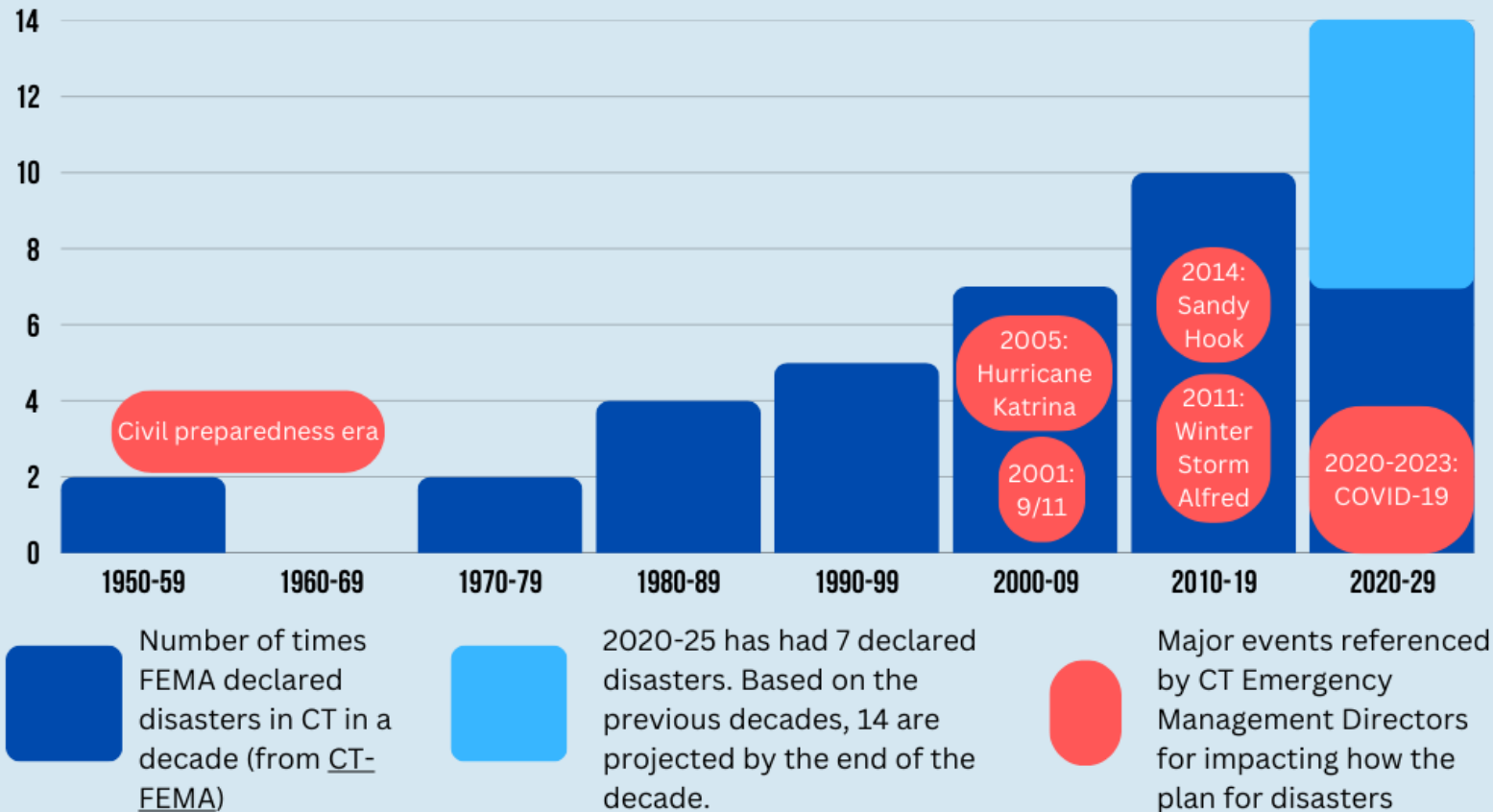
Residents

- "Just seems like when extreme weather is happening, **they don't really care to help** anyone with anything"
- "**Vastly under resourced** and not many that care to change it."
- "Our town has its own little clicks and if you're not a part of it I feel like they **look at you as if you're an outsider**."
- "Not enough interaction with community"
- "No idea what the plan is"
- "I've personally heard EMS workers **disparaging patients in racial ways** so I can't say these programs are serving our needs"
- "I'm homeless and **no help** has been provided."
- "I have **no idea** about what's going on in my town."

Volunteer EMDs

- "…we're **not paid** and the plans are not up to snuff. [We] **barely have** time to respond to stuff let alone have a contingency plan. Everyone is **busy, taxed, and overwhelmed**."

- "if everyone was just able to **take care of themselves**, then we wouldn't have to worry about things and could focus on people who really needed help."

- "the amount of people that become self-sufficient when incidents happen is becoming smaller and smaller… **people take it for granted that they will be fine**, that nothing is going to happen here."

- EMDs and RCs frequently referenced certain events as changing how EM functions in the US or in CT specifically
  - Civil Preparedness era, 9/11, Katrina, COVID
- Some events specifically impacted how <u>citizens</u> reacted to disasters
  - Alfred, Sandy Hook, COVID
- Disaster events have been increasing, although most EMDs do not give a reason for this
- Possibility of a doppler effect in resident preparedness following events

Key Takeaways

- The data collected among CT residents and EMDs indicates:
  - a concerning collision of increasing **socioeconomic vulnerability**
  - **increasing risk** of weather-related hazards and events
  - **inadequately supported** state system of emergency response
  - Connecticut's SRF **frees the state from the financial responsibility**, as well as from the hands-on process of preemptive preparedness

- However, economic insecurity among residents continues to increase and the ability of town-level volunteers to meet resident needs in the face of the increasing risks associated with climate change is only declining.

- As a result, there is **an emerging gap between preparedness and poverty** - a risk space that increasing numbers of marginalized and economically vulnerable residents will continue to fill.

Recommendations

- Disaster management policies and planning should **focus on recognizing the influence of extended families and social networks**

- **Crisis communication should initiate at the community level and be dispersed through trusted community institutions** (libraries, schools, community centers, senior centers, and churches)

- **Risk awareness and preparedness education should be presented through trusted community institutions** (libraries, schools, community centers, public health facilities, senior centers, and churches)

- Crisis responders would be wise to **build relationships with community leaders** at trusted institutions to inform more effectively those who may be in harm's way

- Risk education on preparedness strategies and municipal policies (parking restrictions, alert notification schedules, etc.) should be provided in **multimedia forms** (radio, mailings, emails, bulletins) and **available for English as a Second Language and non-English-speaking residents**

- **The diversity of Emergency Management Directors and emergency response personnel should be enhanced** by actively including women and racially minoritized groups. **This can be achieved by expanding outreach of position advertising** to schools, community colleges, public health facilities, and churches.

- **Further state funding** is needed for part-time positions, updated emergency communications systems, emergency plan development, and resident risk and preparedness education programming

Ongoing Research Efforts

- Ongoing project in collaboration with CT SeaGrant and NOAA to assess disaster preparedness among aging community members in CT coastal communities.

- Development of E-Corps course for undergrads, high school students, etc., to directly assist interested municipal emergency personnel to develop community communications, preparedness materials, recruit volunteers, grant applications.

- Expansion of ethnographic and survey research to additional New England states (VT, MA)

- Survey on information distribution, community needs, and challenges.
    - e.g., librarians, community center leaders, foodbank volunteers

Thanks!

- For more details on this research, please see:
  - Shoreman-Ouimet, E.; DiCairano, J.; Lachlan, K.; Burton, C.; Walters, A.; Barrett, J.; Ouimet, W. In Press. On the brink: Examining preemptive indicators of preparedness inequity and social vulnerability to climate change hazards in Connecticut, USA. *International Journal of Disaster Risk Reduction.*
  - Shoreman-Ouimet, E. Harden, A., Walters, A. Any Volunteers? Climate change, declining volunteerism, and disaster (un)preparedness in northeast USA. *Journal of Human Organization.*
  - eleanor.ouimet@uconn.edu